Region I
East Texas Regional Water Planning Group

2026 Regional Water Plan

Initially Prepared Plan | February 2025

Volume I

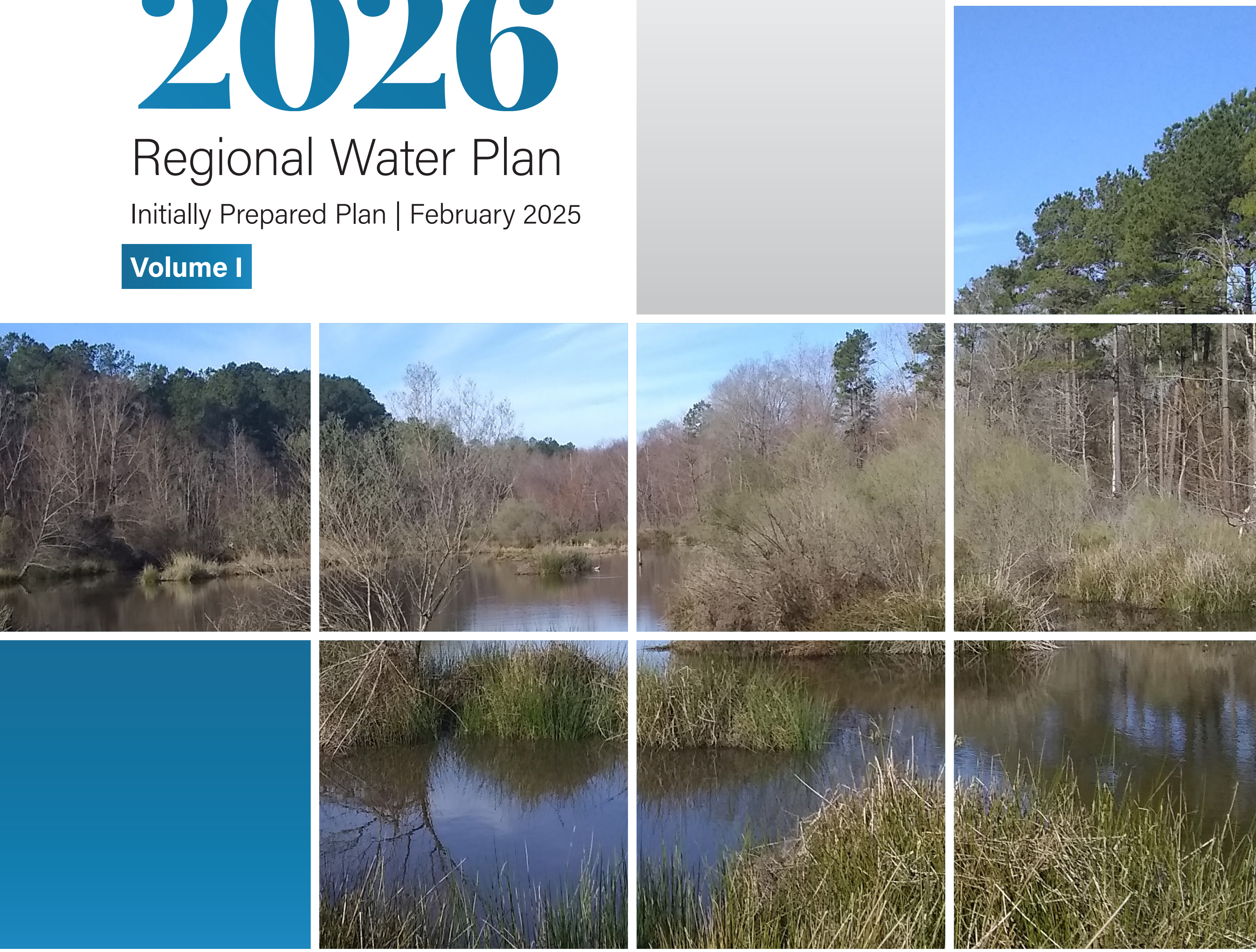

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TABLE OF CONTENTS

Appendix ES-A
DB 27 Reports

The Regional Water Planning Database (DB27) provides 19 reports summarizing the demand, supply, and water management strategies within the Region I Regional Water Planning Area. These reports are available on the Texas Water Development Board (TWDB) website and can be accessed by the public following the steps below.

Navigate to the TWDB Database Reports application at https://www3.twdb.texas.gov/apps/SARA/reports/list

Enter '2026 Regional Water Plan' into the "Report Name" field to filter to all DB27 reports associated with the 2026 Regional Water Plans Click on the report name hyperlink to load the desired report

Enter planning region letter parameter, click view report.

Additionally, the compiled reports dated February 2025 are available on the Region I Regional Water Planning Website: https://www.etexwaterplan.org/dc/final-2026-initially-prepared-plan/. The reports include:

The reports include:

- DRAFT Report 1 - WUG Population
- DRAFT Report 2 - WUG Demand
- DRAFT Report 3 - Source Total Availability
- DRAFT Report 4 - Water User Group Existing Water Supply
- DRAFT Report 5 - Water User Group Needs or Surplus
- DRAFT Report 6 - WUG Second-Tier Identified Water Need
- DRAFT Report 7 - WUG Data Comparison to 2021 RWP
- DRAFT Report 8 - Source Data Comparison to 2021 RWP
- DRAFT Report 9 - WUG Unmet Needs
- DRAFT Report 10 - Recommended WUG Water Management Strategies
- DRAFT Report 11 - Recommended Projects Associated with Water Management Strategies
- DRAFT Report 12 - Alternative WUG Water Management Strategies
- DRAFT Report 13 - Alternative Projects Associated with Water Management Strategies
- DRAFT Report 14 - WUG Management Supply Factor
- DRAFT Report 15 - Recommended WMS Supply Associated with New/Amended IBT Permit
- DRAFT Report 16 - Recommended WMS with New/Amended IBT Permit & Conservation
- DRAFT Report 17 - Sponsored Recommended WMS Supplies Unallocated to WUGs
- DRAFT Report 18 - Major Water Provider Existing Sales and Transfers
- DRAFT Report 19 - Major Water Provider WMS Summary

Appendix ES-B
Initially Prepared Plan Submittal Requirements

Submission Requirements

1. **Two (2) bound double-sided copies** and **two electronic copies**, one (1) in searchable Portable Document Format (PDF) and one (1) in Microsoft Word (MSWord) Format.
   - **Two hard copies were delivered to the TWDB in-person. Two electronic copies were uploaded to the TWDB provided link.**
2. **Certification**, in the form of a cover letter, that the IPP is complete and was adopted by the RWPG.
   - **Cover letter containing the statement that the IPP is complete and was adopted by the RWPG was sent to TWDB along with the IPP submittal.**
3. **A statement confirming** that the planning group met all requirements under the **Texas Open Meetings Act** and **Public Information Act** in accordance with **31 TAC § 357.12 and 357.21**.
   - **Section 10.4.4**
4. **An executive summary** documenting key findings and recommendations that does not exceed **30 pages**.
   - The executive summary must incorporate the standard **TWDB DB27 reports**, by reference, as part of the regional water plan by including links to the **TWDB Database Reports application** and informing the reader that the report may be accessed via that application.
     1. **Appendix ES-A**
   - Additional specifications are provided in **Section 2.13.2**.
     1. **Executive Summary**
   - **Supplemental information**, such as county-specific summaries, may be included as an executive summary appendix.
     1. **Executive Summary**
5. **A technical report** containing all of the plan chapters in accordance with **31 TAC § 357.22(b)**, presenting the work and results of each planning task summarized in this document, the scope of work, and according to regional water planning rules.
   - **The final IPP was submitted to TWDB consistent with Requirement 1 above.**
6. **Documentation of the RWPG's interregional coordination efforts.**
   - **Chapter 10**
7. **An electronic appendix** containing all electronic model input/output or other model files used to date in determining surface water or groundwater availability.
     1. **Uploaded to the Initially Prepared Plan electronic deliverable submission folder provided by the TWDB.**
8. **A table** providing the details of any hydrologic models used, including:
   - Model name
   - Version date
   - Model input/output files used

- Date model used
- Any relevant comments
    1. **Appendix 3-C**

9. **A set of ArcGIS-compatible data** constituting a **SINGLE file geodatabase** of feature classes or a **SINGLE folder containing shapefiles** marking the locations of every recommended and alternative **WMS/WMSP** that has a capital cost (**e.g., with representative map latitude/longitude coordinates for the locations of both intake and delivery points of proposed pipelines**).
    - Data may include **points, lines, and polygons**, as appropriate.
    - These may include **approximate locations and simplified representations** as necessary and should be delivered on digital media as outlined in **Sections 2.3 and 2.4 of TWDB's Contract Exhibit D: Guidelines for 2026 Regional Water Plan Data Deliverables**.
        1. **Uploaded to the Initially Prepared Plan electronic deliverable submission folder provided by the TWDB.**

Appendix ES-C
Initially Prepared Plan Checklist

The IPP checklist is provided below and available in a Microsoft Excel spreadsheet format online: https://www.etexwaterplan.org/dc/final-2026-initially-prepared-plan/.

2026 Initially Prepared Plan Checklist (SUBJECT TO CHANGE)

2026 IPP Review Item Number	Key Requirement Citation: TWC, 31 TAC Rule, or Contract Exhibit	Corresponding Contract Guidance and SOW Task *(if applicable)*	Requirement (see published rule and other contract documents for full context)	RWP Location
Header	**§ 357.22**		**General Considerations for Development of Regional Water Plans**	
1	§ 357.22(a)		RWPGs shall consider existing local, regional, and state water planning efforts, including water plans, information and relevant local, regional , state and federal programs and goals when developing the RWP. **The RWPGs shall also consider:**	
2	§ 357.22(a)(1)		**[The RWPGs shall also consider:]** water conservation plans;	Chapter 5C
3	§ 357.22(a)(2)		**[The RWPGs shall also consider:]** drought management and drought contingency plans;	Chapter 7
4	§ 357.22(a)(3)	Exhibit C, Section 2.1	**[The RWPGs shall also consider:]** information compiled by the Board from water loss audits performed by retail public utilities pursuant to § 358.6 (relating to Water Loss Audits)	Chapters 1 and 5C
5	§ 357.22(a)(4)		**[The RWPGs shall also consider:]** publicly available plans for major agricultural, municipal, manufacturing and commercial water users;	Chapter 1
6	§ 357.22(a)(5)		**[The RWPGs shall also consider:]** local and regional water management plans;	Chapter 1
7	§ 357.22(a)(6)		**[The RWPGs shall also consider:]** water availability requirements promulgated by a county commissioners court in accordance with TWC § 35.019 (relating to Priority Groundwater Management Areas)	Chapters 1, 3
8	§ 357.22(a)(7)		**[The RWPGs shall also consider:]** the Texas Clean Rivers Program;	Chapter 1
9	§ 357.22(a)(8)		**[The RWPGs shall also consider:]** the U.S. Clean Water Act;	Chapter 1
10	§ 357.22(a)(9)		**[The RWPGs shall also consider:]** water management plans;	Chapter 1
11	§ 357.22(a)(10)		**[The RWPGs shall also consider:]** other planning goals including, but not limited to, regionalization of water and wastewater services where appropriate	Chapter 1
12	§ 357.22(a)(11)		**[The RWPGs shall also consider:]** approved groundwater conservation district management plans and other plans submitted under Texas Water Code § 16.054 (relating to Local Water Planning);	Chapter 1
13	§ 357.22(a)(12)		**[The RWPGs shall also consider:]** approved groundwater regulatory plans;	Chapter 1
14	§ 357.22(a)(13)		**[The RWPGs shall also consider:]** potential impacts on public health, safety, or welfare;	Chapters 1,6
15	§ 357.22(a)(14)		**[The RWPGs shall also consider:]** water conservation best management practices available on the TWDB website; and	Chapter 5C
16	§ 357.22(a)(15)		**[The RWPGs shall also consider:]** any other information available from existing local or regional water planning studies.	Chapter 1
17	§ 357.22(b)	Exhibit C, Section 1.6	The RWP shall contain a separate chapter for the contents of §§357.30, 357.31, 357.32, 357.33, 357.42, 357.43, 357.45, and 357.50 of this title and shall also contain a separate chapter for the contents of §357.34 and §§357.35, 357.40 and 357.41 of this title for a total of ten separate chapters	Chapters 1-10
Header	**§ 357.30**	**SOW Task 1**	**Description of the Regional Water Planning Area**	
18	§ 357.30(1)	Exhibit C, Section 2.1; SOW Task 1	**[RWPGs shall describe their RWPA including the following:]** social and economic aspects of a region such as information on current population, economic activity and economic sectors heavily dependent on water resources;	Chapter 1, Section 1.1
19	§ 357.30(2)	Exhibit C, Section 2.1; SOW Task 1	**[RWPGs shall describe their RWPA including the following:]** current water use and major water demand centers;	Chapter 1, Section 1.2
20	§ 357.30(3)	Exhibit C, Section 2.1; SOW Task 1	**[RWPGs shall describe their RWPA including the following:]** current groundwater, surface water, and reuse supplies including major springs that are important for water supply or protection of natural resources;	Chapter 1, Section 1.3
21	§ 357.30(4)	Exhibit C, Section 2.1; SOW Task 1	**[RWPGs shall describe their RWPA including the following:]** major water providers;	Chapter 1, Section 1.4
22	§ 357.30(5)	Exhibit C, Section 2.1; SOW Task 1	**[RWPGs shall describe their RWPA including the following:]** agricultural and natural resources;	Chapter 1, Section 1.5
23	§ 357.30(6)	Exhibit C, Section 2.1; SOW Task 1	**[RWPGs shall describe their RWPA including the following:]** identified water quality problems;	Chapter 1, Section 1.6

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24	§ 357.30(7)	Exhibit C, Section 2.1; SOW Task 1	**[RWPGs shall describe their RWPA including the following:]** identified threats to agricultural and natural resources due to water quantity problems or water quality problems related to water supply;	Chapter 1, Section 1.7
25	§ 357.30(8)	Exhibit C, Section 2.1; SOW Task 1	**[RWPGs shall describe their regional water planning area including the following:]** summary of existing local and regional water plans;	Chapter 1, Section 1.8
26	§ 357.30(9)	Exhibit C, Section 2.1; SOW Task 1	**[RWPGs shall describe their RWPA including the following:]** the identified historic drought(s) of record within the planning area;	Chapter 1, Section 1.9
27	§ 357.30(10)	Exhibit C, Section 2.1; SOW Task 1	**[RWPGs shall describe their RWPA including the following:]** current preparations for drought within the RWPA;	Chapter 1, Section 1.10
28	§ 357.30(11)	Exhibit C, Section 2.1; SOW Task 1	**[RWPGs shall describe their RWPA including the following:]** information compiled by the Board from water loss audits performed by retail public utilities pursuant to § 358.6 of this title (relating to Water Loss Audits); and	Chapter 1, Section 1.11; Appendix 1-B
29	§ 357.30(12)	Exhibit C, Section 2.1; SOW Task 1	**[RWPGs shall describe their RWPA including the following:]** an identification of each threat to agricultural and natural resources and a discussion of how that threat will be addressed or affected by the water management strategies evaluated in the plan.	Chapter 1, Section 1.12
Header	**§ 357.31**	**SOW Task 2A and 2B**	**Projected Population and Water Demands**	
30	§ 357.31(a)	Exhibit C, Section 2.2; SOW Task 2A and B	RWPs shall present projected population and Water Demands by WUG as defined in § 357.10 of this title (relating to Definitions and Acronyms). If a WUG lies in one or more counties or RWPA or river basins, data shall be reported for each river basin, RWPA, and county split.	Chapter 2, Section 2.2 and 2.3
31	§ 357.31(b)	Exhibit C, Section 2.2.3; SOW Task 2A and B	RWPs shall present projected Water Demands associated with MWPs by category of water use, including municipal, manufacturing, irrigation, steam electric power generation, mining, and livestock for the RWPA.	Chapter 2, Section 2.4; Appendix 4-A
32	§ 357.31(c)	SOW Task 2A and B	RWPs shall evaluate the current contractual obligations of WUGs and WWPs to supply water in addition to any demands projected for the WUG or WWP. Information regarding obligations to supply water to other users must also be incorporated into the water supply analysis in § 357.32 of this title (relating to Water Supply Analysis) in order to determine net existing water supplies available for each WUG's own use. The evaluation of contractual obligations under this subsection is limited to determining the amount of water secured by the contract and the duration of the contract.	Chapter 2, Section 2.4
33	§ 357.31(d)	Exhibit C, Section 2.2 and 2.5.5; SOW Task 2B	Municipal demands shall be adjusted to reflect water savings due to plumbing fixture requirements identified in the Texas Health and Safety Code, Chapter 372. RWPGs shall report how changes in plumbing fixtures would affect projected municipal Water Demands using projections with plumbing code savings provided by the Board or by methods approved by the EA.	Chapter 2, Section 2.3
34	§ 357.31(e)(1)	Exhibit C, Section 2.2; SOW Task 2A and B	**[Source of population and water demands. In developing RWPs, RWPGs shall use:]** Population and water demand projections developed by the EA that shall be contained in the next state water plan and adopted by the Board after consultation with the RWPGs, Commission, Texas Department of Agriculture, and the Texas Parks and Wildlife Department.	Chapter 2, Section 2.2 and 2.3
35	§ 357.31(f)	Exhibit C, Section 2.2; SOW Task 2A and B	Population and Water Demand projections shall be presented for each Planning Decade for WUGs and MWPs.	Chapter 2, Section 2.2, 2.3, 2.4
Header	**§ 357.32**	**SOW Task 3**	**Water Supply Analysis**	
36	§ 357.32(a)(1)	Exhibit C, Section 2.3; SOW Task 3	**[RWPGs shall evaluate:]** source water Availability during Drought of Record conditions; and	Chapter 3, Section 3.1 and Table 3.4
37	§ 357.32(a)(2)	Exhibit C, Section 2.3; SOW Task 3	**[RWPGs shall evaluate:]** Existing Water Supplies that are <u>legally and physically available</u> to each WUG and WWP within the RWPA <u>for use during the Drought of Record.</u>	Chapter 3; Appendix 3-B
38	§ 357.32(b)	Exhibit C, Section 2.3.6; SOW Task 3	Evaluations shall consider surface water and groundwater data from the state water plan, existing water rights, contracts and option agreements relating to water rights, other planning and water supply studies, and analysis of water supplies existing in and available to the RWPA <u>during Drought of Record conditions.</u>	Chapter 3, Section 3.1 and 3.2

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39	**§ 357.32(c)**	Exhibit C, Section 2.3.1; SOW Task 3	For surface water supply analyses, RWPGs shall use most current Water Availability Models from the Commission to evaluate the adequacy of surface water supplies. As the default approach for evaluating existing supplies, RWPGs shall assume full utilization of existing water rights and no return flows when using Water Availability Models. RWPGs may use better, more representative, water availability modeling assumptions or better site-specific information with written approval from the EA. Information available from the Commission shall be incorporated by RWPGs unless better site-specific information is available and approved in writing by the EA.	Chapter 3, Section 3.1
40	**§ 357.32(c)(1)**	Exhibit C, Section 2.3.1; SOW Task 3	Evaluation of existing stored surface water available during Drought of Record conditions shall be based on Firm Yield as defined in §357.10 of this title (relating to Definitions and Acronyms). The analysis may be based on justified operational procedures other than Firm Yield. The EA shall consider a written request from an RWPG to use procedures other than Firm Yield.	Chapter 3, Section 3.1.4; Appendix 3-C
41	**§ 357.32(c)(2)**	Exhibit C, Section 2.3.1	Evaluation of existing run of river surface water available for municipal WUGs during Drought of Record conditions shall be based on the minimum monthly diversion amounts that are available 100 percent of the time, if those run of river supplies are the only supply for the municipal WUG.	Chapter 3, Section 3.1.5 and Table 3.5
42	**Contract Scope of Work Task 3**	Exhibit C, Section 2.3.1	Inclusion of sedimentation into the WAM RUN3 models (or other models) for major reservoirs is a necessary modification.	Chapter 3, Section 3.1; Appendix 3-C
43	**Contract Exhibit C, Section 2.3.1**		The methodology used for calculating anticipated sedimentation rate and revising the area-capacity rating curve must be described in the IPP and final adopted RWP.	Chapter 3, Section 3.1; Appendix 3-C
44	**Contract Exhibit C, Section 2.3.1**		For surface water withdrawals that do not require permits, such as for domestic and livestock uses, RWPGs will estimate these local annual water availability volumes under drought of record conditions based on the most current accessible information. RWPGs shall document the methodologies utilized for these availabilities in the Technical Memorandum, IPP, and final adopted RWP.	Chapter 3, Section 3.1.5, Table 3.6
45	**Contract Exhibit C, Section 2.3.2**	SOW Task 3	For planning purposes, availability for reservoirs operated as a system may be reported as a system in lieu of reporting individual reservoir availability. Such a relationship could include reservoirs owned and operated by the same entity, so long as the operations comply with the existing permit conditions. **The firm yield of the system should be the firm yield during drought of record conditions for the system as a whole.**	Chapter 3, Section 3.1.4, Table 3.4
46	**Contract Exhibit C, Section 2.3.2**	SOW Task 3	System gain is the amount of permitted water a system creates that would otherwise be unavailable if the reservoirs were operated independently; and **for existing systems, this volume shall be reported separately in the RWPs in addition to the reservoir system firm yield**. For multi-reservoir systems, the minimum system gain during drought conditions may be considered additional water available, if it has already been permitted. Total existing water from a system shall not exceed the sum of the system gain plus the firm yields of individual reservoirs in that system. **To report system gain, system operations must produce a measurable system yield greater than the sum of the individual reservoir yields.** System gain for system operations that mask individual reservoir yields or that group reservoirs together without a permitted relationship shall not be allowed in the RWPs.	Chapter 3, Section 3.1.4, Table 3.4
47	**§ 357.32(d)**	Exhibit C, Section 2.3.4.1; SOW Task 3	RWPGs shall use modeled available groundwater volumes for groundwater Availability, as issued by the EA, and incorporate such information in its RWP unless no modeled available groundwater volumes are provided. Groundwater Availability used in the RWP must be consistent with the desired future conditions as of the most recent deadline for the Board to adopt the State Water Plan or, at the discretion of the RWPG, established subsequent to the adoption of the most recent State Water Plan.	Chapter 3, Section 3.2
48	**§ 357.32(d)(1)**	Exhibit C, Section 2.3.4.1; SOW Task 3	An RWP is consistent with a desired future condition if the groundwater Availability amount in the RWP and on which an Existing Water Supply or recommended WMS relies does not exceed the modeled available groundwater amount associated with the desired future condition for the relevant aquifers, in accordance with paragraph (2) of this subsection or as modified by paragraph (3) of this subsection, if applicable. The desired future condition must be either the desired future condition adopted as of the most recent deadline for the Board to adopt the State Water Plan or, at the option of the RWPG, a desired future condition adopted on a subsequent date.	Chapter 3, Section 3.2.2

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49	**§ 357.32(d)(2)**	Exhibit C, Section 2.3.4.3; SOW Task 3	If no groundwater conservation district exists within the RWPA, then the RWPG shall determine the Availability of groundwater for regional planning purposes. The Board shall review and consider approving the RWPG-Estimated Groundwater Availability, prior to inclusion in the IPP, including determining if the estimate is physically compatible with the desired future conditions for relevant aquifers in groundwater conservation districts in the co-located groundwater management area or areas. The EA shall use the Board's groundwater availability models as appropriate to conduct the compatibility review.	Chapter 3, Section 3.2.2
50	**Contract Exhibit C, Section 2.3.4.3**	SOW Task 3	***[In relation to TWDB Board approved RWPG-estimated groundwater availability]*** , a copy of the TWDB Board approval memorandum as well as documentation of the request process should be included in the IPP and final adopted RWP. The TWDB Board approved RWPG-estimated groundwater availabilities will be used as the planning condition in the RWP and basis of analysis in DB27. The unmodified annual MAG volume(s) must also be reported in the IPP, and final adopted RWP	Not applicable to Region I as no MAG modification was requested. Appendix 3-D shows the MAG values used in Region I RWP.
51	**§ 357.32(d)(3)**	Exhibit C, Section 2.3.5.2; SOW Task 3	In RWPAs that have at least one groundwater conservation district, the EA shall consider a written request from an RWPG to apply a MAG Peak Factor in the form of a percentage (e.g., greater than 100 percent) applied to the modeled available groundwater value of any particular aquifer-region-county-basin split within the jurisdiction of a groundwater conservation district, or groundwater management area if no groundwater conservation district exists, to allow temporary increases in annual availability for planning purposes.	Region I did not use any MAG peak factors as per Section 3.2
52	**Contract Exhibit C, Section 2.3.5.2**	SOW Task 3	***[In relation to approved MAG Peak Factor requests],*** a copy of the MAG peak factor approval letter as well as documentation of variance request process should be included in the IPP, and final adopted RWP. The unmodified annual MAG volume(s)must also be reported in the Technical Memorandum, IPP, and final adopted RWP.	Region I did not use any MAG peak factors as per Section 3.2
53	**Contract Exhibit C, Section 2.3.4.2**	SOW Task 3	For groundwater sources where no DFC exists, RWPGs may determine the groundwater availability for planning purposes. These RWPG-estimated groundwater availabilities may be determined by using availability values presented in the local GCD management plan, TWDB GAMs, if available, or other means. RWPGs must include a table documenting the method(s) used for estimating RWPG-estimated groundwater availability in the Technical Memorandum, IPP, and final adopted RWP. **This table should include the aquifer, county, and methodology description(s).**	Chapter 3, Table 3.9
54	**Contract Exhibit C, Section 2.3.5.2**		***[In relation to approved MAG Reallocation requests]*** , a copy of the MAG reallocation approval letter as well as documentation of variance request process should be included in the Technical Memorandum, IPP, and final adopted RWP. The unmodified annual MAG volume(s)must also be reported in the Technical Memorandum, IPP, and final adopted RWP.	Not applicable to Region I
55	**§ 357.32(e)**	SOW Task 3, Contract Exhibit C, Section 2.3.6	Water supplies based on contracted agreements shall be based on the terms of the contract, which may be assumed to renew upon contract termination if the contract contemplates renewal or extensions.	Chapter 3, Sections 3.4, 3.5, and 3.6
56	**§ 357.32(f)**	SOW Task 3	Evaluation results shall be reported by WUG in accordance with § 357.31(a) of this title (relating to Projected Population and Water Demands) and MWP in accordance with § 357.31(b) of this title.	Chapter 3, Section 3.4, Table 3.16
57	**Contract Scope of Work, Task 3**	Contract Exhibit C, Section 2.12.2	In addition to submitting all electronic model input/output files used in determining water availability (in sufficient detail for another party to replicate the resulting availability estimates that are incorporated into the plan), the Technical Memorandum, IPP, and final RWP must include a table summarizing the details of any hydrologic models used, including the model name, version date, model input/output files used, date model run, and any relevant comments	Appendix 3C
58	**Contract Exhibit C, 2.3.5.1**		If the use of a hydrologic variance for an alternative surface water availability evaluation is approved by the Executive Administrator, a copy of the approved alternative hydrologic assumptions and methodologies as well as documentation of variance request process must be included in the IPP and final adopted RWP.	Appendix 3C
59	**Contract Exhibit C, Section 2.3.5.1. Table 2**		If the use of a hydrologic variance for an alternative surface water availability evaluation is approved by the Executive Administrator, the plan must include the additional yield information specified in Exhibit C, Section 2.3.5.1; Table 2, as a value reported in IPP and final RWP.	Chapter 3, Section 3.1; Appendix 3-C

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60	**Contract Exhibit C, Section 2.3.3**		Reuse is considered a stand-alone water source type and RWPGs will evaluate reuse availability and supplies separately from conservation, which is classified as a demand reduction associated with a WUG.	Chapter 3, Section 3.3
61	**Contract Exhibit C, Section 2.3.3**		Reuse availability should be presented as a separate subsection within Chapter 3 of the IPP and final RWP. The subsection must describe the data sources and methodology used to calculate reuse availability.	Chapter 3, Table 3.13
62	**Contract Exhibit C, Section 2.3.3**		RWPGs must classify reuse availability as either direct or indirect.	Chapter 3, Appendix 3-B
63	**Contract Exhibit C, Section 2.3.6**		For direct reuse [existing supplies], RWPGs shall base their drought of record existing direct reuse analyses on: currently installed wastewater reclamation infrastructure; and the amount of wastewater anticipated to be treated at the WWTP, based on associated decade populations/demands. These amounts shall not exceed the amounts of water available to utilities generating the wastewater.	Section 3.3
64	**Contract Exhibit C, Section 2.3.6**		For indirect reuse [existing supplies], RWPGs must base their drought of record existing indirect reuse analyses on currently installed wastewater treatment infrastructure; currently permitted wastewater discharge amounts; and the amount of wastewater anticipated to be treated at the WWTP, based on associated decade populations/demands. These amounts may not exceed the amounts of water available to utilities generating the wastewater.	Section 3.3
65	**Contract Exhibit C, Section 2.3.6**		**[The following items must also be presented in the IPP and final adopted RWP:]** Water rights which are the basis for surface water existing supply volumes. RWPGs must also submit water rights data to the TWDB electronically using a TWDB provided spreadsheet.	Chapter 3, Table 3.4; Electronic surface water rights data table deliverable developed in TWDB provided spreadsheet
66	**Contract Exhibit C, Section 2.3.6**		**[The following items must also be presented in the IPP and final adopted RWP:]** For local surface water supply, plans must include a single table that lists each local surface water supply with a) an explanation for the basis of the supply itself, and b) the basis for the volume of supply. For unpermitted supplies, list the source as the sum of unpermitted surface water by county-basin split. Any unpermitted local surface water supplies must be listed individually as well with explanation and may be aggregated at the county-basin level when appropriate.	Chapter 3, Section 3.1.5, Table 3.6
67	**Contract Exhibit C, Section 2.3.6**		**[The following items must also be presented in the IPP and final adopted RWP:]** For local supplies, the plan must acknowledge whether the RWPG can confirm if the local supplies are firm. For any local supplies that cannot be confirmed as 'firm' under DOR, the RWP must include a summary of the number of WUGs for which this is true and the total associated volume of water associated with this uncertainty.	Chapter 3, Section 3.1.5, Table 3.6
68	**Contract Exhibit C, Section 2.3.6**		An RWPG may not set existing groundwater supplies equal to demands just for convenience. If a RWPG determines groundwater supply volumes are appropriate to equal demand values, then they must provide justification within the RWP.	Chapter 3. Groundwater supplies were not set equal to demands for convenience
Header	**§ 357.33**	**SOW Task 4A**	**Needs Analysis: Comparison of Water Supplies and Demands**	
69	**§ 357.33(a)**	Exhibit C, Section 2.4; SOW Task 4A	RWPs shall include comparisons of existing water supplies and projected Water Demands to identify Water Needs.	Appendix ES-A, Report 06; Chapter 4, Sections 4.1-4.4
70	**§ 357.33(b)+§ 357.33(c)**	Exhibit C, Section 2.4; SOW Task 4A	RWPGs shall compare projected Water Demands, developed in accordance with § 357.31 of this title (relating to Projected Population and Water Demands), with existing water supplies available to WUGs and WWPs in a planning area, as developed in accordance with § 357.32 of this title (relating to Water Supply Analysis), to determine whether WUGs will experience water surpluses or needs for additional supplies.	Appendix ES-A, Report 06; Chapter 4, Sections 4.1-4.4
71	**§ 357.33(c)**	Exhibit C, Section 2.4; SOW Task 4A	Results of evaluations shall be reported by WUG in accordance with §357.31(a) of this title and by MWP in accordance with §357.31(b) of this title.	Appendix ES-A, Report 06; Chapter 4, Sections 4.1-4.3

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72	**§ 357.33(d)**	Exhibit C, Section 2.4; SOW Task 4A	RWPGs shall perform a secondary water needs analysis for all WUGs and WWPs for which conservation WMSs or direct Reuse WMSs are recommended. This secondary water needs analysis shall calculate the Water Needs that would remain after assuming all recommended conservation and direct Reuse WMSs are fully implemented. The resulting secondary water needs volumes shall be presented in the RWP by WUG and MWP and decade.	Appendix ES-A, Report 06; Chapter 4, Sections 4.4; Appendix 4-A
Header	**§ 357.34**	**SOW Task 5A-C**	**Identification and Evaluation of Potentially Feasible Water Management Strategies and Projects**	
73	**§ 357.34(a)**	Exhibit C, Section 2.5; SOW Task 5A and 5B	RWPGs shall identify and evaluate potentially feasible WMSs and the WMSPs required to implement those strategies for all WUGs and WWPs with identified Water Needs.	Chapter 5A; Appendix 5A-A
74	**§ 357.34(b)**	Exhibit C, Section 2.5.1; SOW Task 5A	RWPGs shall identify potentially feasible WMSs to meet water supply needs identified in §357.33 of this title (relating to Needs Analysis: Comparison of Water Supplies and Demands) in accordance with the process in §357.12(b) of this title (relating to General Regional Water Planning Group Responsibilities and Procedures). Strategies shall be developed for WUGs and WWPs. WMS and WMSPs shall be developed for WUGs and WWPs that would provide water to meet water supply needs during Drought of Record conditions.	Chapter 5A; Appendix 5A-B
75	**TWC § 16.053(e)(5)+ 31 TAC § 357.34(c)(1-6)**	Exhibit C, Section 2.5.1	**Potentially feasible WMSs may include, but are not limited to:** conservation; drought management; reuse; management of existing supplies; conjunctive use; acquisition of available existing 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); 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 transfers 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.	Chapter 5A; Appendix 5A-A
76	**Contract Scope of Work Task 5A**	Exhibit C, Section 2.5.1	The IPP and final adopted RWP must include the documented process used by the RWPG to identify potentially feasible WMS.	Chapter 5A; Appendix 5A-A
77	**Contract Scope of Work Task 5A**	Exhibit C, Section 2.5.1	The IPP and final adopted RWP must include a list or table of all identified WMSs that were considered potentially feasible, to date, for meeting a need in the region per 31 TAC § 357.12(b). RWPGs must consider the potentially feasible WMSs listed in Exhibit C, Section 2.5.1.	Chapter 5B; Appendix 5A-B
78	**Contract Scope of Work, Task 5A**	Exhibit C, Section 2.5.1	Identify those potentially feasible WMSs, if any, that, in addition to providing water supply, could potentially provide non-trivial flood mitigation benefits or that might be the best potential candidates for exploring ways that they might be combined with flood mitigation features to leverage planning efforts to achieve potential cost savings or other combined water supply and flood mitigation benefits. The work required to identify these WMSs will be based entirely on a high-level, qualitative assessment and should not require modeling or other additional technical analyses.	Chapter 5A, Section 5A.4.4
79	**§ 357.34(d)**	Exhibit C, Section 2.5.2; SOW Task 5B	All recommended WMSs and WMSPs that are entered into the State Water Planning Database shall be designed to reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water, or develop, deliver or treat additional water supply volumes to WUGs or WWPs in at least one planning decade such that additional water is available during Drought of Record conditions. Any other RWPG recommendations regarding permit modifications, operational changes, and/or other infrastructure that are not designed to reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water, or develop, deliver or treat additional water supply volumes to WUGs or WWPs in at least one Planning Decade such that additional water is available during Drought of Record conditions shall be indicated as such and presented separately in the RWP and shall not be eligible for funding from the State Water Implementation Fund for Texas.	Chapter 5B, Section 5B.4

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80	**§ 357.34(e)(1)**	Exhibit C, Section 2.5.2; SOW Task 5B	**[Evaluations of potentially feasible WMSs and associated projects shall include the following analyses:]** For the purpose of evaluating potentially feasible WMSs, the Commission's most current Water Availability Model with assumptions of no return flows and full utilization of senior water rights, is to be used. Alternative assumptions may be used with written approval from the EA who shall consider a written request from a RWPG to use assumptions other than no return flows and full utilization of senior water rights.	Chapter 5B; Appendix 5B-A
81	**Contract Exhibit C, Section 2.5.2.1**		For surface water WMSs, the RWP must clearly indicate which, if any, WMSs are assumed to rely on or to mutually exclude another WMS(s) and explain how the interaction may impact both the estimated future water availability and the future water supply associated with each WMS.	Chapter 5B; Appendix 5B-A
82	**Contract Exhibit C, Section 2.5.2.1**		Potential future operation of multiple reservoirs as a new system, or changes to current operational procedures for existing reservoir systems, in order to provide additional yield may be evaluated as a potential WMS. Such a WMS analysis shall adequately describe methods used to calculate these future system gains (to be permitted) and shall include discussion regarding any associated permit changes that would be required.	Chapter 5B; Appendix 5B-A
83	**§ 357.34(e)(2)**	SOW Task 5B	**[Evaluations of potentially feasible WMSs and associated projects shall include the following analyses:]** An equitable comparison between and consistent evaluation and application of all WMSs the RWPGs determine to be potentially feasible for each water supply need.	Chapter 5B; Appendix 5B-A; Appendix 5B-B
84	**§ 357.34(e)(3)(A)**	Exhibit C, Sections 2.5.2; 2.5.2.12; 2.5.2.14; SOW Task 5B	**[Evaluations of potentially feasible WMSs and associated projects shall include: a quantitative reporting of]** The net quantity, reliability, and cost of water delivered and treated for the end user's requirements during Drought of Record conditions, taking into account and reporting anticipated strategy water losses, incorporating factors used in calculating infrastructure debt payments and may include present costs and discounted present value costs. Costs do not include costs of infrastructure associated with distribution of water within a WUG after treatment, except for specific, limited allowances for direct reuse and conservation WMSs.	Chapter 5B; Appendix 5B-A
85	**Contract Exhibit C, Section 2.5.2**		***[Related to § 357.34(e)(3)(A):]*** WMSs shown as providing a supply in a planning decade, must come online, with a reliable supply, in or prior to that initial decade year (31 TAC §357.10(21)).	Chapter 5B; Appendix 5B-A
86	**Contract Exhibit C, Section 2.5.2**	SOW Task 5B	***[Related to § 357.34(e)(3)(A):]*** Water quantities produced by recommended WMSs and WMSPs must be based on water availability in accordance with Section 2.3 of Exhibit C, including firm yield under Drought of Record conditions.	Chapter 5B; Appendix 5B-A
87	**Contract Exhibit C, Section 2.5.2.9**	SOW Task 5B	***[Related to § 357.34(e)(3)(A):]*** Estimated water losses associated with each WMS must be presented in the IPP and final adopted RWP. Water losses may be presented as a calculated percent water loss included in each strategy evaluation or a range of estimated losses by strategy type.	Chapter 5B, Section 5B.6
88	**§ 357.34(e)(3)(B)**	Exhibit C, Section 2.5.2.10; SOW Task 5B	**[Evaluations of potentially feasible WMSs and associated projects shall include: a quantitative reporting of]** PART I: Environmental factors including effects on environmental water needs, wildlife habitat, cultural resources, and effect of upstream development on bays, estuaries, and arms of the Gulf of Mexico.	Appendix 5B-A; Appendix 5B-B

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89	**§ 357.34(e)(3)(B)**	Exhibit C, Section 2.5.2.10; SOW Task 5B	**[Evaluations of potentially feasible WMSs and associated projects shall include: a quantitative reporting of]** PART II: Evaluations of effects on environmental flows shall include consideration of the Commission's adopted environmental flow standards under 30 Texas Administrative Code Chapter 298 (relating to Environmental Flow Standards for Surface Water). If environmental flow standards have not been established, then environmental information from existing site-specific studies, or in the absence of such information, state environmental planning criteria adopted by the Board for inclusion in the State Water Plan after coordinating with staff of the Commission and the Texas Parks and Wildlife Department to ensure that WMSs are adjusted to provide for environmental water needs including instream flows and bays and estuaries inflows.	Appendix 5B-A; Appendix 5B-B
90	**§ 357.34(e)(3)(C)**	Exhibit C, Section 2.5.2.10; SOW Task 5B	**[Evaluations of potentially feasible WMSs and associated projects shall include: a quantitative reporting of]** impacts to agricultural resources.	Appendix 5B-A; Appendix 5B-B
91	**§ 357.34(e)(4)**	Exhibit C, Section 2.5.2.10; SOW Task 5B	**[Evaluations of potentially feasible WMSs and associated projects shall include:]** Discussion of the plan's impact on other water resources of the state including other WMSs and groundwater and surface water interrelationships.	Appendix 5B-A; Appendix 5B-B
92	**§ 357.34(e)(5)**	Exhibit C, Section 2.5.2.10; SOW Task 5B	**[Evaluations of potentially feasible WMSs and associated projects shall include:]** A discussion of each threat to agricultural or natural resources identified pursuant to § 357.30(7) of this title (relating to Description of the Regional Water Planning Area) including how that threat will be addressed or affected by the water management strategies evaluated.	Appendix 5B-A; Appendix 5B-B
93	**§ 357.34(e)(6)**	Exhibit C, Section 2.5.2.11; SOW Task 5B	**[Evaluations of potentially feasible WMSs and associated projects shall include:]** If applicable, consideration and discussion of the provisions in Texas Water Code § 11.085(k)(1) for interbasin transfers of surface water. At minimum, this consideration shall include a summation of water needs in the basin of origin and in the receiving basin.	Appendix 5B-A; Appendix 5B-B
94	**§ 357.34(e)(7)**	Exhibit C, Section 2.5.2.10; SOW Task 5B	**[Evaluations of potentially feasible WMSs and associated projects shall include:]** Consideration of third-party social and economic impacts resulting from voluntary redistributions of water including analysis of third-party impacts of moving water from rural and agricultural areas.	Appendix 5B-A; Appendix 5B-B
95	**§ 357.34(e)(8)**	Exhibit C, Section 2.5.2.10; SOW Task 5B	**[Evaluations of potentially feasible WMSs and associated projects shall include:]** A description of the major impacts of recommended WMSs on key parameters of water quality identified by RWPGs as important to the use of a water resource and comparing conditions with the recommended WMSs to current conditions using best available data.	Appendix 5B-A; Appendix 5B-B
96	**§ 357.34(e)(9)**	Exhibit C, Section 2.5.2.10; SOW Task 5B	**[Evaluations of potentially feasible WMSs and associated projects shall include:]** Other factors as deemed relevant by the RWPG including recreational impacts.	Appendix 5B-A; Appendix 5B-B
97	**§ 357.34(f)**		RWPGs shall evaluate and present potentially feasible WMSs and WMSPs with sufficient specificity to allow state agencies to make financial or regulatory decisions to determine consistency of the proposed action before the state agency with an approved RWP.	Chapter 5B; Appendix 5B-A
98	**§ 357.34(g)(1)(A)**	Exhibit C, Section 2.5.2.7; SOW Task 5B	Implementation of large recommended WMSs and associated WMSPs. **[For large recommended WMSs and associated WMSPs, RWPGs must include the following information:]** expenditures of sponsor money;	Chapter 5B, Section 5B.5; Appendix 5B-D
99	**§ 357.34(g)(1)(B)**	Exhibit C, Section 2.5.2.7; SOW Task 5B	**[For large recommended WMSs and associated WMSPs, RWPGs must include the following information:]** permit applications, including the status of a permit application; and	Chapter 5B, Section 5B.5; Appendix 5B-D
100	**§ 357.34(g)(1)(C)**	Exhibit C, Section 2.5.2.7; SOW Task 5B	**[For large recommended WMSs and associated WMSPs, RWPGs must include the following information:]** status updates on the phase of construction of a project.	Chapter 5B, Section 5B.5; Appendix 5B-D

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101	**§ 357.34(g)(2)**	Exhibit C, Section 2.5.2.7; SOW Task 5B	The implementation status must be provided for the following types of recommended WMSs with any online decade: • All reservoir strategies (including major and minor reservoirs) • All seawater desalination strategies • Direct potable reuse strategies that provide greater than 5,000 acre-feet per year (AFY) of supply in any planning decade • Brackish groundwater strategies that provide greater than 10,000 AFY of supply in any planning decade • Aquifer storage and recovery strategies that provide greater than 10,000 AFY in any decade • All water transfers from out of state • Any other innovative technology projects the RWPG considers appropriate	Chapter 5B, Section 5B.5; Appendix 5B-D
102	**Contract Scope of Work, Task 5B**	Exhibit C, Section 2.5.2.7; SOW Task 5B	Documentation of the implementation status addressing rule 357.34(g), must be included in a separate Chapter 5 subsection. The subsection must include 1) the implementation status in table format, using the TWDB provided table template, and 2) a simple, graphic, showing the full planning horizon, and displaying separate timeline/schedules for each project in accordance with Exhibit C, Section 2.5.2.7. **Planning groups are required to use the TWDB table template in the 2026 RWP Exhibit C Tables Excel file for this subsection.**	Chapter 5B, Section 5B.5; Appendix 5B-D
103	**§ 357.34(h)**	Exhibit C, Section 2.5.2.8; SOW Task 5B	If an RWPG does not recommend aquifer storage and recovery strategies, seawater desalination strategies, or brackish groundwater desalination strategies it must document the reason(s) in the RWP.	Chapter 5A Introduction and Section 5A.4.3; Appendix 5A-A; Chapter 5B, Section 5B.6
104	**§ 357.34(i)**	Exhibit C, Section 2.5.2.4; SOW Task 5B	In instances where an RWPG has determined there are significant identified Water Needs in the RWPA, the RWP shall include an assessment of the potential for aquifer storage and recovery to meet those Water Needs. Each RWPG shall define the threshold to determine whether it has significant identified Water Needs. Each RWP shall include, at a minimum, a description of the methodology used to determine the threshold of significant needs. If a specific assessment is conducted, the assessment may be based on information from existing studies and shall include minimum parameters as defined in contract guidance.	Chapter 5A, Section 5A.4.3
105	**Contract Exhibit C, Section 2.5.2.4**		Aquifer storage and recovery WMS evaluations must report the expected percent of recovery for the ASR projects and must present that expected, lesser volume as the net water supply yield for the project.	Not applicable in Region I. No Aquifer Storage and Recovery WMS were included as recommended or alternative in Region I
106	**§ 357.34(j)**	Exhibit C, Section 2.5.2.5-6; SOW Task 5B and 5C	Conservation, Drought Management Measures, and Drought Contingency Plans shall be considered by RWPGs when developing the regional plans, particularly during the process of identifying, evaluating, and recommending WMSs. RWPs shall incorporate water conservation planning and drought contingency planning in the RWPA.	Chapters 5B, 5C, 7
107	**§ 357.34(j)(1)**	Exhibit C, Section 2.5.2.6 and 2.5.2.8; SOW Task 5B	Drought Management Measures including water demand management. **RWPGs shall consider Drought Management Measures for each need identified in § 357.33 of this title and *shall include such measures* for each user group to which Texas Water Code § 11.1272 (relating to Drought Contingency Plans for Certain Applicants and Water Right Holders) applies**. Impacts of the Drought Management Measures on Water Needs must be consistent with guidance provided by the Commission in its administrative rules implementing Texas Water Code § 11.1272. **If an RWPG does not adopt a drought management strategy for a need it must document the reason in the RWP.** *Drought management measures are defined in 31 TAC §357.10(9) as demand management activities to be implemented during drought that may be evaluated and included as Water Management Strategies.*	Chapter 7, Section 7.6
108	**§ 357.34(j)(2)**	Exhibit C, Section 2.5.2.5; SOW Task 5B and 5C	Water conservation practices. RWPGs must consider water conservation practices, including potentially applicable best management practices, for each identified water need.	Chapter 5C

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109	**§ 357.34(j)(2)(A)**	Exhibit C, Section 2.5.2.5; SOW Task 5B and 5C	**RWPGs shall include water conservation practices for each user group to which Texas Water Code § 11.1271 and § 13.146 (relating to Water Conservation Plans) apply.** The impact of these water conservation practices on water needs must be consistent with requirements in appropriate Commission administrative rules related to Texas Water Code § 11.1271 and § 13.146. *Water conservation measures (practices) are defined in 31 TAC §357.10(36) as practices, techniques, programs, and technologies that will protect water resources, reduce the consumption of water, reduce the loss or waste of water, or improve the efficiency in the use of water that may be presented as Water Management Strategies, so that a water supply is made available for future or alternative uses.*	Chapter 5C
110	**§ 357.34(j)(2)(B)**	Exhibit C, Section 2.5.2.5 and 2.5.2.8; SOW Task 5B and 5C	RWPGs shall consider water conservation practices for each WUG beyond the minimum requirements of subparagraph (A) of this paragraph, whether or not the WUG is subject to Texas Water Code § 11.1271 and § 13.146. **If RWPGs do not adopt a water conservation strategy to meet an identified need, they shall document the reason in the RWP.**	Chapter 5C
111	**§ 357.34(j)(2)(C)**	Exhibit C, Section 2.5.2.5 and Section 2.5.2.11; SOW Task 5B and Task 5C	For each WUG or WWP that is to obtain water from a proposed interbasin transfer to which Texas Water Code § 11.085 (relating to Interbasin Transfers) applies, RWPGs shall include a Water Conservation Strategy, pursuant to Texas Water Code § 11.085(l), that will result in the highest practicable level of water conservation and efficiency achievable. For these strategies, RWPGs shall determine and report projected water use savings in gallons per capita per day based on its determination of the highest practicable level of water conservation and efficiency achievable. RWPGs shall develop conservation strategies based on this determination. In preparing this evaluation, RWPGs shall seek the input of WUGs and WWPs as to what is the highest practicable level of conservation and efficiency achievable, in their opinion, and take that input into consideration. RWPGs shall develop water conservation strategies consistent with guidance provided by the Commission in its administrative rules that implement Texas Water Code § 11.085. When developing water conservation strategies, the RWPGs must consider potentially applicable best management practices. Strategy evaluation in accordance with this section shall include a quantitative description of the quantity, cost, and reliability of the water estimated to be conserved under the highest practicable level of water conservation and efficiency achievable.	Chapter 5C, Section 5C.1
112	**§ 357.34(j)(2)(D)**	Exhibit C, Section 2.5.2.5; SOW Task 5A and 5C	RWPGs shall consider strategies to address any issues identified in the information compiled by the Board from the water loss audits performed by retail public utilities pursuant to § 358.6 of this title (relating to Water Loss Audits).	Appendix 1-B and Chapter 5C
113	**Contract Scope of Work, Task 5C**	Exhibit C, Section 2.5.2.5	RWPGs must develop water loss mitigation WMSs distinctly separate from water use reduction WMSs.	Chapter 5C
114	**Contract Exhibit C, Section 2.5.2.14**		***[Related to § 357.34(e)(3)(A):]*** Regional and state water plans may not include the cost of distribution of water within a WUG service area. The exception regarding the inclusion of costs associated with Conservation - water loss mitigation projects may only include the costs specifically listed in Contract Exhibit C, Section 2.5.2.14.	Chapter 5C, Section 5C.3.1
115	**Contract Exhibit C, Section 2.5.2.14**		If the distribution line replacement for the water conservation strategy is subject to adopted utility standard minimum size requirements that exceed two standard pipe diameters, the water management strategy evaluation must note the specific utility standard and include 1) a map of the proposed line replacement; and 2) detailed water loss calculations before and after the proposed line replacement.	Chapter 5C, Section 5C.3.1
116	**§ 357.34(j)(3)**	Exhibit C, Section 2.5.5; SOW Task 5C	RWPGs shall recommend Gallons Per Capita Per Day goal(s) for each municipal WUG or specified groupings of municipal WUGs. Goals must be recommended for each planning decade and may be a specific goal or a range of values. At a minimum, the RWPs shall include Gallons Per Capita Per Day goals based on drought conditions to align with guidance principles in §358.3 of this title (relating to Guidance Principles).	Appendix 5C-B
117	**§ 357.34(k)**	Exhibit C, Section 2.5.5; SOW Task 5C	RWPs shall include a subchapter consolidating the RWPG's recommendations regarding water conservation. RWPGs shall include in the RWPs model water conservation plans pursuant to Texas Water Code § 11.1271.	Section 5C.2 and Section 5C.3

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118	**Contract Exhibit C, Section 2.5.2.3**		RWPGs must evaluate potential future sources of direct and/or indirect reuse that will require new permits and additional reclamation infrastructure as WMSs and must provide adequate justification to explain methods for estimating the amount of future direct and/or indirect reuse water available from such sources, including consideration of the population/demand projections for each decade associated with the WMS.	Chapter 5B; Appendix 5B-A
119	**Contract Exhibit C, Section 2.5.2.14**		***[Related to § 357.34(e)(3)(A):]*** Regional and state water plans may not include the cost of distribution of water within a WUG service area. The exception regarding the inclusion of costs associated with direct reuse projects may only include the costs specifically listed in Contract Exhibit C, Section 2.5.2.14.	Chapter 5B; Appendix 5B-A
120	**Contract Exhibit C, Section 2.5.2.13**	SOW Task 5B	RWPGs must utilize this WMSP costing tool for every cost estimate presented in the RWPs [in the absence of more accurate and detailed, project-specific cost estimates], including updating project cost estimates previously developed in the 2021 RWPs. RWPGs must present the costing tool's standardized, automated cost output report for each WMSP evaluated in the IPP and final adopted RWP. If a different format is utilized, the RWPG must apply the data and procedures used in the costing tool, and present the resulting output as analogous to the costing tool, for example breaking out capital cost estimates for each project component.	Chapter 5B; Appendix 5B-A
121	**Contract Exhibit C, Section 2.5.2.12**		Costs of WMSPs must be prepared and presented separately and discretely for each separate WMSP and may not be aggregated and presented as a single capital cost representing multiple WMSPs that would actually be located in multiple locations and funded by separate sponsors or implemented separately. Each project with a capital cost should have an associated volume of water or annual capacity presented in the plan. RWPGs may not, in general, aggregate multiple facilities into a single cost estimate and then allocate shares of the resulting total cost, for example, pro rata across several entities or locations.	Chapter 5B; Appendix 5B-A
122	**Contract Exhibit C, Section 2.5.2.12**		The plan must present the following capital costs for each WMSP, as applicable: construction costs, engineering and feasibility studies, legal assistance, financing, bond counsel and contingencies (30% total for pipeline projects, 35% for other unless more detailed info available); permitting and mitigation activities, land purchase costs not associated with mitigation; easement costs; and purchases of water rights.	Chapter 5B; Appendix 5B-A
123	**Contract Exhibit C, Section 2.5.2.12**		Construction costs, if applicable, must be based on September 2023 price indices for commodities such as cement and steel as reported in the Engineering News Record (ENR) Construction Cost Index.	Chapter 5B; Appendix 5B-A
124	**Contract Exhibit C, Section 2.5.2.12**		Capital costs and land areas associated with development of reservoirs must be broken out to show separate lines items for 1) the land area of the reservoir footprint (conservation pool only) alongside the estimated land purchase cost; 2) mitigation land area and associated estimate of purchase cost; and, 3) construction costs of embankment/dam facilities (separate from transmission facilities).	Chapter 5B; Appendix 5B-A
125	**Contract Exhibit C, Section 2.5.2.12**		For WMSs other than reservoirs the length of debt service is 20 years unless otherwise justified. For reservoirs, the period is 40 years. Level debt service applies to all projects, and the annual interest rate for project financing is 3.5 percent. Terms of debt service must be reported in the evaluation of each project.	Chapter 5B; Appendix 5B-A
126	**Contract Exhibit C, Section 2.5.2.12**		Operations and maintenance unit costs shall be based on the associated quantity of water supplied. Unless more accurate, project-specific data are accessible, RWPGs shall calculate annual operating and maintenance costs as 1.0 percent of total estimated construction cost for pipelines, 2.5 percent of estimated construction costs for pump stations, and 1.5 percent of estimated construction costs for dams. Costs must include labor and materials required to maintain projects such as regular repair and/or replacement of equipment. Power costs shall be calculated on an annual basis using calculated horsepower input and a power purchase cost of $0.09 per kilowatt hour; however, **each RWPG may adjust this figure based on local and regional conditions if they specify and document their reasons**. RWPGs shall include costs of water if WMSs involve purchases of raw or treated water on an annual basis (e.g. leases of water rights).	Chapter 5B; Appendix 5B-A
127	**Contract Exhibit C, Section 2.5.2.12**		At a minimum, annual costs should be presented by debt service, operation and maintenance cost as a percentage of total construction cost, power costs, and cost of purchasing water (if applicable). If precise information on the cost of purchasing water is not available, the plan should include a best estimate (e.g., as a percent markup) or an estimated range of the raw or treated water cost and the water management strategy evaluation can state the average cost is an estimate.	Chapter 5B; Appendix 5B-A

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128	**Contract Exhibit C, Section 2.5.2.12**		The RWP must present the unit costs of the net volume of water anticipated to be delivered to water users (after water losses) in dollars per acre-foot. Unit costs of WMSs must be evaluated, compared, and presented in an 'apples-to-apples' manner.	Chapter 5B; Appendix 5B-A
129	**Contract Exhibit C, Section 2.5.2.15**		If an infrastructure component is not required to increase the treated water supply volume delivered to an entity either as new supply or through demand reduction, then the component and its costs may not be included in the RWP. **Infrastructure costs that may not be included in RWP are listed in Exhibit C, Section 2.5.2.15.**	Chapter 5B; Appendix 5B-A. Infrastructure costs for components listed in Exhibit C, Section 2.5.2.15 wre not included in cost estimates for WMSs and WMSPs.
130	**Contract Scope of Work, Task 5B**	**Contract Exhibit C, Section 2.5.2**	***[Related to technical evaluations:]*** WMS and WMSP documentation must include a strategy description, discussion of associated facilities, project map, and technical evaluation addressing all considerations and factors required under 31 TAC §357.34(e)-(i) and §357.35. If an identified potentially feasible WMS is, at any point, determined to be not potentially feasible by the planning group and therefore not evaluated, the plan must provide documentation of why the WMS was not evaluated.	Chapter 5B; Appendix 5B-A; Electronic GIS deliverable
131	**Contract Scope of Work, Task 5B**	**Contract Exhibit C, Section 2.5.4**	[If applicable] Alternative water management strategies must be fully evaluated in accordance with 31 TAC §357.34(e)-(i). Technical evaluations of alternative WMSs must be included in the plans and the data associated with alternative WMS must be entered into DB27. Technical evaluations of each alternative WMS must have a generally defined delivery point for the water.	Chapter 5B; Appendix 5B-A
132	**Contract Scope of Work, Task 5B**		RWPGs must evaluate all WMSs that were scoped by the RWPG under Task 5B. Analyses of each of those potentially feasible WMSs must be presented in the plan; even if a WMS analysis is brief (i.e., ended up not being fully evaluated for reasons of ultimately being found infeasible.) This includes technical evaluations of all WMSs that were evaluated but not recommended.	Chapter 5B; Appendix 5B-A
Header	**§ 357.35**	**SOW Task 5B**	**Recommended and Alternative Water Management Strategies and Projects**	
133	**§ 357.35(a)**	Contract Exhibit C, Section 2.5.4; Scope of Work, Task 5B	RWPGs shall recommend WMSs and the WMSPs required to implement those WMSs to be used during a Drought of Record based on the potentially feasible WMSs evaluated under § 357.34 of this title (relating to Identification and Evaluation of Potentially Feasible Water Management Strategies and Water Management Strategy Projects).	Chapter 5B; Appendix 5B-A
134	**§ 357.35(b)**	Contract Exhibit C, Section 2.5.4; Scope of Work, Task 5B	RWPGs shall recommend specific water management strategies based upon the identification, analysis, and comparison of water management strategies by the RWPG that the RWPG determines are potentially feasible so that the cost effective water management strategies that are environmentally sensitive are considered and adopted unless a RWPG demonstrates that adoption of such strategies is inappropriate. To determine cost-effectiveness and environmental sensitivity, RWPGs shall follow processes described in § 357.34 of this title. The RWP may include alternative water management strategies evaluated by the processes described in § 357.34 of this title.	Chapter 5B; Appendix 5B-A
135	**§ 357.35(c)**	Contract Exhibit C, Section 2.5.4	Strategies shall be selected by the RWPGs so that cost effective water management strategies, which are consistent with long-term protection of the state's water resources, agricultural resources, and natural resources are adopted.	Chapter 5B; Appendix 5B-A
136	**§ 357.35(d)**	Contract Exhibit C, Section 2.5.1	RWPGs shall identify and recommend water management strategies for all WUGs and WWPs with identified water needs and that meet all water needs during the drought of record except in cases where:	Chapter 5A; Appendix 5A-B; Chapter 5B; Appendix 5B-A
137	**§ 357.35(d)(1)**	Contract Exhibit C, Section 2.5.1	**[Except in cases where:]** no WMS is feasible. In such cases, RWPGs must explain why no WMS are feasible; or	Not applicable in Region I
138	**§ 357.35(d)(2)**	Contract Exhibit C, Section 2.5.1	**[Except in cases where:]** a political subdivision that provides water supply other than water supply corporations, counties, or river authorities explicitly does not participate in the regional water planning process for needs located within its boundaries or extraterritorial jurisdiction.	Not applicable in Region I
139	**§ 357.35(e)**		Specific recommendations of WMSs to meet an identified need shall not be shown as meeting a need for a political subdivision if the political subdivision in question objects to inclusion of the strategy for the political subdivision and specifies its reasons for such objection. This does not prevent the inclusion of the strategy to meet other needs.	Not applicable in Region I
140	**§ 357.35(f)**	Contract Exhibit C, Section 2.5.2	Recommended strategies shall protect existing water rights, water contracts, and option agreements, but may consider potential amendments of water rights, contracts and agreements, which would require the eventual consent of the owner.	Chapter 5B; Appendix 5B-A

2026 IPP Review Item Number	Key Requirement Citation: TWC, 31 TAC Rule, or Contract Exhibit	Corresponding Contract Guidance and SOW Task *(if applicable)*	Requirement (see published rule and other contract documents for full context)	RWP Location
141	**§ 357.35(g)(1)**	Contract Exhibit C, Section 2.5.2	**[RWPGs shall report:]** Recommended WMSs, recommended WMSPs, and the associated results of all the potentially feasible WMS evaluations by WUG and MWP. If a WUG lies in one or more counties or RWPAs or river basins, data shall be reported for each river basin, RWPA, and county.	Chapter 5B; Appendix 5B-A
142	**§ 357.35(g)(2)**	Contract Exhibit C, Section 2.5.4.1	**[RWPGs shall report:]** Calculated planning management supply factors for each WUG and MWP included in the RWP assuming all recommended WMSs are implemented. This calculation shall be based on the sum of: the total existing water supplies, plus all water supplies from recommended WMSs for each entity; divided by that entity's total projected Water Demand, within the Planning Decade. The resulting calculated management supply factor shall be presented in the plan by entity and decade for every WUG and MWP. Calculating planning management supply factors is for reporting purposes only.	Appendix 5B-C
143	**Contract Exhibit C, Section 2.5.4.1**		RWPGs must provide an explanation for any predetermined management supply factors and may present these factors based, for example, on sizes of water users, types of water use, water availability conditions, types of WMSs, or any other factors the RWPG considers relevant at the project or water user level.	Not applicable in Region I
144	**§ 357.35(g)(3)**		**[RWPGs shall report:]** Fully evaluated Alternative WMSs and associated WMSPs included in the adopted RWP shall be presented together in one place in the RWP.	Appendix 5B-A
145	**Contract Scope of Work, Task 5B**	Contract Exhibit C, Section 2.5.4	The IPP and final adopted RWP must include documentation of the RWPG's process for selecting recommended WMSs and associated WMSPs including development of WMS evaluations matrices and other tools required to assist the RWPG in comparing and selecting recommended WMSs and WMSPs.	Chapter 5A; Appendix 5A-A; Appendix 5B-A
146	**Contract Exhibit C, Section 2.5.3**		For any recommended water management strategies where the strategy supply volume remains 100 percent unallocated to water user groups, the RWPG must explain in the RWP why the strategy is recommended but not assigned to any beneficiaries.	Chapter 5B, Section 5B.6
147	**Contract Exhibit C, Section 2.5.4**		RWPGs must recommend WMSs separately from WMSPs although they are often interrelated.	Chapter 5B; Appendix 5B-A
Header	**§ 357.40**	**SOW Task 6**	**Impacts of Regional Water Plan**	
148	**§ 357.40(a)**	Exhibit C, Section 2.6.4; SOW Task 6	RWPs shall include a quantitative description of the socioeconomic impacts of not meeting the identified Water Needs pursuant to § 357.33(c) of this title (relating to Needs Analysis: Comparison of Water Supplies and Demands).	To be prepared as part of the final RWP
149	**§ 357.40(b)(1)**	Exhibit C, Section 2.6.1; SOW Task 6	**[RWPs shall include a description of the impacts of the RWP regarding:]** Agricultural resources pursuant to § 357.34(e)(3)(C) of this title (relating to Identification and Evaluation of Potentially Feasible Water Management Strategies);	Chapter 6, Section 6.2.2; Appendix 5B-B
150	**§ 357.40(b)(2)**	Exhibit C, Section 2.6.1; SOW Task 6	**[RWPs shall include a description of the impacts of the RWP regarding:]** Other water resources of the state including other water management strategies and groundwater and surface water interrelationships pursuant to § 357.34(e)(4) of this title;	Chapter 6, Section 6.2.1; Appendix 5B-B
151	**§ 357.40(b)(3)**	Exhibit C, Section 2.6.1; SOW Task 6	**[RWPs shall include a description of the impacts of the RWP regarding:]** Threats to agricultural and natural resources identified pursuant to § 357.34(e)(5) of this title;	Chapter 6, Sections 6.2.1 and 6.2.2; Appendix 5B-B
152	**§ 357.40(b)(4)**	Exhibit C, Section 2.6.1; SOW Task 6	**[RWPs shall include a description of the impacts of the RWP regarding:]** Third-party social and economic impacts resulting from voluntary redistributions of water including analysis of third-party impacts of moving water from rural and agricultural areas pursuant to § 357.34(e)(7) of this title;	Chapter 6, Section 6.1; Appendix 5B-B
153	**§ 357.40(b)(5)**	Exhibit C, Section 2.6.1; SOW Task 6	**[RWPs shall include a description of the impacts of the RWP regarding:]** Major impacts of recommended water management strategies on key parameters of water quality pursuant to § 357.34(e)(8) of this title; and	Chapter 6, Section 6.1.1; Appendix 5B-B
154	**§ 357.40(b)(6)**	Exhibit C, Section 2.6.1; SOW Task 6	**[RWPs shall include a description of the impacts of the RWP regarding:]** Effects on navigation.	Chapter 6, Section 6.1; Appendix 5B-B
155	**§ 357.40(c)**	Exhibit C, Section 2.6.3; SOW Task 6	RWPs shall include a summary of the identified water needs that remain unmet by the RWP.	Chapter 6, Section 6.3

2026 IPP Review Item Number	Key Requirement Citation: TWC, 31 TAC Rule, or Contract Exhibit	Corresponding Contract Guidance and SOW Task *(if applicable)*	Requirement (see published rule and other contract documents for full context)	RWP Location
156	**§ 357.50(j)**	Contract Exhibit C, Section 2.6.3	The RWPGs must provide adequate justification of any unmet municipal needs. **For each municipal WUG with unmet needs, the RWPG shall include**: 1. documentation that all potentially feasible WMS were considered to meet the need, including drought management WMS; 2. explanations as to why additional conservation and/or drought management WMS were not recommended to address the need; 3. descriptions of how, in the event of a repeat of the drought of record, the WUG associated with the unmet need shall ensure the public health, safety, and welfare in each planning decade with an unmet need; and, 4. explanation as to whether there may be occasion, prior to the development of the next IPP, to amend the RWP to address all or a portion of the unmet municipal need.	Chapter 6, Section 6.3
Header	**§ 357.41**	**SOW Task 6**	**Consistency with Long-Term Protection of Water Resources, Agricultural Resources, and Natural Resources**	
157	**§ 357.41**	Exhibit C, Section 2.6.2, SOW Task 6	RWPGs shall describe how RWPs are consistent with the long-term protection of the state's water resources, agricultural resources, and natural resources as embodied in the guidance principles in § 358.3(4) and (8) of this title (relating to Guidance Principles).	Chapter 6, Section 6.2
Header	**§ 357.42**	**SOW Task 7**	**Drought Response Information, Activities, and Recommendations**	
158	**§ 357.42(a)**	Exhibit C, Section 2.7; SOW Task 7	RWPs shall consolidate and present information on current and planned preparations for, and responses to, drought conditions in the region including, but not limited to, drought of record conditions based on the following subsections.	Chapter 7, Sections 7.1 and 7.3
159	**Contract Exhibit C, Section 2.7.1**	Exhibit C, Section 2.7.1; SOW Task 7	The RWP must present and summarize information regarding the current Drought(s) of Record for the region and any other relevant sub-regional or basin-specific drought of record periods that impact the existing RWPA water supplies. This summary may include relevant sub-regional, basin-based, and/or sub-basin droughts of record.	Chapter 7, Section 7.1
160	**§ 357.42(b)(1)**	Exhibit C, Section 2.7.3; SOW Task 7	**[RWPGs shall conduct an assessment of current preparations for drought within the RWPA. This may include information from local Drought Contingency Plans. The assessment shall include]:** A description of how water suppliers in the RWPA identify and respond to the onset of drought; and	Chapter 7, Section 7.3
161	**§ 357.42(b)(2)**	Exhibit C, Section 2.7.3; SOW Task 7	**[RWPGs shall conduct an assessment of current preparations for drought within the RWPA. This may include information from local Drought Contingency Plans. The assessment shall include]:** Identification of unnecessary or counterproductive variations in drought response strategies among water suppliers that may confuse the public or impede drought response efforts. At a minimum, RWPGs shall review and summarize drought response efforts for neighboring communities including the differences in the implementation of outdoor watering restrictions.	Chapter 7, Section 7.3.3
162	**§ 357.42(c)(1); § 357.42(c)(3)**	Exhibit C, Section 2.7.4; SOW Task 7	**[RWPGs shall identify drought response triggers and actions regarding the management of existing groundwater and surface water sources in the RWPA designated in accordance with § 357.32, including:]** Factors specific to each source of water supply to be considered in determining whether to initiate a drought response for each water source including specific recommended drought response triggers. *Triggers and actions developed in paragraphs (1) and (2) of this subsection may consider existing triggers and actions associated with existing drought contingency plans.*	Chapter 7, Section 7.4
163	**§ 357.42(c)(2); § 357.42(c)(3)**	Exhibit C, Section 2.7.4; SOW Task 7	**[RWPGs shall identify drought response triggers and actions regarding the management of existing groundwater and surface water sources in the RWPA designated in accordance with § 357.32, including:]** Actions to be taken as part of the drought response by the manager of each water source and the entities relying on each source, including the number of drought stages. *Triggers and actions developed in paragraphs (1) and (2) of this subsection may consider existing triggers and actions associated with existing drought contingency plans.*	Chapter 7, Section 7.4

2026 IPP Review Item Number	Key Requirement Citation: TWC, 31 TAC Rule, or Contract Exhibit	Corresponding Contract Guidance and SOW Task *(if applicable)*	Requirement (see published rule and other contract documents for full context)	RWP Location
164	**§ 357.42(d)**	Exhibit C, Section 2.7.5; SOW Task 7	RWPGs shall collect information on existing major water infrastructure facilities that may be used for interconnections in event of an emergency shortage of water. **At a minimum, the RWP shall include a general description of the methodology used to collect the information, the number of existing and potential emergency interconnects in the RWPA, and a list of which entities are connected to each other.** In accordance with Texas Water Code §16.053(r), certain information regarding water infrastructure facilities is excepted from the Public Information Act, Texas Government Code, Chapter 552. Any excepted information collected shall be submitted separately to the EA in accordance with guidance to be provided by EA.	Chapter 7, Section 7.5
165	**§ 357.42(e)**	Exhibit C, Section 2.7.5; SOW Task 7	RWPGs may provide general descriptions of local Drought Contingency Plans that involve making emergency connections between water systems or WWP systems that do not include locations or descriptions of facilities that are disallowed under subsection (d) of this section.	Chapter 7, Section 7.5
166	**§ 357.42(f)(1)**	Exhibit C, Section 2.7.6; SOW Task 7	**[RWPGs may designate recommended and alternative drought management water management strategies and other recommended drought measures in the RWP, including:]** List and description of the recommended drought management water management strategies and associated WUGs and WWPs, if any, that are recommended by the RWPG. Information to include associated triggers to initiate each of the recommended drought management water management strategies;	Chapter 7, Section 7.6
167	**§ 357.42(f)(2)**	Exhibit C, Section 2.7.6; SOW Task 7	**[RWPGs may designate recommended and alternative drought management water management strategies and other recommended drought measures in the RWP, including:]** List and description of alternative drought management water management strategies and associated WUGs and WWPs, if any, that are included in the plan. Information to include associated triggers to initiate each of the alternative drought management water management strategies;	Chapter 7, Section 7.6
168	**§ 357.42(f)(3)**	Exhibit C, Section 2.7.6; SOW Task 7	**[RWPGs may designate recommended and alternative drought management water management strategies and other recommended drought measures in the RWP, including:]** List of all potentially feasible drought management water management strategies that were considered or evaluated by the RWPG but not recommended; and	Chapter 7, Section 7.6
169	**§ 357.42(f)(4)**	Exhibit C, Section 2.7.8; SOW Task 7	**[RWPGs may designate recommended and alternative drought management water management strategies and other recommended drought measures in the RWP, including:]** List and summary of any other recommended drought management measures, if any, that are included in the RWP, including associated triggers if applicable.	Chapter 7, Section 7.6
170	**§ 357.42(g)**	Exhibit C, Section 2.7.7; SOW Task 7	The RWPGs shall evaluate potential emergency responses to local drought conditions or loss of existing water supplies; the evaluation shall include identification of potential alternative water sources that may be considered for temporary emergency use by WUGs and WWPs in the event that the existing water supply sources become temporarily unavailable to the WUGs and WWPs due to unforeseeable hydrologic conditions such as emergency water right curtailment, unanticipated loss of reservoir conservation storage, or other localized drought impacts. **RWPGs shall evaluate, at a minimum, municipal WUGs that:**	Chapter 7, Section 7.7
171	**§ 357.42(g)(1)**	Exhibit C, Section 2.7.7	**[Evaluation includes municipal WUGS that:]** have existing populations less than 7,500;	Chapter 7, Section 7.7
172	**§ 357.42(g)(2)**	Exhibit C, Section 2.7.7	**[Evaluation includes municipal WUGS that:]** rely on a sole source for its water supply regardless of whether the water is provided by a WWP; and	Chapter 7, Section 7.7
173	**§ 357.42(g)(3)**	Exhibit C, Section 2.7.7	**[Evaluation includes municipal WUGS that:]** all county-other WUGs.	Chapter 7, Section 7.7
174	**Contract Exhibit C, Section 2.7.7**		For the purpose of this [emergency responses to local drought conditions or loss of municipal supply] analysis, it will be assumed that the entities being evaluated have approximately 180 days or less of water supply remaining.	Chapter 7, Section 7.7

2026 IPP Review Item Number	Key Requirement Citation: TWC, 31 TAC Rule, or Contract Exhibit	Corresponding Contract Guidance and SOW Task *(if applicable)*	Requirement (see published rule and other contract documents for full context)	RWP Location
175	**§ 357.42(h)**	Exhibit C, Section 2.7.8	RWPGs shall consider any relevant recommendations from the Drought Preparedness Council.	CHapter 7, Section 7.8.1
176	**§ 357.42(i)(1)**	Exhibit C, Section 2.7.8	**[RWPGs may make drought preparation and response recommendations regarding:]** Development of, content contained within, and implementation of local drought contingency plans required by the Commission;	Chapter 7, Section 7.8
177	**§ 357.42(i)(2)(A)**	Exhibit C, Section 2.7.8	**[RWPGs may make drought preparation and response recommendations regarding:]** Current drought management preparation in the RWPA including: drought response triggers; and	Chapter 7, Section 7.8
178	**§ 357.42(i)(2)(B)**	Exhibit C, Section 2.7.8	**[RWPGs may make drought preparation and response recommendations regarding:]** Current drought management preparation in the RWPA including: responses to drought conditions;	Chapter 7, Section 7.8
179	**§ 357.42(i)(3)**	Exhibit C, Section 2.7.8	**[RWPGs may make drought preparation and response recommendations regarding:]** The Drought Preparedness Council and the State Drought Preparedness Plan; and	Chapter 7, Section 7.8.1
180	**§ 357.42(i)(4)**	Exhibit C, Section 2.7.8	**[RWPGs may make drought preparation and response recommendations regarding:]** Any other general recommendations regarding drought management in the region or state.	Chapter 7, Section 7.8
181	**§ 357.42(j)**	Exhibit C, Section 2.7.9; SOW Task 7	The RWPGs shall develop region-specific model drought contingency plans.	Chapter 7, Section 7.9
182	**Contract Exhibit C, Section 2.7.9**	SOW Task 7	At a minimum, **two model plans must be developed** and may be based, for example, on different water use categories, user sizes, and/or types of water source. Model plans for municipal users must address triggers for and responses to severe and critical/emergency drought conditions. It is at the discretion of the RWPG on the type of models plans developed but is recommended that RWPGs develop plans that would be of use to the types of water users within the RWPA.	Chapter 7, Section 7.9
183	**Contract Scope of Work, Task 7**	Exhibit C, Section 2.7.2	Include a separate Chapter 7 subsection that provides documentation of how the planning group addressed uncertainties in the RWP (if applicable), how the planning group addressed a drought worse than the DOR in the RWP (if applicable), and potential measures and responses that would likely be available to users in the region, in the event of a drought worse than the DOR.	Chapter 7, Section 7.9
184	**Contract Exhibit C, Section 2.7.2**		Summarize, in general, how the region incorporated planning for uncertainty in its RWP and the region’s basis, or policy, for inclusion. This could include general discussion on planning factors, any drivers of uncertainty associated with those factors, and how the RWPG made planning decisions to acknowledge or address that uncertainty. If the RWP does not include any measures to address uncertainty, this subsection must include a statement to that effect.	Chapter 7, Section 7.2.1
185	**Contract Exhibit C, Section 2.7.2**		Summarize, in general, the key assumptions, analyses, strategies, and projects that are already included in the 2026 RWP calculations and recommendations (if applicable) that go beyond just meeting identified water needs anticipated under a DOR (i.e., those things that will provide some additional measure of protection to withstand a DWDOR such as use of safe-yield or inclusion of strategies that provide water volumes in excess of the identified water need, such as management supply factor, etc.). The summary should include describing which water users in the region, in general, are associated with those additional measures of protection (e.g., list of WUGs and WWPs and their associated water supplies to which these assumptions apply). If the RWP does not include any planning measures to address a DWDOR, this subsection must include a statement to that effect.	Chapter 7, Section 7.2.2

2026 IPP Review Item Number	Key Requirement Citation: TWC, 31 TAC Rule, or Contract Exhibit	Corresponding Contract Guidance and SOW Task *(if applicable)*	Requirement (see published rule and other contract documents for full context)	RWP Location
186	**Contract Exhibit C, Section 2.7.2**		Summarize, in general, the potential additional types of measures and responses, that are not part of the recommendations in the 2026 RWP, but that would likely be available to certain water providers/users in the event of the near-term onset of a DWDOR and that would be capable of providing additional, potential capacity for those water providers and users to withstand a DWDOR (i.e., additional or deeper drought management measures - if not a recommended WMS - that could be employed). The summary should include describing which water providers/users in the region, in general, the additional measures and responses would be associated with (e.g., list of WUGs and WWPs and their associated water supplies to which these assumptions apply). This information may be presented at a high-level as provided in the examples in the 2026 RWP Exhibit C Tables Excel file.	Chapter 7, Section 7.2.3
Header	**§ 357.43**	**SOW Task 8**	**Regulatory, Administrative, or Legislative Recommendations**	
187	**§ 357.43(a)**	Exhibit C, Section 2.8.3; SOW Task 8	The RWPs shall contain any regulatory, administrative, or legislative recommendations developed by the RWPGs.	Chapter 8
188	**§ 357.43(b)**	SOW Task 8; Exhibit C, Section 2.8.1	Ecologically Unique River and Stream Segments. RWPGs may include in adopted RWPs recommendations for all or parts of river and stream segments of unique ecological value located within the RWPA by preparing a recommendation package consisting of a physical description giving the location of the stream segment, maps, and photographs of the stream segment and a site characterization of the stream segment documented by supporting literature and data. The recommendation package shall address each of the criteria for designation of river and stream segments of ecological value found in this subsection. The RWPG shall forward the recommendation package to the Texas Parks and Wildlife Department and allow the Texas Parks and Wildlife Department 30 days for its written evaluation of the recommendation. The adopted RWP shall include, if available, Texas Parks and Wildlife Department's written evaluation of each river and stream segment recommended as a river or stream segment of unique ecological value.	Chapter 8, Section 8.2
189	**§ 357.43(b)(1)**	SOW Task 8; Exhibit C, Section 2.8.1	An RWPG may recommend a river or stream segment as being of unique ecological value based upon the criteria set forth in § 358.2 of this title (relating to Definitions).	Chapter 8, Section 8.2
190	**Contract Scope of Work, Task 8**	Exhibit C, Section 2.8.1	An updated Texas Parks and Wildlife Department evaluation must be included in each RWP, even for those stream segments that have been recommended in previous plans but not designated by the Legislature.	Chapter 8, Section 8.2
191	**Contract Exhibit C, Section 2.8.1**		If a river or stream segment has been recommended in a previous plan, the planning group may incorporate references of supporting materials developed for the previous plan into the current plan. References must be precise and include a summary of the information presented in the previous plan.	Chapter 8, Section 8.2
192	**Contract Exhibit C, Section 2.8.1**		Recommendations regarding unique river or stream segments presented in the RWPs must be specific as to a) which unique river or stream segments have been previously designated by the legislature and b) which are being recommended for designation by the planning group.	Chapter 8, Section 8.2
193	**§ 357.43(b)(2)**	Exhibit C, Section 2.8.1; SOW Task 8	For every river and stream segment that has been designated as a unique river or stream segment by the legislature, including during a session that ends not less than one year before the required date of submittal of an adopted RWP to the Board, or recommended as a unique river or stream segment in the RWP, the RWPG shall assess the impact of the RWP on these segments. The assessment shall be a quantitative analysis of the impact of the plan on the flows important to the river or stream segment, as determined by the RWPG, comparing current conditions to conditions with implementation of all recommended water management strategies. The assessment shall also describe the impact of the plan on the unique features cited in the region's recommendation of that segment.	Chapter 8, Section 8.2
194	**§ 357.43(c)**	Exhibit C, Section 2.8.2; SOW Task 8	Unique Sites for Reservoir Construction. A RWPG may recommend sites of unique value for construction of reservoirs by including descriptions of the sites, reasons for the unique designation and expected beneficiaries of the water supply to be developed at the site. The criteria at § 358.2 of this title shall be used to determine if a site is unique for reservoir construction.	Chapter 8, Section 8.3

2026 IPP Review Item Number	Key Requirement Citation: TWC, 31 TAC Rule, or Contract Exhibit	Corresponding Contract Guidance and SOW Task *(if applicable)*	Requirement (see published rule and other contract documents for full context)	RWP Location
195	**Contract Exhibit C, Section 2.8.2**		For recommendations regarding unique reservoir sites, the RWP must be specific as to a) which unique reservoir sites have been previously designated by the legislature; b) which are being recommended for designation by the RWPG; and c) whether the RWPG is recommending that the legislature re-designate a previously designated unique reservoir site.	Chapter 8, Section 8.3 (Table 8.4)
196	**§ 357.43(d)**	Exhibit C, Section 2.8.3; SOW Task 8	Any other recommendations that the RWPG believes are needed and desirable to achieve the stated goals of state and regional water planning including to facilitate the orderly development, management, and conservation of water resources and prepare for and respond to drought conditions. This may include recommendations that the RWPG believes would improve the state and regional water planning process.	Chapter 8, Section 8.4
197	**§ 357.43(e)**	Exhibit C, Section 2.8.3	RWPGs may develop information as to the potential impacts of any proposed changes in law prior to or after changes are enacted.	Chapter 8
198	**§ 357.43(f)**	Exhibit C, Section 2.8.3	RWPGs should consider making legislative recommendations to facilitate more voluntary water transfers in the region.	Chapter 8, Section 8.4.11
199	**Contract Scope of Work, Task 8**	Exhibit C, Section 2.8.3	Receive and consider recommendations from the Interregional Planning Council to the RWPGs.	Chapter 8, Section 8.4.10
Header	**§ 357.45**	**SOW Task 9**	**Implementation and Comparison to Previous RWP**	
200	**§ 357.45(a)**	Exhibit C, Section 2.9.1; SOW Task 9	RWPGs shall describe the level of implementation of previously recommended WMSs and associated impediments to implementation in accordance with guidance provided by the board. Information on the progress of implementation of all WMSs that were recommended in the previous RWP, including conservation and Drought Management WMSs; and the implementation of WMSPs that have affected progress in meeting the state's future water needs.	Chapter 9; Section 9.1 and Appendix 9A
201	**§ 357.45(b)(1)**	Exhibit C, Section 2.9.2; SOW Task 9	**[RWPGs shall assess the progress of the RWPA in encouraging cooperation between WUGs for the purpose of achieving economies of scale and otherwise incentivizing WMSs that benefit the entire RWPA. This assessment of regionalization shall include:]** The number of recommended WMSs in the previously adopted and current RWPs that serve more than one WUG;	Chapter 9; Section 9.2
202	**§ 357.45(b)(2)**	Exhibit C, Section 2.9.2; SOW Task 9	**[RWPGs shall assess the progress of the RWPA in encouraging cooperation between WUGs for the purpose of achieving economies of scale and otherwise incentivizing WMSs that benefit the entire RWPA. This assessment of regionalization shall include:]** The number of recommended WMSs in the previously adopted RWP that serve more than one WUG and have been implemented since the previously adopted RWP; and	Chapter 9; Section 9.2
203	**§ 357.45(b)(3)**	Exhibit C, Section 2.9.2; SOW Task 9	**[RWPGs shall assess the progress of the RWPA in encouraging cooperation between WUGs for the purpose of achieving economies of scale and otherwise incentivizing WMSs that benefit the entire RWPA. This assessment of regionalization shall include:]** A description of efforts the RWPG has made to encourage WMSs and WMSPs that serve more than one WUG, and that benefit the entire region.	Chapter 9; Section 9.2
204	**§ 357.45(c)(1)**	Exhibit C, Section 2.9.3, SOW Task 9	**[RWPGs shall provide a brief summary of how the RWP differs from the previously adopted RWP with regards to:]** Water demand projections;	Chapter 9; Section 9.3.1
205	**§ 357.45(c)(2)**	Exhibit C, Section 2.9.3, SOW Task 9	**[RWPGs shall provide a brief summary of how the RWP differs from the previously adopted RWP with regards to:]** Drought of Record and hydrologic and modeling assumptions used in planning for the region;	Chapter 9; Section 9.3.2
206	**§ 357.45(c)(3)**	Exhibit C, Section 2.9.3, SOW Task 9	**[RWPGs shall provide a brief summary of how the RWP differs from the previously adopted RWP with regards to:]** Groundwater and surface water availability, existing water supplies, and identified water needs for WUGs and WWPs; and	Chapter 9; Sections 9.3.3 and 9.3.4
207	**§ 357.45(c)(4)**	Exhibit C, Section 2.9.3, SOW Task 9	**[RWPGs shall provide a brief summary of how the RWP differs from the previously adopted RWP with regards to:]** Recommended and Alternative Water Management Strategies and Projects	Chapter 9; Sections 9.3.6
Header	**§ 357.50**	**SOW Task 10**	**Adoption, Submittal, and Approval of Regional Water Plans - Includes Public Participation and Notice Items relevant to IPP review**	

2026 IPP Review Item Number	Key Requirement Citation: TWC, 31 TAC Rule, or Contract Exhibit	Corresponding Contract Guidance and SOW Task *(if applicable)*	Requirement (see published rule and other contract documents for full context)	RWP Location
208	**§ 357.12(i), § 357.21(a), and § 357.21(j)**	Contract Exhibit C, Section 2.12.2	Each RWPG and any committee or subcommittee of an RWPG are subject to Chapters 551 and 552, Government Code. A copy of all materials presented or discussed at an open meeting shall be made available for public inspection prior to and following the meetings and shall meet the additional notice requirements when specifically referenced as required under other subsections. **Plan includes a statement confirming that the planning group met all requirements under the Texas Open Meetings Act and Public Information Act in accordance with 31 TAC §§357.12 and 357.21**.	Section 10.4.4
209	**§ 357.50(b)**		Prior to the adoption of the RWP, the RWPGs shall submit concurrently to the EA and the public an IPP. The IPP submitted to the EA must be in the electronic and paper format specified by the EA. Each RWPG must certify that the IPP is complete and adopted by the RWPG**. In the instance of a recommended WMS proposed to be supplied from a different RWPA, the RWPG recommending such strategy shall submit, concurrently with the submission of the IPP to the EA, a copy of the IPP, or a letter identifying the WMS in the other region along with an internet link to the IPP, to the RWPG associated with the location of such strategy.**	Appendix ES-B
210	**§ 357.50(c)**		The RWPGs shall distribute the IPP in accordance with §357.21(h)(7) of this title (relating to Notice and Public Participation).	To be prepared as part of the final RWP
211	**§ 357.50(g)(1)(A)**	Contract Exhibit C, Section 2.12.2; SOW, Task 10	**[RWPs shall include:]** The technical report and data prepared in accordance with this chapter and the EA's specifications;	To be prepared as part of the final RWP
212	**§ 357.50(g)(1)(B)**	Contract Exhibit C, Section 2.12.2; SOW, Task 10	**[RWPs shall include:]** An executive summary that documents key RWP findings and recommendations;	Executive Summary Section of the IPP
213	**§ 357.50(g)(1)(C)**	Contract Exhibit C, Section 2.10, Section 2.12.2; SOW, Task 10	**[RWPs shall include:]** Documentation of the RWPG's interregional coordination efforts;	Section 10.3
214	**Contract Exhibit C, Section 2.13.2**		In the 2026 RWPs, the required DB27 data reports must be included in the IPP and final RWP via reference to the TWDB Database Reports application in lieu of including electronic versions of the reports as an appendix to the plan. **Each Executive Summary of the IPP and RWP must include a section that lists the DB27 reports that will be available through the TWDB Database Reports application and instructions on how the public can access the reports, including a direct hyperlink to the TWDB Database Reports application.** The DB27 reports that will be accessible in the application are listed in Contract Exhibit C, Table 3. Section 2.13.2 of Exhibit C lists the required instructions to include in the IPP and final plans. *Please note that regions may include the DB27 reports as appendices, should they choose to, but at minimum, each Executive Summary must include the SARA access information and the report list as specified in guidance.*	Executive Summary Section of the IPP and Appendix ES-A
215	**Contract Scope of Work, Task 10**	Contract Exhibit C, Section 2.10	Conduct and/or enhance existing outreach specifically to rural entities in the planning area to collect and evaluate information to support plan development, including keeping track of which rural entities were contacted by the RWPG/Consultant, which entities were not responsive to RWPG contact efforts, and including a summary of the region's rural outreach efforts in Chapter 10 of the IPP and final RWP.	Section 10.4.2
216	**§ 357.50(g)(2)(B)**	Contract Exhibit C, Section 2.13.2	**[RWPGs shall submit RWPs to the EA according to the following schedule:]** Prior to submission of the IPP, the RWPGs shall upload all required data, metadata and all other relevant digital information supporting the plan to the Board's State Water Planning Database. All changes and corrections to this information must be entered into the Board's State Water Planning Database prior to submittal of a final adopted plan.	To be prepared as part of the final RWP
Header	**§ 357.60**		**Consistency of Regional Water Plans - Items relevant to IPP review**	

2026 IPP Review Item Number	Key Requirement Citation: TWC, 31 TAC Rule, or Contract Exhibit	Corresponding Contract Guidance and SOW Task *(if applicable)*	Requirement (see published rule and other contract documents for full context)	RWP Location
217	**§ 357.60(a)**		RWPGs shall submit to the development Board a RWP that is consistent with the guidance principles and guidelines outlined in § 357.20 of this title (relating to Guidance Principles for State and Regional Water Planning). Information provided shall be based on data provided or approved by the Board in a format consistent with the guidelines of Subchapters C and D of this chapter and guidance by the EA.	Appendix ES-B and ES-C
218	**§ 357.60(c)**		Relation to state and local plans. RWPs shall be consistent with Chapter 358 of this title (relating to State Water Planning Guidelines) and this chapter. RWPGs shall consider and use as a guide the state water plan and local water plans provided for in the Texas Water Code § 16.054 (relating to Local Water Planning).	Appendix ES-B and ES-C
Header	**§ 358.3**		**State Water Plan Guidance Principles**	
219	**§ 358.3(1)**		The state water plan shall provide for the preparation for and response to drought conditions.	n/a
220	**§ 358.3(2)**		The regional water plans and state water plan shall serve as water supply plans under drought of record conditions. RWPGs may, at their discretion, plan for drought conditions worse than the drought of record.	Requirement Met
221	**§ 358.3(3)**		Consideration shall be given to the construction and improvement of surface water resources and the application of principles that result in voluntary redistribution of water resources.	Requirement Met
222	**§ 358.3(4)**		Regional water plans shall provide for the orderly development, management, and conservation of water resources and preparation for and response to drought conditions so that sufficient water will be available at a reasonable cost to satisfy a reasonable projected use of water to ensure public health, safety, and welfare; further economic development; and protect the agricultural and natural resources of the affected regional water planning areas and the state.	Requirement Met
223	**§ 358.3(5)**		Regional water plans shall include identification of those policies and action that may be needed to meet Texas' water supply needs and prepare for and respond to drought conditions.	Requirement Met
224	**§ 358.3(6)**		RWPG decision-making shall be open to and accountable to the public with decisions based on accurate, objective and reliable information with full dissemination of planning results except for those matters made confidential by law.	Requirement Met
225	**§ 358.3(7)**		The RWPG shall establish terms of participation in its water planning efforts that shall be equitable and shall not unduly hinder participation.	Requirement Met
226	**§ 358.3(8)**		Consideration of the effect of policies or water management strategies on the public interest of the state, water supply, and those entities involved in providing this supply throughout the entire state.	Requirement Met
227	**§ 358.3(9)**		Consideration of all water management strategies the RWPG determined to be potentially feasible when developing plans to meet future water needs and to respond to drought so that cost effective water management strategies and water management strategy projects which are consistent with long-term protection of the state's water resources, agricultural resources, and natural resources are considered and approved.	Requirement Met
228	**§ 358.3(10)**		Consideration of opportunities that encourage and result in voluntary transfers of water resources, including but not limited to regional water banks, sales, leases, options, subordination agreements, and financing agreements.	Requirement Met
229	**§ 358.3(11)**		Consideration of a balance of economic, social, aesthetic, and ecological viability.	Requirement Met
230	**§ 358.3(12)**		For regional water planning areas without approved regional water plans or water providers for which revised plans are not developed through the regional water planning process, the use of information from the adopted state water plan and other completed studies that are sufficient for water planning shall represent the water supply plan for that area or water provider.	n/a
231	**§ 358.3(13)**		All surface waters are held in trust by the state, their use is subject to rights granted and administered by the Commission, and the use of surface water is governed by the prior appropriation doctrine, unless adjudicated otherwise.	n/a
232	**§ 358.3(14)**		Existing water rights, water contracts, and option agreements shall be protected. However, potential amendments of water rights, contracts and agreements may be considered and evaluated. Any amendments will require the eventual consent of the owner.	n/a
233	**§ 358.3(15)**		The production and use of groundwater in Texas is governed by the rule of capture doctrine unless and to the extent that such production and use is regulated by a groundwater conservation district, as codified by the legislature at Texas Water Code § 36.002 (relating to Ownership of Groundwater).	n/a

2026 IPP Review Item Number	Key Requirement Citation: TWC, 31 TAC Rule, or Contract Exhibit	Corresponding Contract Guidance and SOW Task *(if applicable)*	Requirement (see published rule and other contract documents for full context)	RWP Location
234	**§ 358.3(16)**		Consideration of recommendations of river and stream segments of unique ecological value to the legislature for potential protection.	Chapter 8
235	**§ 358.3(17)**		Consideration of recommendation of sites of unique value for the construction of reservoirs to the legislature for potential protection.	Chapter 8
236	**§ 358.3(18)**		Consideration of water planning and management activities of local, regional, state, and federal agencies, along with existing local, regional, and state water plans and information and existing state and federal programs and goals.	Requirement Met
237	**§ 358.3(19)**		Designated water quality and related water uses as shown in the state water quality management plan shall be improved or maintained.	n/a
238	**§ 358.3(20)**		RWPGs shall actively coordinate water planning and management activities to identify common needs, issues, and opportunities for interregional water management strategies and water management strategy projects to achieve efficient use of water supplies. The Board will support RWPGs coordination to identify common needs, issues, and opportunities while working with RWPGs to resolve conflicts in a fair, equitable, and efficient manner.	Requirement Met
239	**§ 358.3(21)**		The water management strategies and water management strategy projects identified in approved RWPs to meet needs shall be described in sufficient detail to allow a state agency making a financial or regulatory decision to determine if a proposed action before the state agency is consistent with an approved RWP. (also see § 357.34(f))	Requirement Met
240	**§ 358.3(22)**		The evaluation of water management strategies and water management strategy projects shall use environmental information in accordance with the Commission's adopted environmental flow standards under 30 TAC Chapter 298 (relating to Environmental Flow Standards for Surface Water) where applicable or, in basins where standards are not available or have not been adopted, information from existing site-specific studies or state consensus environmental planning criteria.	Requirement Met
241	**§ 358.3(23)**		Consideration of environmental water needs including instream flows and bay and estuary inflows, including adjustments by the RWPGs to water management strategies to provide for environmental water needs including instream flows and bay and estuary needs. Consideration shall be consistent with the Commission's adopted environmental flow standards under 30 TAC Chapter 298 in basins where standards have been adopted.	Requirement Met
242	**§ 358.3(24)**		Planning shall be consistent with all laws applicable to water use for the state and regional water planning area.	Requirement Met
243	**§ 358.3(25)**		The inclusion of ongoing water development projects that have been permitted by the Commission or a predecessor agency.	Requirement Met
244	**§ 358.3(26)**		Specific recommendations of water management strategies shall be based upon identification, analysis, and comparison of all water management strategies the RWPG determines to be potentially feasible so that the cost effective water management strategies which are environmentally sensitive are considered and adopted unless the RWPG demonstrates that adoption of such strategies is not appropriate. To determine cost-effectiveness, the RWPGs will use the process described in § 357.34(e)(3)(A) of this title (relating to Identification and Evaluation of Potentially Feasible Water Management Strategies) and, to determine environmental sensitivity, the RWPGs shall use the process described in § 357.34(e)(3)(B) of this title.	Requirement Met
245	**§ 358.3(27)**		RWPGs shall conduct their planning to achieve efficient use of existing water supplies, explore opportunities for and the benefits of developing regional water supply facilities or providing regional management of water facilities, coordinate the actions of local and regional water resource management agencies, provide substantial involvement by the public in the decision-making process, and provide full dissemination of planning results.	Requirement Met
246	**§ 358.3(28)**		RWPGs must consider existing regional water planning efforts when developing their plans.	Requirement Met

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Appendix 1-A
Species of Special Concern in the East Texas Regional Water Planning Area

The TPWD maintains a list of species of special concern in the Texas Natural Diversity Database. Table 1-A.1 identifies rare, threatened or endangered species in the region by lists federal and state status for each species. Species are grouped by taxonomic assemblage (i.e., bird, insect, fish, mammal, vascular plant, etc.). Information on habitats for these species may be found on the TPWD website, http://tpwd.texas.gov/gis/rtest/.

The key to the federal and state status for threatened and endangered species follows:

LE, LT	Federally Listed Endangered/Threatened
PE, PT	Federally Proposed Endangered/Threatened
SAE, SAT	Federally Listed Endangered/Threatened by Similarity of Appearance
C	Federal Candidate for Listing
DL, PDL	Federally Delisted/Proposed for Delisting
E, T	State Listed Endangered/Threatened
NT	Not tracked or no longer tracked by the State
Y, N	Yes, No
“blank”	Rare, but with no regulatory listing status

Taxon	SName	CName	USESA	SPROT
Amphibians	Ambystoma tigrinum	eastern tiger salamander		
Amphibians	Desmognathus conanti	spotted dusky salamander		
Amphibians	Necturus beyeri	Gulf Coast waterdog		
Amphibians	Anaxyrus woodhousii	Woodhouse's toad		
Amphibians	Pseudacris streckeri	Strecker's chorus frog		
Amphibians	Lithobates areolatus areolatus	southern crawfish frog		
Birds	Egretta rufescens	reddish egret		T
Birds	Plegadis chihi	white-faced ibis		T
Birds	Mycteria americana	wood stork		T
Birds	Elanoides forficatus	swallow-tailed kite		T
Birds	Haliaeetus leucocephalus	bald eagle		
Birds	Laterallus jamaicensis	black rail	T	T
Birds	Grus americana	whooping crane	LE	E
Birds	Charadrius melodus	piping plover	LT	T
Birds	Calidris canutus rufa	rufa red knot	LT	T
Birds	Leucophaeus pipixcan	Franklin's gull		
Birds	Rynchops niger	black skimmer		
Birds	Athene cunicularia hypugaea	western burrowing owl		
Birds	Dryobates borealis	red-cockaded woodpecker	LE	E
Birds	Anthus spragueii	Sprague's pipit		
Birds	Peucaea aestivalis	Bachman's sparrow		T
Birds	Calcarius ornatus	chestnut-collared longspur		
Fish	Polyodon spathula	paddlefish		T
Fish	Atractosteus spatula	alligator gar		
Fish	Anguilla rostrata	american eel		
Fish	Hybognathus nuchalis	Mississippi silvery minnow		
Fish	Notropis atrocaudalis	blackspot shiner		
Fish	Notropis chalybaeus	ironcolor shiner		
Fish	Notropis maculatus	taillight shiner		
Fish	Notropis potteri	chub shiner		T
Fish	Notropis sabinae	Sabine shiner		
Fish	Notropis shumardi	silverband shiner		
Fish	Cycleptus elongatus	blue sucker		T
Fish	Erimyzon claviformis	western creek chubsucker		T
Fish	Fundulus jenkinsi	saltmarsh topminnow		
Fish	Ammocrypta clara	western sand darter		
Fish	Percina shumardi	river darter		
Fish	Paralichthys lethostigma	southern flounder		
Fish	Isurus oxyrinchus	shortfin mako shark		T
Fish	Carcharhinus longimanus	oceanic whitetip shark	LT	T
Mammals	Myotis austroriparius	southeastern myotis bat		
Mammals	Perimyotis subflavus	tricolored bat		
Mammals	Eptesicus fuscus	big brown bat		
Mammals	Lasiurus borealis	eastern red bat		
Mammals	Lasiurus cinereus	hoary bat		
Mammals	Lasiurus intermedius	northern yellow bat		
Mammals	Corynorhinus rafinesquii	Rafinesque's big-eared bat		T
Mammals	Sylvilagus aquaticus	swamp rabbit		
Mammals	Microtus ochrogaster	prairie vole		

Taxon	SName	CName	USESA	SPROT
Mammals	Ondatra zibethicus	muskrat		
Mammals	Physeter macrocephalus	sperm whale	LE	E
Mammals	Balaenoptera borealis	sei whale	LE	E
Mammals	Balaenoptera musculus	blue whale	LE	E
Mammals	Balaenoptera ricei	Gulf of Mexico Bryde's whale	LE	E
Mammals	Megaptera novaeangliae	humpback whale	LE	
Mammals	Eubalaena glacialis	North Atlantic right whale	LE	E
Mammals	Ursus americanus	black bear		T
Mammals	Ursus americanus luteolus	Louisiana black bear		T
Mammals	Mustela frenata	long-tailed weasel		
Mammals	Spilogale putorius	eastern spotted skunk		
Mammals	Conepatus leuconotus	western hog-nosed skunk		
Mammals	Puma concolor	mountain lion		
Reptiles	Caretta caretta	loggerhead sea turtle	LT	T
Reptiles	Chelonia mydas	green sea turtle	LT	T
Reptiles	Lepidochelys kempii	Kemp's Ridley sea turtle	LE	E
Reptiles	Macrochelys temminckii	alligator snapping turtle		T
Reptiles	Dermochelys coriacea	leatherback sea turtle	LE	E
Reptiles	Deirochelys reticularia miaria	western chicken turtle		
Reptiles	Malaclemys terrapin littoralis	Texas diamondback terrapin		
Reptiles	Terrapene carolina	eastern box turtle		
Reptiles	Terrapene ornata	western box turtle		
Reptiles	Apalone mutica	smooth softshell		
Reptiles	Ophisaurus attenuatus	slender glass lizard		
Reptiles	Phrynosoma cornutum	Texas horned lizard		T
Reptiles	Plestiodon septentrionalis	prairie skink		
Reptiles	Cemophora coccinea	northern scarlet snake		T
Reptiles	Drymarchon melanurus erebennus	Texas indigo snake		
Reptiles	Heterodon nasicus	western hognose snake		
Reptiles	Nerodia clarkii	salt marsh snake		
Reptiles	Pituophis ruthveni	Louisiana pine snake	LT	T
Reptiles	Crotalus horridus	timber (canebrake) rattlesnake		
Reptiles	Sistrurus miliarius	pygmy rattlesnake		
Crustaceans	Procambarus nigrocinctus	blackbelted crayfish		
Crustaceans	Procambarus nechesae	Neches crayfish		
Crustaceans	Fallicambarus kountzeae	Big Thicket burrowing crayfish		
Insects	Cotalpa conclamara	No accepted common name		
Insects	Bombus pensylvanicus	American bumblebee		
Insects	Pogonomyrmex comanche	Comanche harvester ant		
Insects	Euphyes bayensis	bay skipper		
Insects	Somatochlora margarita	Texas emerald dragonfly		
Insects	Isoperla sagittata	arrowhead stripetail		
Insects	Chimarra holzenthali	Holzenthal's philopotamid caddisfly		
Insects	Cheumatopsyche morsei	Morse's net-spinning caddisfly		
Insects	Hydroptila ouachita	No accepted common name		
Insects	Neotrichia mobilensis	No accepted common name		
Insects	Phylocentropus harrisi	No accepted common name		
Mollusks	Fusconaia askewi	Texas pigtoe		T
Mollusks	Lampsilis satura	sandbank pocketbook		T

Taxon	SName	CName	USESA	SPROT
Mollusks	Obovaria arkansasensis	southern hickorynut		T
Mollusks	Pleurobema riddellii	Louisiana pigtoe	PT	T
Mollusks	Potamilus amphichaenus	Texas heelsplitter		T
Mollusks	Fusconaia chunii	Trinity pigtoe		T
Mollusks	Truncilla macrodon	Texas fawnsfoot	PT	T
Plants	Coreopsis intermedia	goldenwave tickseed		
Plants	Echinacea atrorubens	Topeka purple-coneflower		
Plants	Gaillardia aestivalis var. winkleri	white firewheel		
Plants	Hymenopappus carrizoanus	sandhill woolywhite		
Plants	Hymenoxys texana	Texas prairie dawn	LE	E
Plants	Liatris tenuis	slender gay-feather		
Plants	Prenanthes barbata	barbed rattlesnake-root		
Plants	Rudbeckia scabrifolia	bog coneflower		
Plants	Symphyotrichum puniceum var. scabricaule	rough-stem aster		
Plants	Leavenworthia texana	Texas golden gladecress	LE	E
Plants	Physaria pallida	white bladderpod	LE	E
Plants	Streptanthus maculatus ssp. maculatus	clasping twistflower		
Plants	Paronychia setacea	bristle nailwort		
Plants	Silene subciliata	scarlet catchfly		
Plants	Geocarpon minimum	earth fruit	LT	T
Plants	Amorpha laevigata	smooth indigobush		
Plants	Amorpha paniculata	panicled indigobush		
Plants	Astragalus soxmaniorum	Soxman's milkvetch		
Plants	Quercus arkansana	Arkansas oak		
Plants	Quercus boyntonii	Boynton's oak		
Plants	Bartonia paniculata ssp. texana	Texas screwstem		
Plants	Brazoria truncata var. pulcherrima	Centerville Brazos-mint		
Plants	Physostegia longisepala	long-sepaled false dragon-head		
Plants	Rhododon ciliatus	Texas sandmint		
Plants	Leitneria pilosa ssp. pilosa	corkwood		
Plants	Spigelia texana	Texas pinkroot		
Plants	Hibiscus dasycalyx	Neches River rose-mallow	LT	T
Plants	Phlox nivalis ssp. texensis	Texas trailing phlox	LE	E
Plants	Clematis carrizoensis	Carrizo Sands leather-flower		
Plants	Agrimonia incisa	incised groovebur		
Plants	Crataegus nananixonii	Nixon's dwarf hawthorn		
Plants	Crataegus viridis var. glabriuscula	Sutherland hawthorn		
Plants	Agalinis navasotensis	Navasota false foxglove		
Plants	Yucca cernua	nodding yucca		
Plants	Carex decomposita	cypress knee sedge		
Plants	Cyperus grayioides	Mohlenbrock's sedge		
Plants	Rhynchospora indianolensis	Indianola beakrush		
Plants	Rhynchospora macra	large beakrush		
Plants	Eriocaulon koernickianum	small-headed pipewort		T
Plants	Lachnocaulon digynum	tiny bog button		
Plants	Schoenolirion wrightii	Texas sunnybell		
Plants	Trillium texanum	Texas trillium		
Plants	Calopogon oklahomensis	Oklahoma grass pink		
Plants	Cypripedium kentuckiense	Southern lady's-slipper		

Taxon	SName	CName	USESA	SPROT
Plants	Platanthera integra	yellow fringeless orchid		
Plants	Platanthera chapmanii	Chapman's orchid		
Plants	Spiranthes brevilabris	Texas ladies'-tresses		
Plants	Spiranthes longilabris	giant spiral ladies'-tresses		
Plants	Spiranthes parksii	Navasota ladies'-tresses	LE	E
Plants	Triphora trianthophoros var. texensis	Texas three-birds orchid		
Plants	Xyris drummondii	Drummond's yellow-eyed grass		
Plants	Xyris chapmanii	Chapman's yellow-eyed grass		
Plants	Xyris scabrifolia	roughleaf yellow-eyed grass		

Appendix 1-B
Water Loss Audits

The TWDB established requirements requiring water audit reporting for public utilities that provide potable water. Every five years public utilities must perform a water audit computing the utility's most recent annual water loss. Entities with active financial obligations with the TWDB are required to submit water loss data annually. This appendix provides Entity-Level Water Loss Audit Data for 2021.

Texas Water Development Board

2019 through 2021 - Summary of Reported Water Loss Audits by Utility as of 12/19/2023

This data comes from submitted water loss audits after quality control has been completed. Water loss audits with obvious data issues were removed.

GMD = gallons per mile per day; GCD = gallons per connection per day; ILI = Infrastructure Leakage Index; GPCD = gallons per capita per day

Year	Name of Utility	Real Loss GMD (<32 conn/mi)	Real Loss GCD	Apparent Loss GCD	Water Loss GCD	ILI (>= 3,000 connections)	Total GPCD	GPCD Loss	Real Loss Cost in dollars	Apparent Loss Cost in dollars
2020	Angelina WSC	260.27	8.82	5.42	14.24	0	98	5	$23,277	$30,573
2020	Appleby WSC	558.13	43.92	5.01	48.92	0	88	16	$187,746	$41,621
2019	B C Y WSC	121.19	9.64	5.79	15.43	0	39	5	$2,488	$7,578
2020	B C Y WSC		27.72	12.44	40.15	1.59	160	14	$94,272	$108,121
2020	Brushy Creek WSC		15.94	12.58	28.52	1.44	181	13	$45,199	$247,061
2020	Cardinal Meadows Improvement District	4024.72	134.56	6	140.56	0	149	46	$26,566	$2,882
2021	Cardinal Meadows Improvement District	1249.75	70.87	3.14	74.01	0	117	64	$14,985	$20,287
2020	Centerville WSC		18.02	2.85	20.87	0	67	13	$450	$890
2019	City of Beaumont Water Utility Dept	1180.41	64.89	20.33	85.23	0	147	47	$11,310	$19,280
2020	City of Beaumont Water Utility Dept		45.79	16.19	61.97	3.33	171	20	$832,219	$768,660
2019	City of Bridge City		48.44	11.02	59.46	0	116	27	$18,281	$125,591
2020	City of Bridge City	1221.54	40.81	8.27	49.09	0	104	21	$1,257	$3,185
2019	City of Brownsboro		35.82	5.48	41.3	0	93	14	$11,715	$2,910
2019	City of Carthage		34.99	0.52	35.5	0	69	12	$34,565	$2,082
2020	City of Center	1196.99	38.29	3.19	41.48	2.24	97	14	$586,110	$47,161
2021	City of Center	604.84	21.38	8.63	30.01	1.1	73	7	$63,780	$32,789
2019	City of Chandler	119	4.1	16.2	20.3	0	90	6	$827	$64,909
2020	City of Chandler		35.59	22.98	58.57	1.68	130	17	$2,593,024	$5,534,147
2020	City of China	937.67	75.62	1.9	77.52	0	181	18	$513	$129
2020	City of Corrigan		23.74	5.36	29.11	2.26	104	10	$229,167	$59,152
2020	City of Crockett		17.67	1.03	18.7	0	137	6	$19,180	$1,966
2019	City of Cushing		10.97	13.1	24.07	0	111	8	$6,279	$8,649
2020	City of Cushing		9.05	2.41	11.46	0.73	67	4	$35,370	$15,885
2019	City of Garrison		33.13	0.65	33.78	0	87	11	$17,657	$700
2020	City of Garrison		25.5	0.57	26.07	0	76	9	$7,371	$331
2021	City of Groves	1464.99	59.61	3.47	63.08	2.48	98	21	$762,300	$52,599
2019	City of Henderson	93	3.12	0.72	3.84	0	97	1	$51	$49
2020	City of Henderson		39.34	18.61	57.96	0	131	19	$11,689	$8,167
2021	City of Henderson	473.32	16.32	12.35	28.67	0	84	10	$812	$994
2019	City of Huntington	772.88	34.35	0.49	34.84	0	72	13	$147	$14
2020	City of Huntington	1564.01	66.17	0.56	66.73	0	74	22	$71,839	$2,478
2019	City of Huxley		12.83	3.03	15.86	0	123	5	$3,244	$3,380
2020	City of Huxley		28.08	1.83	29.91	0	79	10	$3,120	$897
2019	City of Jacksonville		8.85	3.29	12.13	0	199	8	$5,345	$3,428
2020	City of Jacksonville		37.87	12.11	49.97	1.45	240	21	$205,324	$202,315
2021	City of Jacksonville		16.99	18.32	35.31	0	186	17	$13,635	$20,409
2021	City of Jasper		60.46	3.64	64.1	0	104	30	$35,001	$3,163
2019	City of Kirbyville		35.06	0.45	35.51	0	60	12	$892	$47
2020	City of Kirbyville		9.34	0.46	9.79	0	61	3	$199	$40
2021	City of Kirbyville	2225.48	74.02	10.62	84.64	2.8	184	29	$454,888	$163,154
2019	City of Kountze	1165.31	42.12	0.74	42.86	0	99	14	$11,484	$825
2020	City of Kountze		20.12	0.45	20.57	0	61	7	$925	$86
2021	City of Kountze	41.55	1.35	3.25	4.6	0	50	2	$410	$7,969
2020	City of Lovelady		18.76	9.02	27.77	0	35	11	$12,990	$9,775
2019	City of Lufkin	2702.65	168.92	5.81	174.73	0	106	58	$1,533	$565
2019	City of Nacogdoches		39.41	1.07	40.48	0	87	14	$162,741	$6,586
2020	City of Nacogdoches		51.61	1.25	52.86	0	102	18	$117,494	$5,080
2021	City of Nacogdoches	865.17	40.97	0.36	41.34	0	49	14	$24,698	$896

2019 through 2021 - Summary of Reported Water Loss Audits by Utility as of 12/19/2023

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GMD = gallons per mile per day; GCD = gallons per connection per day; ILI = Infrastructure Leakage Index; GPCD = gallons per capita per day

Year	Name of Utility	Real Loss GMD (<32 conn/mi)	Real Loss GCD	Apparent Loss GCD	Water Loss GCD	ILI (>= 3,000 connections)	Total GPCD	GPCD Loss	Real Loss Cost in dollars	Apparent Loss Cost in dollars
2019	CITY OF NEDERLAND		33.55	3.99	37.54	0	98	13	$1,903	$1,921
2020	CITY OF NEDERLAND		59.67	1.22	60.9	0	142	38	$24,286	$995
2021	CITY OF NEDERLAND		21.56	7.31	28.87	0	152	13	$2,776	$9,408
2020	City of New Summerfield	3393.2	138.06	19.44	157.5	6.78	283	84	$35,422	$35,138
2021	City of Newton		62.57	6.16	68.73	0	79	30	$44,668	$8,366
2019	City of Nome		46.35	4.02	50.37	2.96	148	24	$245,535	$31,651
2020	City of Nome	291.57	9.29	3.56	12.85	0	64	5	$13,963	$14,254
2021	City of Nome		18.72	23.5	42.22	1.2	134	12	$1,135,653	$3,377,947
2020	City of Orange		36.69	8.68	45.37	2.57	121	18	$1,344,144	$761,894
2021	City of Orange		115.26	4.66	119.92	8.33	169	48	$570,394	$368,350
2019	City of Palestine	1871.09	80.91	14.77	95.69	0	121	48	$28,957	$5,587
2019	City of Pinehurst		7.83	18.55	26.38	0	128	18	$3,107	$45,766
2020	City of Pinehurst	336.18	16.88	12.26	29.14	0	136	13	$37,732	$38,125
2021	City of Pinehurst	81.36	4.77	5.68	10.45	0	95	5	$3,066	$5,606
2019	City of Pineland	1796.25	111.2	5.69	116.89	0	183	98	$85,232	$4,364
2020	City of Pineland		47.59	25.49	73.08	0	187	36	$57,369	$86,654
2020	City of Port Neches	437.67	69.69	25.78	95.47	0	117	34	$6,358	$19,572
2021	City of Port Neches		16.24	6.3	22.54	0.91	85	6	$9,586	$72,987
2019	City of Rusk		22.34	6.59	28.93	1.29	180	13	$84,206	$35,380
2019	City of San Augustine	18.67	2.08	3.92	6	0	98	2	$319	$4,431
2020	City of San Augustine		55.65	17.86	73.51	0	98	30	$12,972	$4,029
2021	City of San Augustine		41.35	9.84	51.19	0	82	18	$5,068	$7,373
2020	City of Tenaha		36.39	15.22	51.6	1.8	105	22	$146,190	$177,478
2021	City of Tenaha		237.91	43.09	281	0	817	216	$58,203	$10,541
2019	City of Troup	1307.37	78.44	6.52	84.96	0	107	42	$4,538	$833
2020	City of Troup	3236.91	350.57	10.66	361.23	0	313	207	$35,444	$3,772
2021	City of Troup	500.12	19.45	3.41	22.86	0	142	11	$33,953	$5,448
2019	City of Tyler		124.83	17.41	142.25	8.56	156	75	$1,171,051	$163,345
2020	City of Tyler		58.4	1.37	59.77	0	142	21	$56,384	$1,320
2021	City of Tyler		144.72	4.4	149.12	0	160	79	$101,978	$3,786
2020	City of Wells		36.65	21.03	57.68	2.67	171	22	$673,166	$503,892
2021	City of Wells		16.06	12.7	28.76	0	107	10	$1,171	$11,284
2020	City of Whitehouse		16.4	1.66	18.07	1.14	115	7	$179,636	$38,094
2019	Cypress Creek WSC		11.96	3.64	15.6	0	181	9	$5,199	$9,655
2020	Cypress Creek WSC	287.63	11.19	3.91	15.1	0	84	10	$3,675	$5,970
2019	D & M WSC	202.39	18.4	21.8	40.2	0	59	10	$615	$1,751
2020	D & M WSC		31.16	0.52	31.68	0	70	11	$32,421	$2,214
2021	D & M WSC		4.99	10.99	15.98	0	72	5	$8,582	$16,583
2019	Denning WSC	2919.28	101.57	7.31	108.88	0	103	41	$4,396	$1,007
2020	Denning WSC	73.23	27.74	0.66	28.4	0	85	9	$46,642	$1,743
2021	Emerald Bay MUD		60.96	7.07	68.02	4.62	102	18	$25,754	$195,764
2020	Evadale WCID 1		20.93	9.29	30.22	1.66	153	10	$30,435	$76,098
2021	Evadale WCID 1		97.85	7.25	105.1	7.42	150	24	$308,761	$48,141
2019	Four Pines WSC		8.84	4.57	13.41	0.86	69	4	$39,683	$32,474
2020	Four Pines WSC		2.48	0.66	3.14	0	88	1	$1,660	$790
2019	Four Way SUD		5.39	3.62	9.01	0	101	3	$10,088	$7,423
2020	Four Way SUD	999.15	35.18	44.39	79.57	0	289	9	$5,926	$7,478
2019	G-M WSC		1.29	7.4	8.69	0	206	5	$2,587	$50,304
2020	G-M WSC		38.97	6.03	44.99	0	103	15	$2,526	$2,481
2021	G-M WSC		8.54	5.63	14.17	0	114	5	$22,818	$21,216
2019	Goodsprings WSC		2.91	2.81	5.73	0	77	2	$2,002	$6,408
2020	Goodsprings WSC		12.93	9.19	22.12	0	154	8	$21,106	$23,949

Texas Water Development Board

2019 through 2021 - Summary of Reported Water Loss Audits by Utility as of 12/19/2023

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Year	Name of Utility	Real Loss GMD (<32 conn/mi)	Real Loss GCD	Apparent Loss GCD	Water Loss GCD	ILI (>= 3,000 connections)	Total GPCD	GPCD Loss	Real Loss Cost in dollars	Apparent Loss Cost in dollars
2021	Goodsprings WSC		86.39	5.1	91.49	0	103	31	$214,044	$12,634
2019	Gum Creek WSC		2.14	0.99	3.13	0	135	1	$1,163	$3,126
2020	Gum Creek WSC		12.23	5.97	18.2	1.04	93	6	$103,269	$35,801
2020	Hardin County WCID 1		3.08	1.65	4.73	0	169	2	$566	$3,024
2021	Hardin County WCID 1		53.36	5.95	59.3	5.2	77	19	$336,768	$76,038
2020	Hollands Quarter WSC		39.52	9.62	49.14	0	157	16	$9,279	$2,823
2019	Holmwood Angelina & Neches River Authori		11.98	9.01	20.99	0	89	4	$16,416	$15,823
2020	Holmwood Angelina & Neches River Authori		10.53	8.88	19.41	0.75	141	7	$32,924	$164,064
2021	Holmwood Angelina & Neches River Authori		48.34	9.28	57.61	0	96	10	$34,563	$6,632
2020	Hudson WSC		11.58	4.23	15.81	1.05	455	37	$13,849	$162,975
2021	Hudson WSC	283.39	46.27	5.84	52.11	0	171	17	$51,412	$7,938
2020	Jackson WSC		13.27	21.13	34.4	0	129	10	$6,330	$74,093
2019	Jasper County WCID 1	676.63	23.53	3.13	26.66	0	133	9	$3,023	$2,071
2020	Jasper County WCID 1		20.27	2.62	22.88	0	111	8	$3,195	$2,129
2021	Jasper County WCID 1	283.44	27.76	11.01	38.76	0	149	24	$23,898	$13,985
2019	Jefferson County WCID 10		265.23	36.2	301.43	0	212	103	$104,555	$60,645
2020	Jefferson County WCID 10		74.42	16.96	91.38	0	207	47	$34,471	$78,551
2021	Jefferson County WCID 10	1690.1	113.56	7.44	121.01	0	95	40	$94,383	$14,436
2020	Leagueville WSC	33.17	16.01	17.88	33.9	0	378	16	$170	$2,442
2019	Lilly Grove SUD	90.68	28.56	6.88	35.44	0	62	14	$13,239	$9,569
2021	Lilly Grove SUD	375.15	147.41	8.14	155.55	0	115	59	$54,771	$9,073
2020	Lumberton MUD	684.83	57.87	0.53	58.4	0	71	19	$950	$36
2021	Lumberton MUD	1394.5	45.8	0.32	46.12	0	43	15	$25,161	$723
2019	Mauriceville MUD	1041.77	39.67	0.54	40.21	0	73	13	$10,164	$570
2020	Mauriceville MUD		18.72	7.08	25.8	0	79	3	$13,011	$7,381
2021	Mauriceville MUD		117.28	6.76	124.04	3.81	130	41	$186,995	$288,499
2020	McClelland WSC	869.11	30.42	0.43	30.85	0	57	10	$799	$46
2020	Meeker MWD	32.77	2.77	7.36	10.13	0	71	5	$204	$3,440
2021	Meeker MWD	940.05	72.41	4.26	76.67	0	86	26	$14,823	$2,724
2020	Mt Enterprise WSC	466.83	52.23	6.28	58.52	0	116	22	$107,961	$20,350
2020	Neches WSC	673.26	34.44	18.92	53.36	0	100	18	$87,724	$70,636
2019	New WSC	422.23	32.44	4.07	36.51	0	71	12	$38,528	$4,830
2020	New WSC		69.02	12.6	81.63	0	105	27	$26,020	$57,179
2021	New WSC		141.01	16.87	157.88	0	287	51	$42,188	$10,030
2020	North Cherokee WSC		3.29	0.4	3.69	0	53	1	$70	$35
2020	North Hardin WSC		54.06	0.43	54.49	0	58	18	$17,759	$581
2020	Norwood WSC		35.96	12.8	48.77	0	113	16	$3,844	$6,077
2019	Orange County WCID 1	57.55	6.54	5.93	12.47	0	59	4	$2,059	$1,715
2020	Orange County WCID 1	501.82	129.82	9.04	138.87	0	111	46	$381,808	$34,880
2019	Orange County WCID 2		45.14	1.18	46.32	3.06	149	24	$299,907	$23,502

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GMD = gallons per mile per day; GCD = gallons per connection per day; ILI = Infrastructure Leakage Index; GPCD = gallons per capita per day

Year	Name of Utility	Real Loss GMD (<32 conn/mi)	Real Loss GCD	Apparent Loss GCD	Water Loss GCD	ILI (>= 3,000 connections)	Total GPCD	GPCD Loss	Real Loss Cost in dollars	Apparent Loss Cost in dollars
2020	Orange County WCID 2	660.98	47.44	5.41	52.84	0	103	18	$185,285	$49,274
2021	Orange County WCID 2	1077.48	51.75	19.27	71.03	0	104	24	$144,846	$8,239
2019	Pleasant Springs WSC		19.58	6.76	26.34	1.05	113	10	$109,536	$43,435
2021	Pleasant Springs WSC		92.25	11.74	103.99	7.32	138	54	$544,451	$162,053
2020	Pollok-Redtown WSC		24.96	3.08	28.04	1.5	117	10	$78,524	$88,999
2021	Pollok-Redtown WSC	79.43	4.94	25.01	29.95	0	64	10	$411	$7,466
2019	Rayburn Country MUD	3412.89	134.9	0.53	135.43	0	80	63	$260,602	$1,030
2020	Rayburn Country MUD		56.85	10.57	67.42	5.43	181	33	$268,018	$148,698
2021	Rayburn Country MUD		32.14	13.93	46.07	1.69	132	14	$196,223	$952,333
2019	San Augustine Rural WSC	6761.93	225.71	12.3	238.01	0	426	130	$866,304	$52,467
2020	San Augustine Rural WSC		36.31	6.49	42.8	0	171	24	$74,550	$8,885
2021	San Augustine Rural WSC		104.83	9.2	114.03	0	125	52	$281,610	$50,062
2020	Sand Hills WSC	217.06	20.02	1.16	21.17	0	117	10	$39,614	$3,436
2020	South Newton WSC		15.84	15.96	31.79	1.44	104	9	$71,872	$229,345
2021	South Newton WSC		28.4	22.18	50.58	1.59	252	14	$150,599	$308,370
2020	South Rusk County WSC		47.84	17.04	64.88	0	178	26	$200,794	$80,482
2019	Southern Utilities		3.12	4.73	7.85	0	118	4	$24,858	$37,644
2020	Southern Utilities	364.78	12.61	6.15	18.77	0	122	7	$1,971	$2,956
2021	Southern Utilities		59.35	25.53	84.88	5.15	121	31	$537,627	$201,614
2020	Swift WSC		10.72	6.75	17.48	0.77	96	6	$29,326	$96,613
2019	Tyler County SUD	806.02	110.76	10.98	121.75	0	146	49	$196,964	$19,532
2019	Walnut Grove WSC	713.88	30.03	3.86	33.89	0	66	11	$608	$244
2020	Walnut Grove WSC	74.03	3.69	3.96	7.65	0	67	3	$7,242	$25,377
2020	Walston Springs WSC		35.43	11.42	46.86	2.12	118	15	$1,003,186	$529,267
2019	West Hardin WSC	518.06	19.43	6.21	25.64	0	141	21	$18,068	$10,877
2019	West Jacksonville WSC	326.12	23.64	4.16	27.8	0	70	9	$64,292	$13,470
2020	West Jacksonville WSC	980.5	88.03	3.66	91.69	0	79	31	$30,241	$3,192
2020	Woden WSC	122.49	70.92	2.27	73.19	0	129	28	$9,713	$493
Region I	**Average**	**974**	**47**	**8**	**55**	**2.8**	**127**	**23**	**$127,162**	**$109,747**
Statewide	**Average**	**903**	**47**	**7**	**55**	**2.7**	**119**	**21**	**$227,211**	**$102,403**

Appendix 2-A

Migration Scenarios for Region I Counties

The table below documented the migration scenarios selected by counties.

County	Migration Scenario
ANDERSON	1.0 Migration
ANGELINA	0.5 Migration
CHEROKEE	0.5 Migration
HARDIN	1.0 Migration
HENDERSON	1.0 Migration
HOUSTON	0.5 Migration
JASPER	0.5 Migration
JEFFERSON	0.5 Migration
NACOGDOCHES	0.5 Migration
NEWTON	0.5 Migration
ORANGE	1.0 Migration
PANOLA	0.5 Migration
POLK	1.0 Migration
RUSK	0.5 Migration
SABINE	0.5 Migration
SAN AUGUSTINE	0.5 Migration
SHELBY	0.5 Migration
SMITH	1.0 Migration
TRINITY	0.5 Migration
TYLER	0.5 Migration

Appendix 2-B

Correspondence of the East Texas Regional Water Planning Group Chair to the Texas Water Development Board

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Following are two letters from John Martin, Chair of the ETRWPG, to the TWDB, regarding the 2026 Plan Projected Demands. The letters are dated July and August 2023, and present a proposal and supplemental documentation requesting for the TWDB to revise projected demands for the municipal and non-municipal projections.

- Proposed Revisions to Non-Municipal Projections for the East Texas Regional Water Planning Area date July 11, 2023
- Proposed Revisions to Municipal Projections for the East Texas Regional Water Planning Area date August 10, 2023

Region I
East Texas Regional
Water Planning Group

John Martin, Chair
P.O. Box 1407
Jasper, TX 75951
409-383-1577

July 11, 2023

Mr. Jeff Walker
Executive Administrator
Texas Water Development Board
1700 Congress Avenue
Austin, Texas, 78701

Re: Proposed Revisions to Non-Municipal Projections for the East Texas Regional Water Planning Area

Dear Mr. Walker:

This letter transmits proposed revisions of the East Texas Regional Water Planning Area (Region I) non-municipal demand projections developed by the Texas Water Development Board (TWDB) for the 2026 Regional Water Plan (2026 Plan). These recommendations were adopted by the East Texas Regional Water Planning Group (ETRWPG) at its general meeting held on June 21, 2023. The following is a summary of the proposed revisions by demand category.

- **Irrigation Demands**
  - Increased irrigation demand in the Region I split of Angelina, Cherokee, Hardin, Houston, Jefferson, Nacogdoches, Newton, Orange, Polk, Rusk, San Augustine, Shelby, Smith, Trinity, and Tyler counties based on the greatest 5-year average demand, by county, considering either the TWDB draft 2026 Regional Water Plan (RWP) irrigation projections (2015-2019 average historical use) or the average historical use during the dry period from 2010-2014 (2021 RWP irrigation projections).
- **Livestock Demands**
  - Increased livestock demand in the Region I split of all counties based on the maximum annual historical livestock use, by county, between 2015-2019, rather than the TWDB's methodology of average use during that same period.
  - Increased Jasper County Livestock demand by 10,000 ac-ft/yr per existing Texas Parks and Wildlife (TPWD) contract data provided by Lower Neches Valley Authority.
  - Increased Nacogdoches County Livestock demand by 10,000 ac-ft/yr per existing TPWD contract data provided by Lower Neches Valley Authority.
- **Manufacturing Demands**
  - Increased manufacturing demand in Angelina, Newton, Orange, and Smith counties. Recalculated the baseline demands in these counties to include estimated water use for new manufacturing facilities. The same TWDB growth rates were applied to the recalculated baseline in these counties.
  - Developed an alternative manufacturing demand projection in Jefferson County based on feedback from major water providers regarding current and planned

manufacturing facilities and analysis of recent water use trends within the county, which indicate substantial increases in manufacturing water use over the last decade.

- **Mining Demands**
  - No recommended changes.
- **Steam-Electric Demands**
  - Increased steam electric power demand in Orange County to include estimated water use for a new steam electric power generating facility for all decades. The projection was held constant from 2030 to 2080.

Table 1: Summary of Proposed Revisions by Demand Category

Demand Category	Water Plan	Projected Water Demand (ac-ft/yr)					
		2030	2040	2050	2060	2070	2080
Irrigation	2022 SWP(1)	99,881	99,881	99,881	99,881	99,881	99,881
	2026 RWP(2)	58,629	58,629	58,629	58,629	58,629	58,629
	2026 ETRWPG(3)	99,429	99,429	99,429	99,429	99,429	99,429
Livestock	2022 SWP(1)	49,314	52,441	56,186	60,681	66,047	67,260
	2026 RWP(2)	18,965	20,016	21,259	22,718	23,176	23,176
	2026 ETRWPG(3)	39,922	41,037	42,355	43,901	44,381	44,381
Manufacturing	2022 SWP(1)	306,788	354,410	354,410	354,410	354,410	354,410
	2026 RWP(2)	273,445	283,562	294,054	304,936	316,219	327,920
	2026 ETRWPG(3)	360,181	402,032	444,137	486,507	529,148	572,072
Mining	2022 SWP(1)	28,373	25,465	19,068	16,417	13,929	13,073
	2026 RWP(2)	9,673	9,759	9,847	9,952	10,062	10,179
	2026 ETRWPG(3)	9,673	9,759	9,847	9,952	10,062	10,179
Steam-Electric	2022 SWP(1)	67,011	67,011	67,011	67,011	67,011	67,011
	2026 RWP(2)	35,621	35,621	35,621	35,621	35,621	35,621
	2026 ETRWPG(3)	41,782	41,782	41,782	41,782	41,782	41,782
Total Non-Municipal Water Demands	2022 SWP(1)	551,367	599,208	596,556	598,400	601,278	601,635
	2026 RWP(2)	396,333	407,587	419,410	431,856	443,707	455,525
	2026 ETRWPG(3)	550,987	594,039	637,550	681,571	724,802	767,843

(1) 2022 SWP: Projections are from the 2022 State Water Plan, adopted on July 7, 2021. The 2022 State Water Plan includes projection decades 2020-2070, but are displayed in this table as 2030-2080 for comparison purposes.

(2) 2026 RWP: Projections are from the Texas Water Development Board website.

(3) 2026 ETRWPG: Projections are those proposed by the East Texas Regional Water Planning Group (ETRWPG)

The enclosure to this letter provides the proposed revisions in the format requested by the TWDB. The ETRWPG appreciates the opportunity to submit these recommendations. Please do not hesitate to contact me if you have any questions.

Sincerely,

John Martin, Chair
East Texas Regional Water Planning Group

Enclosures

cc: Mr. Lann Bookout, Texas Water Development Board
Ms. Brigit Buff, P.E., Plummer Associates, Inc.
Mr. Jordan Skipwith, P.E., Freese and Nichols, Inc.

Region I
East Texas Regional
Water Planning Group

John Martin, Chair
P.O. Box 1407
Jasper, TX 75951
409-383-1577

August 10, 2023

Mr. Jeff Walker
Executive Administrator
Texas Water Development Board
1700 Congress Avenue
Austin, Texas, 78701

Re: Proposed Revisions to Municipal Projections for the East Texas Regional Water Planning Area

Dear Mr. Walker:

This letter transmits proposed revisions of the East Texas Regional Water Planning Area (Region I) municipal population and demand projections developed by the Texas Water Development Board (TWDB) for the 2026 Regional Water Plan (2026 Plan). These recommendations were adopted by the East Texas Regional Water Planning Group (ETRWPG) at its general meeting held on June 21, 2023.

The Region I revised municipal demands shown in Table 1 incorporated mixed migrations rates at the county level, water user group (WUG) requested revisions to population, and the revised gallons per capita-day (GPCDs) for several WUGs within the East Texas Region. There was no alteration to the TWDB's methodology in calculating the municipal demands, only the numbers used in the calculation were adjusted per the information described above.

Table 1: Total Region I Municipal Water Demand Comparison

Scenario	2030	2040	2050	2060	2070	2080
Draft 2026 TWDB Projected Demand (acre-ft/year) (1.0 Migration * Base GPCDs[1] Less Plumbing Code Savings)	179,954	181,583	182,018	181,552	181,141	180,791
Region I Revised Demand (Mixed Migration Rates Plus WUG Requested Pop. Revisions * Revised GPCDs)	213,976	219,541	224,659	225,975	227,523	229,320

[1]GPCD: Gallons per capita per day

The revised recommended county-level and WUG population, GPCDs, and municipal water demand projections for 2030-2080 are presented in Attachment A, *WUGs_RevisedPCSMuniDemands_RegionI*, of this letter. The detailed revisions to populations and usage used in calculating the adjusted demand as well as supporting justification are detailed in Attachment B, *Region I Municipal Water Demand Projections Technical Memorandum*, with additional information included in the memorandum appendices.

The enclosure with this letter provides the proposed revisions in the format requested by the TWDB.

The ETRWPG appreciates the opportunity to submit these recommendations. Please do not hesitate to contact me if you have any questions.

Sincerely,

John M Martin

John Martin, Chair
East Texas Regional Water Planning Group

Enclosures

cc: Mr. Lann Bookout, Texas Water Development Board
Ms. Brigit Buff, P.E., Plummer Associates, Inc.
Mr. Jordan Skipwith, P.E., Freese and Nichols, Inc.

Region I
East Texas Regional
Water Planning Group

John Martin, Chair
P.O. Box 1407
Jasper, TX 75951
409-383-1577

August 10, 2023

Mr. Jeff Walker
Executive Administrator
Texas Water Development Board
1700 Congress Avenue
Austin, Texas, 78701

Re: Proposed Revisions to Municipal Projections for the East Texas Regional Water Planning Area

Dear Mr. Walker:

This letter transmits proposed revisions of the East Texas Regional Water Planning Area (Region I) municipal population and demand projections developed by the Texas Water Development Board (TWDB) for the 2026 Regional Water Plan (2026 Plan). These recommendations were adopted by the East Texas Regional Water Planning Group (ETRWPG) at its general meeting held on June 21, 2023.

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The enclosure with this letter provides the proposed revisions in the format requested by the TWDB.

The ETRWPG appreciates the opportunity to submit these recommendations. Please do not hesitate to contact me if you have any questions.

Sincerely,

John M Martin

John Martin, Chair
East Texas Regional Water Planning Group

Enclosures

cc: Mr. Lann Bookout, Texas Water Development Board
Ms. Brigit Buff, P.E., Plummer Associates, Inc.
Mr. Jordan Skipwith, P.E., Freese and Nichols, Inc.

Region I

East Texas Regional Water Planning Group

John Martin, Chair
P.O. Box 1407
Jasper, TX 75951
409-383-1577

July 11, 2023

Mr. Jeff Walker
Executive Administrator
Texas Water Development Board
1700 Congress Avenue
Austin, Texas, 78701

Re: Proposed Revisions to Non-Municipal Projections for the East Texas Regional Water Planning Area

Dear Mr. Walker:

This letter transmits proposed revisions of the East Texas Regional Water Planning Area (Region I) non-municipal demand projections developed by the Texas Water Development Board (TWDB) for the 2026 Regional Water Plan (2026 Plan). These recommendations were adopted by the East Texas Regional Water Planning Group (ETRWPG) at its general meeting held on June 21, 2023. The following is a summary of the proposed revisions by demand category.

- **Irrigation Demands**
  - Increased irrigation demand in the Region I split of Angelina, Cherokee, Hardin, Houston, Jefferson, Nacogdoches, Newton, Orange, Polk, Rusk, San Augustine, Shelby, Smith, Trinity, and Tyler counties based on the greatest 5-year average demand, by county, considering either the TWDB draft 2026 Regional Water Plan (RWP) irrigation projections (2015-2019 average historical use) or the average historical use during the dry period from 2010-2014 (2021 RWP irrigation projections).
- **Livestock Demands**
  - Increased livestock demand in the Region I split of all counties based on the maximum annual historical livestock use, by county, between 2015-2019, rather than the TWDB's methodology of average use during that same period.
  - Increased Jasper County Livestock demand by 10,000 ac-ft/yr per existing Texas Parks and Wildlife (TPWD) contract data provided by Lower Neches Valley Authority.
  - Increased Nacogdoches County Livestock demand by 10,000 ac-ft/yr per existing TPWD contract data provided by Lower Neches Valley Authority.
- **Manufacturing Demands**
  - Increased manufacturing demand in Angelina, Newton, Orange, and Smith counties. Recalculated the baseline demands in these counties to include estimated water use for new manufacturing facilities. The same TWDB growth rates were applied to the recalculated baseline in these counties.
  - Developed an alternative manufacturing demand projection in Jefferson County based on feedback from major water providers regarding current and planned

manufacturing facilities and analysis of recent water use trends within the county, which indicate substantial increases in manufacturing water use over the last decade.

- **Mining Demands**
  - No recommended changes.
- **Steam-Electric Demands**
  - Increased steam electric power demand in Orange County to include estimated water use for a new steam electric power generating facility for all decades. The projection was held constant from 2030 to 2080.

Table 1: Summary of Proposed Revisions by Demand Category

Demand Category	Water Plan	Projected Water Demand (ac-ft/yr)					
		2030	2040	2050	2060	2070	2080
Irrigation	2022 SWP(1)	99,881	99,881	99,881	99,881	99,881	99,881
	2026 RWP(2)	58,629	58,629	58,629	58,629	58,629	58,629
	2026 ETRWPG(3)	99,429	99,429	99,429	99,429	99,429	99,429
Livestock	2022 SWP(1)	49,314	52,441	56,186	60,681	66,047	67,260
	2026 RWP(2)	18,965	20,016	21,259	22,718	23,176	23,176
	2026 ETRWPG(3)	39,922	41,037	42,355	43,901	44,381	44,381
Manufacturing	2022 SWP(1)	306,788	354,410	354,410	354,410	354,410	354,410
	2026 RWP(2)	273,445	283,562	294,054	304,936	316,219	327,920
	2026 ETRWPG(3)	360,181	402,032	444,137	486,507	529,148	572,072
Mining	2022 SWP(1)	28,373	25,465	19,068	16,417	13,929	13,073
	2026 RWP(2)	9,673	9,759	9,847	9,952	10,062	10,179
	2026 ETRWPG(3)	9,673	9,759	9,847	9,952	10,062	10,179
Steam-Electric	2022 SWP(1)	67,011	67,011	67,011	67,011	67,011	67,011
	2026 RWP(2)	35,621	35,621	35,621	35,621	35,621	35,621
	2026 ETRWPG(3)	41,782	41,782	41,782	41,782	41,782	41,782
Total Non-Municipal Water Demands	2022 SWP(1)	551,367	599,208	596,556	598,400	601,278	601,635
	2026 RWP(2)	396,333	407,587	419,410	431,856	443,707	455,525
	2026 ETRWPG(3)	550,987	594,039	637,550	681,571	724,802	767,843

(1) 2022 SWP: Projections are from the 2022 State Water Plan, adopted on July 7, 2021. The 2022 State Water Plan includes projection decades 2020-2070, but are displayed in this table as 2030-2080 for comparison purposes.

(2) 2026 RWP: Projections are from the Texas Water Development Board website.

(3) 2026 ETRWPG: Projections are those proposed by the East Texas Regional Water Planning Group (ETRWPG)

The enclosure to this letter provides the proposed revisions in the format requested by the TWDB. The ETRWPG appreciates the opportunity to submit these recommendations. Please do not hesitate to contact me if you have any questions.

Sincerely,

John M Martin

John Martin, Chair
East Texas Regional Water Planning Group

Enclosures

cc: Mr. Lann Bookout, Texas Water Development Board
Ms. Brigit Buff, P.E., Plummer Associates, Inc.
Mr. Jordan Skipwith, P.E., Freese and Nichols, Inc.

Appendix 2-C
Historical Estimates for Utility Water User Group in Region I

The following appendix includes a copy of the WUG Historical Estimates data from the TWDB. The summary is divided by Water User Group.

EntityName	Population within Region I					Net Use (ac-ft) within Region I				
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Beaumont	124,420	124,154	123,888	123,623	123,358	22,934	20,857	22,527	20,103	21,102
Carthage	6,353	6,326	6,300	6,274	6,248	1,237	1,255	1,451	1,202	1,215
Center	4,958	4,925	4,892	4,860	4,828	1,650	1,726	1,792	1,879	2,188
Jacksonville	15,167	15,228	15,386	15,386	13,415	2,884	2,480	2,766	2,923	2,723
Lufkin	42,719	42,719	41,779	43,119	39,814	7,711	5,611	6,037	5,575	6,029
Nacogdoches	35,107	35,107	35,107	33,139	34,160	6,154	5,681	7,380	5,934	5,946
Port Arthur	46,190	46,360	46,530	46,701	46,872	14,305	16,012	16,843	14,398	15,905
Tyler	99,075	100,264	100,264	101,314	104,036	26,341	24,506	30,043	27,828	28,703
Alto	1,006	990	975	960	946	188	196	178	178	178
Alto Rural WSC	2,942	2,942	3,042	3,019	3,705	569	475	535	543	562
Appleby WSC	3,248	3,284	3,321	3,358	3,396	699	614	699	637	665
Arp	937	927	917	907	897	151	145	143	139	138
Beckville	789	777	765	753	741	99	91	66	83	83
Berryville	874	864	854	844	834	92	90	102	110	103
Bethel Ash WSC	2,709	2,720	2,731	2,743	2,754	175	180	205	184	193
Bevil Oaks	1,079	1,065	1,051	1,037	1,023	121	91	88	65	84
Bridge City	8,059	8,107	8,382	8,601	10,295	858	934	956	837	872
Brownsboro	910	922	922	917	1,052	152	167	168	155	170
Brushy Creek WSC	2,958	2,968	2,979	2,989	2,998	363	370	478	371	344
Bullard	2,703	2,817	2,888	3,180	3,808	574	557	617	601	673
Central WCID of Angelina County	5,750	5,778	5,806	5,835	5,864	502	475	557	491	527
Chandler	3,201	3,239	3,334	3,361	3,324	426	390	449	404	404
China	936	943	950	957	965	116	110	132	126	126
Colmesneil	729	724	719	715	713	150	162	140	140	140
Corrigan	1,260	1,249	1,239	1,229	1,219	214	222	132	210	202
County-Other, Anderson	6,220	6,228	6,541	6,220	4,499	201	216	239	210	192
County-Other, Angelina	5,973	5,891	4,767	2,905	5,751	200	179	176	183	179
County-Other, Cherokee	4,850	5,359	5,448	5,533	4,335	566	555	584	544	554
County-Other, Hardin	10,823	11,457	11,337	11,647	10,413	100	107	109	105	135
County-Other, Houston	3,798	3,992	4,064	3,783	3,702	76	79	81	81	74
County-Other, Jasper	15,888	15,670	15,789	15,185	11,957	218	266	319	262	340
County-Other, Jefferson	13,642	15,414	13,867	10,559	14,790	154	148	141	132	148
County-Other, Nacogdoches	6,505	6,223	6,295	7,696	5,785	185	171	190	172	161
County-Other, Newton	8,422	8,465	8,351	8,288	7,348	163	159	183	200	206
County-Other, Orange	19,302	19,230	20,223	17,904	18,486	252	223	240	247	200
County-Other, Panola	12,146	11,969	11,944	12,061	11,492	460	399	431	375	451
County-Other, Rusk	11,298	11,040	13,165	12,676	10,016	474	504	494	460	466
County-Other, Sabine	1,409	1,650	1,850	1,901	1,352	170	168	168	160	155
County-Other, San Augustine	3,243	3,199	3,201	3,227	2,729	112	102	106	103	112
County-Other, Shelby	10,505	10,598	10,653	10,660	9,525	127	129	126	129	129
County-Other, Smith	8,391	8,615	9,280	9,253	6,500	264	255	301	290	299
County-Other, Trinity	2,278	2,502	2,632	2,663	2,175	145	137	146	140	149
County-Other, Tyler	9,157	9,282	9,331	9,186	7,256	403	375	371	454	371
Craft Turney WSC	4,731	4,734	4,737	4,740	4,746	508	542	566	628	664
Crockett	6,494	6,439	6,384	6,330	6,275	1,146	996	1,190	997	960
Cushing	765	758	751	744	738	90	89	90	95	91
Dean WSC	3,922	3,922	3,969	4,103	4,190	428	531	652	610	583
Diboll	4,581	4,543	4,505	4,468	4,431	711	691	682	645	690
Elkhart	1,779	1,773	1,767	1,761	1,757	205	214	207	191	191
Frankston	1,041	1,032	1,023	1,014	1,005	97	170	176	178	175
Garrison	856	845	834	823	812	191	261	222	210	178
Grapeland	1,280	1,280	1,281	1,281	1,306	202	183	173	209	222
Groves	16,522	16,633	16,745	16,858	16,971	2,222	2,030	2,087	1,960	2,097

EntityName	Population within Region I					Net Use (ac-ft) within Region I				
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Hemphill	1,198	1,198	1,208	1,191	1,050	586	275	284	267	163
Henderson	12,758	12,716	12,675	12,634	12,592	2,773	2,146	2,834	2,291	1,981
Hudson WSC	8,933	8,933	10,301	10,399	10,145	805	779	856	790	835
Huntington	2,096	2,087	2,078	2,070	2,064	233	254	256	269	252
Jackson WSC	2,713	2,753	2,793	2,834	2,876	258	270	264	262	263
Jasper	8,057	7,952	7,848	7,746	7,646	1,625	1,529	1,717	1,463	1,523
Jasper County WCID 1	2,038	2,027	2,016	2,006	1,997	191	211	222	225	203
Jefferson County WCID 10	4,279	4,175	4,073	3,974	3,877	579	592	633	611	608
Joaquin	812	792	772	753	734	174	137	169	156	122
Kirbyville	2,177	2,177	2,142	2,142	2,044	302	305	326	337	295
Kountze	1,957	2,019	2,054	2,099	2,105	263	255	258	243	235
Lilly Grove SUD	2,166	2,197	2,229	2,261	2,293	393	376	469	367	367
Lovelady	516	512	508	505	504	85	68	90	97	87
Lumberton MUD	21,745	21,845	21,946	22,047	22,148	2,066	2,127	2,211	2,192	2,322
Mauriceville SUD	9,959	9,969	9,979	9,989	10,002	738	738	576	793	774
Meeker MWD	3,184	3,014	2,853	2,701	2,557	252	291	374	381	394
Murchison	814	758	705	656	611	93	110	140	118	91
Nederland	17,807	17,830	18,243	18,264	19,113	2,087	2,070	2,203	2,137	2,329
New London	876	858	841	824	807	260	263	254	266	260
New Summerfield	1,005	982	959	937	915	134	114	123	120	114
Newton	1,761	1,728	1,696	1,664	1,633	307	309	350	350	350
North Cherokee WSC	3,903	3,931	3,959	3,987	4,016	462	483	495	434	496
North Hardin WSC	7,392	7,407	7,455	7,392	7,198	474	470	494	446	470
Orange	18,500	18,595	18,643	18,643	19,303	2,660	2,927	3,206	3,407	3,129
Overton	2,267	2,267	2,029	2,040	1,932	473	500	442	431	439
Palestine	17,339	17,324	17,309	17,294	17,275	2,845	2,786	2,643	2,609	2,712
Pinehurst	2,000	2,051	1,946	1,953	2,048	260	244	252	249	346
Pineland	938	938	938	938	963	131	131	155	125	186
Port Neches	13,429	13,489	13,549	13,609	13,670	1,532	1,599	1,659	1,548	1,576
Rusk	5,333	5,298	5,264	5,230	5,196	834	796	801	845	916
Rusk Rural WSC	3,473	3,452	3,431	3,410	3,390	253	275	320	320	297
San Augustine	2,006	1,989	1,972	1,955	1,938	474	392	526	603	645
Silsbee	7,254	7,293	7,333	7,373	7,413	867	803	903	906	830
Sour Lake	1,598	1,587	1,576	1,565	1,554	307	307	308	268	265
South Newton WSC	3,244	3,198	3,152	3,107	3,062	437	427	442	442	339
Southern Utilities	37,455	37,715	38,283	38,814	40,049	6,780	6,622	6,792	7,033	6,733
Swift WSC	2,333	2,345	2,357	2,369	2,381	331	310	342	348	343
Tatum	1,633	1,622	1,611	1,600	1,588	188	201	224	224	224
Tenaha	951	937	923	910	897	245	237	254	232	279
Timpson	1,072	1,056	1,040	1,025	950	180	185	185	203	203
Troup	1,929	1,941	1,953	1,966	1,980	375	345	353	386	324
Tyler County SUD	3,312	3,291	3,270	3,249	3,227	516	571	664	682	634
Orange County WCID 1	17,615	17,535	14,879	14,879	13,292	1,309	1,271	1,205	1,226	1,264
Walston Springs WSC	2,833	2,856	2,879	2,902	2,926	400	396	370	361	328
Wells	729	736	743	750	756	103	117	100	114	107
West Hardin WSC	3,860	3,837	3,813	3,789	3,766	292	309	281	396	362
West Jefferson County MWD	8,101	8,102	8,103	8,104	8,106	869	786	976	910	811
Orange County WCID 2	3,141	3,137	3,133	3,129	3,122	307	324	395	373	368
Whitehouse	7,204	7,226	7,248	7,270	7,291	887	834	863	857	914
Woodville	4,032	4,039	4,046	4,053	4,058	1,140	1,146	1,236	1,118	941
Zavalla	718	718	781	781	670	87	91	103	103	103
Angelina WSC	2,825	2,832	2,839	2,846	2,853	247	219	254	245	245
Redland WSC	2,503	2,510	2,517	2,524	2,530	188	188	228	207	218

EntityName	Population within Region I					Net Use (ac-ft) within Region I				
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
D and M WSC	6,912	6,930	6,948	6,966	6,982	578	565	570	592	606
Melrose WSC	2,306	2,307	2,308	2,309	2,311	590	590	590	590	590
Woden WSC	2,221	2,179	2,138	2,098	2,058	207	216	198	252	240
Four Pines WSC	3,460	3,414	3,368	3,323	3,279	255	250	266	253	268
Four Way SUD	4,979	5,028	4,935	4,944	5,088	514	483	491	459	477
G M WSC	6,329	6,263	6,198	6,134	6,071	588	619	617	613	683
Chalk Hill SUD	3,039	2,994	2,950	2,907	2,865	275	262	272	299	288
Cross Roads SUD	2,823	2,861	2,900	2,939	2,979	253	245	244	244	285
Orangefield WSC	4,767	4,817	4,794	6,720	6,458	563	519	627	696	696
Walnut Grove WSC	9,175	9,285	9,396	9,509	9,623	890	805	887	865	912
Wright City WSC	2,321	2,167	2,024	1,890	1,765	207	199	221	210	217
The Consolidated WSC	9,440	9,607	9,777	9,950	10,127	0	0	0	0	1,756
Afton Grove WSC	1,428	1,440	1,452	1,464	1,412	123	134	132	107	118
Anderson County Cedar Creek WSC	715	708	701	695	690	120	120	103	94	98
B B S WSC	966	978	989	1,001	1,012	115	134	134	134	134
B C Y WSC	1,696	1,674	1,652	1,630	1,608	289	271	235	256	209
Blackjack WSC	644	652	637	595	517	108	106	110	106	110
Brookeland FWSD	1,486	1,433	1,381	1,331	1,284	178	173	136	193	205
Caro WSC	2,319	2,337	2,355	2,373	2,391	358	358	335	335	335
Centerville WSC	706	697	689	681	673	82	93	134	98	108
Chester WSC	910	910	910	910	908	153	153	153	153	153
Choice WSC	768	769	770	771	772	115	115	115	115	115
Crystal Farms WSC	1,172	1,183	1,187	1,187	1,234	115	126	125	128	131
Cypress Creek WSC	637	627	617	608	599	66	71	76	67	71
Damascus-Stryker WSC	1,392	1,389	1,386	1,383	1,326	111	107	122	114	102
East Lamar WSC	704	705	706	707	711	93	87	98	82	88
Ebenezer WSC	606	622	634	686	737	109	127	159	70	70
Emerald Bay MUD	935	943	951	959	967	240	194	191	189	203
Etoile WSC	1,070	1,070	1,070	1,070	1,350	214	158	164	117	125
Five Way WSC	1,176	1,173	1,170	1,167	1,163	156	156	156	156	156
Flat Fork WSC	690	675	661	647	633	122	120	135	133	133
Frankston Rural WSC	1,421	1,447	1,474	1,501	1,529	227	179	202	190	235
Gaston WSC	1,348	1,355	1,362	1,369	1,376	144	147	169	149	135
Goodsprings WSC	2,700	2,871	2,331	2,331	2,323	223	199	204	216	247
Gum Creek WSC	1,268	1,276	1,284	1,290	1,112	131	93	100	95	92
Hardin County WCID 1	963	965	967	969	968	126	96	112	111	112
Huxley	1,373	1,329	1,286	1,245	1,205	244	232	221	220	196
Jacobs WSC	833	1,097	1,445	1,904	2,508	123	119	127	124	117
Kelly G Brewer	1,073	1,075	1,077	1,079	1,079	52	42	42	42	44
Leagueville WSC	1,842	1,879	1,907	1,912	1,937	167	167	187	179	182
M and M WSC	2,871	2,891	2,874	2,876	3,125	268	286	266	258	281
McClelland WSC	1,093	1,078	1,063	1,048	1,033	160	175	193	190	210
Minden Brachfield WSC	1,942	1,963	1,984	2,005	2,026	187	182	207	228	185
Moore Station WSC	1,624	1,659	1,695	1,732	1,769	105	92	205	255	325
Moscow WSC	423	453	486	520	471	119	69	96	99	45
Mt Enterprise WSC	1,443	1,439	1,435	1,431	1,430	206	212	240	223	211
Neches WSC	1,338	1,302	1,267	1,233	1,199	145	128	139	142	160
New Prospect WSC	1,014	1,002	990	978	967	132	132	133	132	132
Norwood WSC	802	820	836	844	956	108	116	116	111	119
Panola-Bethany WSC	942	926	910	894	879	190	160	176	167	155
Pennington WSC	864	856	849	842	834	136	150	161	172	129
Pleasant Springs WSC	800	819	839	859	880	102	95	115	112	160
Pollok-Redtown WSC	1,796	1,798	1,800	1,802	1,817	158	149	170	165	209

EntityName	Population within Region I					Net Use (ac-ft) within Region I				
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Rayburn Country MUD	962	936	911	887	863	299	324	303	302	295
Rural WSC	1,165	1,154	1,143	1,132	1,122	113	113	113	113	113
San Augustine Rural WSC	1,185	1,201	1,218	1,235	1,450	125	188	227	210	241
Sand Hills WSC	1,481	1,481	1,487	1,487	1,567	163	132	145	157	249
Slocum WSC	2,639	2,669	2,700	2,731	2,761	224	224	163	155	153
South Jasper County WSC	1,718	1,718	1,770	1,804	2,279	129	129	145	143	159
South Rusk County WSC	1,410	1,412	1,414	1,416	1,422	224	254	255	268	227
TDCJ Beto Gurney and Powledge Units	3,448	3,448	3,448	3,448	4,311	1,804	1,624	1,585	1,735	1,685
TDCJ Coffield Michael	5,818	5,802	5,786	5,770	5,755	2,394	2,194	2,306	2,388	2,400
TDCJ Eastham Unit	2,465	2,464	2,463	2,462	2,464	954	939	930	1,017	1,067
Tucker WSC	988	977	966	956	946	92	105	134	134	111
Upper Jasper County Water Authority	2,396	2,722	3,093	3,514	3,994	248	235	230	242	293
Warren WSC	1,460	1,592	1,736	1,893	2,064	99	99	98	98	101
West Jacksonville WSC	1,492	1,521	1,551	1,582	1,613	153	157	190	203	203
Wildwood POA	1,082	1,073	1,064	1,055	1,045	143	127	144	136	146
Woodlawn WSC	2,037	2,046	2,055	2,065	2,077	122	146	146	137	136
Bon Wier WSC	500	492	485	478	470	82	66	102	102	102
New WSC	1,575	1,556	1,537	1,518	1,499	69	84	114	121	115
Nome	533	526	519	512	505	89	101	105	120	145
Clayton WSC	160	161	163	165	169	79	86	224	170	160
Deberry WSC	558	551	544	537	530	113	80	86	98	96
Denning WSC	224	221	218	215	212	131	107	121	136	116
Hollands Quarter WSC	985	979	973	967	959	137	123	106	117	89
Rehobeth WSC	616	610	604	598	592	103	81	82	85	78
Seneca WSC	797	791	785	779	774	119	119	119	119	119
South Kirbyville Rural WSC	1,049	1,040	1,031	1,022	1,015	96	109	91	91	99
Federal Correctional Complex Beaumont	4,369	4,405	4,441	4,477	4,514	0	0	0	620	586

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Appendix 3-A
TWDB Data Report for Water Availability

The following appendix includes tables of the Source total Availability for the 2026 Regional Water Plan.

DRAFT Region I Source Total Availability

				Source Availability (acre-feet per year)					
Source Name	**County**	**Basin**	**Salinity***	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**
Groundwater Source Availability Total				**488,746**	**488,746**	**488,745**	**488,745**	**488,362**	**488,362**
Carrizo-Wilcox Aquifer	Anderson	Neches	Fresh	21,958	21,958	21,958	21,958	21,958	21,958
Carrizo-Wilcox Aquifer	Anderson	Trinity	Fresh	5,066	5,066	5,066	5,066	5,066	5,066
Carrizo-Wilcox Aquifer	Angelina	Neches	Fresh	27,611	27,611	27,611	27,611	27,611	27,611
Carrizo-Wilcox Aquifer	Cherokee	Neches	Fresh	15,241	15,241	15,241	15,241	15,241	15,241
Carrizo-Wilcox Aquifer	Henderson	Neches	Fresh	3,996	3,996	3,996	3,996	3,996	3,996
Carrizo-Wilcox Aquifer	Houston	Neches	Fresh	1,721	1,721	1,721	1,721	1,721	1,721
Carrizo-Wilcox Aquifer	Houston	Trinity	Fresh	634	634	634	634	634	634
Carrizo-Wilcox Aquifer	Nacogdoche s	Neches	Fresh	20,859	20,859	20,859	20,859	20,859	20,859
Carrizo-Wilcox Aquifer	Panola	Cypress	Fresh	0	0	0	0	0	0
Carrizo-Wilcox Aquifer	Panola	Sabine	Fresh	4,999	4,999	4,999	4,999	4,999	4,999
Carrizo-Wilcox Aquifer	Rusk	Neches	Fresh	7,111	7,111	7,111	7,111	7,111	7,111
Carrizo-Wilcox Aquifer	Rusk	Sabine	Fresh	6,907	6,907	6,907	6,907	6,907	6,907
Carrizo-Wilcox Aquifer	Sabine	Neches	Fresh	356	356	356	356	356	356
Carrizo-Wilcox Aquifer	Sabine	Sabine	Fresh	1,032	1,032	1,032	1,032	1,032	1,032
Carrizo-Wilcox Aquifer	San Augustine	Neches	Fresh	303	303	303	303	303	303
Carrizo-Wilcox Aquifer	San Augustine	Sabine	Fresh	284	284	284	284	284	284
Carrizo-Wilcox Aquifer	Shelby	Neches	Fresh	2,621	2,621	2,621	2,621	2,621	2,621
Carrizo-Wilcox Aquifer	Shelby	Sabine	Fresh	3,698	3,698	3,698	3,698	3,698	3,698
Carrizo-Wilcox Aquifer	Smith	Neches	Fresh	17,607	17,607	17,607	17,607	17,607	17,607
Carrizo-Wilcox Aquifer	Trinity	Neches	Fresh	266	266	266	266	266	266
Gulf Coast Aquifer System	Hardin	Neches	Fresh	37,571	37,571	37,571	37,571	37,571	37,571

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

DRAFT Region I Source Total Availability

				Source Availability (acre-feet per year)					
Source Name	**County**	**Basin**	**Salinity***	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**
Gulf Coast Aquifer System	Hardin	Trinity	Fresh	150	150	150	150	150	150
Gulf Coast Aquifer System	Jasper	Neches	Fresh	40,821	40,821	40,821	40,821	40,821	40,821
Gulf Coast Aquifer System	Jasper	Sabine	Fresh	32,544	32,544	32,544	32,544	32,544	32,544
Gulf Coast Aquifer System	Jefferson	Neches	Fresh	1,853	1,853	1,853	1,853	1,853	1,853
Gulf Coast Aquifer System	Jefferson	Neches-Trinity	Fresh	13,571	13,571	13,571	13,571	13,571	13,571
Gulf Coast Aquifer System	Newton	Neches	Fresh	199	199	199	199	199	199
Gulf Coast Aquifer System	Newton	Sabine	Fresh	37,309	37,309	37,309	37,309	37,309	37,309
Gulf Coast Aquifer System	Orange	Neches	Fresh	6,266	6,266	6,266	6,266	6,266	6,266
Gulf Coast Aquifer System	Orange	Neches-Trinity	Fresh	280	280	280	280	280	280
Gulf Coast Aquifer System	Orange	Sabine	Fresh	18,659	18,659	18,659	18,659	18,659	18,659
Gulf Coast Aquifer System	Polk	Neches	Fresh	17,825	17,825	17,825	17,825	17,825	17,825
Gulf Coast Aquifer System	Sabine	Sabine	Fresh	0	0	0	0	0	0
Gulf Coast Aquifer System	Tyler	Neches	Fresh	34,390	34,390	34,390	34,390	34,390	34,390
Other Aquifer	Anderson	Trinity	Fresh	298	298	298	298	298	298
Other Aquifer	Angelina	Neches	Fresh	812	812	812	812	812	812
Other Aquifer	Cherokee	Neches	Fresh	268	268	268	268	268	268
Other Aquifer	Henderson	Neches	Fresh	5	5	5	5	5	5
Other Aquifer	Henderson	Trinity	Fresh	680	680	680	680	680	680
Other Aquifer	Houston	Neches	Fresh	378	378	378	378	378	378
Other Aquifer	Houston	Trinity	Fresh	888	888	888	888	888	888
Other Aquifer	Nacogdoches	Neches	Fresh	1,131	1,131	1,131	1,131	1,131	1,131

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

DRAFT Region I Source Total Availability

				Source Availability (acre-feet per year)					
Source Name	**County**	**Basin**	**Salinity***	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**
Other Aquifer	Rusk	Neches	Fresh	270	270	270	270	270	270
Other Aquifer	Rusk	Sabine	Fresh	469	469	469	469	469	469
Other Aquifer	Sabine	Neches	Fresh	336	336	336	336	336	336
Other Aquifer	Sabine	Sabine	Fresh	0	0	0	0	0	0
Other Aquifer	San Augustine	Neches	Fresh	1,395	1,395	1,395	1,395	1,395	1,395
Other Aquifer	Smith	Neches	Fresh	922	922	922	922	922	922
Other Aquifer	Trinity	Neches	Fresh	700	700	700	700	700	700
Queen City Aquifer	Anderson	Neches	Fresh	11,489	11,489	11,488	11,488	11,488	11,488
Queen City Aquifer	Anderson	Trinity	Fresh	5,102	5,102	5,102	5,102	5,102	5,102
Queen City Aquifer	Angelina	Neches	Fresh	1,095	1,095	1,095	1,095	1,095	1,095
Queen City Aquifer	Cherokee	Neches	Fresh	8,812	8,812	8,812	8,812	8,812	8,812
Queen City Aquifer	Henderson	Neches	Fresh	10,516	10,516	10,516	10,516	10,516	10,516
Queen City Aquifer	Houston	Neches	Fresh	2,080	2,080	2,080	2,080	2,080	2,080
Queen City Aquifer	Houston	Trinity	Fresh	216	216	216	216	216	216
Queen City Aquifer	Nacogdoches	Neches	Fresh	2,946	2,946	2,946	2,946	2,946	2,946
Queen City Aquifer	Rusk	Neches	Fresh	39	39	39	39	39	39
Queen City Aquifer	Rusk	Sabine	Fresh	20	20	20	20	20	20
Queen City Aquifer	Sabine	Neches	Fresh	0	0	0	0	0	0
Queen City Aquifer	Sabine	Sabine	Fresh	0	0	0	0	0	0
Queen City Aquifer	San Augustine	Neches	Fresh	0	0	0	0	0	0
Queen City Aquifer	Shelby	Sabine	Fresh	0	0	0	0	0	0
Queen City Aquifer	Smith	Neches	Fresh	20,121	20,121	20,121	20,121	20,121	20,121

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.
** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

DRAFT Region I Source Total Availability

				Source Availability (acre-feet per year)					
Source Name	**County**	**Basin**	**Salinity***	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**
Queen City Aquifer	Trinity	Neches	Fresh	0	0	0	0	0	0
Sparta Aquifer	Anderson	Neches	Fresh	109	109	109	109	109	109
Sparta Aquifer	Anderson	Trinity	Fresh	198	198	198	198	198	198
Sparta Aquifer	Angelina	Neches	Fresh	390	390	390	390	390	390
Sparta Aquifer	Cherokee	Neches	Fresh	352	352	352	352	352	352
Sparta Aquifer	Houston	Neches	Fresh	505	505	505	505	505	505
Sparta Aquifer	Houston	Trinity	Fresh	977	977	977	977	977	977
Sparta Aquifer	Nacogdoches	Neches	Fresh	362	362	362	362	362	362
Sparta Aquifer	Rusk	Neches	Fresh	0	0	0	0	0	0
Sparta Aquifer	Sabine	Neches	Fresh	36	36	36	36	36	36
Sparta Aquifer	Sabine	Sabine	Fresh	13	13	13	13	13	13
Sparta Aquifer	San Augustine	Neches	Fresh	163	163	163	163	163	163
Sparta Aquifer	San Augustine	Sabine	Fresh	3	3	3	3	3	3
Sparta Aquifer	Shelby	Sabine	Fresh	0	0	0	0	0	0
Sparta Aquifer	Smith	Neches	Fresh	0	0	0	0	0	0
Sparta Aquifer	Trinity	Neches	Fresh	152	152	152	152	152	152
Yegua-Jackson Aquifer	Angelina	Neches	Fresh	16,890	16,890	16,890	16,890	16,507	16,507
Yegua-Jackson Aquifer	Houston	Neches	Fresh	1,324	1,324	1,324	1,324	1,324	1,324
Yegua-Jackson Aquifer	Houston	Trinity	Fresh	4,061	4,061	4,061	4,061	4,061	4,061
Yegua-Jackson Aquifer	Jasper	Neches	Fresh	600	600	600	600	600	600
Yegua-Jackson Aquifer	Nacogdoches	Neches	Fresh	235	235	235	235	235	235
Yegua-Jackson Aquifer	Newton	Neches	Fresh	0	0	0	0	0	0

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

DRAFT Region I Source Total Availability

				Source Availability (acre-feet per year)					
Source Name	**County**	**Basin**	**Salinity***	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**
Yegua-Jackson Aquifer	Newton	Sabine	Fresh	0	0	0	0	0	0
Yegua-Jackson Aquifer	Polk	Neches	Fresh	570	570	570	570	570	570
Yegua-Jackson Aquifer	Sabine	Neches	Fresh	3,724	3,724	3,724	3,724	3,724	3,724
Yegua-Jackson Aquifer	Sabine	Sabine	Fresh	575	575	575	575	575	575
Yegua-Jackson Aquifer	San Augustine	Neches	Fresh	2,102	2,102	2,102	2,102	2,102	2,102
Yegua-Jackson Aquifer	San Augustine	Sabine	Fresh	9	9	9	9	9	9
Yegua-Jackson Aquifer	Trinity	Neches	Fresh	700	700	700	700	700	700
Yegua-Jackson Aquifer	Tyler	Neches	Fresh	0	0	0	0	0	0

Reuse Source Availability Total				**13,955**	**13,968**	**13,981**	**13,992**	**14,006**	**14,021**
Direct Reuse	Orange	Sabine	Fresh	15	15	15	15	15	15
Direct Reuse	Sabine	Sabine	Fresh	20	20	20	20	20	20
Direct Reuse	Shelby	Sabine	Fresh	233	246	259	270	284	299
Indirect Reuse	Jefferson	Neches-Trinity	Fresh	13,687	13,687	13,687	13,687	13,687	13,687

Surface Water Source Availability Total				**4,540,750**	**4,533,063**	**4,525,504**	**4,517,065**	**4,508,987**	**4,501,065**
Athens Lake/Reservoir	Reservoir**	Neches	Fresh	4,540	4,480	4,420	4,360	4,300	4,240
Bellwood Lake/Reservoir	Reservoir**	Neches	Fresh	859	859	859	859	859	859
Center Lake/Reservoir	Reservoir**	Sabine	Fresh	500	500	500	500	500	500
Cherokee Lake/Reservoir	Reservoir**	Sabine	Fresh	31,480	31,224	30,960	30,712	30,456	30,200
Cypress Livestock Local Supply	Panola	Cypress	Fresh	0	0	0	0	0	0
Houston County Lake/Reservoir	Reservoir**	Trinity	Fresh	6,250	6,145	6,040	5,935	5,830	5,725

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.
** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

DRAFT Region I Source Total Availability

				Source Availability (acre-feet per year)					
Source Name	**County**	**Basin**	**Salinity***	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**
Jacksonville Lake/Reservoir	Reservoir**	Neches	Fresh	6,200	6,200	6,200	6,200	6,200	6,200
Kurth Lake/Reservoir	Reservoir**	Neches	Fresh	17,425	17,448	17,471	17,494	17,517	17,540
Lake Naconiche Lake/Reservoir	Reservoir**	Neches	Fresh	4,500	4,500	4,500	4,500	4,500	4,500
Martin Lake/Reservoir	Reservoir**	Sabine	Fresh	25,000	25,000	25,000	25,000	25,000	25,000
Murvaul Lake/Reservoir	Reservoir**	Sabine	Fresh	20,800	20,016	19,482	18,448	17,664	16,880
Nacogdoches Lake/Reservoir	Reservoir**	Neches	Fresh	14,335	13,973	13,611	13,249	12,887	12,525
Neches Livestock Local Supply	Anderson	Neches	Fresh	427	427	427	427	427	427
Neches Livestock Local Supply	Angelina	Neches	Fresh	997	997	997	997	997	997
Neches Livestock Local Supply	Cherokee	Neches	Fresh	1,694	1,694	1,694	1,694	1,694	1,694
Neches Livestock Local Supply	Hardin	Neches	Fresh	184	184	184	184	184	184
Neches Livestock Local Supply	Henderson	Neches	Fresh	770	770	770	770	770	770
Neches Livestock Local Supply	Houston	Neches	Fresh	473	473	473	473	473	473
Neches Livestock Local Supply	Jasper	Neches	Fresh	118	118	118	118	118	118
Neches Livestock Local Supply	Nacogdoches	Neches	Fresh	8,913	8,913	8,913	8,913	8,913	8,913
Neches Livestock Local Supply	Orange	Neches	Fresh	27	27	27	27	27	27
Neches Livestock Local Supply	Polk	Neches	Fresh	147	147	147	147	147	147
Neches Livestock Local Supply	Rusk	Neches	Fresh	991	991	991	991	991	991
Neches Livestock Local Supply	Sabine	Neches	Fresh	26	26	26	26	26	26
Neches Livestock Local Supply	San Augustine	Neches	Fresh	1,632	1,632	1,632	1,632	1,632	1,632
Neches Livestock Local Supply	Shelby	Neches	Fresh	2,101	2,101	2,101	2,101	2,101	2,101

* Salinity field indicates whether the source availability is considered ‘fresh’ (less than 1,000 mg/L), ‘brackish’ (1,000 to 10,000 mg/L), ‘saline’ (10,001 mg/L to 34,999 mg/L), or ‘seawater’ (35,000 mg/L or greater). Sources can also be labeled as ‘fresh/brackish’ or ‘brackish/saline’, if a combination of the salinity types is appropriate.
** Since reservoir sources can exist across multiple counties, the county field value, ‘reservoir’ is applied to all reservoir sources.

DRAFT Region I Source Total Availability

				Source Availability (acre-feet per year)					
Source Name	**County**	**Basin**	**Salinity***	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**
Neches Livestock Local Supply	Smith	Neches	Fresh	313	313	313	313	313	313
Neches Livestock Local Supply	Trinity	Neches	Fresh	233	233	233	233	233	233
Neches Livestock Local Supply	Tyler	Neches	Fresh	239	239	239	239	239	239
Neches Other Local Supply	Cherokee	Neches	Fresh	58	58	58	58	58	58
Neches Other Local Supply	Hardin	Neches	Fresh	0	0	0	0	0	0
Neches Other Local Supply	Jefferson	Neches	Fresh	109	109	109	109	109	109
Neches Other Local Supply	Nacogdoches	Neches	Fresh	420	420	420	420	420	420
Neches Other Local Supply	Polk	Neches	Fresh	1	1	1	1	1	1
Neches Other Local Supply	Tyler	Neches	Fresh	8	8	8	8	8	8
Neches Run-of-River	Anderson	Neches	Fresh	80	80	80	80	80	80
Neches Run-of-River	Angelina	Neches	Fresh	10	10	10	10	10	10
Neches Run-of-River	Cherokee	Neches	Fresh	58	58	58	58	58	58
Neches Run-of-River	Hardin	Neches	Fresh	54	54	54	54	54	54
Neches Run-of-River	Houston	Neches	Fresh	147	147	147	147	147	147
Neches Run-of-River	Jasper	Neches	Fresh	382,526	382,526	382,526	382,526	382,526	382,526
Neches Run-of-River	Jefferson	Neches	Brackish	752,152	752,152	752,152	752,152	752,152	752,152
Neches Run-of-River	Jefferson	Neches	Fresh	12,102	12,560	12,977	12,795	12,804	12,969
Neches Run-of-River	Nacogdoches	Neches	Fresh	82	82	82	82	82	82
Neches Run-of-River	Orange	Neches	Brackish	17,310	17,310	17,310	17,310	17,310	17,310
Neches Run-of-River	Rusk	Neches	Fresh	60	60	60	60	60	60
Neches Run-of-River	Sabine	Neches	Fresh	162	162	162	162	162	162

* Salinity field indicates whether the source availability is considered ‘fresh’ (less than 1,000 mg/L), ‘brackish’ (1,000 to 10,000 mg/L), ‘saline’ (10,001 mg/L to 34,999 mg/L), or ‘seawater’ (35,000 mg/L or greater). Sources can also be labeled as ‘fresh/brackish’ or ‘brackish/saline’, if a combination of the salinity types is appropriate.

** Since reservoir sources can exist across multiple counties, the county field value, ‘reservoir’ is applied to all reservoir sources.

DRAFT Region I Source Total Availability

				Source Availability (acre-feet per year)					
Source Name	**County**	**Basin**	**Salinity***	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**
Neches Run-of-River	Shelby	Neches	Fresh	1,000	1,000	1,000	1,000	1,000	1,000
Neches Run-of-River	Smith	Neches	Fresh	45	45	45	45	45	45
Neches Run-of-River	Trinity	Neches	Fresh	0	0	0	0	0	0
Neches Run-of-River	Tyler	Neches	Fresh	88	88	88	88	88	88
Neches-Trinity Livestock Local Supply	Jefferson	Neches-Trinity	Fresh	800	800	800	800	800	800
Neches-Trinity Other Local Supply	Jefferson	Neches-Trinity	Fresh	109	109	109	109	109	109
Neches-Trinity Run-of-River	Jefferson	Neches-Trinity	Fresh	51,274	51,274	51,274	51,274	51,274	51,274
Palestine Lake/Reservoir	Reservoir**	Neches	Fresh	177,110	175,040	172,970	170,950	168,930	166,910
Pinkston Lake/Reservoir	Reservoir**	Neches	Fresh	3,612	3,600	3,587	3,575	3,562	3,550
Rusk City Lake/Reservoir	Reservoir**	Neches	Fresh	10	10	10	10	10	10
Sabine Livestock Local Supply	Jasper	Sabine	Fresh	93	93	93	93	93	93
Sabine Livestock Local Supply	Newton	Sabine	Fresh	157	157	157	157	157	157
Sabine Livestock Local Supply	Orange	Sabine	Fresh	71	71	71	71	71	71
Sabine Livestock Local Supply	Panola	Sabine	Fresh	2,596	2,596	2,596	2,596	2,596	2,596
Sabine Livestock Local Supply	Rusk	Sabine	Fresh	424	424	424	424	424	424
Sabine Livestock Local Supply	Sabine	Sabine	Fresh	175	175	175	175	175	175
Sabine Livestock Local Supply	San Augustine	Sabine	Fresh	203	203	203	203	203	203
Sabine Livestock Local Supply	Shelby	Sabine	Fresh	8,168	8,168	8,168	8,168	8,168	8,168
Sabine Other Local Supply	Newton	Sabine	Fresh	78	78	78	78	78	78
Sabine Other Local Supply	Orange	Sabine	Fresh	161	161	161	161	161	161

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.
** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

DRAFT Region I Source Total Availability

				Source Availability (acre-feet per year)					
Source Name	**County**	**Basin**	**Salinity***	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**
Sabine Other Local Supply	Rusk	Sabine	Fresh	1,258	1,258	1,258	1,258	1,258	1,258
Sabine Run-of-River	Newton	Sabine	Fresh	130,146	130,146	130,146	130,146	130,146	130,146
Sabine Run-of-River	Orange	Sabine	Brackish	267,000	267,000	267,000	267,000	267,000	267,000
Sabine Run-of-River	Orange	Sabine	Fresh	28	28	28	28	28	28
Sabine Run-of-River	Panola	Sabine	Fresh	581	581	581	581	581	581
Sabine Run-of-River	Rusk	Sabine	Fresh	137	137	137	137	137	137
Sam Rayburn-Steinhagen Lake/Reservoir System	Reservoir**	Neches	Fresh	644,100	640,960	637,820	634,680	631,540	628,400
San Augustine Lake/Reservoir	Reservoir**	Neches	Fresh	1,285	1,285	1,285	1,285	1,285	1,285
Striker Lake/Reservoir	Reservoir**	Neches	Fresh	10,500	9,990	9,480	8,970	8,460	7,950
Timpson Lake/Reservoir	Reservoir**	Neches	Fresh	350	350	350	350	350	350
Toledo Bend Lake/Reservoir	Reservoir**	Sabine	Fresh	941,900	941,583	941,230	940,949	940,632	940,315
Toledo Bend Lake/Reservoir	Reservoir**	Sabine-Louisiana	Fresh	941,900	941,583	941,230	940,949	940,632	940,315
Trinity Livestock Local Supply	Anderson	Trinity	Fresh	848	848	848	848	848	848
Trinity Livestock Local Supply	Houston	Trinity	Fresh	1,318	1,318	1,318	1,318	1,318	1,318
Trinity Run-of-River	Anderson	Trinity	Fresh	1,290	1,290	1,290	1,290	1,290	1,290
Trinity Run-of-River	Houston	Trinity	Fresh	2,522	2,522	2,522	2,522	2,522	2,522
Tyler Lake/Reservoir	Reservoir**	Neches	Fresh	32,900	32,665	32,430	32,203	31,977	31,750

Region I Source Availability Total	**5,043,451**	**5,035,777**	**5,028,230**	**5,019,802**	**5,011,355**	**5,003,448**

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

Appendix 3-B

TWDB Data Report for Water Supplies to WUGs

The following appendix includes tables of the Water User Groups (WUG) Existing Water Supply.

DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Anderson County WUG Total			**23,151**	**23,276**	**23,410**	**23,527**	**23,649**	**23,773**
Anderson County / Neches Basin WUG Total			**8,967**	**9,046**	**9,124**	**9,208**	**9,299**	**9,393**
Berryville	I	Carrizo-Wilcox Aquifer | Henderson County	2	2	2	2	2	2
Brushy Creek WSC*	I	Carrizo-Wilcox Aquifer | Anderson County	288	286	282	278	275	272
Frankston	I	Carrizo-Wilcox Aquifer | Anderson County	212	211	208	205	203	200
Frankston Rural WSC	I	Carrizo-Wilcox Aquifer | Anderson County	236	234	232	228	226	222
Neches WSC	I	Carrizo-Wilcox Aquifer | Anderson County	156	154	152	152	150	148
Norwood WSC	I	Carrizo-Wilcox Aquifer | Anderson County	140	139	138	136	135	133
Palestine	I	Carrizo-Wilcox Aquifer | Anderson County	400	400	400	400	400	400
Palestine	I	Palestine Lake/Reservoir	3,114	3,114	3,114	3,114	3,114	3,114
Slocum WSC	I	Carrizo-Wilcox Aquifer | Anderson County	299	297	293	289	285	282
Walston Springs WSC	I	Carrizo-Wilcox Aquifer | Anderson County	334	361	391	424	460	499
County-Other	I	Other Aquifer | Anderson County	87	87	87	87	87	87
County-Other	I	Palestine Lake/Reservoir	16	16	16	16	16	16
County-Other	I	Queen City Aquifer | Anderson County	377	377	376	377	376	376
County-Other	I	Sparta Aquifer | Anderson County	82	82	82	82	82	82
Manufacturing	I	Carrizo-Wilcox Aquifer | Anderson County	1,686	1,748	1,813	1,880	1,950	2,022
Steam Electric Power		No water supply associated with WUG	0	0	0	0	0	0
Livestock	I	Carrizo-Wilcox Aquifer | Anderson County	145	145	145	145	145	145
Livestock	I	Local Surface Water Supply	333	333	333	333	333	333
Livestock	I	Queen City Aquifer | Anderson County	160	160	160	160	160	160
Livestock	I	Sparta Aquifer | Anderson County	60	60	60	60	60	60

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

DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year) 2030	2040	2050	2060	2070	2080
Irrigation	I	Carrizo-Wilcox Aquifer | Anderson County	400	400	400	400	400	400
Irrigation	I	Neches Run-of-River	80	80	80	80	80	80
Irrigation	I	Queen City Aquifer | Anderson County	360	360	360	360	360	360
Anderson County / Trinity Basin WUG Total			**14,184**	**14,230**	**14,286**	**14,319**	**14,350**	**14,380**
Anderson County Cedar Creek WSC	I	Carrizo-Wilcox Aquifer | Anderson County	114	114	112	110	109	108
B B S WSC*	I	Carrizo-Wilcox Aquifer | Anderson County	138	137	135	133	132	130
B C Y WSC	I	Carrizo-Wilcox Aquifer | Anderson County	264	262	258	255	252	249
Brushy Creek WSC*	I	Carrizo-Wilcox Aquifer | Anderson County	142	141	140	138	136	134
Elkhart	I	Carrizo-Wilcox Aquifer | Anderson County	304	303	299	296	292	289
Four Pines WSC	I	Carrizo-Wilcox Aquifer | Anderson County	298	296	293	290	287	284
Norwood WSC	I	Carrizo-Wilcox Aquifer | Anderson County	10	10	9	9	9	9
Palestine	I	Carrizo-Wilcox Aquifer | Anderson County	356	356	356	356	356	356
Palestine	I	Palestine Lake/Reservoir	2,774	2,774	2,774	2,774	2,774	2,774
Pleasant Springs WSC	I	Carrizo-Wilcox Aquifer | Anderson County	176	176	176	176	176	176
Pleasant Springs WSC	I	Palestine Lake/Reservoir	121	121	121	121	121	121
Slocum WSC	I	Carrizo-Wilcox Aquifer | Anderson County	26	26	25	25	25	24
TDCJ Beto Gurney & Powledge Units	I	Carrizo-Wilcox Aquifer | Anderson County	1,742	1,738	1,738	1,738	1,738	1,738
TDCJ Coffield Michael	I	Carrizo-Wilcox Aquifer | Anderson County	3,469	3,465	3,465	3,465	3,465	3,465
The Consolidated WSC	I	Houston County Lake/Reservoir	477	529	592	630	663	695
Tucker WSC	I	Carrizo-Wilcox Aquifer | Anderson County	130	130	128	126	124	122
Walston Springs WSC	I	Carrizo-Wilcox Aquifer | Anderson County	127	136	148	161	174	189

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

DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
County-Other	I	Other Aquifer | Anderson County	173	173	173	173	173	173
County-Other	I	Palestine Lake/Reservoir	31	31	31	31	31	31
County-Other	I	Queen City Aquifer | Anderson County	747	747	748	747	748	748
County-Other	I	Sparta Aquifer | Anderson County	165	165	165	165	165	165
Mining	I	Other Aquifer | Anderson County	34	34	34	34	34	34
Steam Electric Power		No water supply associated with WUG	0	0	0	0	0	0
Livestock	I	Carrizo-Wilcox Aquifer | Anderson County	33	33	33	33	33	33
Livestock	I	Local Surface Water Supply	848	848	848	848	848	848
Livestock	I	Queen City Aquifer | Anderson County	64	64	64	64	64	64
Irrigation	I	Carrizo-Wilcox Aquifer | Anderson County	92	92	92	92	92	92
Irrigation	I	Queen City Aquifer | Anderson County	39	39	39	39	39	39
Irrigation	I	Trinity Run-of-River	1,290	1,290	1,290	1,290	1,290	1,290
Angelina County WUG Total			**19,365**	**19,542**	**19,654**	**19,784**	**19,914**	**20,047**
Angelina County / Neches Basin WUG Total			**19,365**	**19,542**	**19,654**	**19,784**	**19,914**	**20,047**
Angelina WSC	I	Other Aquifer | Angelina County	355	359	361	365	368	372
Central WCID of Angelina County	I	Carrizo-Wilcox Aquifer | Angelina County	620	631	637	643	650	656
Diboll	I	Carrizo-Wilcox Aquifer | Angelina County	1,806	1,806	1,806	1,806	1,806	1,806
Diboll	I	Yegua-Jackson Aquifer | Angelina County	520	520	520	520	520	520
Four Way SUD	I	Yegua-Jackson Aquifer | Angelina County	435	439	443	447	451	455
Hudson WSC	I	Carrizo-Wilcox Aquifer | Angelina County	1,003	1,020	1,028	1,038	1,047	1,057
Huntington	I	Carrizo-Wilcox Aquifer | Angelina County	448	448	448	448	448	448
Huntington	I	Yegua-Jackson Aquifer | Angelina County	261	264	266	269	271	274

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

DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Lufkin	I	Carrizo-Wilcox Aquifer | Angelina County	4,144	4,119	4,093	4,066	4,038	4,010
Lufkin	I	Kurth Lake/Reservoir	2,448	2,555	2,633	2,726	2,819	2,912
Lufkin	I	Sam Rayburn-Steinhagen Lake/Reservoir System	0	0	0	0	0	0
M & M WSC	I	Carrizo-Wilcox Aquifer | Angelina County	260	262	264	267	269	272
Pollok-Redtown WSC	I	Carrizo-Wilcox Aquifer | Angelina County	197	199	200	202	204	206
Redland WSC	I	Carrizo-Wilcox Aquifer | Angelina County	508	510	512	514	516	518
Upper Jasper County Water Authority	I	Carrizo-Wilcox Aquifer | Angelina County	29	29	29	29	29	29
Woodlawn WSC	I	Carrizo-Wilcox Aquifer | Angelina County	242	245	246	249	251	254
Zavalla	I	Yegua-Jackson Aquifer | Angelina County	102	103	104	104	105	107
County-Other	I	Carrizo-Wilcox Aquifer | Angelina County	211	213	216	218	220	222
County-Other	I	Other Aquifer | Angelina County	0	0	0	0	0	0
County-Other	I	Sparta Aquifer | Angelina County	50	51	52	52	53	53
County-Other	I	Yegua-Jackson Aquifer | Angelina County	277	281	284	286	289	292
Manufacturing	I	Carrizo-Wilcox Aquifer | Angelina County	807	832	858	885	913	941
Manufacturing	I	Kurth Lake/Reservoir	293	311	311	311	311	311
Manufacturing	I	Other Aquifer | Angelina County	457	453	451	447	444	440
Manufacturing	I	Yegua-Jackson Aquifer | Angelina County	1,754	1,754	1,754	1,754	1,754	1,754
Mining	I	Other Aquifer | Angelina County	0	0	0	0	0	0
Livestock	I	Carrizo-Wilcox Aquifer | Angelina County	128	128	128	128	128	128
Livestock	I	Local Surface Water Supply	661	661	661	661	661	661
Livestock	I	Sparta Aquifer | Angelina County	73	73	73	73	73	73

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

DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year) 2030	2040	2050	2060	2070	2080
Livestock	I	Yegua-Jackson Aquifer | Angelina County	166	166	166	166	166	166
Irrigation	I	Kurth Lake/Reservoir	779	779	779	779	779	779
Irrigation	I	Yegua-Jackson Aquifer | Angelina County	331	331	331	331	331	331
Cherokee County WUG Total			**10,563**	**10,443**	**10,269**	**10,177**	**10,051**	**9,915**
Cherokee County / Neches Basin WUG Total			**10,563**	**10,443**	**10,269**	**10,177**	**10,051**	**9,915**
Afton Grove WSC	I	Carrizo-Wilcox Aquifer | Cherokee County	64	66	68	69	71	74
Afton Grove WSC	I	Jacksonville Lake/Reservoir	150	153	157	162	167	171
Alto	I	Carrizo-Wilcox Aquifer | Cherokee County	218	215	211	206	202	197
Alto Rural WSC	I	Carrizo-Wilcox Aquifer | Cherokee County	817	817	817	817	817	817
Blackjack WSC	I	Carrizo-Wilcox Aquifer | Cherokee County	102	100	98	96	94	92
Bullard	I	Carrizo-Wilcox Aquifer | Cherokee County	103	106	109	111	113	116
Bullard	I	Jacksonville Lake/Reservoir	62	72	78	84	90	95
Craft Turney WSC	I	Carrizo-Wilcox Aquifer | Cherokee County	191	188	184	180	176	172
Craft Turney WSC	I	Jacksonville Lake/Reservoir	444	438	429	420	410	400
Gum Creek WSC	I	Carrizo-Wilcox Aquifer | Cherokee County	31	30	30	29	29	28
Gum Creek WSC	I	Jacksonville Lake/Reservoir	72	71	69	68	66	64
Jacksonville	I	Carrizo-Wilcox Aquifer | Cherokee County	773	763	748	733	717	702
Jacksonville	I	Jacksonville Lake/Reservoir	1,803	1,778	1,746	1,709	1,673	1,636
New Summerfield	I	Carrizo-Wilcox Aquifer | Cherokee County	113	111	109	106	104	101
North Cherokee WSC	I	Carrizo-Wilcox Aquifer | Cherokee County	142	140	137	134	131	128
North Cherokee WSC	I	Jacksonville Lake/Reservoir	330	325	319	312	305	297

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

DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Pollok-Redtown WSC	I	Carrizo-Wilcox Aquifer | Angelina County	8	8	8	8	8	7
Rusk	I	Carrizo-Wilcox Aquifer | Cherokee County	845	846	848	849	853	858
Rusk	I	Rusk City Lake/Reservoir	10	10	10	10	10	10
Rusk Rural WSC	I	Carrizo-Wilcox Aquifer | Cherokee County	331	326	321	315	310	304
South Rusk County WSC	I	Carrizo-Wilcox Aquifer | Rusk County	5	5	5	5	4	4
Southern Utilities*	I	Carrizo-Wilcox Aquifer | Cherokee County	22	21	21	21	20	20
Southern Utilities*	I	Carrizo-Wilcox Aquifer | Smith County	679	626	544	560	544	516
Troup	I	Carrizo-Wilcox Aquifer | Smith County	11	11	11	11	11	10
Walnut Grove WSC	I	Carrizo-Wilcox Aquifer | Smith County	6	5	5	5	4	4
Walnut Grove WSC	I	Palestine Lake/Reservoir	6	6	5	5	5	4
Walnut Grove WSC	I	Tyler Lake/Reservoir	6	5	5	5	4	4
Wells	I	Carrizo-Wilcox Aquifer | Cherokee County	124	130	138	146	155	164
West Jacksonville WSC	I	Carrizo-Wilcox Aquifer | Cherokee County	231	227	222	218	213	208
Wright City WSC	I	Carrizo-Wilcox Aquifer | Smith County	47	46	46	45	43	43
County-Other	I	Carrizo-Wilcox Aquifer | Cherokee County	238	202	160	114	63	10
County-Other	I	Other Aquifer | Cherokee County	0	0	0	0	0	0
County-Other	I	Queen City Aquifer | Cherokee County	160	136	108	77	43	6
County-Other	I	Sparta Aquifer | Cherokee County	37	32	25	18	10	1
Manufacturing	I	Carrizo-Wilcox Aquifer | Cherokee County	25	26	26	27	28	29
Manufacturing	I	Jacksonville Lake/Reservoir	57	59	62	64	66	68
Mining	I	Local Surface Water Supply	58	58	58	58	58	58
Mining	I	Other Aquifer | Cherokee County	129	129	129	129	129	129

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Steam Electric Power	I	Striker Lake/Reservoir	431	474	521	573	630	693
Livestock	I	Carrizo-Wilcox Aquifer | Cherokee County	168	168	168	168	168	168
Livestock	I	Local Surface Water Supply	853	853	853	853	853	853
Livestock	I	Queen City Aquifer | Cherokee County	210	210	210	210	210	210
Irrigation	I	Carrizo-Wilcox Aquifer | Cherokee County	170	170	170	170	170	170
Irrigation	I	Neches Run-of-River	58	58	58	58	58	58
Irrigation	I	Palestine Lake/Reservoir	41	36	32	28	25	25
Irrigation	I	Queen City Aquifer | Cherokee County	182	187	191	191	191	191
Hardin County WUG Total			**9,669**	**10,450**	**11,186**	**11,130**	**11,080**	**11,038**
Hardin County / Neches Basin WUG Total			**9,642**	**10,423**	**11,159**	**11,104**	**11,054**	**11,012**
Hardin County WCID 1	I	Gulf Coast Aquifer System | Hardin County	130	131	134	136	139	141
Kountze	I	Gulf Coast Aquifer System | Hardin County	248	245	242	237	231	226
Lumberton MUD	I	Gulf Coast Aquifer System | Hardin County	3,329	4,054	4,727	4,617	4,508	4,401
North Hardin WSC	I	Gulf Coast Aquifer System | Hardin County	539	553	568	583	598	614
Silsbee	I	Gulf Coast Aquifer System | Hardin County	1,001	1,051	1,109	1,171	1,236	1,305
Sour Lake	I	Gulf Coast Aquifer System | Hardin County	296	293	289	282	276	269
West Hardin WSC*	I	Gulf Coast Aquifer System | Hardin County	385	383	378	369	360	352
Wildwood POA	I	Gulf Coast Aquifer System | Hardin County	118	117	116	113	110	108
County-Other	I	Gulf Coast Aquifer System | Hardin County	2,105	2,105	2,105	2,105	2,105	2,105
Manufacturing	I	Gulf Coast Aquifer System | Hardin County	243	243	243	243	243	243
Mining	I	Gulf Coast Aquifer System | Hardin County	13	13	13	13	13	13
Steam Electric Power	I	Gulf Coast Aquifer System | Hardin County	1	1	1	1	1	1

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

DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Livestock	I	Gulf Coast Aquifer System | Hardin County	61	61	61	61	61	61
Livestock	I	Local Surface Water Supply	184	184	184	184	184	184
Irrigation	I	Gulf Coast Aquifer System | Hardin County	935	935	935	935	935	935
Irrigation	I	Neches Run-of-River	54	54	54	54	54	54
Hardin County / Trinity Basin WUG Total			**27**	**27**	**27**	**26**	**26**	**26**
Lake Livingston WSC*	I	Gulf Coast Aquifer System | Hardin County	10	10	10	9	9	9
County-Other	I	Gulf Coast Aquifer System | Hardin County	16	16	16	16	16	16
Livestock	I	Gulf Coast Aquifer System | Hardin County	1	1	1	1	1	1
Henderson County WUG Total			**9,329**	**9,309**	**8,751**	**8,326**	**7,955**	**7,762**
Henderson County / Neches Basin WUG Total			**9,329**	**9,309**	**8,751**	**8,326**	**7,955**	**7,762**
Athens*	I	Athens Lake/Reservoir	9	15	18	18	17	16
Athens*	C	Carrizo-Wilcox Aquifer | Henderson County	19	15	0	0	0	0
Athens*	I	Carrizo-Wilcox Aquifer | Henderson County	14	12	9	7	6	6
Berryville	I	Carrizo-Wilcox Aquifer | Henderson County	95	90	97	98	99	99
Bethel Ash WSC*	I	Carrizo-Wilcox Aquifer | Henderson County	269	270	281	285	290	294
Brownsboro	I	Carrizo-Wilcox Aquifer | Henderson County	246	267	263	271	279	288
Brushy Creek WSC*	I	Carrizo-Wilcox Aquifer | Anderson County	5	5	5	5	5	5
Chandler	I	Carrizo-Wilcox Aquifer | Henderson County	676	831	980	980	980	980
Edom WSC*	D	Carrizo-Wilcox Aquifer | Van Zandt County	14	14	14	14	13	13
Frankston	I	Carrizo-Wilcox Aquifer | Anderson County	7	8	8	8	9	9
Leagueville WSC	I	Carrizo-Wilcox Aquifer | Henderson County	229	242	242	249	255	262
Moore Station WSC	I	Carrizo-Wilcox Aquifer | Henderson County	382	412	408	420	433	445

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Murchison	I	Carrizo-Wilcox Aquifer | Henderson County	110	108	114	115	116	118
R P M WSC*	D	Carrizo-Wilcox Aquifer | Van Zandt County	28	27	26	25	24	25
R P M WSC*	D	Queen City Aquifer | Van Zandt County	35	35	36	36	36	36
Virginia Hill WSC*	I	Carrizo-Wilcox Aquifer | Henderson County	202	208	212	217	221	226
County-Other*	I	Carrizo-Wilcox Aquifer | Henderson County	125	80	46	33	20	9
County-Other*	I	Other Aquifer | Henderson County	539	539	539	539	539	539
County-Other*	I	Queen City Aquifer | Henderson County	660	660	660	660	660	660
Mining*	I	Carrizo-Wilcox Aquifer | Henderson County	27	20	13	13	12	10
Mining*	I	Other Aquifer | Henderson County	120	120	120	120	120	120
Steam Electric Power*		No water supply associated with WUG	0	0	0	0	0	0
Livestock*	I	Athens Lake/Reservoir	3,023	3,023	2,516	2,126	1,789	1,615
Livestock*	I	Carrizo-Wilcox Aquifer | Henderson County	506	346	220	184	149	112
Livestock*	I	Local Surface Water Supply	632	632	632	632	632	632
Livestock*	I	Queen City Aquifer | Henderson County	419	419	419	419	419	419
Irrigation*	I	Athens Lake/Reservoir	85	90	79	70	62	59
Irrigation*	I	Carrizo-Wilcox Aquifer | Henderson County	73	50	32	27	21	16
Irrigation*	I	Palestine Lake/Reservoir	82	73	64	57	51	51
Irrigation*	I	Queen City Aquifer | Henderson County	698	698	698	698	698	698
Houston County WUG Total			**9,826**	**9,723**	**9,582**	**9,475**	**9,370**	**9,276**
Houston County / Neches Basin WUG Total			**1,769**	**1,646**	**1,505**	**1,371**	**1,256**	**1,159**
Grapeland	I	Carrizo-Wilcox Aquifer | Houston County	94	94	98	98	98	100
Grapeland	I	Houston County Lake/Reservoir	0	0	0	0	0	0

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Pennington WSC*	I	Yegua-Jackson Aquifer | Houston County	12	11	9	9	8	7
Pennington WSC*	I	Yegua-Jackson Aquifer | Trinity County	13	11	10	9	8	8
The Consolidated WSC	I	Carrizo-Wilcox Aquifer | Houston County	0	1	2	3	3	4
The Consolidated WSC	I	Houston County Lake/Reservoir	30	30	30	30	30	30
County-Other	I	Carrizo-Wilcox Aquifer | Houston County	48	34	25	16	8	0
County-Other	I	Other Aquifer | Houston County	0	0	0	0	0	0
County-Other	I	Queen City Aquifer | Houston County	67	48	34	20	10	0
County-Other	I	Sparta Aquifer | Houston County	155	110	78	48	22	0
County-Other	I	Yegua-Jackson Aquifer | Houston County	343	300	212	130	61	1
Manufacturing	I	Carrizo-Wilcox Aquifer | Houston County	2	2	2	2	2	2
Manufacturing	I	Houston County Lake/Reservoir	11	11	11	12	12	13
Livestock	I	Local Surface Water Supply	473	473	473	473	473	473
Livestock	I	Queen City Aquifer | Houston County	38	38	38	38	38	38
Irrigation	I	Neches Run-of-River	26	26	26	26	26	26
Irrigation	I	Trinity Run-of-River	457	457	457	457	457	457
Houston County / Trinity Basin WUG Total			**8,057**	**8,077**	**8,077**	**8,104**	**8,114**	**8,117**
Crockett	I	Carrizo-Wilcox Aquifer | Houston County	210	210	210	210	210	210
Crockett	I	Houston County Lake/Reservoir	1,080	1,014	915	888	852	809
Grapeland	I	Carrizo-Wilcox Aquifer | Houston County	136	138	142	144	146	148
Lovelady	I	Houston County Lake/Reservoir	109	105	100	98	96	94
Lovelady	I	Yegua-Jackson Aquifer | Houston County	133	133	133	133	133	133

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Pennington WSC*	I	Yegua-Jackson Aquifer | Houston County	23	21	18	17	16	14
Pennington WSC*	I	Yegua-Jackson Aquifer | Trinity County	23	21	17	17	15	14
TDCJ Eastham Unit	I	Sparta Aquifer | Houston County	977	977	977	977	977	977
The Consolidated WSC	I	Carrizo-Wilcox Aquifer | Houston County	0	93	204	263	313	362
The Consolidated WSC	I	Houston County Lake/Reservoir	1,281	1,281	1,281	1,281	1,281	1,281
County-Other	I	Carrizo-Wilcox Aquifer | Houston County	4	3	2	1	0	0
County-Other	I	Other Aquifer | Houston County	0	0	0	0	0	0
County-Other	I	Queen City Aquifer | Houston County	5	4	3	2	1	0
County-Other	I	Sparta Aquifer | Houston County	12	9	6	4	2	0
County-Other	I	Yegua-Jackson Aquifer | Houston County	27	24	17	10	5	0
Manufacturing	I	Carrizo-Wilcox Aquifer | Houston County	2	2	2	2	2	2
Manufacturing	I	Houston County Lake/Reservoir	190	197	205	212	220	228
Mining	I	Other Aquifer | Houston County	245	245	245	245	245	245
Livestock	I	Local Surface Water Supply	1,318	1,318	1,318	1,318	1,318	1,318
Livestock	I	Queen City Aquifer | Houston County	96	96	96	96	96	96
Irrigation	I	Neches Run-of-River	121	121	121	121	121	121
Irrigation	I	Trinity Run-of-River	2,065	2,065	2,065	2,065	2,065	2,065
Jasper County WUG Total			**72,591**	**72,360**	**72,100**	**71,865**	**71,637**	**71,415**
Jasper County / Neches Basin WUG Total			**66,366**	**66,198**	**65,999**	**65,816**	**65,632**	**65,445**
Brookeland FWSD	I	Gulf Coast Aquifer System | Jasper County	24	22	21	20	18	17
Brookeland FWSD	I	Yegua-Jackson Aquifer | Jasper County	21	20	19	17	17	15
Jasper	I	Gulf Coast Aquifer System | Jasper County	1,768	1,681	1,579	1,489	1,398	1,310

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Rayburn Country MUD	I	Yegua-Jackson Aquifer | Jasper County	278	264	247	231	216	201
Rural WSC	I	Gulf Coast Aquifer System | Jasper County	106	100	94	88	82	76
South Jasper County WSC	I	Gulf Coast Aquifer System | Jasper County	55	52	48	45	42	39
Upper Jasper County Water Authority	I	Gulf Coast Aquifer System | Jasper County	312	295	276	259	242	224
County-Other	I	Gulf Coast Aquifer System | Jasper County	622	584	535	487	437	383
Manufacturing	I	Gulf Coast Aquifer System | Jasper County	46,485	46,485	46,485	46,485	46,485	46,485
Manufacturing	I	Neches Run-of-River	557	557	557	557	557	557
Manufacturing	I	Sam Rayburn-Steinhagen Lake/Reservoir System	10,171	10,171	10,171	10,171	10,171	10,171
Mining	I	Gulf Coast Aquifer System | Jasper County	28	28	28	28	28	28
Livestock	I	Local Surface Water Supply	118	118	118	118	118	118
Livestock	I	Sam Rayburn-Steinhagen Lake/Reservoir System	5,630	5,630	5,630	5,630	5,630	5,630
Irrigation	I	Gulf Coast Aquifer System | Jasper County	132	132	132	132	132	132
Irrigation	I	Neches Run-of-River	59	59	59	59	59	59
Jasper County / Sabine Basin WUG Total			**6,225**	**6,162**	**6,101**	**6,049**	**6,005**	**5,970**
Jasper	I	Gulf Coast Aquifer System | Jasper County	9	8	8	7	7	6
Jasper County WCID 1	I	Gulf Coast Aquifer System | Jasper County	208	206	207	209	215	225
Kirbyville	I	Gulf Coast Aquifer System | Jasper County	407	404	406	412	424	443
Mauriceville SUD	I	Gulf Coast Aquifer System | Orange County	10	10	10	10	9	9
South Jasper County WSC	I	Gulf Coast Aquifer System | Jasper County	160	151	142	133	124	115
South Kirbyville Rural WSC	I	Gulf Coast Aquifer System | Jasper County	90	93	97	102	109	118
Upper Jasper County Water Authority	I	Gulf Coast Aquifer System | Jasper County	107	101	94	88	82	77

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year) 2030	2040	2050	2060	2070	2080
County-Other	I	Gulf Coast Aquifer System | Jasper County	583	538	486	437	384	326
Livestock	I	Gulf Coast Aquifer System | Jasper County	76	76	76	76	76	76
Livestock	I	Local Surface Water Supply	93	93	93	93	93	93
Livestock	I	Sam Rayburn-Steinhagen Lake/Reservoir System	4,370	4,370	4,370	4,370	4,370	4,370
Irrigation	I	Gulf Coast Aquifer System | Jasper County	78	78	78	78	78	78
Irrigation	I	Neches Run-of-River	34	34	34	34	34	34
Jefferson County WUG Total			**436,950**	**442,167**	**443,449**	**443,451**	**443,456**	**443,470**
Jefferson County / Neches Basin WUG Total			**101,790**	**103,973**	**104,459**	**104,621**	**104,787**	**104,952**
Beaumont	I	Gulf Coast Aquifer System | Jefferson County	2,659	2,659	2,659	2,659	2,659	2,659
Beaumont	I	Neches Run-of-River	3,054	3,146	3,226	3,122	3,074	3,069
Beaumont	I	Sam Rayburn-Steinhagen Lake/Reservoir System	3,525	3,657	3,839	3,816	3,739	3,621
Bevil Oaks	I	Gulf Coast Aquifer System | Jefferson County	99	100	100	98	97	96
China	I	Gulf Coast Aquifer System | Jefferson County	2	2	2	2	2	2
Groves	I	Sam Rayburn-Steinhagen Lake/Reservoir System	71	70	70	70	70	70
Jefferson County WCID 10	I	Sam Rayburn-Steinhagen Lake/Reservoir System	88	88	88	87	86	85
Meeker MWD	I	Gulf Coast Aquifer System | Jefferson County	102	103	102	101	100	99
Meeker MWD	I	Neches Run-of-River	1	1	1	1	1	1
Nederland	I	Sam Rayburn-Steinhagen Lake/Reservoir System	83	83	83	82	81	80
Nome	I	Sam Rayburn-Steinhagen Lake/Reservoir System	101	101	101	100	99	97
Port Neches	I	Sam Rayburn-Steinhagen Lake/Reservoir System	794	797	795	785	775	766
County-Other	I	Gulf Coast Aquifer System | Jefferson County	241	241	241	241	241	241
County-Other	I	Neches Run-of-River	47	48	47	47	47	47
County-Other	I	Sam Rayburn-Steinhagen Lake/Reservoir System	5	5	5	5	5	5

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Manufacturing	I	Gulf Coast Aquifer System | Hardin County	10	10	10	10	10	10
Manufacturing	I	Gulf Coast Aquifer System | Jefferson County	136	136	136	136	136	136
Manufacturing	I	Neches Run-of-River	22,839	22,915	22,988	23,053	23,127	23,208
Manufacturing	I	Sabine Run-of-River	582	582	582	582	582	582
Manufacturing	I	Sam Rayburn-Steinhagen Lake/Reservoir System	52,887	54,765	54,920	55,160	55,392	55,614
Livestock	I	Gulf Coast Aquifer System | Jefferson County	43	43	43	43	43	43
Livestock	I	Local Surface Water Supply	64	64	64	64	64	64
Irrigation	I	Gulf Coast Aquifer System | Jefferson County	53	53	53	53	53	53
Irrigation	I	Neches Run-of-River	9,800	9,800	9,800	9,800	9,800	9,800
Irrigation	I	Neches-Trinity Indirect Reuse	958	958	958	958	958	958
Irrigation	I	Neches-Trinity Run-of-River	3,546	3,546	3,546	3,546	3,546	3,546
Jefferson County / Neches-Trinity Basin WUG Total			**335,160**	**338,194**	**338,990**	**338,830**	**338,669**	**338,518**
Beaumont	I	Gulf Coast Aquifer System | Jefferson County	5,810	5,810	5,810	5,810	5,810	5,810
Beaumont	I	Neches Run-of-River	6,671	6,871	7,045	6,821	6,715	6,703
Beaumont	I	Sam Rayburn-Steinhagen Lake/Reservoir System	7,700	7,991	8,388	8,337	8,170	7,912
China	I	Gulf Coast Aquifer System | Jefferson County	176	177	177	174	172	170
Federal Correctional Complex Beaumont	I	Neches Run-of-River	613	610	610	610	610	610
Groves	I	Sam Rayburn-Steinhagen Lake/Reservoir System	2,218	2,209	2,209	2,209	2,209	2,209
Jefferson County WCID 10	I	Sam Rayburn-Steinhagen Lake/Reservoir System	509	512	510	504	498	492
Meeker MWD	I	Gulf Coast Aquifer System | Jefferson County	279	280	279	276	272	269
Meeker MWD	I	Neches Run-of-River	3	3	3	3	3	3
Nederland	I	Sam Rayburn-Steinhagen Lake/Reservoir System	2,339	2,350	2,344	2,315	2,287	2,260
Nome	I	Sam Rayburn-Steinhagen Lake/Reservoir System	44	45	44	44	43	43

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Port Arthur	I	Sam Rayburn-Steinhagen Lake/Reservoir System	18,309	18,454	18,405	18,183	17,964	17,748
Port Neches	I	Sam Rayburn-Steinhagen Lake/Reservoir System	764	767	765	756	747	738
Trinity Bay Conservation District*	I	Sam Rayburn-Steinhagen Lake/Reservoir System	18	17	16	15	14	13
Trinity Bay Conservation District*	H	Trinity Run-of-River	27	25	23	22	20	19
West Jefferson County MWD	I	Sam Rayburn-Steinhagen Lake/Reservoir System	929	928	936	948	960	972
County-Other	I	Gulf Coast Aquifer System | Jefferson County	1,863	1,863	1,863	1,863	1,863	1,863
County-Other	I	Neches Run-of-River	877	876	877	877	877	877
County-Other	I	Sam Rayburn-Steinhagen Lake/Reservoir System	105	105	105	105	105	105
Manufacturing	I	Gulf Coast Aquifer System | Hardin County	10	10	10	10	10	10
Manufacturing	I	Gulf Coast Aquifer System | Jefferson County	28	28	28	28	28	28
Manufacturing	I	Neches Run-of-River	27,997	28,090	28,180	28,261	28,350	28,451
Manufacturing	I	Sabine Run-of-River	538	538	538	538	538	538
Manufacturing	I	Sam Rayburn-Steinhagen Lake/Reservoir System	64,831	67,133	67,323	67,619	67,902	68,173
Mining	I	Gulf Coast Aquifer System | Jefferson County	288	288	288	288	288	288
Mining	I	Local Surface Water Supply	109	109	109	109	109	109
Mining	I	Neches-Trinity Run-of-River	34	34	34	34	34	34
Livestock	I	Gulf Coast Aquifer System | Jefferson County	596	596	596	596	596	596
Livestock	I	Local Surface Water Supply	736	736	736	736	736	736
Irrigation	I	Gulf Coast Aquifer System | Jefferson County	702	702	702	702	702	702
Irrigation	I	Neches Run-of-River	130,200	130,200	130,200	130,200	130,200	130,200
Irrigation	I	Neches-Trinity Indirect Reuse	12,729	12,729	12,729	12,729	12,729	12,729

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WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Irrigation	I	Neches-Trinity Run-of-River	47,108	47,108	47,108	47,108	47,108	47,108
Nacogdoches County WUG Total			**39,369**	**39,953**	**40,562**	**41,390**	**42,235**	**43,093**
Nacogdoches County / Neches Basin WUG Total			**39,369**	**39,953**	**40,562**	**41,390**	**42,235**	**43,093**
Appleby WSC	I	Carrizo-Wilcox Aquifer | Nacogdoches County	1,070	1,102	1,134	1,187	1,240	1,291
Appleby WSC	I	Nacogdoches Lake/Reservoir	64	63	63	62	62	61
Caro WSC	I	Carrizo-Wilcox Aquifer | Nacogdoches County	372	383	394	413	431	449
Cushing	I	Carrizo-Wilcox Aquifer | Nacogdoches County	139	144	148	155	162	168
D & M WSC	I	Carrizo-Wilcox Aquifer | Nacogdoches County	876	878	879	881	882	884
D & M WSC	I	Nacogdoches Lake/Reservoir	178	176	175	173	172	170
Etoile WSC	I	Carrizo-Wilcox Aquifer | Nacogdoches County	337	347	357	374	391	407
Garrison	I	Carrizo-Wilcox Aquifer | Nacogdoches County	259	266	273	284	295	305
Lilly Grove SUD	I	Carrizo-Wilcox Aquifer | Nacogdoches County	500	514	529	554	578	602
Melrose WSC	I	Carrizo-Wilcox Aquifer | Nacogdoches County	827	851	875	916	956	994
Melrose WSC	I	Nacogdoches Lake/Reservoir	25	25	25	25	25	24
Nacogdoches	I	Carrizo-Wilcox Aquifer | Nacogdoches County	2,313	2,415	2,522	2,665	2,813	2,967
Nacogdoches	I	Nacogdoches Lake/Reservoir	5,108	5,199	5,287	5,439	5,584	5,723
Swift WSC	I	Carrizo-Wilcox Aquifer | Nacogdoches County	422	434	446	468	489	509
Woden WSC	I	Carrizo-Wilcox Aquifer | Nacogdoches County	262	269	276	289	302	315
Woden WSC	I	Nacogdoches Lake/Reservoir	0	0	0	0	0	0
County-Other	I	Carrizo-Wilcox Aquifer | Nacogdoches County	75	89	107	137	167	196
County-Other	I	Nacogdoches Lake/Reservoir	46	46	45	45	45	44

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
County-Other	I	Other Aquifer | Nacogdoches County	79	79	79	79	79	79
County-Other	I	Queen City Aquifer | Nacogdoches County	221	221	221	221	221	221
County-Other	I	Sparta Aquifer | Nacogdoches County	156	156	156	156	156	156
County-Other	I	Yegua-Jackson Aquifer | Nacogdoches County	26	26	26	26	26	26
Manufacturing	I	Carrizo-Wilcox Aquifer | Nacogdoches County	902	951	1,004	1,061	1,120	1,184
Manufacturing	I	Nacogdoches Lake/Reservoir	1,990	2,048	2,106	2,164	2,224	2,284
Manufacturing	I	Sam Rayburn-Steinhagen Lake/Reservoir System	10,000	10,000	10,000	10,000	10,000	10,000
Mining	I	Local Surface Water Supply	1	1	1	1	1	1
Mining	I	Other Aquifer | Nacogdoches County	974	974	974	974	974	974
Steam Electric Power	I	Striker Lake/Reservoir	1,494	1,643	1,807	1,988	2,187	2,406
Livestock	I	Carrizo-Wilcox Aquifer | Nacogdoches County	851	851	851	851	851	851
Livestock	I	Local Surface Water Supply	8,913	8,913	8,913	8,913	8,913	8,913
Livestock	I	Other Aquifer | Nacogdoches County	78	78	78	78	78	78
Livestock	I	Queen City Aquifer | Nacogdoches County	310	310	310	310	310	310
Livestock	I	Sparta Aquifer | Nacogdoches County	156	156	156	156	156	156
Irrigation	I	Carrizo-Wilcox Aquifer | Nacogdoches County	266	266	266	266	266	266
Irrigation	I	Neches Run-of-River	79	79	79	79	79	79
Newton County WUG Total			**28,076**	**28,155**	**28,240**	**28,341**	**28,452**	**28,579**
Newton County / Sabine Basin WUG Total			**28,076**	**28,155**	**28,240**	**28,341**	**28,452**	**28,579**
Bon Wier WSC	I	Gulf Coast Aquifer System | Newton County	86	74	63	52	41	30
Brookeland FWSD	I	Gulf Coast Aquifer System | Newton County	61	55	49	43	37	32

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Mauriceville SUD	I	Gulf Coast Aquifer System | Orange County	31	31	30	27	23	20
Newton	I	Gulf Coast Aquifer System | Newton County	343	311	278	247	217	189
South Kirbyville Rural WSC	I	Gulf Coast Aquifer System | Jasper County	12	11	10	9	7	6
South Newton WSC	I	Gulf Coast Aquifer System | Newton County	233	211	187	165	143	122
County-Other	I	Gulf Coast Aquifer System | Newton County	693	618	543	474	407	340
Manufacturing	I	Gulf Coast Aquifer System | Newton County	394	394	394	394	394	394
Manufacturing	I	Sabine Run-of-River	5,746	5,973	6,209	6,453	6,706	6,969
Mining	I	Gulf Coast Aquifer System | Newton County	96	96	96	96	96	96
Mining	I	Local Surface Water Supply	78	78	78	78	78	78
Steam Electric Power	I	Sabine Run-of-River	19,603	19,603	19,603	19,603	19,603	19,603
Livestock	I	Gulf Coast Aquifer System | Newton County	105	105	105	105	105	105
Livestock	I	Local Surface Water Supply	157	157	157	157	157	157
Irrigation	I	Gulf Coast Aquifer System | Newton County	388	388	388	388	388	388
Irrigation	I	Sabine Run-of-River	50	50	50	50	50	50
Orange County WUG Total			**136,800**	**136,881**	**136,950**	**139,443**	**143,818**	**148,360**
Orange County / Neches Basin WUG Total			**12,805**	**12,648**	**12,585**	**12,649**	**12,758**	**12,866**
Bridge City	I	Gulf Coast Aquifer System | Orange County	221	236	238	245	252	257
Kelly G Brewer	I	Gulf Coast Aquifer System | Orange County	150	151	151	148	145	142
Mauriceville SUD	I	Gulf Coast Aquifer System | Orange County	69	73	76	76	76	76
Orange County WCID 1	I	Gulf Coast Aquifer System | Orange County	1,255	1,192	1,190	1,112	1,038	967
Orangefield WSC	I	Gulf Coast Aquifer System | Orange County	402	457	522	598	684	782
County-Other	I	Gulf Coast Aquifer System | Orange County	2,168	2,168	2,169	2,169	2,169	2,169

DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
County-Other	I	Sabine Run-of-River	228	228	228	228	228	228
Manufacturing	I	Gulf Coast Aquifer System | Orange County	115	115	116	116	115	116
Manufacturing	I	Sabine Run-of-River	1,102	1,102	1,102	1,149	1,234	1,321
Manufacturing	I	Toledo Bend Lake/Reservoir	1,015	1,015	1,015	1,015	1,015	1,015
Mining	I	Gulf Coast Aquifer System | Orange County	101	101	101	101	101	101
Mining	I	Local Surface Water Supply	161	161	161	161	161	161
Steam Electric Power	I	Gulf Coast Aquifer System | Orange County	1,242	1,073	940	955	964	955
Steam Electric Power	I	Sabine Run-of-River	4,481	4,481	4,481	4,481	4,481	4,481
Livestock	I	Gulf Coast Aquifer System | Orange County	69	69	69	69	69	69
Livestock	I	Local Surface Water Supply	26	26	26	26	26	26
Orange County / Neches-Trinity Basin WUG Total			**144**	**153**	**153**	**158**	**162**	**165**
Bridge City	I	Gulf Coast Aquifer System | Orange County	139	148	149	154	158	161
County-Other	I	Gulf Coast Aquifer System | Orange County	2	2	1	1	1	1
Livestock	I	Gulf Coast Aquifer System | Orange County	1	1	1	1	1	1
Livestock	I	Local Surface Water Supply	2	2	2	2	2	2
Orange County / Sabine Basin WUG Total			**123,851**	**124,080**	**124,212**	**126,636**	**130,898**	**135,329**
Bridge City	I	Gulf Coast Aquifer System | Orange County	911	974	983	1,010	1,036	1,061
Kelly G Brewer	I	Gulf Coast Aquifer System | Orange County	165	166	167	163	160	156
Mauriceville SUD	I	Gulf Coast Aquifer System | Orange County	656	694	715	722	719	713
Orange	I	Gulf Coast Aquifer System | Orange County	3,522	3,582	3,598	3,561	3,525	3,489
Orange County WCID 1	I	Gulf Coast Aquifer System | Orange County	201	191	190	178	166	155

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year) 2030	2040	2050	2060	2070	2080
Orange County WCID 2	I	Gulf Coast Aquifer System | Orange County	456	452	452	439	425	412
Orangefield WSC	I	Gulf Coast Aquifer System | Orange County	515	586	671	767	877	1,004
Pinehurst	I	Gulf Coast Aquifer System | Orange County	346	352	353	350	346	342
South Newton WSC	I	Gulf Coast Aquifer System | Orange County	188	192	193	191	189	187
County-Other	I	Gulf Coast Aquifer System | Orange County	3,050	3,050	3,050	3,050	3,050	3,050
Manufacturing	I	Gulf Coast Aquifer System | Orange County	5,750	5,750	5,749	5,749	5,750	5,749
Manufacturing	I	Sabine Run-of-River	54,859	54,859	54,859	57,224	61,423	65,779
Manufacturing	I	Toledo Bend Lake/Reservoir	50,536	50,536	50,536	50,536	50,536	50,536
Livestock	I	Gulf Coast Aquifer System | Orange County	181	181	181	181	181	181
Livestock	I	Local Surface Water Supply	70	70	70	70	70	70
Irrigation	I	Direct Reuse	15	15	15	15	15	15
Irrigation	I	Sabine Run-of-River	2,430	2,430	2,430	2,430	2,430	2,430
Panola County WUG Total			**15,757**	**15,805**	**15,827**	**15,844**	**15,844**	**15,864**
Panola County / Cypress Basin WUG Total			**8**	**7**	**6**	**5**	**5**	**5**
Panola-Bethany WSC*	I	Carrizo-Wilcox Aquifer | Panola County	8	7	6	5	5	5
County-Other		No water supply associated with WUG	0	0	0	0	0	0
Panola County / Sabine Basin WUG Total			**15,749**	**15,798**	**15,821**	**15,839**	**15,839**	**15,859**
Beckville	I	Carrizo-Wilcox Aquifer | Panola County	87	77	69	62	56	51
Carthage	I	Carrizo-Wilcox Aquifer | Panola County	49	48	48	47	46	45
Carthage	I	Murvaul Lake/Reservoir	1,600	1,584	1,561	1,531	1,503	1,475
Clayton WSC	I	Carrizo-Wilcox Aquifer | Panola County	198	222	252	266	281	296
Clayton WSC	I	Murvaul Lake/Reservoir	59	59	59	59	59	59
Deberry WSC	I	Carrizo-Wilcox Aquifer | Panola County	94	82	68	59	50	40

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Elysian Fields WSC*		No water supply associated with WUG	0	0	0	0	0	0
Gill WSC*	D	Carrizo-Wilcox Aquifer | Harrison County	126	126	126	126	126	126
Gill WSC*	D	O' the Pines Lake/Reservoir	33	33	33	33	33	33
Hollands Quarter WSC	I	Carrizo-Wilcox Aquifer | Panola County	71	65	58	53	48	43
Hollands Quarter WSC	I	Murvaul Lake/Reservoir	53	53	53	53	53	53
Minden Brachfield WSC	I	Carrizo-Wilcox Aquifer | Rusk County	13	15	19	20	22	24
Panola-Bethany WSC*	I	Carrizo-Wilcox Aquifer | Panola County	133	118	106	96	86	79
Rehobeth WSC	I	Murvaul Lake/Reservoir	88	79	68	61	54	47
Tatum	I	Carrizo-Wilcox Aquifer | Rusk County	33	25	20	15	11	9
County-Other	I	Carrizo-Wilcox Aquifer | Panola County	973	931	877	837	796	754
County-Other	I	Murvaul Lake/Reservoir	100	100	100	100	100	100
Manufacturing	I	Carrizo-Wilcox Aquifer | Panola County	128	137	147	156	166	177
Manufacturing	I	Murvaul Lake/Reservoir	1,056	1,095	1,135	1,178	1,222	1,267
Manufacturing	I	Sabine Run-of-River	114	114	114	114	114	114
Mining	I	Carrizo-Wilcox Aquifer | Panola County	1,189	1,240	1,288	1,332	1,370	1,406
Mining	I	Murvaul Lake/Reservoir	1,368	1,386	1,386	1,386	1,368	1,368
Mining	I	Sabine Run-of-River	168	168	168	168	168	168
Mining	I	Toledo Bend Lake/Reservoir	3,756	3,756	3,756	3,756	3,756	3,756
Livestock	I	Carrizo-Wilcox Aquifer | Panola County	595	620	645	666	686	704
Livestock	I	Local Surface Water Supply	2,596	2,596	2,596	2,596	2,596	2,596
Irrigation	I	Carrizo-Wilcox Aquifer | Panola County	917	917	917	917	917	917
Irrigation	I	Sabine Run-of-River	152	152	152	152	152	152

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Polk County WUG Total			**2,374**	**2,471**	**2,557**	**2,642**	**2,725**	**2,805**
Polk County / Neches Basin WUG Total			**2,374**	**2,471**	**2,557**	**2,642**	**2,725**	**2,805**
Chester WSC	I	Gulf Coast Aquifer System | Tyler County	49	53	55	57	59	61
Corrigan	I	Gulf Coast Aquifer System | Polk County	238	255	264	274	283	293
Damascus-Stryker WSC	I	Yegua-Jackson Aquifer | Polk County	188	202	210	218	226	234
Lake Livingston WSC*	I	Gulf Coast Aquifer System | Polk County	75	81	84	87	90	94
Leggett WSC*	H	Gulf Coast Aquifer System | Polk County	2	2	3	3	3	3
Moscow WSC*	I	Gulf Coast Aquifer System | Polk County	85	91	95	98	102	106
Soda WSC*	H	Gulf Coast Aquifer System | Polk County	17	18	19	20	20	21
County-Other*	I	Gulf Coast Aquifer System | Polk County	743	797	840	882	923	957
Manufacturing*	I	Gulf Coast Aquifer System | Polk County	401	416	431	447	463	480
Mining*	I	Gulf Coast Aquifer System | Polk County	103	83	83	83	83	83
Mining*	I	Local Surface Water Supply	1	1	1	1	1	1
Livestock*	I	Gulf Coast Aquifer System | Polk County	1	1	1	1	1	1
Livestock*	I	Local Surface Water Supply	147	147	147	147	147	147
Livestock*	I	Yegua-Jackson Aquifer | Polk County	11	11	11	11	11	11
Irrigation*	I	Gulf Coast Aquifer System | Polk County	313	313	313	313	313	313
Rusk County WUG Total			**64,081**	**64,086**	**64,070**	**64,058**	**64,041**	**63,925**
Rusk County / Neches Basin WUG Total			**10,305**	**10,229**	**10,138**	**10,039**	**9,938**	**9,843**
Ebenezer WSC	I	Carrizo-Wilcox Aquifer | Rusk County	181	175	166	156	146	137
Garrison	I	Carrizo-Wilcox Aquifer | Nacogdoches County	1	1	1	1	1	1
Gaston WSC	I	Carrizo-Wilcox Aquifer | Rusk County	149	144	137	128	120	112

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Goodsprings WSC	I	Carrizo-Wilcox Aquifer | Rusk County	230	221	210	198	185	173
Henderson	I	Carrizo-Wilcox Aquifer | Rusk County	1,396	1,396	1,396	1,396	1,396	1,396
Henderson	D	Fork Lake/Reservoir	3,472	3,433	3,395	3,357	3,318	3,282
Henderson	I	Striker Lake/Reservoir	118	129	142	157	172	189
Jacobs WSC	I	Carrizo-Wilcox Aquifer | Rusk County	5	5	5	5	6	5
Minden Brachfield WSC	I	Carrizo-Wilcox Aquifer | Rusk County	142	138	131	124	116	108
Mt Enterprise WSC	I	Carrizo-Wilcox Aquifer | Rusk County	222	214	204	191	179	167
New London	I	Carrizo-Wilcox Aquifer | Rusk County	164	158	151	142	133	124
Overton*	I	Carrizo-Wilcox Aquifer | Rusk County	42	41	39	37	34	32
South Rusk County WSC	I	Carrizo-Wilcox Aquifer | Rusk County	242	234	222	209	196	182
Wright City WSC	I	Carrizo-Wilcox Aquifer | Smith County	23	22	21	20	18	17
County-Other	I	Carrizo-Wilcox Aquifer | Rusk County	849	849	849	849	849	849
Manufacturing	I	Carrizo-Wilcox Aquifer | Rusk County	244	244	244	244	244	244
Manufacturing	I	Neches Run-of-River	1	1	1	1	1	1
Mining	I	Carrizo-Wilcox Aquifer | Rusk County	109	109	109	109	109	109
Mining	I	Local Surface Water Supply	828	828	828	828	828	828
Mining	I	Other Aquifer | Rusk County	264	264	264	264	264	264
Livestock	I	Carrizo-Wilcox Aquifer | Rusk County	289	289	289	289	289	289
Livestock	I	Local Surface Water Supply	991	991	991	991	991	991
Livestock	I	Queen City Aquifer | Rusk County	33	33	33	33	33	33
Irrigation	I	Carrizo-Wilcox Aquifer | Rusk County	251	251	251	251	251	251
Irrigation	I	Neches Run-of-River	59	59	59	59	59	59

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Rusk County / Sabine Basin WUG Total			**53,776**	**53,857**	**53,932**	**54,019**	**54,103**	**54,082**
Chalk Hill SUD*	I	Carrizo-Wilcox Aquifer | Rusk County	232	222	211	199	186	174
Cross Roads SUD*	I	Carrizo-Wilcox Aquifer | Rusk County	296	305	318	334	351	371
Cross Roads SUD*	D	Fork Lake/Reservoir	248	273	288	310	337	366
Crystal Farms WSC	I	Carrizo-Wilcox Aquifer | Rusk County	130	141	156	173	192	215
Elderville WSC*	I	Carrizo-Wilcox Aquifer | Rusk County	69	67	65	62	60	58
Elderville WSC*	I	Cherokee Lake/Reservoir	96	96	96	95	111	111
Elderville WSC*	D	Fork Lake/Reservoir	97	97	97	97	96	96
Henderson	I	Carrizo-Wilcox Aquifer | Rusk County	482	482	482	482	482	482
Henderson	D	Fork Lake/Reservoir	1,043	1,032	1,021	1,010	999	986
Henderson	I	Sabine Run-of-River	10	10	10	10	10	10
Henderson	I	Striker Lake/Reservoir	35	39	43	47	52	57
Jacobs WSC	I	Carrizo-Wilcox Aquifer | Rusk County	304	321	341	365	365	366
Kilgore*	D	Carrizo-Wilcox Aquifer | Gregg County	356	356	355	352	347	347
Kilgore*	D	Fork Lake/Reservoir	783	848	924	1,008	1,095	1,095
Minden Brachfield WSC	I	Carrizo-Wilcox Aquifer | Rusk County	71	69	65	61	57	53
New London	I	Carrizo-Wilcox Aquifer | Rusk County	118	115	109	102	96	90
New Prospect WSC	I	Carrizo-Wilcox Aquifer | Rusk County	149	143	136	128	120	112
Overton*	I	Carrizo-Wilcox Aquifer | Rusk County	404	391	372	350	330	309
Southern Utilities*	I	Carrizo-Wilcox Aquifer | Rusk County	79	76	72	68	64	59
Southern Utilities*	I	Carrizo-Wilcox Aquifer | Smith County	0	0	0	0	0	0
Tatum	I	Carrizo-Wilcox Aquifer | Rusk County	251	242	230	216	202	189
West Gregg SUD*	D	Carrizo-Wilcox Aquifer | Gregg County	22	22	22	22	23	23
County-Other	I	Carrizo-Wilcox Aquifer | Rusk County	614	614	614	614	614	614

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
County-Other	I	Other Aquifer | Rusk County	85	85	85	85	85	85
Mining	I	Carrizo-Wilcox Aquifer | Rusk County	1,974	1,983	1,992	2,001	2,001	1,986
Mining	I	Local Surface Water Supply	430	430	430	430	430	430
Mining	I	Other Aquifer | Rusk County	194	194	194	194	194	194
Steam Electric Power	I	Carrizo-Wilcox Aquifer | Rusk County	1,279	1,279	1,279	1,279	1,279	1,279
Steam Electric Power	I	Martin Lake/Reservoir	25,000	25,000	25,000	25,000	25,000	25,000
Steam Electric Power	I	Toledo Bend Lake/Reservoir	17,922	17,922	17,922	17,922	17,922	17,922
Livestock	I	Carrizo-Wilcox Aquifer | Rusk County	256	256	256	256	256	256
Livestock	I	Local Surface Water Supply	424	424	424	424	424	424
Irrigation	I	Other Aquifer | Rusk County	196	196	196	196	196	196
Irrigation	I	Sabine Run-of-River	127	127	127	127	127	127
Sabine County WUG Total			**3,159**	**3,212**	**3,188**	**3,171**	**3,157**	**3,142**
Sabine County / Neches Basin WUG Total			**1,077**	**1,071**	**1,053**	**1,041**	**1,029**	**1,018**
Brookeland FWSD	I	Yegua-Jackson Aquifer | Jasper County	70	63	58	54	51	47
G M WSC	I	Carrizo-Wilcox Aquifer | Sabine County	25	25	25	25	25	25
G M WSC	I	Toledo Bend Lake/Reservoir	114	115	114	114	113	114
G M WSC	I	Yegua-Jackson Aquifer | Sabine County	55	55	55	55	55	55
Pineland	I	Yegua-Jackson Aquifer | Sabine County	169	153	140	132	124	115
Manufacturing	I	Direct Reuse	20	20	20	20	20	20
Manufacturing	I	Neches Run-of-River	162	162	162	162	162	162
Manufacturing	I	Other Aquifer | Sabine County	336	336	336	336	336	336
Manufacturing	I	Yegua-Jackson Aquifer | Sabine County	45	45	45	45	45	45

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Livestock	I	Carrizo-Wilcox Aquifer | Sabine County	34	45	45	45	45	45
Livestock	I	Local Surface Water Supply	26	26	26	26	26	26
Livestock	I	Sparta Aquifer | Sabine County	21	26	27	27	27	28
Sabine County / Sabine Basin WUG Total			**2,082**	**2,141**	**2,135**	**2,130**	**2,128**	**2,124**
Brookeland FWSD	I	Carrizo-Wilcox Aquifer | Sabine County	10	9	8	8	7	7
G M WSC	I	Carrizo-Wilcox Aquifer | Sabine County	95	95	95	95	95	95
G M WSC	I	Toledo Bend Lake/Reservoir	430	429	428	428	429	428
G M WSC	I	Yegua-Jackson Aquifer | Sabine County	207	207	206	206	206	206
Hemphill	I	Toledo Bend Lake/Reservoir	476	476	476	476	476	476
New WSC	I	Carrizo-Wilcox Aquifer | San Augustine County	5	4	4	3	3	3
County-Other	I	Carrizo-Wilcox Aquifer | Sabine County	74	69	66	63	61	59
County-Other	I	Carrizo-Wilcox Aquifer | Shelby County	0	0	0	0	0	0
County-Other	I	Other Aquifer | Sabine County	0	0	0	0	0	0
County-Other	I	Sparta Aquifer | Sabine County	11	9	9	8	8	7
County-Other	I	Toledo Bend Lake/Reservoir	37	37	37	37	37	37
Mining	I	Other Aquifer | Sabine County	0	0	0	0	0	0
Mining	I	Toledo Bend Lake/Reservoir	334	334	334	334	334	334
Livestock	I	Carrizo-Wilcox Aquifer | Sabine County	103	136	136	136	136	136
Livestock	I	Local Surface Water Supply	175	175	175	175	175	175
Livestock	I	Sparta Aquifer | Sabine County	13	13	13	13	13	13

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Livestock	I	Yegua-Jackson Aquifer | Sabine County	112	148	148	148	148	148
San Augustine County WUG Total			**4,938**	**4,949**	**4,953**	**4,953**	**4,953**	**4,953**
San Augustine County / Neches Basin WUG Total			**4,535**	**4,545**	**4,545**	**4,545**	**4,545**	**4,546**
Choice WSC	I	Carrizo-Wilcox Aquifer | Shelby County	2	2	2	2	2	2
Denning WSC	I	Carrizo-Wilcox Aquifer | San Augustine County	120	108	98	91	84	77
New WSC	I	Carrizo-Wilcox Aquifer | San Augustine County	86	77	69	64	59	55
San Augustine	I	San Augustine Lake/Reservoir	642	610	593	583	583	595
San Augustine Rural WSC	I	San Augustine Lake/Reservoir	271	296	314	307	298	290
Sand Hills WSC	I	Carrizo-Wilcox Aquifer | Shelby County	6	7	8	8	8	8
County-Other	I	Carrizo-Wilcox Aquifer | Nacogdoches County	1	1	1	1	1	1
County-Other	I	Carrizo-Wilcox Aquifer | San Augustine County	22	25	27	27	29	31
County-Other	I	Other Aquifer | San Augustine County	196	200	199	211	218	215
County-Other	I	San Augustine Lake/Reservoir	65	65	65	65	65	65
County-Other	I	Sparta Aquifer | San Augustine County	83	83	83	83	83	83
County-Other	I	Yegua-Jackson Aquifer | San Augustine County	230	230	230	230	230	230
Manufacturing	I	Carrizo-Wilcox Aquifer | San Augustine County	8	8	8	8	8	8
Mining	I	Other Aquifer | San Augustine County	1,119	1,113	1,115	1,098	1,089	1,092
Mining	I	San Augustine Lake/Reservoir	292	298	296	313	322	319
Livestock	I	Carrizo-Wilcox Aquifer | San Augustine County	69	87	103	115	125	133
Livestock	I	Local Surface Water Supply	1,167	1,167	1,167	1,167	1,167	1,167
Livestock	I	Other Aquifer | San Augustine County	61	73	72	77	79	79

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DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Livestock	I	Sparta Aquifer | San Augustine County	80	80	80	80	80	80
Irrigation	I	Carrizo-Wilcox Aquifer | San Augustine County	15	15	15	15	15	16
San Augustine County / Sabine Basin WUG Total			**403**	**404**	**408**	**408**	**408**	**407**
G M WSC	I	Carrizo-Wilcox Aquifer | Sabine County	4	4	4	4	4	4
G M WSC	I	Toledo Bend Lake/Reservoir	16	16	18	18	18	18
G M WSC	I	Yegua-Jackson Aquifer | Sabine County	8	8	9	9	9	9
San Augustine Rural WSC	I	San Augustine Lake/Reservoir	15	16	17	17	17	16
County-Other	I	Carrizo-Wilcox Aquifer | San Augustine County	88	88	88	88	88	88
Livestock	I	Carrizo-Wilcox Aquifer | San Augustine County	139	139	139	139	139	139
Livestock	I	Local Surface Water Supply	132	132	132	132	132	132
Irrigation	I	Carrizo-Wilcox Aquifer | San Augustine County	1	1	1	1	1	1
Shelby County WUG Total			**23,634**	**23,592**	**23,555**	**23,519**	**23,487**	**23,457**
Shelby County / Neches Basin WUG Total			**4,079**	**4,101**	**4,114**	**4,115**	**4,106**	**4,092**
Choice WSC	I	Carrizo-Wilcox Aquifer | Shelby County	28	29	31	34	37	41
Sand Hills WSC	I	Carrizo-Wilcox Aquifer | Shelby County	153	153	152	152	152	151
Sand Hills WSC	I	Center Lake/Reservoir	19	23	27	29	31	34
Sand Hills WSC	I	Pinkston Lake/Reservoir	143	162	189	206	222	239
Timpson	I	Carrizo-Wilcox Aquifer | Shelby County	7	7	7	8	8	8
County-Other	I	Pinkston Lake/Reservoir	840	839	820	797	767	730
County-Other	I	Timpson Lake/Reservoir	350	350	350	350	350	350
Mining	I	Toledo Bend Lake/Reservoir	5	5	5	5	5	5
Livestock	I	Carrizo-Wilcox Aquifer | Shelby County	430	430	430	430	430	430
Livestock	I	Local Surface Water Supply	2,101	2,100	2,100	2,101	2,101	2,101

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

DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year) 2030	2040	2050	2060	2070	2080
Irrigation	I	Carrizo-Wilcox Aquifer | Shelby County	3	3	3	3	3	3
Shelby County / Sabine Basin WUG Total			**19,555**	**19,491**	**19,441**	**19,404**	**19,381**	**19,365**
Center	I	Center Lake/Reservoir	260	260	261	262	263	264
Center	I	Pinkston Lake/Reservoir	1,875	1,875	1,874	1,873	1,872	1,871
Choice WSC	I	Carrizo-Wilcox Aquifer | Shelby County	79	84	91	98	108	119
East Lamar WSC	I	Carrizo-Wilcox Aquifer | Shelby County	108	114	123	134	146	162
Five Way WSC	I	Carrizo-Wilcox Aquifer | Shelby County	151	152	153	152	152	151
Flat Fork WSC	I	Carrizo-Wilcox Aquifer | Shelby County	114	94	79	65	53	44
Huxley	I	Toledo Bend Lake/Reservoir	280	280	280	280	280	280
Joaquin	I	Toledo Bend Lake/Reservoir	124	99	80	63	50	39
McClelland WSC	I	Carrizo-Wilcox Aquifer | Shelby County	188	167	138	119	99	78
New WSC	I	Carrizo-Wilcox Aquifer | San Augustine County	4	5	6	6	7	7
Sand Hills WSC	I	Carrizo-Wilcox Aquifer | Shelby County	131	130	130	130	130	131
Sand Hills WSC	I	Center Lake/Reservoir	17	19	22	24	26	28
Sand Hills WSC	I	Pinkston Lake/Reservoir	121	137	160	173	188	202
Tenaha	I	Carrizo-Wilcox Aquifer | Shelby County	250	221	182	154	126	97
Timpson	I	Carrizo-Wilcox Aquifer | Shelby County	180	159	129	109	89	67
County-Other	I	Carrizo-Wilcox Aquifer | Shelby County	512	512	494	474	447	413
County-Other	I	Center Lake/Reservoir	116	117	114	112	108	103
County-Other	I	Toledo Bend Lake/Reservoir	100	95	90	82	75	68
Manufacturing	I	Carrizo-Wilcox Aquifer | Shelby County	218	247	247	247	247	247
Manufacturing	I	Center Lake/Reservoir	88	81	76	73	72	71
Manufacturing	I	Direct Reuse	80	80	80	80	80	80
Manufacturing	I	Pinkston Lake/Reservoir	633	587	544	526	513	508

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

DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year) 2030	2040	2050	2060	2070	2080
Mining	I	Carrizo-Wilcox Aquifer | Shelby County	1,026	1,026	1,026	1,026	1,026	1,026
Mining	I	Toledo Bend Lake/Reservoir	3,405	3,405	3,405	3,405	3,405	3,405
Livestock	I	Carrizo-Wilcox Aquifer | Shelby County	1,320	1,369	1,481	1,562	1,644	1,729
Livestock	I	Local Surface Water Supply	8,168	8,169	8,169	8,168	8,168	8,168
Irrigation	I	Carrizo-Wilcox Aquifer | Shelby County	7	7	7	7	7	7
Smith County WUG Total			**59,553**	**63,965**	**68,951**	**71,662**	**74,548**	**77,625**
Smith County / Neches Basin WUG Total			**59,553**	**63,965**	**68,951**	**71,662**	**74,548**	**77,625**
Arp	I	Carrizo-Wilcox Aquifer | Smith County	155	141	132	120	108	96
Ben Wheeler WSC*	D	Carrizo-Wilcox Aquifer | Van Zandt County	2	3	3	2	2	2
Bullard	I	Carrizo-Wilcox Aquifer | Cherokee County	299	342	371	399	426	452
Bullard	I	Carrizo-Wilcox Aquifer | Smith County	998	1,110	1,110	1,110	1,110	1,110
Bullard	I	Jacksonville Lake/Reservoir	699	797	866	930	993	1,054
Carroll WSC*	I	Carrizo-Wilcox Aquifer | Smith County	89	99	109	122	136	137
Crystal Systems Texas*	D	Carrizo-Wilcox Aquifer | Smith County	452	473	487	492	490	490
Crystal Systems Texas*	I	Carrizo-Wilcox Aquifer | Smith County	177	185	191	192	192	192
Dean WSC	I	Carrizo-Wilcox Aquifer | Smith County	723	776	815	846	875	904
Emerald Bay MUD	I	Carrizo-Wilcox Aquifer | Smith County	254	267	276	287	287	287
Jackson WSC*	D	Carrizo-Wilcox Aquifer | Smith County	291	313	329	342	355	367
Liberty Utilities Silverleaf Water*	D	Carrizo-Wilcox Aquifer | Wood County	202	201	202	202	202	202
Lindale Rural WSC*	I	Carrizo-Wilcox Aquifer | Smith County	811	811	811	811	811	811
Lindale*	I	Carrizo-Wilcox Aquifer | Smith County	468	474	491	485	474	474

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

DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Overton*	I	Carrizo-Wilcox Aquifer | Rusk County	7	7	8	8	8	8
R P M WSC*	D	Carrizo-Wilcox Aquifer | Van Zandt County	11	10	10	9	9	9
R P M WSC*	D	Queen City Aquifer | Van Zandt County	14	14	13	14	14	14
Southern Utilities*	I	Carrizo-Wilcox Aquifer | Smith County	8,154	8,207	8,289	8,332	8,564	8,592
Southern Utilities*	I	Palestine Lake/Reservoir	216	231	243	251	260	269
Southern Utilities*	I	Tyler Lake/Reservoir	212	225	234	241	247	253
Troup	I	Carrizo-Wilcox Aquifer | Smith County	388	401	410	414	418	422
Tyler*	I	Palestine Lake/Reservoir	17,549	19,679	22,125	23,504	24,971	26,528
Tyler*	I	Tyler Lake/Reservoir	17,169	19,117	21,342	22,512	23,745	25,045
Walnut Grove WSC	I	Carrizo-Wilcox Aquifer | Smith County	727	728	728	728	729	729
Walnut Grove WSC	I	Palestine Lake/Reservoir	750	752	756	759	761	765
Walnut Grove WSC	I	Tyler Lake/Reservoir	733	732	729	726	725	722
Whitehouse	I	Carrizo-Wilcox Aquifer | Smith County	1,005	1,012	1,021	1,014	1,007	1,001
Whitehouse	I	Palestine Lake/Reservoir	377	379	380	382	383	384
Whitehouse	I	Tyler Lake/Reservoir	370	368	367	365	364	363
Wright City WSC	I	Carrizo-Wilcox Aquifer | Smith County	193	199	206	213	220	228
County-Other*	I	Carrizo-Wilcox Aquifer | Smith County	607	607	607	607	607	607
County-Other*	I	Palestine Lake/Reservoir	121	121	122	122	123	123
County-Other*	I	Queen City Aquifer | Smith County	19	19	19	19	19	19
County-Other*	I	Tyler Lake/Reservoir	118	118	117	117	116	116
Manufacturing*	I	Carrizo-Wilcox Aquifer | Smith County	888	687	616	508	257	236
Manufacturing*	I	Other Aquifer | Smith County	389	389	389	389	389	389
Manufacturing*	I	Palestine Lake/Reservoir	961	996	1,032	1,069	1,109	1,150
Manufacturing*	I	Queen City Aquifer | Smith County	100	100	100	100	100	100
Manufacturing*	I	Tyler Lake/Reservoir	841	870	899	930	959	992
Mining	D	Carrizo-Wilcox Aquifer | Smith County	0	0	0	0	0	0

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

DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Mining	I	Other Aquifer | Smith County	113	113	113	113	113	113
Livestock*	I	Local Surface Water Supply	313	313	313	313	313	313
Livestock*	I	Queen City Aquifer | Smith County	500	500	500	500	500	500
Irrigation*	I	Bellwood Lake/Reservoir	400	400	400	400	400	400
Irrigation*	I	Neches Run-of-River	45	45	45	45	45	45
Irrigation*	I	Palestine Lake/Reservoir	487	478	469	462	456	456
Irrigation*	D	Queen City Aquifer | Smith County	156	156	156	156	156	156
Trinity County WUG Total			**647**	**647**	**618**	**600**	**580**	**561**
Trinity County / Neches Basin WUG Total			**647**	**647**	**618**	**600**	**580**	**561**
Centerville WSC	I	Yegua-Jackson Aquifer | Trinity County	119	106	91	81	70	58
Groveton*	H	Livingston-Wallisville Lake/Reservoir System	23	22	21	20	18	16
Groveton*	H	Yegua-Jackson Aquifer | Trinity County	23	19	13	10	7	4
Pennington WSC*	I	Yegua-Jackson Aquifer | Houston County	16	13	11	9	7	6
Pennington WSC*	I	Yegua-Jackson Aquifer | Trinity County	16	13	10	9	7	6
County-Other*	I	Other Aquifer | Trinity County	120	117	115	114	114	114
Mining*	H	Yegua-Jackson Aquifer | Trinity County	9	9	9	9	9	9
Livestock*	I	Local Surface Water Supply	187	187	187	187	187	187
Livestock*	I	Yegua-Jackson Aquifer | Trinity County	71	98	98	98	98	98
Irrigation*	I	Neches Run-of-River	0	0	0	0	0	0
Irrigation*	I	Yegua-Jackson Aquifer | Trinity County	63	63	63	63	63	63
Tyler County WUG Total			**9,725**	**9,569**	**9,441**	**9,351**	**9,266**	**9,187**
Tyler County / Neches Basin WUG Total			**9,725**	**9,569**	**9,441**	**9,351**	**9,266**	**9,187**
Chester WSC	I	Gulf Coast Aquifer System | Tyler County	101	88	74	64	54	43

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

DRAFT Region I Water User Group (WUG) Existing Water Supply

WUG Name	Source Region	Source Description	Existing Supply (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Colmesneil	I	Gulf Coast Aquifer System | Tyler County	163	156	151	147	143	140
Cypress Creek WSC	I	Gulf Coast Aquifer System | Tyler County	101	89	79	71	63	57
Moscow WSC*	I	Gulf Coast Aquifer System | Polk County	3	4	5	6	7	8
Seneca WSC	I	Gulf Coast Aquifer System | Tyler County	123	116	110	106	102	98
Tyler County SUD	I	Gulf Coast Aquifer System | Tyler County	632	602	579	563	548	535
Warren WSC	I	Gulf Coast Aquifer System | Tyler County	273	272	272	272	272	272
Wildwood POA	I	Gulf Coast Aquifer System | Tyler County	76	69	63	58	53	48
Woodville	I	Gulf Coast Aquifer System | Tyler County	880	920	970	1,024	1,088	1,162
Woodville	I	Sam Rayburn-Steinhagen Lake/Reservoir System	5,600	5,600	5,600	5,600	5,600	5,600
County-Other	I	Gulf Coast Aquifer System | Tyler County	790	670	555	457	353	241
Manufacturing	I	Gulf Coast Aquifer System | Tyler County	40	40	40	40	40	40
Mining	I	Gulf Coast Aquifer System | Tyler County	39	39	39	39	39	39
Mining	I	Local Surface Water Supply	3	3	3	3	3	3
Steam Electric Power	I	Gulf Coast Aquifer System | Tyler County	191	191	191	191	191	191
Livestock	I	Gulf Coast Aquifer System | Tyler County	85	85	85	85	85	85
Livestock	I	Local Surface Water Supply	183	183	183	183	183	183
Irrigation	I	Gulf Coast Aquifer System | Tyler County	354	354	354	354	354	354
Irrigation	I	Neches Run-of-River	88	88	88	88	88	88
Region I WUG Existing Water Supply Total			**979,557**	**990,555**	**997,313**	**1,002,709**	**1,010,218**	**1,018,247**

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

Appendix 3-C

Summary of WAM Modifications in the Development of Surface Water Supplies for the 2026 East Regional Water Plan

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The following appendix includes a summary of WAM modifications in the development of surface water supplies for the 2026 Regional Water Plan.

Region I
East Texas Regional
Water Planning Group

John Martin, Chair
P.O. Box 1407
Jasper, TX 75951
409-383-1577

October 24, 2023

Mr. Jeff Walker
Executive Administrator
Texas Water Development Board
1700 Congress Avenue
Austin, Texas, 78701

Re: Request for Modifications to Water Availability Models for Planning Purposes in the East Texas Regional Water Planning Area

Dear Mr. Walker:

On October 4, 2023, the East Texas Regional Water Planning Group (ETRWPG) considered and approved an approach to water availability modeling for surface water supplies for the current round of planning. The purpose of this letter is to inform the Texas Water Development Board (TWDB) of the approach approved at that time.

The East Texas Regional Water Planning Area (ETRWPA) uses supplies from four river basins, Trinity, Neches, Sabine, and Neches Trinity. As part of the 2026 planning efforts, the Full Authorization Water Availability Models (WAM[1]), also known as Run 3, for each of these basins will be updated to determine surface water availability in the region. Following are highlights of the four basin models and the changes made to the models to determine the available surface water supplies for the ETRWPA in this round of regional water planning. Completed hydrologic variance request forms for the Neches River Basin and Sabin River Basin are included in Attachment A.

- All models will incorporate updated area-capacity relationships to account for sedimentation in major reservoirs, as required by "Exhibit C: General Guidelines for Sixth Cycle of Regional Water Plan Development."

Neches-Trinity Coastal Basin WAM

- The ETRWPG will use the current Neches-Trinity Coastal Basin WAM run, as developed by TCEQ, for surface water supplies in that basin. No changes are proposed to the Neches-Trinity WAM.

Trinity River Basin WAM

- For surface water supplies located in the Trinity River Basin, the ETRWPG will use the updated Trinity Basin WAM developed for Region C.

[1] The term WAM refers throughout this document to TCEQ's Full Authorization Scenario, also known as Run 3, with modifications as proposed in this letter.

Neches River Basin WAM

- Modifications to the Neches River WAM Full Authorization run (Run 3) as developed by TCEQ in 2021. The modifications will address the following:
    - Updated area-capacity relationships to account for sedimentation in major reservoirs (those with a capacity greater than 5,000 ac-ft), as required by "Exhibit C: General Guidelines for Sixth Cycle of Regional Water Plan Development."
    - Subordination of rights associated with Sam Rayburn Reservoir and Lake B.A. Steinhagen to upstream water rights as specified in Certificate of Adjudication 06-4411.
    - System operation of Lake Palestine and LNVA rights.
    - Minimum operating elevation in Sam Rayburn and B.A. Steinhagen Reservoirs The top elevation of the inactive pool for the Sam Rayburn Reservoir is 149 ft msl and the top elevation of the inactive pool for the BA. Steinhagen Reservoir is 81 ft msl.
    - Modeling Lake Tyler as a single reservoir.
    - Evaluate City of Beaumont supply based on a daily time-step analysis.

Sabine River WAM

- Modifications to the Sabine River WAM Full Authorization run (Run 3) as developed by TCEQ in 2012. The modifications will address the following:
    - Updated area-capacity relationships to account for sedimentation in major reservoirs (those with a capacity greater than 5,000 ac-ft), as required by "Exhibit C: General Guidelines for Sixth Cycle of Regional Water Plan Development."
    - Firm Yield of Toledo Bend Reservoir

As intended by Senate Bill 1, the assessment of surface water availability in the ETRWPA will be conducted to accurately reflect water supplies that are available for use. Should new information become available within the project timeline, this will be incorporated into the supply analyses. Examples of such changes include new water supply studies for specific sources, updates to the area-capacity relationships for reservoirs with new volumetric surveys, new water rights permit, and revised operating policies and/or contractual agreements.

Thank you for your attention to this matter. Please contact me if you have any questions regarding our request.

Sincerely,

John Martin

John Martin, Chair
East Texas Regional Water Planning Group

Enclosures

cc: Mr. Lann Bookout, Texas Water Development Board
Ms. Brigit Buff, P.E., Plummer Associates, Inc.
Mr. Jordan Skipwith, P.E., Freese and Nichols, Inc.

Texas Water Development Board

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

December 20, 2023

Mr. John Martin
Chair
Region I (East Texas) Regional Water Planning Group
c/o City of Nacogdoches
P.O. Box 635030
Nacogdoches, Texas 75963

Dear Chairman Martin:

I have reviewed your request dated October 13, 2023, for approval of alternative water supply assumptions to be used in determining existing and future surface water availability. This letter confirms that the TWDB approves the following assumptions:

1. For surface water supplies located in the Trinity River Basin, use the updated Trinity Basin WAM as modified by the Region C RWPG and approved by the TWDB for existing supplies.
2. Modifications to the Neches River WAM RUN3 to address the following for existing and strategy supplies:
    a. Subordinating rights associated with Sam Rayburn Reservoir and Lake B. A. Steinhagen to upstream water rights as specified in the Certificate of Adjudication 06-4411.
    b. Reordering the 1963 rights for impoundment at Sam Rayburn and B.A. Steinhagen so that Sam Rayburn, the upstream reservoir, will be filled with available streamflow before B.A. Steinhagen is refilled.
    c. Modeling system operation of Lake Palestine and Lower Neches Valley Authority rights.
    d. Setting the minimum operating elevation in Sam Rayburn Reservoir to 149 feet msl and at B.A. Steinhagen Reservoir to 81 feet msl.
    e. Modeling Lake Tyler as a single reservoir.
3. Evaluate City of Beaumont existing and strategy supplies based on a daily time-step analysis utilizing an excel-based model.
4. Modifications to the Sabine River WAM RUN3 to address the following for existing and strategy supplies when estimating the firm yield of Toledo Bend Reservoir:
    a. Excluding hydropower operations at Toledo Bend when determining the total available supply from the lake.
    b. Including hydropower operations in the evaluation of supplies from all other reservoirs and run-of-river supplies.

   c. Modeling canal water rights owned by the Sabine River Authority (SRA) in the lower basin as being subordinate to diversions from Toledo Bend Reservoir.
   d. Evaluating the remainder of the yield of Toledo Bend assuming that all diversions are taken lakeside.
   e. Sharing all diversions from the lake equally been SRA-Texas and SRA-Louisiana, including the additional unpermitted yield, within the WAM.
5. Determine existing and strategy supplies from Lake Center separately from the WAM, based on the 2016 study completed by the City of Center.

While the use of these modified conditions may be reasonable for planning purposes, WAM RUN3 would be utilized by the Texas Commission on Environmental Quality for analyzing permit applications. It is acceptable to use the modified conditions for strategy supply evaluations only if the yield produced is more conservative (less) for surface water appropriations than WAM RUN3.

While the TWDB authorizes these modification to evaluate existing and future water supplies for development of the 2026 East Texas RWP, it is the responsibility of the RWPG to ensure that the resulting estimates of water availability are reasonable for drought planning purposes and will reflect conditions expected in the event of actual drought conditions; and in all other regards will be evaluated in accordance with the most recent version of regional water planning contract Exhibit C, *General Guidelines for Development of the 2026 Regional Water Plans.*

Please do not hesitate to contact Lann Bookout of our Regional Water Planning staff at 512-926-9439 or lann.bookout@twdb.texas.gov if you have any questions.

Sincerely,

Matt Nelson Digitally signed by Matt Nelson
Date: 2023.12.21 11:43:06
-06'00'

Matt Nelson
Deputy Executive Administrator

c: Cheryl Bartlett, City of Nacogdoches
Brigit Buff, P.E., Plummer Associates, Inc
Jordan Skipwith, P.E. Freese and Nichols, Inc
Abigail Gardner, P.E., Freese and Nichols, Inc (Region C)
Lann Bookout, Water Supply Planning
Sarah Lee, Water Supply Planning
Nelun Fernando, Ph.D., Surface Water

Summary of WAM Modifications in the Development of Surface Water Supplies for the East Texas 2026 Regional Water Plan

The Texas Water Development Board (TWDB) requires regional water planning groups (RWPG) to use Full Authorization Water Availability Models (WAM Run 3) maintained by the Texas Commission on Environmental Quality (TCEQ) in the development of surface water availability for regional water plans (RWPs). In a letter submitted to TWDB on October 13, 2023, the Region I Consultant Team on behalf of the East Texas Regional Water Planning Group (Region I) requested a hydrologic variance to use modified versions of the Run 3 WAMs for the Trinity River, Neches River, and Sabine River Basins to develop supplies for the Region I 2026 RWP. This hydrologic variance request was approved by TWDB on December 20, 2023.

For the Trinity River Basin, Region I adopted the updated Trinity Basin WAM developed by the Region C Water Planning Group. These changes are documented in Region C's hydrologic variance request to the TWDB. Region I also includes part of the Neches-Trinity Coastal Basin. As no changes were proposed by Region I to the Neches-Trinity WAM, surface water supplies in that basin were developed using the unmodified Neches-Trinity Coastal Basin WAM Run 3. This memorandum describes the modifications made to the Neches River and Sabine River WAMs by Region I.

For all major reservoirs in the Neches and Sabine River Basins, anticipated sedimentation rates and revised area-capacity rating curves were developed to estimate reservoir storage in future decades (2030 – 2080). Anticipated sedimentation rates, expressed in acre-feet per square mile per year, were estimated for each major reservoir based on actual sediment surveys (part of a volumetric survey), published sedimentation rates, or comparing changes in conservation pool capacity between two or more reservoir surveys. The reservoirs were sliced into incremental storage volumes based on elevation, then a uniform reduction was applied to the horizontal surface area of each slice. New storage volumes were then calculated for each increment and added together to calculate the total storage at each elevation. Two standard methods were used to calculate revised incremental storage volumes. The simplest assumes that each incremental volume can be represented as a trapezoid (trapezoidal method), while the other assumes that each incremental volume is a cross-section of a cone (conical method). The method with the best fit to the original rating curve data was used. The data utilized for calculating anticipated sedimentation rates and revised area-capacity rating curves are shown in **Table 1** and **Table 2** at the end of this document.

Neches River Basin WAM for the 2026 Region I RWP

Changes to the WAM for the 2026 RWP are based on changes in previous cycles, as well as the inclusion of updated sedimentation of major reservoirs, as specified by Exhibit C ("Second Amended General Guidelines for Fifth Cycle of Regional Water Plan Development"). The following sections describe all changes made to the TCEQ Neches WAM Run 3 (2021) to develop the modified Neches WAM, which will be used to determine existing supplies in the Neches River Basin in the Region I 2026 RWP.

Area-Capacity Relationships

Exhibit C requires RWPGs to include anticipated sedimentation of all major reservoirs (those with a capacity greater than 5,000 ac-ft) in the WAM model runs. There are 12 permitted major reservoirs in the Neches Basin; information related to the methodology utilized for calculating anticipated sedimentation rates and revised area-capacity rating curves for these reservoirs is shown in **Table 1**. The area-capacity-elevation data were determined for the 2030, 2050, and 2080 decades. This information was included in the Region I base WAM for each of these decades.

Lake Columbia has not yet been constructed, so to be conservative, Lake Columbia's full design capacity and original area-capacity curve were used when evaluating firm yields for all other reservoirs in the Neches Basin. The effect of sedimentation on Lake Columbia was assessed, assuming the reservoir would be built in 2030 and begin collecting sediment at that time.

Subordination of Sam Rayburn Reservoir and B. A. Steinhagen Lake

Background

Special conditions 5C and 5D of Certificate of Adjudication 06-4411 require subordination of LNVA's rights in the Rayburn-Steinhagen system to (a) water rights upstream of the proposed Weches and Ponta Dam sites and (b) intervening municipal rights above Sam Rayburn Reservoir. These conditions were last amended in Amendment H, filed August 14, 2008, and granted July 20, 2010, which limited subordination to rights with priority dates between November 1963 and April 2008.

Changes were implemented in the WAM related to dual simulation, output, and the refilling of Rayburn and Steinhagen including:

a) The 1963 rights for impoundment at Rayburn and Steinhagen were reordered so that Rayburn, the upstream reservoir, would be filled from available streamflow before refilling Steinhagen.

Reservoir System Operations

UNRMWA – Lake Palestine and Rocky Point Dam

The Upper Neches River Municipal Water Authority operates Lake Palestine in conjunction with Rocky Point Dam, a downstream diversion dam on the Neches River in Anderson and Cherokee Counties. Diversions associated with Rocky Point Dam draw from intervening flows between Lake Palestine and Rocky Point Dam, impounded water behind the dam, and downstream releases from Lake Palestine. To limit the impact on the yield of Lake Palestine in the Region I WAM, the Rocky Point diversions were modified so that they would first be backed up by the water made available by the subordination of Steinhagen Lake before making releases from Lake Palestine so that intervening flows would be fully used before making releases of stored Lake Palestine water. Any remaining shortages would be backed up by releases from Lake Palestine.

LNVA – Sam Rayburn Backup of Pine Island Bayou

Operation of LNVA's water rights was modeled as a system by including the backup of LNVA's Pine Island water rights with storage from Sam Rayburn. This was implemented as part of the water rights group 'R4411'.

Minimum Elevations – Sam Rayburn and B.A. Steinhagen

The minimum elevations of the Sam Rayburn and B.A. Steinhagen reservoirs were set to make the current authorized permitted diversion from the Rayburn-Steinhagen system (820,000 ac-ft per year) be 100% firm in each decade based on the updated area-capacity elevation curves. The TCEQ WAM Run 3 does not specify a minimum elevation for either reservoir. Inactive pools were not applied to subordination-related backup rights for either reservoir.

Lake Tyler

For the 2026 Region I WAM, Lake Tyler was modeled as a single reservoir, and associated water rights were adjusted accordingly. This is consistent with the development of the original Neches WAM, which treated this source as one reservoir.

City of Beaumont

Available supply was evaluated based on daily time-step analysis based on historical data from October 1951 to December 2022. The City of Beaumont is the only major municipal water user with a run-of-river water right. Other major users that receive water from run-of-river water rights either purchase water from the Lower Neches Valley

Authority (LNVA) or use saline water. The purchased run-of-the-river water is backed up by stored water that is owned and operated by LNVA, making this supply less vulnerable to drought. This approach was applied in the development of supplies for the 2021 East Texas Regional Water Plan.

Sabine River Basin WAM for the 2026 Region I RWP

The following sections describe all changes made to the TCEQ Sabine WAM Run 3 (2012) to develop the modified Sabine WAM, which will be used to determine existing supplies from the Sabine River Basin in the Region I 2026 RWP.

Area-Capacity Relationships

Exhibit C requires RWPGs to include anticipated sedimentation of all major reservoirs (those with a capacity greater than 5,000 ac-ft) in the WAM model runs. There are 12 such permitted reservoirs in the Sabine Basin; information related to the methodology utilized for calculating anticipated sedimentation rates and revised area-capacity rating curves for these reservoirs is shown in **Table 2**. The area-capacity-elevation data were determined for the 2030, 2050, and 2080 decades. This information was included in the Region I base WAM for each of these decades.

Firm Yield of Toledo Bend Reservoir

The Sabine River Authority (SRA) has a right to divert up to 970,067 acre-feet per year from Toledo Bend. Of that amount, 220,067 ac-ft of water can be diverted when hydropower generation is turned off as per Certificate of Adjudication (CoA) 4658B. If hydropower is being used, the total amount is 945,650 acre-feet per year. Hydropower operations were included in the evaluation of supplies for all reservoirs and run-of-river supplies. The yield of Toledo Bend was evaluated assuming all diversions were taken lakeside, after passing water for SRA's downstream senior run-of-the-river rights and hydropower generation. Within the WAM, all diversions from the lake are shared equally between SRA-Texas and SRA-Louisiana.

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Table 1. Sedimentation Rates and Projected Storage Capacity of Major Reservoirs in the Neches River Basin

Reservoir	Most Recent Survey		2026 Sedimentation Rate (ac-ft/yr/mi²)	Source of Sedimentation Rate	Sediment-Contributing Drainage Area (mi²)	Projected 2030 Capacity (ac-ft)	Projected 2080 Capacity (ac-ft)
	Year	Conservation Pool Capacity (ac-ft)					
Lake Athens	2016	29,475	4.35	TWDB Volumetric Survey-Derived Sedimentation Rate (2016)	22	26,449	21,679
Lake Columbia**	*	195,500	0.19	TBWE Bulletin 5912	277	195,500	192,910
Lake Jacksonville	2006	25,732	2.88	TWDB Volumetric Survey-Derived Sedimentation Rate (2006)	34	23,420	18,532
Lake Kurth	1996	14,769	8.57	TWDB Volumetric Survey-Derived Sedimentation Rate (1996)	4	13,636	11,923
Lake Nacogdoches	1994	39,523	1.75	TWDB Volumetric Survey-Derived Sedimentation Rate (1994)	89	33,929	26,115
Lake Naconiche	*	9,072	0.19	TBWE Bulletin 5912	27	8,953	8,699
Lake Palestine	2012	367,310	0.76	TWDB Published Sedimentation Rate (2012)	817	356,531	325,482
Pinkston Lake	*	7,380	0.19	TBWE Bulletin 5912	14	7,237	7,104
Sam Rayburn Reservoir	2004	2,876,033	0.18	TWDB Volumetric Survey-Derived Sedimentation Rates (2004)	3,010	2,861,827	2,834,167
Lake B. A. Steinhagen	2011	69,259	0.06	TWDB Published Sedimentation Rate (2011)	3,251	65,971	56,921
Lake Striker	2021	21,799	0.62	TWDB Volumetric Survey-Derived Sedimentation Rates (2021)	182	20,813	15,184
Lake Tyler	2013	77,284	1.00	TWDB Published Sedimentation Rate (2013)	45	75,472	70,122

** No survey available. Conservation pool capacity reflects design capacity.*

*** Permitted but not yet constructed.*

Table 2. Sedimentation Rates and Projected Storage Capacity of Major Reservoirs in the Sabine River Basin

Reservoir	Most Recent Survey		2026 Sedimentation Rate (ac-ft/yr/ mi^2)	Source of Sedimentation Rate	Sediment-Contributing Drainage Area (mi^2)	Projected 2030 Capacity (ac-ft)	Projected 2080 Capacity (ac-ft)
	Year	Conservation Pool Capacity (ac-ft)					
Lake Tawakoni	2009	871,693	1.75	TWDB Published Sedimentation Rate (2009)	756	844,627	778,513
Lake Fork Reservoir	2009	636,504	2.69	TWDB Published Sedimentation Rate (2009)	493	609,572	543,216
Lake Gladewater	2000	4,738	1.33	TWDB Volumetric Survey Derived Sedimentation Rate (2000)	35	3,345	1,017
Lake Cherokee	2015	44,475	0.47	TWDB Published Sedimentation Rate (2015)	158	44,553	40,930
Brandy Branch Reservoir	*	29,513	0.24	TBWE Bulletin 5912	4.1	29,467	29,419
Martin Lake	2014	75,726	0.37	TWDB Volumetric Survey Derived Sedimentation Rate (2014)	130	74,996	72,622
Murvaul Lake	1998	38,284	1.64	TWDB Published Sedimentation Rate (1998)	115	32,418	22,988
Toledo Bend Reservoir	*	4,477,000	0.12	Comprehensive Sabine Watershed Management Plan (1999)	5,384	4,436,134	4,403,831
Lake Hawkins	1962	11,890	0.24	TBWE Bulletin 5912	30	11,405	11,045
Lake Holbrook	*	7,990	0.24	TBWE Bulletin 5912	15	7,748	7,568
Lake Quitman	*	7,440	0.24	TBWE Bulletin 5912	31	6,937	6,565
Lake Winnsboro	*	8,100	0.24	TBWE Bulletin 5912	27	7,662	7,338

** No recent survey available. Conservation pool capacity reflects design capacity.*

References

Freese and Nichols, Inc., Brown and Root, Inc., and LGB-Guyton Associates. (December 1999). Comprehensive Sabine Watershed Management Plan. Prepared for Sabine River Authority of Texas in conjunction with the Texas Water Development Board.

Soil Conservation Service, U.S. Department of Agriculture. (January 1959). Bulletin 5912. Inventory and Use of Sedimentation data in Texas. Prepared for the Texas Board of Water Engineers.

Texas Commission on Environmental Quality. Water Availability Models. Data retrieved October 2023 from: https://www.tceq.texas.gov/permitting/water_rights/wr_technical-resources/wam.html

Texas Water Development Board. Volumetric and Sedimentation Surveys of Surface Water. Data retrieved November 2023 from: <https://www.twdb.texas.gov/surfacewater/surveys/completed/list/index.asp>

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<table>
<tr><th colspan="5">Model Information</th><th colspan="4">Execution</th></tr>
<tr><th>Modified Model Root File Name</th><th>Run 3 Version Date</th><th>Description</th><th>EA Approval Date</th><th>DB27 Source Name</th><th>Model</th><th>Model Version</th><th>Modeler</th><th>Date</th></tr>
<tr><td colspan="9">Neches-Trinity Basin</td></tr>
<tr><td>NT3</td><td>10/1/2023</td><td>Unmodified WAM</td><td>n/a</td><td>Neches-Trinity Run-of-River</td><td>WRAP</td><td>2021</td><td>FNI</td><td>1/30/2023</td></tr>
<tr><td colspan="9">Trinity Basin</td></tr>
<tr><td colspan="9">Modeling conducted by Region C. Changes documented in Region C's HVR to the TWDB.</td></tr>
<tr><td colspan="9">Neches Basin</td></tr>
<tr><td>neches3_ROR</td><td>10/1/2023</td><td>Modified Neches WAM</td><td>12/20/2023</td><td>Neches Run-of-River</td><td>WRAP</td><td>2021</td><td>FNI</td><td>11/13/2023</td></tr>
<tr><td>neches3_2030_[Reservoir Name]</td><td>10/1/2023</td><td>Modifed Neches WAM Run 3; Reservoir conditions reflect sedimentation for 2030</td><td>12/20/2023</td><td rowspan="3">Athens Lake/Reservoir
Jacksonville Lake/Reservoir
Nacogdoches Lake/Reservoir
Tyler Lake/Reservoir*
Columbia Lake/Reservoir
Kurth Lake/Reservoir
Striker Lake/Reservoir
Palestine Lake/Reservoir*
Sam Rayburn-Steinhagen Lake/Reservoir System
Pinkston Lake/Reservoir
Timpson Lake/Reservoir
Bellwood Lake/Reservoir
Kurth Lake/Reservoir
Rusk Lake/Reservoir
San Augustine Lake/Reservoir</td><td rowspan="3">WRAP</td><td rowspan="3">2021</td><td rowspan="3">FNI</td><td rowspan="3">1/30/2024</td></tr>
<tr><td>neches3_2050_[Reservoir Name]</td><td>10/1/2023</td><td>Modifed Neches WAM Run 3; Reservoir conditions reflect sedimentation for 2050</td><td>12/20/2023</td></tr>
<tr><td>neches3_2080_[Reservoir Name]</td><td>10/1/2023</td><td>Modifed Neches WAM Run 3; Reservoir conditions reflect sedimentation for 2080</td><td>12/20/2023</td></tr>
<tr><td colspan="9">Sabine Basin</td></tr>
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<tr><td>sabine3_2030_[Reservoir Name]</td><td>10/1/2023</td><td>Modifed Sabine WAM Run 3; Reservoir conditions reflect sedimentation for 2030</td><td>12/20/2023</td><td rowspan="3">Cherokee Lake/Reservoir*
Martin Lake/Reservoir
Murvaul Lake/Reservoir*
Toledo Bend Lake/Reservoir*
Center Lake/Reservoir</td><td>WRAP</td><td>2021</td><td>FNI</td><td rowspan="3">1/30/2024</td></tr>
<tr><td>sabine3_2050_[Reservoir Name]</td><td>10/1/2023</td><td>Modifed Sabine WAM Run 3; Reservoir conditions reflect sedimentation for 2050</td><td>12/20/2023</td><td>WRAP</td><td>2021</td><td>FNI</td></tr>
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</table>

* Reservoir firm yield in 2040 was estimated by interpolating the firm yields between years 2030 and 2050; reservoir firm yields from 2060-2070 were estimated by interpolating the firm yields between years 2050 and 2080. For all other reservoirs firm yields in years 2040-2070 were estimated by interpolating between the years 2030 and 2080.

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www.freese.com

TO:	File
FROM:	Courtney Corso, Jordan Skipwith
SUBJECT:	Beaumont Supplies from Neches River
PROJECT:	PLU22144 Region I 2026 Regional Water Plan
DATE:	August 9, 2024

1.00 SUMMARY

1. This memorandum describes the method used to determine available supplies from the Neches River for the City of Beaumont for regional water planning.

2. The method is based on a daily analysis of flows originally performed by Tom Gooch of Freese and Nichols as part of the negotiations between the City of Beaumont and the Lower Neches Valley Authority (LNVA) in 2011. The 2011 analysis was provided to the TCEQ in response to a priority call by the LNVA.

3. Supplies in the 2016 and 2021 Region I RWPs were based on a scenario from the 2011 analysis that assumed full permitted diversions by Beaumont and projected 2040 demands for LNVA. The supply amounts were also based on hydrology from 1956 (driest historical year).

4. The estimates of supply available to Beaumont from its run-of-river water right have been updated for the 2026 East Texas (Region I) Regional Water Plan (RWP).

5. A WAM analysis of Beaumont supply availability was also performed in 2013. However, the preferred method for calculating availability for Beaumont is the daily analysis of flows availability and diversions by Beaumont and LNVA, using the spreadsheet-based method developed in 2011. As such, no WAM analysis was performed for the 2026 RWP.

6. For the 2026 RWP, the 2011 analysis was updated to use more recent estimates of LNVA demand to develop availability estimates for Beaumont in 2030 through 2080 .

    a. Usage patterns for Beaumont were updated to a daily pattern based on total water use by the City reported in 2006, 2011, and 2017-2022 (years with data available).

b. The methodology for calculating available daily flow was revised to better align with the accounting procedures outlined in the 2013 Water Supply Agreement between Beaumont and LNVA (which was developed after the 2011 analysis).

c. Instead of selecting a single historical year, hydrology was developed for 1952 through 2022. However, minimum availability for Beaumont's water right still occurred in 1956, so this year was selected as the basis of Beaumont's supply availability in the 2026 Region I RWP.

d. Projected demands for Beaumont and LNVA were updated to preliminary demands developed for the 2026 East Texas (Region I) Regional Water Plan (RWP), and the analysis was repeated for each planning decade 2030 through 2080. Demands modeled for Beaumont were limited to total projected demand for Beaumont (including wholesale demand) less existing groundwater supplies included in the RWP. **Table 1** shows the demands assumed for LNVA and Beaumont each decade, as well as the existing groundwater supply quantities, and the output availability to Beaumont from its run-of-river rights in each decade.

7. In order to properly calculate the need in the regional planning database, the supply available to Beaumont from its Neches River water right will change each decade. This is necessary because the analysis uses a shorter time step (daily) than the database (yearly). Availability is modeled on a daily basis based on the permitted maximum diversion rate of 78 cfs (combined max rate for both priority dates), along with the estimated daily demand, LNVA demand, and daily instream flow. As the projected demands for Beaumont do not max out the permitted maximum diversion rate, daily diversions on days with flow available change with changes in Beaumont's total annual demand.

8. **Table 2** compares the available supplies to demands for the City of Beaumont for planning year 2030, based on results of the daily analysis and 1956 hydrology (year with least availability). **Table 3** shows the same quantities for planning year 2080; similar results were obtained for decades 2040 through 2070. Note that these values differ slightly from the final values used for planning, as the daily demand model used a slightly higher demand for leap years which is not reflected in the RWP demands.

Table 1. Demands and Run-of-River Availability in each Planning Decade for the 2026 East Texas RWP (all values in acre-feet per year)

Year	LNVA Demand	Total Beaumont Demand	Beaumont Existing Groundwater Supply	Beaumont Demand on Surface Water	Available ROR Supply from Beaumont Water Rights
2030	505,961	33,256	8,468	24,788	12,102
2040	547,231	34,427	8,468	25,959	12,559
2050	588,333	35,719	8,468	27,251	12,977
2060	629,301	35,777	8,468	27,309	12,795
2070	670,365	35,838	8,468	27,370	12,804
2080	711,533	35,904	8,468	27,436	12,969

Table 2. Monthly Totals from Daily Model with 1956 Hydrology and 2030 Demand Conditions (all values in acre-feet per year)

Month	Beaumont Demand	Groundwater Used to Meet Demand	CA 4415 Supplies Used to Meet Demand	Supply from LNVA Reservation	Shortage (modeled as additional LNVA water)
Jan-56	2,822	719	2,104	0	0
Feb-56	2,626	669	1,957	0	0
Mar-56	2,595	661	1,935	0	0
Apr-56	2,529	644	1,885	0	0
May-56	2,667	679	1,959	29	0
Jun-56	2,806	714	1,253	838	0
Jul-56	2,703	688	0	2,015	0
Aug-56	2,967	756	0	2,212	0
Sep-56	2,869	731	0	907	1,231
Oct-56	3,079	784	0	0	2,295
Nov-56	2,865	729	276	0	1,859
Dec-56	2,815	717	797	0	1,301
Total	*33,343*	*8,490*	*12,166*	*6,000*	*6,686*

Table 3. Monthly Totals from Daily Model with 1956 Hydrology and 2080 Demand Conditions (all values in acre-feet per year)

Month	Beaumont Demand	Groundwater Used to Meet Demand	CA 4415 Supplies Used to Meet Demand	Supply from LNVA Reservation	Shortage (modeled as additional LNVA water)
Jan-56	3,047	719	2,316	12	0
Feb-56	2,835	669	2,166	0	0
Mar-56	2,802	661	2,141	0	0
Apr-56	2,730	644	2,086	0	0
May-56	2,880	679	2,130	71	0
Jun-56	3,029	714	1,078	1,237	0
Jul-56	2,918	688	0	2,230	0
Aug-56	3,203	756	0	2,448	0
Sep-56	3,097	730	0	3	2,364
Oct-56	3,324	784	0	0	2,540
Nov-56	3,093	729	240	0	2,123
Dec-56	3,039	717	882	0	1,440
Total	*35,997*	*8,490*	*13,040*	*6,000*	*8,467*

2.00 WATER RIGHTS AND OTHER SUPPLY SOURCES

9. The City of Beaumont owns Certificate of Adjudication (CA) 06-4415, which authorizes 56,467 acre-feet per year (ac-ft/yr) of diversion from the Neches River. The City also has a contract with the Lower Neches Valley Authority (LNVA) for a reservation of 6,000 acre-feet of water from the Neches River and the Steinhagen/Rayburn system, with the option to request additional water at a higher cost. The City also has three wells and is permitted for up to 16,936.5 ac-ft/yr of groundwater production from the Gulf Coast Aquifer System. The full amount of permitted groundwater is not reflected in the RWP, as this amount requires maximum production 24/7 at all three wells. Instead, the annual groundwater supply assumed in the ROR availability modeling is 50% of the permitted amount (8,468 ac-ft/year) based on recommendations in the 2023 Beaumont Water Supply Planning Study.

10. **Table 4** is a summary of the Beaumont (CA 06-4415) and LNVA water rights (CA 06-4411). These two water rights are the primary run-of-the-river diversions from the lower Neches River. LNVA rights are for diversions from both the Neches River and Pine Island Bayou. A canal connects the main stem of the Neches River to the LNVA diversion point on Pine Island Bayou. The LNVA right contains a complex set of maximum diversion rates for the various priorities which vary by location which are discussed in the section on the daily analysis. The LNVA rights also include authorization for Steinhagen and Rayburn Reservoirs, which are not included in **Table 4**.

Table 4. Beaumont and LNVA Water Rights

Number	Owner	Priority Date	Diversion Amount (ac-ft/yr)	Type of Use
CA 06-4415	City of Beaumont	5-Apr-1915	6,570	Municipal
		8-Jan-1925	49,897	Municipal and Industrial
		Total	***56,467***	
CA 06-4411	LNVA	12-Aug-1913	107,108	Municipal, Industrial, Irrigation, Mining
		8-Nov-1913	219,252	
		31-Dec-1924	55,516	
		Total	***381,876***	

Appendix 3-D

Desired Future Conditions and Modeled Available Groundwater Report(s)

The following appendix includes a copy of the Modeled Available Groundwater for the Carrizo-Wilcox, Queen City, and Sparta Aquifers in Groundwater Management Area 11 and a copy of the Modeled Available Groundwater for the Gulf Coast Aquifer System in Groundwater Management Area 14.

GAM RUN 21-016 MAG: MODELED AVAILABLE GROUNDWATER FOR THE CARRIZO-WILCOX, QUEEN CITY, AND SPARTA AQUIFERS IN GROUNDWATER MANAGEMENT AREA 11

Shirley C. Wade, Ph.D., P.G.
Texas Water Development Board
Groundwater Division
Groundwater Modeling Department
(512) 936-0883
February 17, 2022

Shirley C. Wade
2/17/22

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GAM RUN 21-016 MAG: MODELED AVAILABLE GROUNDWATER FOR THE CARRIZO-WILCOX, QUEEN CITY, AND SPARTA AQUIFERS IN GROUNDWATER MANAGEMENT AREA 11

Shirley C. Wade, Ph.D., P.G.
Texas Water Development Board
Groundwater Division
Groundwater Modeling Department
(512) 936-0883
February 17, 2022

EXECUTIVE SUMMARY:

The modeled available groundwater for Groundwater Management Area 11 for the Carrizo-Wilcox, Queen City, and Sparta aquifers is summarized by decade for the groundwater conservation districts (Tables 2 through 4 respectively) and for use in the regional water planning process (Tables 5 through 7 respectively). The modeled available groundwater estimates for the Carrizo-Wilcox Aquifer are approximately 251,220 acre-feet per year for each decade from 2020 through 2080. The modeled available groundwater estimates for the Queen City Aquifer are approximately 130,850 acre-feet per year for each decade from 2020 through 2080 (Table 3). The modeled available groundwater estimates for the Sparta Aquifer are approximately 3,260 acre-feet per year for each decade from 2020 to 2080 (Table 4). The estimates were extracted from results of a model run using the groundwater availability model for the northern part of the Carrizo-Wilcox, Queen City, and Sparta aquifers (Version 3.01). The model run files, which meet the desired future conditions adopted by district representatives of Groundwater Management Area 11, were submitted to the Texas Water Development Board (TWDB) on August 26, 2021, as part of the Desired Future Conditions Explanatory Report for Groundwater Management Area 11. The explanatory report and other materials submitted to the Texas Water Development Board (TWDB) were determined to be administratively complete on October 29, 2021.

REQUESTOR:

Ms. Teresa Griffin, coordinator of Groundwater Management Area 11.

DESCRIPTION OF REQUEST:

In an email dated August 26, 2021, Dr. William R. Hutchison, on behalf of Groundwater Management Area 11, provided the TWDB with the desired future conditions of the Carrizo-Wilcox, Queen City, and Sparta aquifers adopted by the groundwater conservation districts in Groundwater Management Area 11. The desired future conditions for the Carrizo-Wilcox, Queen City, and Sparta aquifers are listed in Table 1 of the Resolution to Adopt Desired Future Conditions for Aquifers in Groundwater Management Area 11, adopted August 11, 2021, by the groundwater conservation districts within Groundwater Management Area 11. The desired future conditions (Table 1) are county-aquifer average water level drawdowns from 2013 to 2080 and are based on modeling Scenario 33 documented in Technical Memorandum 21-01 (Hutchison, 2021).

TABLE 1. DESIRED FUTURE CONDITIONS FOR EACH COUNTY-AQUIFER UNIT IN GROUNDWATER MANAGEMENT AREA 11 EXPRESSED AS AVERAGE DRAWDOWN FROM 2013 TO 2080 IN FEET.[1]

County	Sparta	Queen City	Carrizo-Wilcox
Anderson	30	44	155
Angelina	6	28	67
Bowie	NP[2]	NP	12
Camp	NP	11	85
Cass	66	34	79
Cherokee	7	31	176
Franklin	NP	NP	102
Gregg	NP	49	109
Harrison	NP	41	26
Henderson	NP	33	106
Hopkins	NP	NP	61
Houston	3	12	86
Marion	123	32	32
Morris	NP	39	78
Nacogdoches	7	22	73
Panola	NP	NP	21
Rains	NP	NP	17

[1] Based on table 1 from Resolution to Adopt Desired Future Conditions for Aquifers in Groundwater Management Area 11 dated August 11, 2021.
[2] NP: Aquifer not present in the county.

County	Sparta	Queen City	Carrizo-Wilcox
Red River	NP	NP	NR[3]
Rusk	26	17	86
Sabine	1	3	9
San Augustine	2	7	22
Shelby	18	12	17
Smith	121	132	265
Titus	NP[4]	9	66
Trinity	5	18	56
Upshur	10	30	149
Van Zandt	NP	73	55
Wood	9	16	122

[3] Carrizo-Wilcox considered non-relevant in Red River County.
[4] NP: Aquifer not present in the county.

TWDB staff reviewed the model files associated with the desired future conditions and received clarification on procedures and assumptions from the Groundwater Management Area 11 Technical Coordinator in an email on September 9, 2021. The Technical Coordinator confirmed that the Carrizo-Wilcox Aquifer should be considered non-relevant in Red River County, drawdown averages and modeled available groundwater values should be based on the model extent rather than the official aquifer extent, average drawdowns were not area-weighted, and a two-feet tolerance should be used when comparing model calculated drawdown with the desired future condition. Clarification also confirmed that no model cells converted to dry in the simulation.

METHODS:

The groundwater availability model for the northern part of the Carrizo-Wilcox, Queen City, and Sparta aquifers Version 3.01 (Figures 1 through 4) was run using the model files submitted with the explanatory report (Hutchison, 2021). Model-calculated drawdowns were extracted for the year 2080. Drawdown averages were calculated for each county by aquifer. The calculated drawdown averages were compared with the desired future conditions to verify that the pumping scenario expressed in the model files achieved the desired future conditions within an acceptable tolerance of two feet based on a September 9, 2021 clarification from the Groundwater Management Area 11 Technical Coordinator. The modeled available groundwater values were determined by extracting pumping rates by decade from the model results using ZONEBUDGET for MODFLOW 6 Version 1.01 (U.S. Geological Survey, 2021). Annual pumping rates by aquifer are presented by county and groundwater conservation district, subtotaled by groundwater conservation district, and then summed for Groundwater Management Area 11 (Tables 2 through 4). Annual pumping rates by aquifer are also presented by county, river basin, and regional water planning area within Groundwater Management Area 11 (Tables 5 through 7).

Modeled Available Groundwater and Permitting

As defined in Chapter 36 of the Texas Water Code (2011), "modeled available groundwater" is the estimated average amount of water that may be produced annually to achieve a desired future condition. Groundwater conservation districts are required to consider modeled available groundwater, along with several other factors, when issuing permits in order to manage groundwater production to achieve the desired future condition(s). The other factors districts must consider include annual precipitation and production patterns, the estimated amount of pumping exempt from permitting, existing permits, and a reasonable estimate of actual groundwater production under existing permits.

PARAMETERS AND ASSUMPTIONS:

The parameters and assumptions for the modeled available groundwater estimates are described below:

- We used Version 3.01 of the groundwater availability model for the northern part of the Carrizo-Wilcox, Queen City, and Sparta aquifers. See Panday and others (2021) for assumptions and limitations of the groundwater availability model for the northern part of the Carrizo-Wilcox, Queen City, and Sparta aquifers.
- This groundwater availability model includes nine layers, which represent quaternary alluvium adjacent to rivers and streams, the Sparta Aquifer (Layer 2), the Weches Confining Unit (Layer 3), the Queen City Aquifer (Layer 4), the Reklaw Confining Unit (Layer 5), the Carrizo (Layer 6), the Upper Wilcox (Layer 7), the Middle Wilcox (Layer 8), and the Lower Wilcox (Layer 9). Layers represent equivalent geologic units outside of the official aquifer extents.
- The model was run with MODFLOW 6 (Langevin and others, 2017).
- Drawdown averages and modeled available groundwater values were based on the extent of the model area (Figures 1 through 4).
- County average drawdowns were calculated as the sum of drawdowns for all model cells divided by the number of cells, without an area weighting correction.
- Based on a clarification from the Groundwater Management Area 11 Technical Coordinator, a tolerance of two feet was assumed when comparing desired future conditions (Table 1, average drawdown values per county) to model drawdown results.
- Estimates of modeled available groundwater from the model simulation were rounded to whole numbers.
- The Carrizo-Wilcox Aquifer in Red River County was assumed non-relevant for joint planning purposes.

RESULTS:

The modeled available groundwater estimates for the Carrizo-Wilcox Aquifer are approximately 251,220 acre-feet per year for each decade from 2020 through 2080. The modeled available groundwater estimates for the Queen City Aquifer are approximately 130,850 acre-feet per year for each decade from 2020 through 2080 (Table 3). The modeled available groundwater estimates for the Sparta Aquifer are approximately 3,260 acre-feet per year for each decade from 2020 to 2080 (Table 4). The modeled available groundwater is summarized by groundwater conservation district and county for the

Carrizo-Wilcox, Queen City, and Sparta aquifers (Tables 2, 3, and 4 respectively). The modeled available groundwater has also been summarized by county, river basin, and regional water planning area for use in the regional water planning process for the Carrizo-Wilcox, Queen City, and Sparta aquifers (Tables 5, 6, and 7 respectively). Small differences of values between table summaries are due to rounding.

The Gulf Coast, Nacatoch, Trinity, and Yegua-Jackson aquifers and the Carrizo-Wilcox Aquifer in Red River County were declared non-relevant for the purpose of adopting desired future conditions by the Groundwater Management Area 11 Districts; therefore, modeled available groundwater values were not calculated for those aquifers.

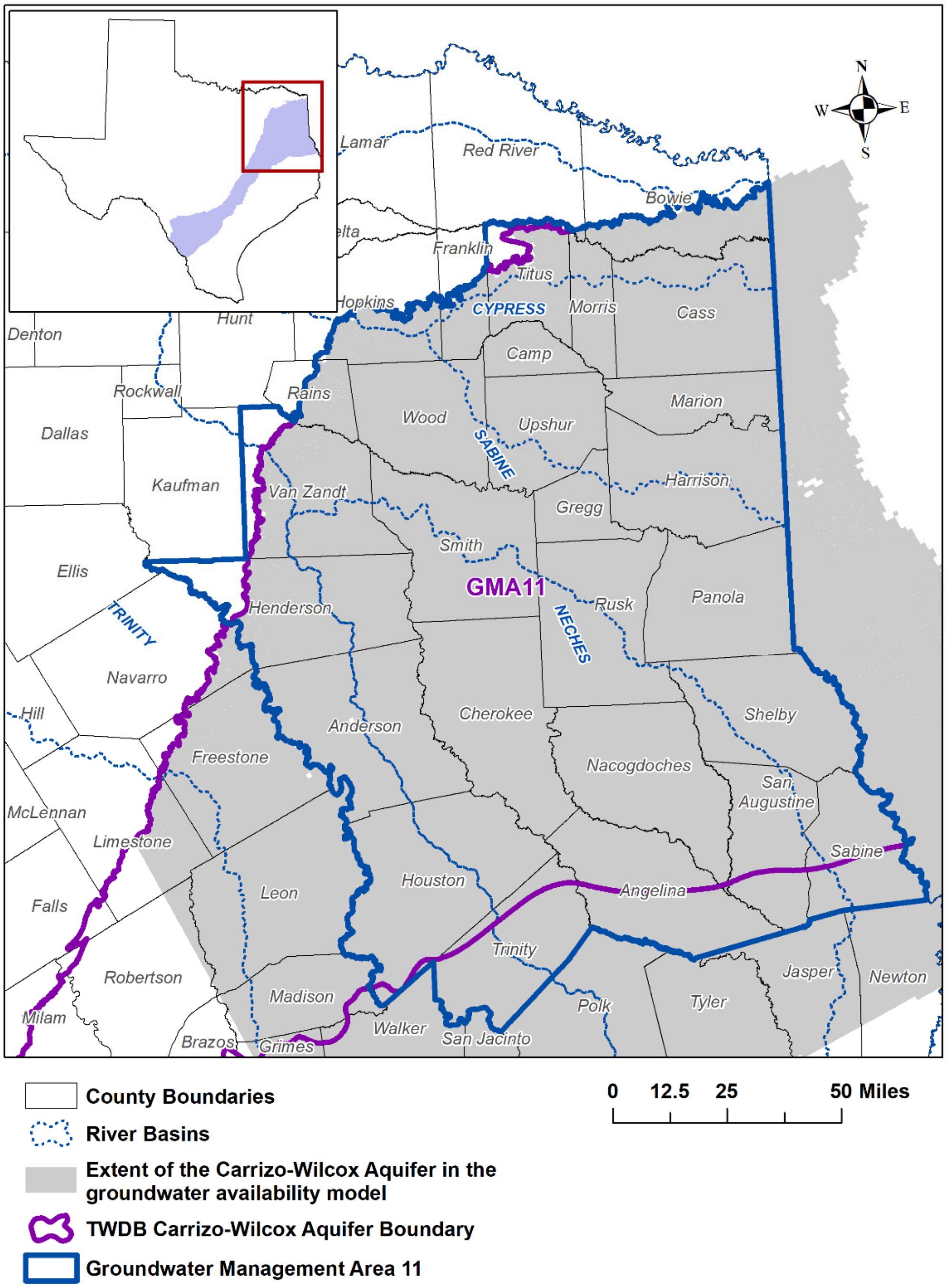

FIGURE 1. GROUNDWATER MANAGEMENT AREA (GMA) 11 BOUNDARY, RIVER BASINS, AND COUNTIES OVERLAIN ON THE EXTENT OF THE CARRIZO-WILCOX AQUIFER IN THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE CARRIZO-WILCOX, QUEEN CITY, AND SPARTA AQUIFERS.

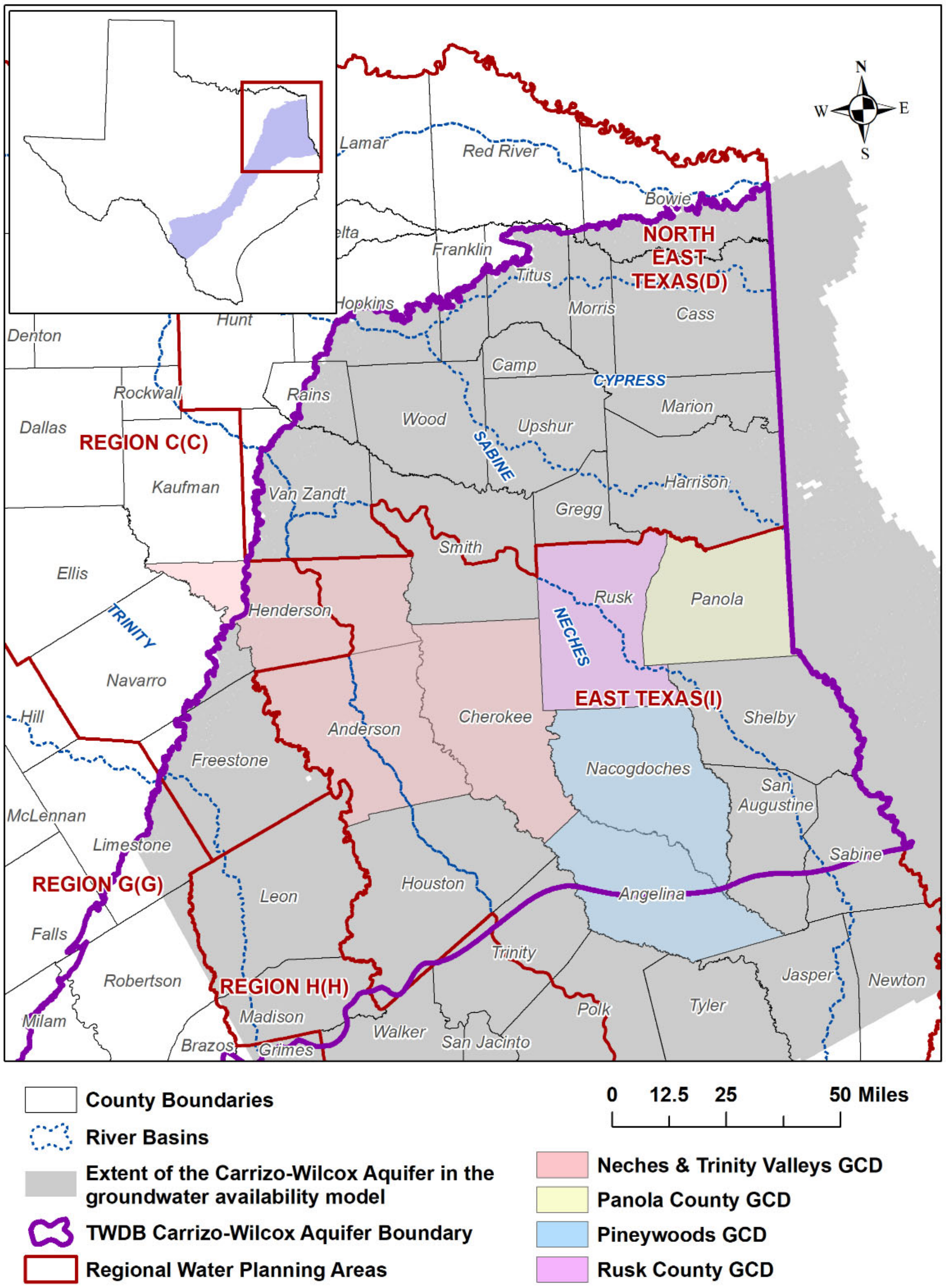

FIGURE 2. REGIONAL WATER PLANNING AREAS (RWPAS), RIVER BASINS, GROUNDWATER CONSERVATION DISTRICTS (GCDS), AND COUNTIES OVERLAIN ON THE EXTENT OF THE CARRIZO-WILCOX AQUIFER IN THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE CARRIZO-WILCOX, QUEEN CITY, AND SPARTA AQUIFERS.

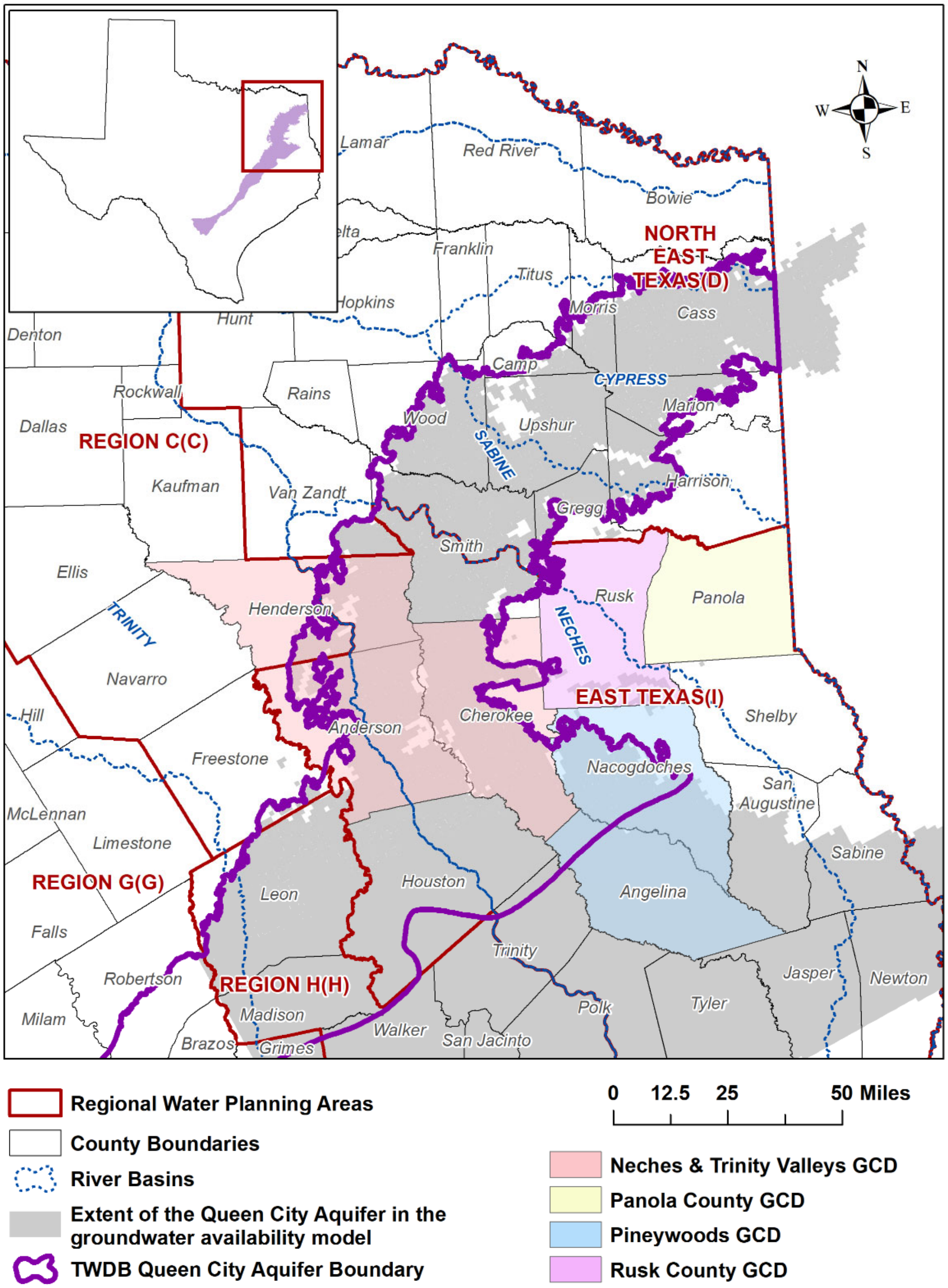

FIGURE 3. REGIONAL WATER PLANNING AREAS (RWPAS), RIVER BASINS, GROUNDWATER CONSERVATION DISTRICTS (GCDS), AND COUNTIES OVERLAIN ON THE EXTENT OF THE QUEEN CITY AQUIFER IN THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE CARRIZO-WILCOX, QUEEN CITY, AND SPARTA AQUIFERS.

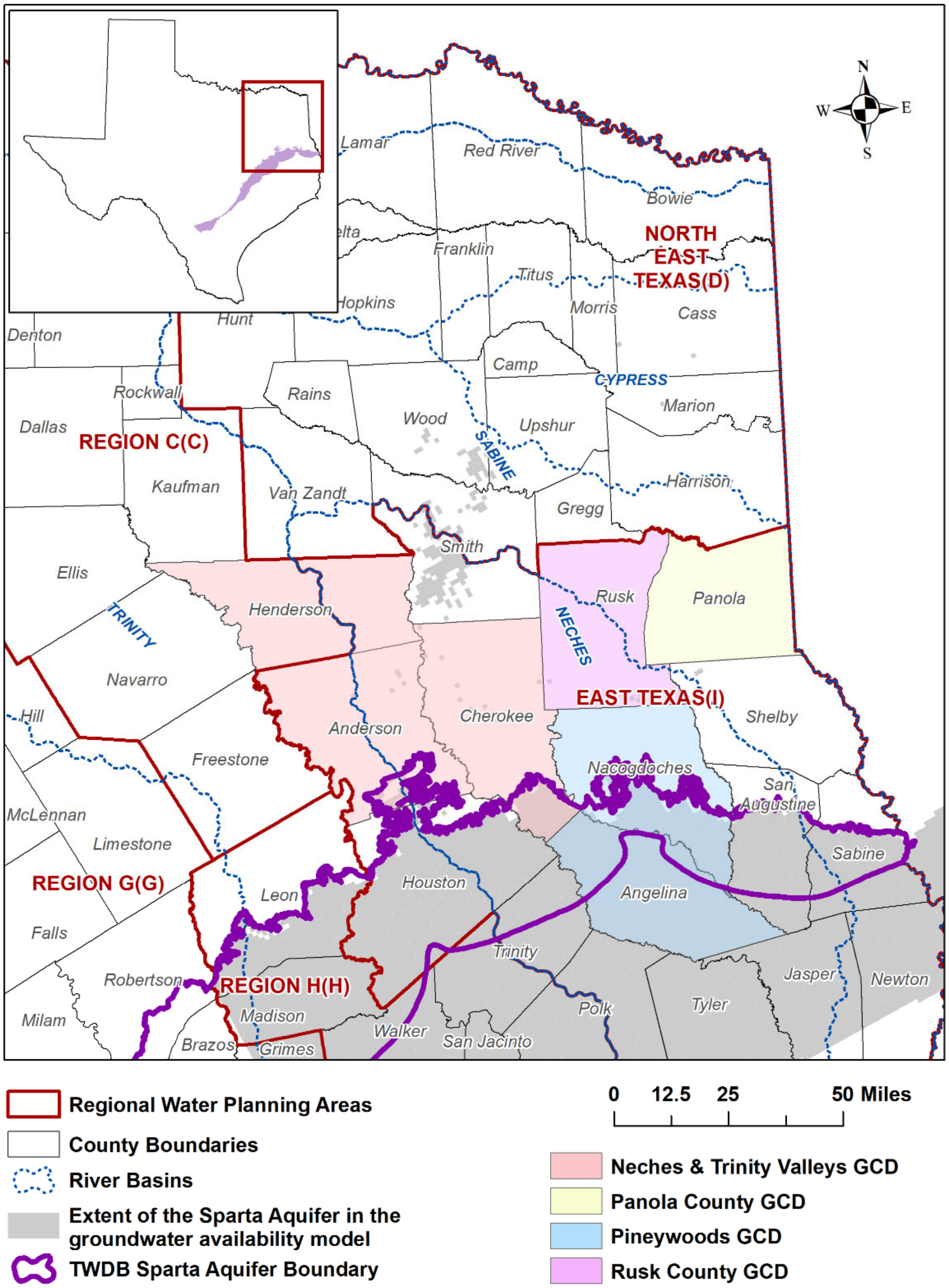

FIGURE 4. REGIONAL WATER PLANNING AREAS (RWPAS), RIVER BASINS, GROUNDWATER CONSERVATION DISTRICTS (GCDS), AND COUNTIES OVERLAIN ON THE EXTENT OF THE SPARTA AQUIFER IN THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE CARRIZO-WILCOX, QUEEN CITY, AND SPARTA AQUIFERS.

TABLE 2. MODELED AVAILABLE GROUNDWATER FOR THE CARRIZO-WILCOX AQUIFER IN GROUNDWATER MANAGEMENT AREA 11 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2020 AND 2080. VALUES ARE IN ACRE-FEET PER YEAR.

Groundwater Conservation District	County	Aquifer	2020	2030	2040	2050	2060	2070	2080
Neches & Trinity Valleys GCD	Anderson	Carrizo-Wilcox	27,024	27,024	27,024	27,024	27,024	27,024	27,024
Neches & Trinity Valleys GCD	Cherokee	Carrizo-Wilcox	15,241	15,241	15,241	15,241	15,241	15,241	15,241
Neches & Trinity Valleys GCD	Henderson	Carrizo-Wilcox	7,222	7,222	7,222	7,222	7,222	7,222	7,222
Neches & Trinity Valleys GCD Total		**Carrizo-Wilcox**	**49,488**	**49,488**	**49,488**	**49,488**	**49,488**	**49,488**	**49,488**
Panola County GCD	Panola	**Carrizo-Wilcox**	**4,999**	**4,999**	**4,999**	**4,999**	**4,999**	**4,999**	**4,999**
Pineywoods GCD	Angelina	Carrizo-Wilcox	27,611	27,611	27,611	27,611	27,611	27,611	27,611
Pineywoods GCD	Nacogdoches	Carrizo-Wilcox	20,859	20,859	20,859	20,859	20,859	20,859	20,859
Pineywoods GCD Total		**Carrizo-Wilcox**	**48,470**	**48,470**	**48,470**	**48,470**	**48,470**	**48,470**	**48,470**
Rusk County GCD Total	Rusk	**Carrizo-Wilcox**	**14,019**	**14,019**	**14,019**	**14,019**	**14,019**	**14,019**	**14,019**
Total (GCDs)		**Carrizo-Wilcox**	**116,975**	**116,975**	**116,975**	**116,975**	**116,975**	**116,975**	**116,975**
No District-County	Bowie	Carrizo-Wilcox	9,645	9,645	9,645	9,645	9,645	9,645	9,645
No District-County	Camp	Carrizo-Wilcox	3,862	3,862	3,862	3,862	3,862	3,862	3,862
No District-County	Cass	Carrizo-Wilcox	13,642	13,642	13,642	13,642	13,642	13,642	13,642
No District-County	Franklin	Carrizo-Wilcox	5,732	5,732	5,732	5,732	5,732	5,732	5,732
No District-County	Gregg	Carrizo-Wilcox	6,072	6,072	6,072	6,072	6,072	6,072	6,072
No District-County	Harrison	Carrizo-Wilcox	9,096	9,096	9,096	9,096	9,096	9,096	9,096
No District-County	Hopkins	Carrizo-Wilcox	4,753	4,753	4,753	4,752	4,752	4,752	4,752
No District-County	Houston	Carrizo-Wilcox	2,356	2,356	2,356	2,356	2,356	2,356	2,356
No District-County	Marion	Carrizo-Wilcox	1,966	1,966	1,966	1,966	1,966	1,966	1,966

Groundwater Conservation District	County	Aquifer	2020	2030	2040	2050	2060	2070	2080
No District-County	Morris	Carrizo-Wilcox	2,570	2,570	2,570	2,570	2,570	2,570	2,570
No District-County	Rains	Carrizo-Wilcox	1,411	1,411	1,411	1,411	1,411	1,411	1,411
No District-County	Red River	Carrizo-Wilcox	NR[1]	NR[1]	NR[1]	NR[1]	NR[1]	NR[1]	NR[1]
No District-County	Sabine	Carrizo-Wilcox	1,388	1,388	1,388	1,388	1,388	1,388	1,388
No District-County	San Augustine	Carrizo-Wilcox	587	587	587	587	587	587	587
No District-County	Shelby	Carrizo-Wilcox	6,319	6,319	6,319	6,319	6,319	6,319	6,319
No District-County	Smith	Carrizo-Wilcox	25,547	25,547	25,547	25,547	25,547	25,547	25,547
No District-County	Titus	Carrizo-Wilcox	7,536	7,536	7,536	7,536	7,536	7,536	7,536
No District-County	Trinity	Carrizo-Wilcox	267	267	267	267	267	267	267
No District-County	Upshur	Carrizo-Wilcox	6,658	6,658	6,658	6,658	6,658	6,658	6,658
No District-County	Van Zandt	Carrizo-Wilcox	6,932	6,932	6,932	6,932	6,932	6,932	6,932
No District-County	Wood	Carrizo-Wilcox	17,902	17,902	17,902	17,902	17,902	17,902	17,902
No District-County Total		**Carrizo-Wilcox**	**134,241**	**134,241**	**134,241**	**134,241**	**134,241**	**134,241**	**134,240**
Total for GMA 11		**Carrizo-Wilcox**	**251,217**	**251,217**	**251,217**	**251,216**	**251,216**	**251,216**	**251,215**

[1]A desired future condition was not specified for the Carrizo-Wilcox Aquifer in Red River County and was declared as not relevant (NR) in a clarification.

TABLE 3. MODELED AVAILABLE GROUNDWATER FOR THE QUEEN CITY AQUIFER IN GROUNDWATER MANAGEMENT AREA 11 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2020 AND 2080. VALUES ARE IN ACRE-FEET PER YEAR.

Groundwater Conservation District	County	Aquifer	2020	2030	2040	2050	2060	2070	2080
Neches & Trinity Valleys GCD	Anderson	Queen City	16,591	16,591	16,591	16,591	16,591	16,591	16,591
Neches & Trinity Valleys GCD	Cherokee	Queen City	8,812	8,812	8,812	8,812	8,812	8,812	8,812
Neches & Trinity Valleys GCD	Henderson	Queen City	10,671	10,671	10,671	10,670	10,670	10,670	10,670
Neches & Trinity Valleys GCD Total		**Queen City**	36,073	36,073	36,073	36,073	36,073	36,073	36,073
Pineywoods GCD	Angelina	Queen City	1,095	1,095	1,095	1,095	1,095	1,095	1,095
Pineywoods GCD	Nacogdoches	Queen City	2,946	2,946	2,946	2,946	2,946	2,946	2,946
Pineywoods GCD Total		**Queen City**	**4,041**	**4,041**	**4,041**	**4,041**	**4,041**	**4,041**	**4,041**
Rusk County GCD Total	**Rusk**	**Queen City**	**59**	**59**	**59**	**59**	**59**	**59**	**59**
Total (GCDs)		**Queen City**	**40,173**	**40,173**	**40,173**	**40,173**	**40,173**	**40,173**	**40,172**
No District-County	Camp	Queen City	1,594	1,594	1,594	1,594	1,594	1,594	1,594
No District-County	Cass	Queen City	16,479	16,479	16,479	16,479	16,479	16,479	16,479
No District-County	Gregg	Queen City	2,511	2,511	2,511	2,511	2,511	2,511	2,511
No District-County	Harrison	Queen City	3,537	3,537	3,537	3,537	3,537	3,537	3,537
No District-County	Houston	Queen City	2,295	2,295	2,295	2,295	2,295	2,295	2,295
No District-County	Marion	Queen City	7,389	7,389	7,389	7,389	7,389	7,389	7,389
No District-County	Morris	Queen City	3,278	3,278	3,278	3,278	3,278	3,278	3,278
No District-County	Sabine	Queen City	0[5]	0	0	0	0	0	0

[5] A zero value indicates the groundwater availability model pumping scenario did not include any pumping in the aquifer.

Groundwater Conservation District	County	Aquifer	2020	2030	2040	2050	2060	2070	2080
No District-County	San Augustine	Queen City	0[6]	0	0	0	0	0	0
No District-County	Shelby	Queen City	0	0	0	0	0	0	0
No District-County	Smith	Queen City	32,578	32,578	32,578	32,578	32,578	32,578	32,578
No District-County	Titus	Queen City	0	0	0	0	0	0	0
No District-County	Trinity	Queen City	0	0	0	0	0	0	0
No District-County	Upshur	Queen City	12,165	12,165	12,165	12,165	12,165	12,165	12,164
No District-County	Van Zandt	Queen City	2,343	2,343	2,343	2,343	2,343	2,343	2,343
No District-County	Wood	Queen City	6,510	6,510	6,510	6,510	6,510	6,510	6,510
No District-County Total		**Queen City**	**90,681**	**90,681**	**90,680**	**90,680**	**90,680**	**90,680**	**90,679**
Total for GMA 11		**Queen City**	**130,854**	**130,854**	**130,853**	**130,853**	**130,853**	**130,852**	**130,852**

[6] A zero value indicates the groundwater availability model pumping scenario did not include any pumping in the aquifer.

TABLE 4. MODELED AVAILABLE GROUNDWATER FOR THE SPARTA AQUIFER IN GROUNDWATER MANAGEMENT AREA 11 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2020 AND 2080. VALUES ARE IN ACRE-FEET PER YEAR.

Groundwater Conservation District	County	Aquifer	2020	2030	2040	2050	2060	2070	2080
Neches & Trinity Valleys GCD	Anderson	Sparta	307	307	307	307	307	307	307
Neches & Trinity Valleys GCD	Cherokee	Sparta	352	352	352	352	352	352	352
Neches & Trinity Valleys GCD Total		**Sparta**	**658**	**658**	**658**	**658**	**658**	**658**	**658**
Pineywoods GCD	Angelina	Sparta	390	390	390	390	390	390	390
Pineywoods GCD	Nacogdoches	Sparta	362	362	362	362	362	362	362
Pineywoods GCD Total		**Sparta**	**752**	**752**	**752**	**752**	**752**	**752**	**752**
Total (GCDs)		**Sparta**	**1,410**	**1,410**	**1,410**	**1,410**	**1,410**	**1,410**	**1,410**
No District-County	Cass	Sparta	0[7]	0	0	0	0	0	0
No District-County	Houston	Sparta	1,482	1,482	1,482	1,482	1,482	1,482	1,482
No District-County	Marion	Sparta	0	0	0	0	0	0	0
No District-County	Sabine	Sparta	49	49	49	49	49	49	49
No District-County	San Augustine	Sparta	166	166	166	166	166	166	166
No District-County	Shelby	Sparta	0	0	0	0	0	0	0
No District-County	Smith	Sparta	0	0	0	0	0	0	0
No District-County	Trinity	Sparta	152	152	152	152	152	152	152
No District-County	Upshur	Sparta	0	0	0	0	0	0	0
No District-County	Wood	Sparta	0	0	0	0	0	0	0
No District-County Total		**Sparta**	**1,848**	**1,848**	**1,848**	**1,848**	**1,848**	**1,848**	**1,848**
Total for GMA 11		**Sparta**	**3,259**	**3,259**	**3,259**	**3,259**	**3,259**	**3,259**	**3,259**

[7] A zero value indicates the groundwater availability model pumping scenario did not include any pumping in the aquifer.

TABLE 5. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE CARRIZO-WILCOX AQUIFER IN GROUNDWATER MANAGEMENT AREA 11. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), RIVER BASIN, AND AQUIFER.

County	RWPA	River Basin	Aquifer	2020	2030	2040	2050	2060	2070	2080
Anderson	I	Neches	Carrizo-Wilcox	21,958	21,958	21,958	21,958	21,958	21,958	21,958
Anderson	I	Trinity	Carrizo-Wilcox	5,066	5,066	5,066	5,066	5,066	5,066	5,066
Angelina	I	Neches	Carrizo-Wilcox	27,611	27,611	27,611	27,611	27,611	27,611	27,611
Bowie	D	Sulphur	Carrizo-Wilcox	9,645	9,645	9,645	9,645	9,645	9,645	9,645
Camp	D	Cypress	Carrizo-Wilcox	3,862	3,862	3,862	3,862	3,862	3,862	3,862
Cass	D	Cypress	Carrizo-Wilcox	12,865	12,865	12,865	12,865	12,865	12,865	12,865
Cass	D	Sulphur	Carrizo-Wilcox	777	777	777	777	777	777	777
Cherokee	I	Neches	Carrizo-Wilcox	15,241	15,241	15,241	15,241	15,241	15,241	15,241
Franklin	D	Cypress	Carrizo-Wilcox	5,334	5,334	5,334	5,334	5,334	5,334	5,334
Franklin	D	Sulphur	Carrizo-Wilcox	398	398	398	398	398	398	398
Gregg	D	Cypress	Carrizo-Wilcox	726	726	726	726	726	726	726
Gregg	D	Sabine	Carrizo-Wilcox	5,346	5,346	5,346	5,346	5,346	5,346	5,346
Harrison	D	Cypress	Carrizo-Wilcox	4,636	4,636	4,636	4,636	4,636	4,636	4,636
Harrison	D	Sabine	Carrizo-Wilcox	4,460	4,460	4,460	4,460	4,460	4,460	4,460
Henderson	C	Trinity	Carrizo-Wilcox	3,226	3,226	3,226	3,226	3,226	3,226	3,226
Henderson	I	Neches	Carrizo-Wilcox	3,996	3,996	3,996	3,996	3,996	3,996	3,996
Hopkins	D	Cypress	Carrizo-Wilcox	309	309	309	309	309	309	309
Hopkins	D	Sabine	Carrizo-Wilcox	2,426	2,426	2,426	2,426	2,426	2,426	2,426
Hopkins	D	Sulphur	Carrizo-Wilcox	2,017	2,017	2,017	2,017	2,017	2,017	2,017
Houston	I	Neches	Carrizo-Wilcox	1,721	1,721	1,721	1,721	1,721	1,721	1,721
Houston	I	Trinity	Carrizo-Wilcox	634	634	634	634	634	634	634
Marion	D	Cypress	Carrizo-Wilcox	1,966	1,966	1,966	1,966	1,966	1,966	1,966
Morris	D	Cypress	Carrizo-Wilcox	2,156	2,156	2,156	2,156	2,156	2,156	2,156
Morris	D	Sulphur	Carrizo-Wilcox	415	415	415	415	415	415	415
Nacogdoches	I	Neches	Carrizo-Wilcox	20,859	20,859	20,859	20,859	20,859	20,859	20,859

County	RWPA	River Basin	Aquifer	2020	2030	2040	2050	2060	2070	2080
Panola	I	Cypress	Carrizo-Wilcox	0[8]	0	0	0	0	0	0
Panola	I	Sabine	Carrizo-Wilcox	4,999	4,999	4,999	4,999	4,999	4,999	4,999
Rains	D	Sabine	Carrizo-Wilcox	1,411	1,411	1,411	1,411	1,411	1,411	1,411
Red River	D	Sulphur	Carrizo-Wilcox	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]	NULL[1]
Rusk	I	Neches	Carrizo-Wilcox	7,111	7,111	7,111	7,111	7,111	7,111	7,111
Rusk	I	Sabine	Carrizo-Wilcox	6,907	6,907	6,907	6,907	6,907	6,907	6,907
Sabine	I	Neches	Carrizo-Wilcox	356	356	356	356	356	356	356
Sabine	I	Sabine	Carrizo-Wilcox	1,032	1,032	1,032	1,032	1,032	1,032	1,032
San Augustine	I	Neches	Carrizo-Wilcox	303	303	303	303	303	303	303
San Augustine	I	Sabine	Carrizo-Wilcox	284	284	284	284	284	284	284
Shelby	I	Neches	Carrizo-Wilcox	2,621	2,621	2,621	2,621	2,621	2,621	2,621
Shelby	I	Sabine	Carrizo-Wilcox	3,698	3,698	3,698	3,698	3,698	3,698	3,698
Smith	D	Sabine	Carrizo-Wilcox	7,939	7,939	7,939	7,939	7,939	7,939	7,939
Smith	I	Neches	Carrizo-Wilcox	17,607	17,607	17,607	17,607	17,607	17,607	17,607
Titus	D	Cypress	Carrizo-Wilcox	5,594	5,594	5,594	5,594	5,594	5,594	5,594
Titus	D	Sulphur	Carrizo-Wilcox	1,942	1,942	1,942	1,942	1,942	1,942	1,942
Trinity	H	Trinity	Carrizo-Wilcox	1	1	1	1	1	1	1
Trinity	I	Neches	Carrizo-Wilcox	266	266	266	266	266	266	266
Upshur	D	Cypress	Carrizo-Wilcox	5,107	5,107	5,107	5,107	5,107	5,107	5,107
Upshur	D	Sabine	Carrizo-Wilcox	1,550	1,550	1,550	1,550	1,550	1,550	1,550
Van Zandt	D	Neches	Carrizo-Wilcox	2,616	2,616	2,616	2,616	2,616	2,616	2,616
Van Zandt	D	Sabine	Carrizo-Wilcox	3,286	3,286	3,286	3,286	3,286	3,286	3,286
Van Zandt	D	Trinity	Carrizo-Wilcox	1,030	1,030	1,030	1,030	1,030	1,030	1,030
Wood	D	Cypress	Carrizo-Wilcox	925	925	925	925	925	925	925
Wood	D	Sabine	Carrizo-Wilcox	16,977	16,977	16,977	16,977	16,977	16,977	16,977
GMA 11 Total			**Carrizo-Wilcox**	251,217	251,217	251,217	251,216	251,216	251,216	251,215

[8] A zero value indicates the groundwater availability model pumping scenario did not include any pumping in the aquifer.

TABLE 6. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE QUEEN CITY AQUIFER IN GROUNDWATER MANAGEMENT AREA 11. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), RIVER BASIN, AND AQUIFER.

County	RWPA	River Basin	Aquifer	2020	2030	2040	2050	2060	2070	2080
Anderson	I	Neches	Queen City	11,489	11,489	11,489	11,488	11,488	11,488	11,488
Anderson	I	Trinity	Queen City	5,102	5,102	5,102	5,102	5,102	5,102	5,102
Angelina	I	Neches	Queen City	1,095	1,095	1,095	1,095	1,095	1,095	1,095
Camp	D	Cypress	Queen City	1,594	1,594	1,594	1,594	1,594	1,594	1,594
Cass	D	Cypress	Queen City	15,855	15,855	15,855	15,855	15,855	15,855	15,855
Cass	D	Sulphur	Queen City	624	624	624	624	624	624	624
Cherokee	I	Neches	Queen City	8,812	8,812	8,812	8,812	8,812	8,812	8,812
Gregg	D	Cypress	Queen City	456	456	456	456	456	456	456
Gregg	D	Sabine	Queen City	2,056	2,056	2,056	2,056	2,056	2,056	2,055
Harrison	D	Cypress	Queen City	2,976	2,976	2,976	2,976	2,976	2,976	2,976
Harrison	D	Sabine	Queen City	561	561	561	561	561	561	561
Henderson	C	Trinity	Queen City	154	154	154	154	154	154	154
Henderson	I	Neches	Queen City	10,516	10,516	10,516	10,516	10,516	10,516	10,516
Houston	I	Neches	Queen City	2,080	2,080	2,080	2,080	2,080	2,080	2,080
Houston	I	Trinity	Queen City	216	216	216	216	216	216	216
Marion	D	Cypress	Queen City	7,389	7,389	7,389	7,389	7,389	7,389	7,389
Morris	D	Cypress	Queen City	3,278	3,278	3,278	3,278	3,278	3,278	3,278
Nacogdoches	I	Neches	Queen City	2,946	2,946	2,946	2,946	2,946	2,946	2,946
Rusk	I	Neches	Queen City	39	39	39	39	39	39	39
Rusk	I	Sabine	Queen City	20	20	20	20	20	20	20
Sabine	I	Neches	Queen City	0[9]	0	0	0	0	0	0
Sabine	I	Sabine	Queen City	0	0	0	0	0	0	0
San Augustine	I	Neches	Queen City	0	0	0	0	0	0	0
Shelby	I	Sabine	Queen City	0	0	0	0	0	0	0

[9] A zero value indicates the groundwater availability model pumping scenario did not include any pumping in the aquifer.

County	RWPA	River Basin	Aquifer	2020	2030	2040	2050	2060	2070	2080
Smith	D	Sabine	Queen City	12,457	12,457	12,457	12,457	12,457	12,457	12,457
Smith	I	Neches	Queen City	20,121	20,121	20,121	20,121	20,121	20,121	20,121
Titus	D	Cypress	Queen City	0[10]	0	0	0	0	0	0
Trinity	H	Trinity	Queen City	0	0	0	0	0	0	0
Trinity	I	Neches	Queen City	0	0	0	0	0	0	0
Upshur	D	Cypress	Queen City	6,216	6,215	6,215	6,215	6,215	6,215	6,215
Upshur	D	Sabine	Queen City	5,949	5,949	5,949	5,949	5,949	5,949	5,949
Van Zandt	D	Neches	Queen City	2,343	2,343	2,343	2,343	2,343	2,343	2,343
Wood	D	Cypress	Queen City	779	779	779	779	779	779	779
Wood	D	Sabine	Queen City	5,731	5,731	5,731	5,731	5,731	5,731	5,731
GMA 11 Total			**Queen City**	**130,854**	**130,854**	**130,853**	**130,853**	**130,853**	**130,852**	**130,852**

[10] A zero value indicates the groundwater availability model pumping scenario did not include any pumping in the aquifer.

TABLE 7. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE SPARTA AQUIFER IN GROUNDWATER MANAGEMENT AREA 11. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), RIVER BASIN, AND AQUIFER.

County	RWPA	River Basin	Aquifer	2020	2030	2040	2050	2060	2070	2080
Anderson	I	Neches	Sparta Aquifer	109	109	109	109	109	109	109
Anderson	I	Trinity	Sparta Aquifer	198	198	198	198	198	198	198
Angelina	I	Neches	Sparta Aquifer	390	390	390	390	390	390	390
Cass	D	Cypress	Sparta Aquifer	0[11]	0	0	0	0	0	0
Cherokee	I	Neches	Sparta Aquifer	352	352	352	352	352	352	352
Houston	I	Neches	Sparta Aquifer	505	505	505	505	505	505	505
Houston	I	Trinity	Sparta Aquifer	977	977	977	977	977	977	977
Marion	D	Cypress	Sparta Aquifer	0	0	0	0	0	0	0
Nacogdoches	I	Neches	Sparta Aquifer	362	362	362	362	362	362	362
Rusk	I	Neches	Sparta Aquifer	0	0	0	0	0	0	0
Sabine	I	Neches	Sparta Aquifer	36	36	36	36	36	36	36
Sabine	I	Sabine	Sparta Aquifer	13	13	13	13	13	13	13
San Augustine	I	Neches	Sparta Aquifer	163	163	163	163	163	163	163
San Augustine	I	Sabine	Sparta Aquifer	3	3	3	3	3	3	3
Shelby	I	Sabine	Sparta Aquifer	0	0	0	0	0	0	0
Smith	D	Sabine	Sparta Aquifer	0	0	0	0	0	0	0
Smith	I	Neches	Sparta Aquifer	0	0	0	0	0	0	0
Trinity	H	Trinity	Sparta Aquifer	0	0	0	0	0	0	0
Trinity	I	Neches	Sparta Aquifer	152	152	152	152	152	152	152
Upshur	D	Sabine	Sparta Aquifer	0	0	0	0	0	0	0
Wood	D	Sabine	Sparta Aquifer	0	0	0	0	0	0	0
GMA 11 Total			**Sparta Aquifer**	**3,259**	**3,259**	**3,259**	**3,259**	**3,259**	**3,259**	**3,259**

[11] A zero value indicates the groundwater availability model pumping scenario did not include any pumping in the aquifer.

LIMITATIONS:

The groundwater model used in completing this analysis is the best available scientific tool that can be used to meet the stated objectives. To the extent that this analysis will be used for planning purposes and/or regulatory purposes related to pumping in the past and into the future, it is important to recognize the assumptions and limitations associated with the use of the results. In reviewing the use of models in environmental regulatory decision making, the National Research Council (2007) noted:

> "Models will always be constrained by computational limitations, assumptions, and knowledge gaps. They can best be viewed as tools to help inform decisions rather than as machines to generate truth or make decisions. Scientific advances will never make it possible to build a perfect model that accounts for every aspect of reality or to prove that a given model is correct in all respects for a particular regulatory application. These characteristics make evaluation of a regulatory model more complex than solely a comparison of measurement data with model results."

A key aspect of using the groundwater model to evaluate historic groundwater flow conditions includes the assumptions about the location in the aquifer where historic pumping was placed. Understanding the amount and location of historic pumping is as important as evaluating the volume of groundwater flow into and out of the district, between aquifers within the district (as applicable), interactions with surface water (as applicable), recharge to the aquifer system (as applicable), and other metrics that describe the impacts of that pumping. In addition, assumptions regarding precipitation, recharge, and streamflow are specific to a particular historic time period.

Because the application of the groundwater model was designed to address regional scale questions, the results are most effective on a regional scale. The TWDB makes no warranties or representations relating to the actual conditions of any aquifer at a particular location or at a particular time.

It is important for groundwater conservation districts to monitor groundwater pumping and groundwater levels in the aquifer. Because of the limitations of the groundwater model and the assumptions in this analysis, it is important that the groundwater conservation districts work with the TWDB to refine this analysis in the future given the reality of how the aquifer responds to the actual amount and location of pumping now and in the future. Historic precipitation patterns also need to be placed in context as future climatic conditions, such as dry and wet year precipitation patterns, may differ and affect groundwater flow conditions.

REFERENCES:

Hutchison, W.R., 2021, GMA 11 Technical Memorandum 21-01, Adjusted Pumping Simulations for Joint Planning with Updated Groundwater Availability Model for the Sparta, Queen City, and Carrizo-Wilcox Aquifers, 31p.

Langevin, C.D., Hughes, J.D., Banta, E.R., Niswonger, R.G., Panday, Sorab, and Provost, A.M., 2017, Documentation for the MODFLOW 6 Groundwater Flow (GWF) Model: U.S. Geological Survey Techniques and Methods, book 6, chap. A55, 197 p., accessed August 4, 2017, at https://doi.org/10.3133/tm6A55

National Research Council, 2007, Models in Environmental Regulatory Decision Making Committee on Models in the Regulatory Decision Process, National Academies Press, Washington D.C., 287 p., http://www.nap.edu/catalog.php?record_id=11972.

Panday, S., Rumbaugh, J., Hutchison, W.R., and Schorr, S., 2020, Numerical Model Report: Groundwater Availability Model for the Northern Portion of the Queen City, Sparta, and Carrizo-Wilcox Aquifers. Final Report prepared for Texas Water Development Board, Contact Number #1648302063, 198p.

Texas Water Code, 2011, http://www.statutes.legis.state.tx.us/docs/WA/pdf/WA.36.pdf.

U.S. Geological Survey, 2021, Zonebudget for MODFLOW 6, U.S. Geological Survey Groundwater Software.

GAM Run 21-019 MAG: Modeled Available Groundwater for the Gulf Coast Aquifer System in Groundwater Management Area 14

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Texas Water Development Board
Groundwater Division
Groundwater Modeling Department
512-936-0883

September 8, 2022

STATE OF TEXAS
SHIRLEY C. WADE
GEOLOGY
No. 525
LICENSED
PROFESSIONAL GEOSCIENTIST

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10/6/2022

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GAM RUN 21-019 MAG: MODELED AVAILABLE GROUNDWATER FOR THE GULF COAST AQUIFER SYSTEM IN GROUNDWATER MANAGEMENT AREA 14

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512-936-0883
September 8, 2022

EXECUTIVE SUMMARY:

The combined value of modeled available groundwater in Groundwater Management Area 14 and the projected groundwater pumpage in subsidence districts in Groundwater Management Area 14 for the Gulf Coast Aquifer System ranges from a maximum of 1,327,135 acre-feet per year in 2020 to a minimum of 1,107,263 acre-feet per year in 2040 (Tables 1 and 2). Table 1 presents the modeled available groundwater summarized by decade from 2020 to 2080 for groundwater conservation districts. Table 2 presents the projected groundwater pumpage in regulatory plans adopted by subsidence districts and factored into the development of desired future conditions adopted by groundwater conservation districts. Table 3 summarizes the modeled available groundwater (for groundwater conservation district and non-district counties) and the projected groundwater pumpage (for subsidence district counties) by decade from 2030 to 2080 and by county, regional water planning area, and river basin for use in the regional water planning process. The estimates are based on the desired future conditions for the Gulf Coast Aquifer System adopted by groundwater conservation districts in Groundwater Management Area 14 on January 5, 2022. The explanatory report and other materials submitted to the Texas Water Development Board (TWDB) were determined to be administratively complete on June 15, 2022.

REQUESTOR:

Mr. John Martin, chair and technical coordinator of Groundwater Management Area 14.

DESCRIPTION OF REQUEST:

Mr. John Martin provided the TWDB with the desired future conditions of the Gulf Coast Aquifer System on behalf of Groundwater Management Area (GMA) 14. These desired future conditions were adopted by the groundwater conservation districts in Groundwater

Management Area 14 on January 5, 2022. The desired future conditions, as described in Resolution 2021-10-5 (GMA 14 and Oliver, 2022; Appendix G) are:

- "In each county in GMA 14, no less than 70 percent median available drawdown remaining in 2080 or no more than an average of 1.0 additional foot of subsidence between 2009 and 2080."

The Carrizo-Wilcox, Queen City, Sparta, Yegua-Jackson, and Brazos River Alluvium aquifers were declared not relevant for purposes of joint planning by Groundwater Management Area 14 in Resolution 2021-10-5 (GMA 14 and Oliver, 2022; Appendix G).

On March 4, 2022, Mr. John Martin, technical coordinator of Groundwater Management Area 14, submitted the desired future conditions packet for Groundwater Management Area 14. TWDB staff reviewed the model files associated with the desired future conditions and received clarification on assumptions from the Groundwater Management Area 14 technical coordinator on March 23, 2022. In Resolution 2021-10-5, the desired future condition is defined for "each county in GMA 14"; however, Groundwater Management Area 14 clarified that it is their intent per pages 15 and 38 of the explanatory report that the subsidence district counties are not to be included in the county-specific desired future condition definition. For this reason, the TWDB did not consider subsidence district counties during the desired future conditions evaluation. An additional clarification from Groundwater Management Area 14 was a request that the modeled available groundwater values and modeled pumping values be provided by model aquifer layer in addition to the total values for the entire Gulf Coast Aquifer System. These additional splits are included in the current report in Appendix A.

Harris, Galveston, and Fort Bend counties (Subsidence Districts)

Harris-Galveston Subsidence District and Fort Bend Subsidence District are not subject to the provisions of Section 36.108 of the Texas Water Code and, therefore, have not specified desired future conditions. Because desired future conditions were not adopted for the counties in the subsidence districts, the TWDB does not provide "modeled available groundwater" values for those counties. However, the districts in Groundwater Management Area 14 incorporated the groundwater pumpage projections made by the subsidence districts in their regulatory plans so that all known regional groundwater pumping was factored into the joint planning process. Therefore, the subsidence district "groundwater pumpage projections" are still provided in this report (Table 2 and Table 3) even though these values are not official "modeled available groundwater" values.

METHODS:

The TWDB ran the groundwater availability model (version 3.01; Kasmarek, 2013) for the northern part of the Gulf Coast Aquifer System (Figure 1) using the predictive model files submitted with the explanatory report (GMA 14 and Oliver, 2022; Appendix R) on March 4, 2022. The modeled available groundwater values were determined by extracting pumping rates by decade from the model results using ZONEBUDGET Version 3.01 (Harbaugh, 2009). Annual pumping rates were divided by county, river basin, regional water planning area, and groundwater conservation district within Groundwater Management Area 14 (Figures 1 and 2; Tables 1 through 3).

As part of the process to calculate modeled available groundwater, the TWDB checked the model files submitted by Groundwater Management Area 14 to determine if the groundwater pumping scenario was compatible with the adopted desired future conditions. The TWDB used these model files to extract model-calculated water levels for 2009 (stress period 78) and 2080 (stress period 149), and to calculate the available drawdown according to the methodology described in the explanatory report (GMA 14 and Oliver, 2022; Appendix R). The TWDB applied this methodology to a dataset submitted as part of the explanatory report, which contained well locations and well depths for 61,880 wells. The ratio of available drawdown in 2080 to available drawdown in 2009 was calculated for each well and the median was determined for each county. As specified in the explanatory report (GMA 14 and Oliver, 2022; Appendix R), if the water level in a model cell dropped below the base of the cell the available drawdown for wells located in that model cell was set to zero.

The subsidence values were also extracted from the model results for 2009 (stress period 78) and 2080 (stress period 149) and average change in subsidence was calculated for each county. The median percent available drawdown and average change in subsidence for each county were compared to the desired future conditions to confirm that the model scenario was compatible with the desired future conditions.

Modeled Available Groundwater and Permitting

As defined in Chapter 36 of the Texas Water Code (2011), "modeled available groundwater" is the estimated average amount of water that may be produced annually to achieve a desired future condition. Groundwater conservation districts are required to consider modeled available groundwater, along with several other factors, when issuing permits in order to manage groundwater production to achieve the desired future condition(s). The other factors districts must consider include annual precipitation and production patterns, the estimated amount of pumping exempt from permitting, existing permits, and a reasonable estimate of actual groundwater production under existing permits.

PARAMETERS AND ASSUMPTIONS:

The parameters and assumptions for the modeled available groundwater estimates are described below:

- Version 3.01 of the groundwater availability model for the northern portion of the Gulf Coast Aquifer System was used for this analysis. See Kasmarek (2013) for assumptions and limitations of the model.
- The model has four layers which represent the Chicot aquifer (Layer 1), the Evangeline aquifer (Layer 2), the Burkeville Confining Unit (Layer 3), and the Jasper aquifer and parts of the Catahoula Formation in direct hydrologic communication with the Jasper aquifer (Layer 4).
- The model was run with MODFLOW-2000 (Harbaugh and others, 2000).
- Available drawdown for cells with water levels below the base elevation of the cell ("dry" cells) was set to zero for the analysis.
- Cells with water levels below the base are "dry" in terms of water level. However, the transmissivity of those cells remains constant and pumping from those cells continues. Therefore, pumping is included in the modeled available groundwater values for those cells.
- The subsidence district counties (Harris, Galveston, and Fort Bend) were not included in the evaluation of the desired future condition.
- The evaluation of the desired future condition for available drawdown was based on the 61,880 observation well locations and the MODFLOW pumping file submitted by Groundwater Management Area 14.
- The evaluation of the desired future condition for subsidence was based on the extent of the official TWDB boundary for the Gulf Coast Aquifer System within the groundwater model and the MODFLOW pumping file submitted by Groundwater Management Area 14.
- The calculation of modeled available groundwater values was based on the extent of the official TWDB boundary for the Gulf Coast Aquifer System within the groundwater model and the MODFLOW pumping file submitted by Groundwater Management Area 14.
- The most recent TWDB model grid file dated June 10, 2020 (glfc_n_01062020.csv), was used to determine model cell entity assignment (county, groundwater management area, groundwater conservation district, river basin, regional water planning area).

- Estimates of modeled available groundwater from the model simulation were rounded to the nearest whole number.

RESULTS:

The modeled available groundwater for the Gulf Coast Aquifer System that achieves the desired future conditions adopted by Groundwater Management Area 14 ranges from 781,781 to 781,753 acre-feet per year between 2020 and 2080 (Table 1). Projected Gulf Coast Aquifer System groundwater pumpage from the three counties in the Harris Galveston Subsidence District and Fort Bend Subsidence District ranges between 545,354 and 325,510 acre-feet per year during the period 2020 to 2080 (Table 2). The combination of modeled available groundwater and projected groundwater pumpage values in the Gulf Coast Aquifer System has also been summarized by county, river basin, and regional water planning area in order to be consistent with the format used in the regional water planning process. (Table 3).

The modeled available groundwater values and projected groundwater pumpage values are also tabulated by model aquifer layer in Appendix A.

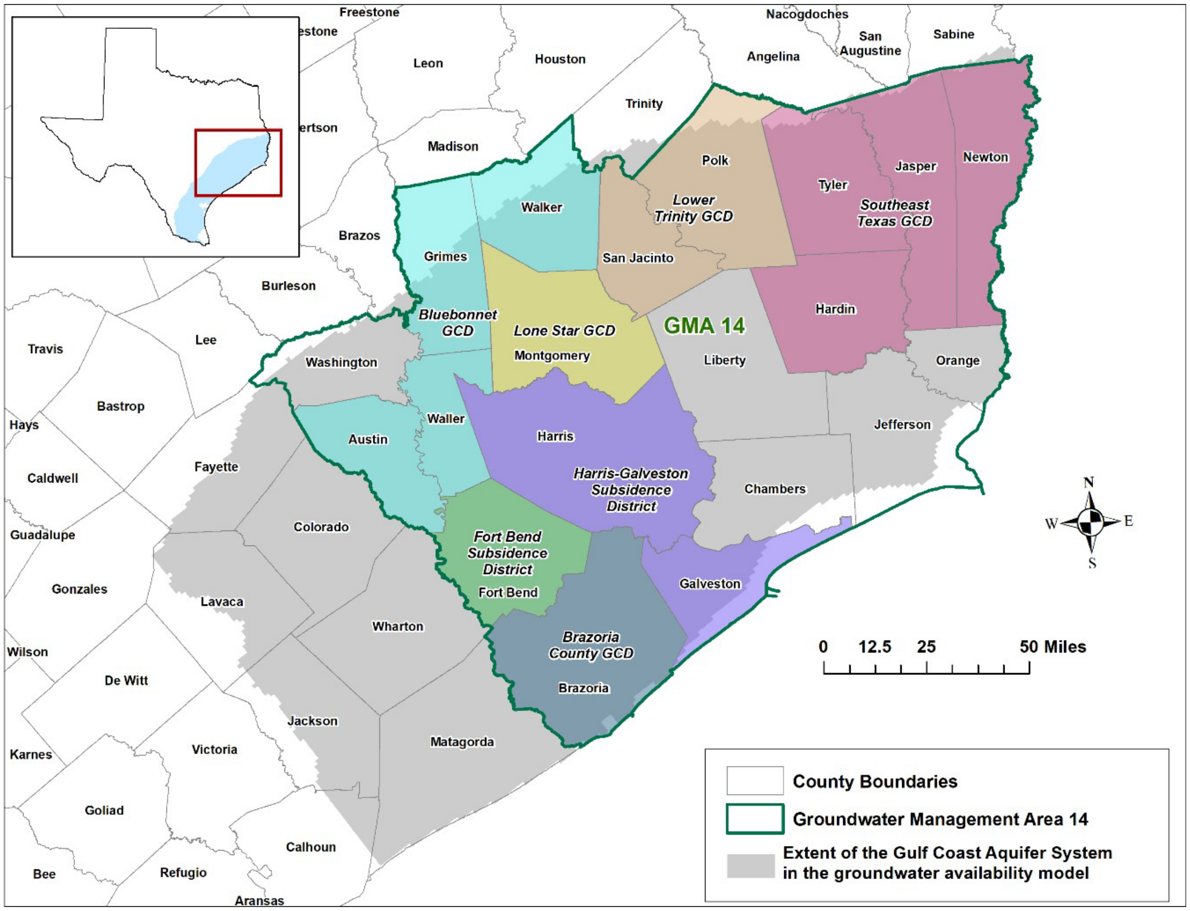

FIGURE 1. THE EXTENT OF THE GULF COAST AQUIFER SHOWN WITH GROUNDWATER CONSERVATION DISTRICTS AND SUBSIDENCE DISTRICTS IN GROUNDWATER MANAGEMENT AREA 14.

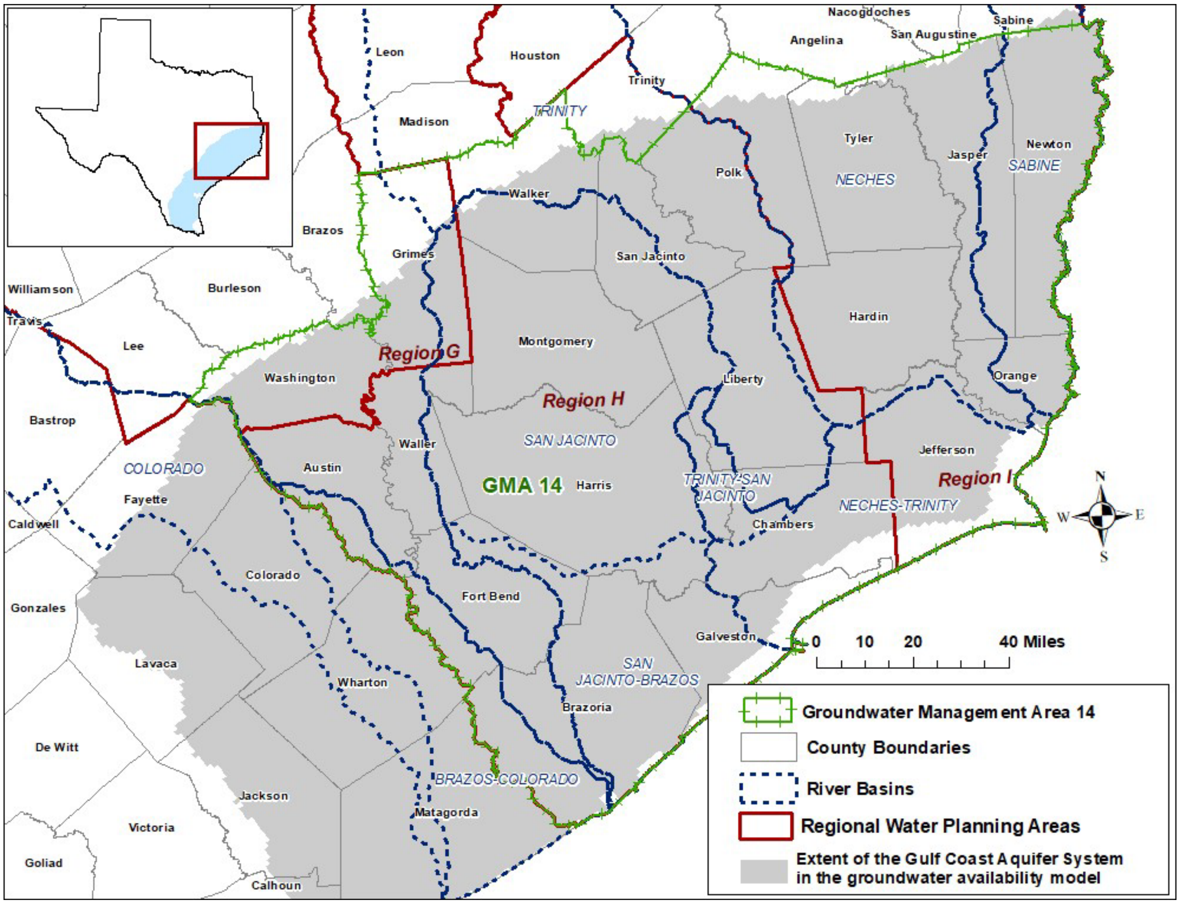

FIGURE 2. LOCATION OF REGIONAL WATER PLANNING AREAS AND RIVER BASINS IN GROUNDWATER MANAGEMENT AREA 14.

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TABLE 1. MODELED AVAILABLE GROUNDWATER FOR THE GULF COAST AQUIFER SYSTEM IN GROUNDWATER MANAGEMENT AREA 14 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2020 AND 2080. VALUES EXCLUDE SUBSIDENCE DISTRICTS. VALUES ARE IN ACRE-FEET PER YEAR.

Groundwater Conservation District	County	Aquifer	2020	2030	2040	2050	2060	2070	2080
Bluebonnet GCD	Austin	Gulf Coast Aquifer	46,560	46,560	46,560	46,560	46,560	46,560	46,560
Bluebonnet GCD	Grimes	Gulf Coast Aquifer	51,487	51,487	51,487	51,487	51,487	51,487	51,487
Bluebonnet GCD	Walker	Gulf Coast Aquifer	42,504	42,504	42,504	42,504	42,504	42,504	42,504
Bluebonnet GCD	Waller	Gulf Coast Aquifer	55,533	55,533	55,533	55,533	55,533	55,533	55,533
Bluebonnet GCD Total		**Gulf Coast Aquifer System**	**196,084**	**196,084**	**196,084**	**196,084**	**196,084**	**196,084**	**196,084**
Brazoria County	Brazoria	Gulf Coast Aquifer	54,955	54,930	54,908	54,895	54,888	54,886	54,886
Brazoria County GCD Total		**Gulf Coast Aquifer System**	**54,955**	**54,930**	**54,908**	**54,895**	**54,888**	**54,886**	**54,886**
Lone Star GCD	Montgomery	Gulf Coast Aquifer	96,965	96,954	96,945	96,930	96,916	96,873	96,873
Lone Star GCD Total		**Gulf Coast Aquifer System**	**96,965**	**96,954**	**96,945**	**96,930**	**96,916**	**96,873**	**96,873**
Lower Trinity GCD	Polk	Gulf Coast Aquifer	40,746	40,746	40,746	40,746	40,746	40,746	40,746
Lower Trinity GCD	San Jacinto	Gulf Coast Aquifer	35,037	35,048	35,057	35,071	35,086	35,128	35,128
Lower Trinity GCD Total		**Gulf Coast Aquifer System**	**75,783**	**75,794**	**75,803**	**75,817**	**75,832**	**75,874**	**75,874**

TABLE 1 (CONTINUED). MODELED AVAILABLE GROUNDWATER FOR THE GULF COAST AQUIFER SYSTEM IN GROUNDWATER MANAGEMENT AREA 14 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2020 AND 2080. VALUES EXCLUDE SUBSIDENCE DISTRICTS. VALUES ARE IN ACRE-FEET PER YEAR.

Groundwater Conservation District	County	Aquifer	2020	2030	2040	2050	2060	2070	2080
Southeast Texas	Hardin	Gulf Coast Aquifer System	37,721	37,721	37,721	37,721	37,721	37,721	37,721
Southeast Texas	Jasper	Gulf Coast Aquifer System	73,365	73,365	73,365	73,365	73,365	73,365	73,365
Southeast Texas	Newton	Gulf Coast Aquifer System	37,508	37,508	37,508	37,508	37,508	37,508	37,508
Southeast Texas	Tyler	Gulf Coast Aquifer System	34,390	34,390	34,390	34,390	34,390	34,390	34,390
Southeast Texas GCD Total		**Gulf Coast Aquifer System**	**182,984**	**182,984**	**182,984**	**182,984**	**182,984**	**182,984**	**182,984**
All District Total		**Gulf Coast Aquifer System**	**606,771**	**606,746**	**606,724**	**606,710**	**606,704**	**606,701**	**606,701**
No District-County	Chambers	Gulf Coast Aquifer System	22,321	22,332	22,343	22,352	22,353	22,355	22,355
No District-County	Jefferson	Gulf Coast Aquifer System	15,425	15,425	15,425	15,425	15,425	15,425	15,425
No District-County	Liberty	Gulf Coast Aquifer System	71,661	71,660	71,658	71,659	71,660	71,660	71,660
No District-County	Orange	Gulf Coast Aquifer System	25,205	25,205	25,205	25,205	25,205	25,205	25,205
No District-County	Washington	Gulf Coast Aquifer System	40,398	40,398	40,398	40,398	40,398	40,398	40,398
No District Total		**Gulf Coast Aquifer System**	**175,010**	**175,020**	**175,029**	**175,039**	**175,041**	**175,043**	**175,043**
GMA 14	**Total**	**Gulf Coast Aquifer System**	**781,781**	**781,766**	**781,753**	**781,749**	**781,745**	**781,744**	**781,744**

TABLE 2. GROUNDWATER PUMPAGE PROJECTIONS FOR THE GULF COAST AQUIFER SYSTEM IN GROUNDWATER MANAGEMENT AREA 14 FOR SUBSIDENCE DISTRICT COUNTIES FOR EACH DECADE BETWEEN 2020 AND 2080. VALUES ARE IN ACRE-FEET PER YEAR.

Subsidence District	County	Aquifer	2020	2030	2040	2050	2060	2070	2080
Fort Bend	Fort Bend	Gulf Coast Aquifer System	129,845	103,942	119,557	135,158	151,334	169,347	169,347
Fort Bend Subsidence District Total		**Gulf Coast Aquifer System**	**129,845**	**103,942**	**119,557**	**135,158**	**151,334**	**169,347**	**169,347**
Harris-Galveston	Galveston	Gulf Coast Aquifer System	6,032	6,788	7,435	8,060	8,646	9,181	9,181
Harris-Galveston	Harris	Gulf Coast Aquifer System	409,477	290,583	198,518	211,370	220,049	228,828	228,828
Harris-Galveston Subsidence District Total		**Gulf Coast Aquifer System**	**415,509**	**297,371**	**205,953**	**219,430**	**228,695**	**238,009**	**238,009**
GMA 14	**Total**	**Gulf Coast Aquifer System**	**545,354**	**401,313**	**325,510**	**354,588**	**380,029**	**407,356**	**407,356**

TABLE 3. MODELED AVAILABLE GROUNDWATER AND PROJECTED GROUNDWATER PUMPAGE VALUES (*IN ITALICS*) BY DECADE FOR THE GULF COAST AQUIFER SYSTEM IN GROUNDWATER MANAGEMENT AREA 14. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.

County	RWPA	River Basin	Aquifer	2030	2040	2050	2060	2070	2080
Austin	H	Brazos-Colorado	Gulf Coast	20,652	20,652	20,652	20,652	20,652	20,652
Austin	H	Brazos	Gulf Coast	25,243	25,243	25,243	25,243	25,243	25,243
Austin	H	Colorado	Gulf Coast	665	665	665	665	665	665
Brazoria	H	Brazos-Colorado	Gulf Coast	10,049	9,846	9,582	9,324	9,072	9,072
Brazoria	H	Brazos	Gulf Coast	3,641	3,578	3,510	3,454	3,407	3,407
Brazoria	H	San Jacinto-Brazos	Gulf Coast	41,240	41,483	41,803	42,110	42,408	42,408
Chambers	H	Neches-Trinity	Gulf Coast	9,968	9,968	9,968	9,968	9,968	9,968
Chambers	H	Trinity-San Jacinto	Gulf Coast	2,142	2,152	2,161	2,163	2,164	2,164
Chambers	H	Trinity	Gulf Coast	10,222	10,222	10,222	10,222	10,222	10,222
Fort Bend	*H*	*Brazos-Colorado*	*Gulf Coast*	*7,891*	*9,586*	*12,056*	*15,660*	*20,927*	*20,927*
Fort Bend	*H*	*Brazos*	*Gulf Coast*	*37,845*	*46,525*	*55,134*	*64,011*	*73,732*	*73,732*
Fort Bend	*H*	*San Jacinto-Brazos*	*Gulf Coast*	*40,844*	*45,913*	*50,471*	*54,218*	*57,258*	*57,258*
Fort Bend	*H*	*San Jacinto*	*Gulf Coast*	*17,362*	*17,532*	*17,497*	*17,445*	*17,430*	*17,430*
Galveston	*H*	*Neches-Trinity*	*Gulf Coast*	*0*[1]	*0*	*0*	*0*	*0*	*0*
Galveston	*H*	*San Jacinto-Brazos*	*Gulf Coast*	*6,788*	*7,435*	*8,060*	*8,646*	*9,181*	*9,181*
Grimes	G	Brazos	Gulf Coast	31,117	31,117	31,117	31,117	31,117	31,117
Grimes	G	San Jacinto	Gulf Coast	19,087	19,087	19,087	19,087	19,087	19,087
Grimes	G	Trinity	Gulf Coast	1,283	1,283	1,283	1,283	1,283	1,283
Hardin	I	Neches	Gulf Coast	37,571	37,571	37,571	37,571	37,571	37,571
Hardin	I	Trinity	Gulf Coast	150	150	150	150	150	150
Harris	*H*	*San Jacinto-Brazos*	*Gulf Coast*	*6,956*	*7,617*	*8,282*	*8,819*	*9,463*	*9,463*
Harris	*H*	*San Jacinto*	*Gulf Coast*	*280,676*	*187,992*	*199,990*	*208,033*	*216,067*	*216,067*

[1] A zero value in the table indicates the groundwater availability model pumping scenario did not include any pumping in that part of the aquifer.

TABLE 3 (CONTINUED). MODELED AVAILABLE GROUNDWATER AND PROJECTED GROUNDWATER PUMPAGE VALUES (*IN ITALICS*) BY DECADE FOR THE GULF COAST AQUIFER SYSTEM IN GROUNDWATER MANAGEMENT AREA 14. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.

County	RWPA	River Basin	Aquifer	2030	2040	2050	2060	2070	2080
Harris	*H*	*Trinity-San Jacinto*	*Gulf Coast*	*2,952*	*2,909*	*3,097*	*3,198*	*3,297*	*3,297*
Jasper	I	Neches	Gulf Coast	40,821	40,821	40,821	40,821	40,821	40,821
Jasper	I	Sabine	Gulf Coast	32,544	32,544	32,544	32,544	32,544	32,544
Jefferson	I	Neches-Trinity	Gulf Coast	13,571	13,571	13,571	13,571	13,571	13,571
Jefferson	I	Neches	Gulf Coast	1,853	1,853	1,853	1,853	1,853	1,853
Liberty	H	Neches-Trinity	Gulf Coast	2,053	2,053	2,053	2,053	2,053	2,053
Liberty	H	Neches	Gulf Coast	8,732	8,732	8,732	8,732	8,732	8,732
Liberty	H	San Jacinto	Gulf Coast	11,299	11,299	11,299	11,299	11,299	11,299
Liberty	H	Trinity-San Jacinto	Gulf Coast	10,544	10,543	10,543	10,544	10,544	10,544
Liberty	H	Trinity	Gulf Coast	39,032	39,031	39,032	39,032	39,032	39,032
Montgomery	H	San Jacinto	Gulf Coast	96,954	96,945	96,930	96,916	96,873	96,873
Newton	I	Neches	Gulf Coast	199	199	199	199	199	199
Newton	I	Sabine	Gulf Coast	37,309	37,309	37,309	37,309	37,309	37,309
Orange	I	Neches-Trinity	Gulf Coast	280	280	280	280	280	280
Orange	I	Neches	Gulf Coast	6,266	6,266	6,266	6,266	6,266	6,266
Orange	I	Sabine	Gulf Coast	18,659	18,659	18,659	18,659	18,659	18,659
Polk	I	Neches	Gulf Coast	16,765	16,765	16,765	16,765	16,765	16,765
Polk	H	Trinity	Gulf Coast	23,981	23,981	23,981	23,981	23,981	23,981
San Jacinto	H	San Jacinto	Gulf Coast	18,443	18,452	18,467	18,482	18,524	18,524
San Jacinto	H	Trinity	Gulf Coast	16,604	16,604	16,604	16,604	16,604	16,604
Tyler	I	Neches	Gulf Coast	34,390	34,390	34,390	34,390	34,390	34,390
Walker	H	San Jacinto	Gulf Coast	26,622	26,622	26,622	26,622	26,622	26,622
Walker	H	Trinity	Gulf Coast	15,881	15,881	15,881	15,881	15,881	15,881

TABLE 3 (CONTINUED). MODELED AVAILABLE GROUNDWATER AND PROJECTED GROUNDWATER PUMPAGE VALUES (*IN ITALICS*) BY DECADE FOR THE GULF COAST AQUIFER SYSTEM IN GROUNDWATER MANAGEMENT AREA 14. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.

County	RWPA	River Basin	Aquifer	2030	2040	2050	2060	2070	2080
Waller	H	Brazos	Gulf Coast	23,397	23,397	23,397	23,397	23,397	23,397
Waller	H	San Jacinto	Gulf Coast	32,136	32,136	32,136	32,136	32,136	32,136
Washington	G	Brazos	Gulf Coast	40,164	40,164	40,164	40,164	40,164	40,164
Washington	G	Colorado	Gulf Coast	233	233	233	233	233	233
GMA 14 Total			**Gulf Coast Aquifer System**	**1,183,076**	**1,107,256**	**1,136,332**	**1,161,772**	**1,189,096**	**1,189,096**

LIMITATIONS:

The groundwater model used in completing this analysis is the best available scientific tool that can be used to meet the stated objectives. To the extent that this analysis will be used for planning purposes and/or regulatory purposes related to pumping in the past and into the future, it is important to recognize the assumptions and limitations associated with the use of the results. In reviewing the use of models in environmental regulatory decision making, the National Research Council (2007) noted:

> *"Models will always be constrained by computational limitations, assumptions, and knowledge gaps. They can best be viewed as tools to help inform decisions rather than as machines to generate truth or make decisions. Scientific advances will never make it possible to build a perfect model that accounts for every aspect of reality or to prove that a given model is correct in all respects for a particular regulatory application. These characteristics make evaluation of a regulatory model more complex than solely a comparison of measurement data with model results."*

A key aspect of using the groundwater model to evaluate historic groundwater flow conditions includes the assumptions about the location in the aquifer where historic pumping was placed. Understanding the amount and location of historic pumping is as important as evaluating the volume of groundwater flow into and out of the district, between aquifers within the district (as applicable), interactions with surface water (as applicable), recharge to the aquifer system (as applicable), and other metrics that describe the impacts of that pumping. In addition, assumptions regarding precipitation, recharge, and streamflow are specific to a particular historic time period.

Because the application of the groundwater model was designed to address regional scale questions, the results are most effective on a regional scale. The TWDB makes no warranties or representations relating to the actual conditions of any aquifer at a particular location or at a particular time.

It is important for groundwater conservation districts to monitor groundwater pumping and groundwater levels in the aquifer. Because of the limitations of the groundwater model and the assumptions in this analysis, it is important that the groundwater conservation districts work with the TWDB to refine this analysis in the future given the reality of how the aquifer responds to the actual amount and location of pumping now and in the future. Historic precipitation patterns also need to be placed in context as future climatic conditions, such as dry and wet year precipitation patterns, may differ and affect groundwater flow conditions.

REFERENCES:

Groundwater Conservation Districts in Groundwater Management Area 14 (GMA 14), and Oliver, W., 2022, INTERA Inc., 2022, Desired Future Conditions Explanatory Report (Groundwater Management Area 14), March 2022, 98+ p.

Harbaugh, A. W., 2009, Zonebudget Version 3.01, A computer program for computing subregional water budgets for MODFLOW ground-water flow models, U.S. Geological Survey Groundwater Software.

Harbaugh, A.W., Banta, E.R., Hill, M.C., and McDonald, M.G., 2000, MODFLOW-2000, The U.S. Geological Survey modular ground-water model-User guide to modularization concepts and the ground-water flow process: U.S. Geological Survey, Open-File Report 00-92.

Kasmarek, M.C., 2013, Hydrogeology and simulation of groundwater flow and land-surface subsidence in the northern part of the Gulf Coast Aquifer System, Texas, 1891-2009: United States Geological Survey Scientific investigations Report 2012-5154, 55 p. http://www.twdb.texas.gov/groundwater/models/gam/glfc_n/HAGM.SIR.Version1.1.November2013.pdf.

National Research Council, 2007, Models in Environmental Regulatory Decision Making Committee on Models in the Regulatory Decision Process, National Academies Press, Washington D.C., 287 p., http://www.nap.edu/catalog.php?record_id=11972.

Texas Water Code, 2011, http://www.statutes.legis.state.tx.us/docs/WA/pdf/WA.36.pdf.

APPENDIX A

Total Pumping Associated with Modeled Available Groundwater Run for the Gulf Coast Aquifer System Split by Model Layers for Groundwater Management Area 14

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TABLE A.1. MODELED AVAILABLE GROUNDWATER FOR THE GULF COAST AQUIFER SYSTEM IN GROUNDWATER MANAGEMENT AREA 14 SPLIT BY MODEL LAYER AND SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2020 AND 2080. VALUES ARE IN ACRE-FEET PER YEAR.

GCD	County	Aquifer	2020	2030	2040	2050	2060	2070	2080
Bluebonnet GCD	Austin	Chicot aquifer	2,894	2,894	2,894	2,894	2,894	2,894	2,894
Bluebonnet GCD	Austin	Evangeline aquifer	41,695	41,695	41,695	41,695	41,695	41,695	41,695
Bluebonnet GCD	Austin	Burkeville confining	0[2]	0	0	0	0	0	0
Bluebonnet GCD	Austin	Jasper aquifer	1,972	1,972	1,972	1,972	1,972	1,972	1,972
Bluebonnet GCD	Grimes	Chicot aquifer	0	0	0	0	0	0	0
Bluebonnet GCD	Grimes	Evangeline aquifer	15,917	15,917	15,917	15,917	15,917	15,917	15,917
Bluebonnet GCD	Grimes	Burkeville confining	0	0	0	0	0	0	0
Bluebonnet GCD	Grimes	Jasper aquifer	35,570	35,570	35,570	35,570	35,570	35,570	35,570
Bluebonnet GCD	Walker	Chicot aquifer	0	0	0	0	0	0	0
Bluebonnet GCD	Walker	Evangeline aquifer	3,143	3,143	3,143	3,143	3,143	3,143	3,143
Bluebonnet GCD	Walker	Burkeville confining	0	0	0	0	0	0	0
Bluebonnet GCD	Walker	Jasper aquifer	39,361	39,361	39,361	39,361	39,361	39,361	39,361
Bluebonnet GCD	Waller	Chicot aquifer	791	791	791	791	791	791	791
Bluebonnet GCD	Waller	Evangeline aquifer	54,413	54,413	54,413	54,413	54,413	54,413	54,413
Bluebonnet GCD	Waller	Burkeville confining	0	0	0	0	0	0	0
Bluebonnet GCD	Waller	Jasper aquifer	329	329	329	329	329	329	329
Bluebonnet GCD Total		**Gulf Coast Aquifer System**	**196,085**	**196,085**	**196,085**	**196,085**	**196,085**	**196,085**	**196,085**
Brazoria County	Brazoria	Chicot aquifer	43,086	43,060	43,040	43,027	43,021	43,018	43,018
Brazoria County	Brazoria	Evangeline aquifer	11,869	11,870	11,868	11,868	11,868	11,868	11,868

[2] A zero value in the table indicates the groundwater availability model pumping scenario did not include any pumping in that part of the aquifer.

TABLE A.1. (CONTINUED)

GCD	County	Aquifer	2020	2030	2040	2050	2060	2070	2080
Brazoria County GCD Total		**Gulf Coast Aquifer System**	**54,955**	**54,930**	**54,908**	**54,895**	**54,889**	**54,886**	**54,886**
Lone Star GCD	Montgomery	Chicot aquifer	20,868	22,117	22,136	23,202	22,878	21,030	21,030
Lone Star GCD	Montgomery	Evangeline aquifer	41,172	41,160	41,397	40,200	40,269	39,815	39,815
Lone Star GCD	Montgomery	Burkeville confining	0[3]	0	0	0	0	0	0
Lone Star GCD	Montgomery	Jasper aquifer	34,925	33,676	33,412	33,527	33,769	36,028	36,028
Lone Star GCD Total		**Gulf Coast Aquifer System**	**96,965**	**96,953**	**96,945**	**96,929**	**96,916**	**96,873**	**96,873**
Lower Trinity GCD	Polk	Chicot aquifer	0	0	0	0	0	0	0
Lower Trinity GCD	Polk	Evangeline aquifer	9,486	9,486	9,486	9,486	9,486	9,486	9,486
Lower Trinity GCD	Polk	Burkeville confining	828	828	828	828	828	828	828
Lower Trinity GCD	Polk	Jasper aquifer	30,432	30,432	30,432	30,432	30,432	30,432	30,432
Lower Trinity GCD	San Jacinto	Chicot aquifer	0	0	0	0	0	0	0
Lower Trinity GCD	San Jacinto	Evangeline aquifer	15,110	15,116	15,120	15,127	15,135	15,156	15,156
Lower Trinity GCD	San Jacinto	Burkeville confining	2,762	2,762	2,762	2,762	2,762	2,762	2,762
Lower Trinity GCD	San Jacinto	Jasper aquifer	17,164	17,170	17,174	17,182	17,189	17,210	17,210
Lower Trinity GCD Total		**Gulf Coast Aquifer System**	**75,782**	**75,794**	**75,802**	**75,817**	**75,832**	**75,874**	**75,874**
Southeast Texas	Hardin	Chicot aquifer	1,492	1,492	1,492	1,492	1,492	1,492	1,492
Southeast Texas	Hardin	Evangeline aquifer	36,229	36,229	36,229	36,229	36,229	36,229	36,229
Southeast Texas	Hardin	Burkeville confining	0	0	0	0	0	0	0
Southeast Texas	Hardin	Jasper aquifer	0	0	0	0	0	0	0
Southeast Texas	Jasper	Chicot aquifer	10,858	10,858	10,858	10,858	10,858	10,858	10,858
Southeast Texas	Jasper	Evangeline aquifer	43,842	43,842	43,842	43,842	43,842	43,842	43,842
Southeast Texas	Jasper	Burkeville confining	8	8	8	8	8	8	8

[3] A zero value in the table indicates the groundwater availability model pumping scenario did not include any pumping in that part of the aquifer.

TABLE A.1 (CONTINUED)

GCD	County	Aquifer	2020	2030	2040	2050	2060	2070	2080
Southeast Texas	Jasper	Jasper aquifer	18,657	18,657	18,657	18,657	18,657	18,657	18,657
Southeast Texas	Newton	Chicot aquifer	547	547	547	547	547	547	547
Southeast Texas	Newton	Evangeline aquifer	23,162	23,162	23,162	23,162	23,162	23,162	23,162
Southeast Texas	Newton	Burkeville confining	0[4]	0	0	0	0	0	0
Southeast Texas	Newton	Jasper aquifer	13,800	13,800	13,800	13,800	13,800	13,800	13,800
Southeast Texas	Tyler	Chicot aquifer	0	0	0	0	0	0	0
Southeast Texas	Tyler	Evangeline aquifer	18,519	18,519	18,519	18,519	18,519	18,519	18,519
Southeast Texas	Tyler	Burkeville confining	0	0	0	0	0	0	0
Southeast Texas	Tyler	Jasper aquifer	15,871	15,871	15,871	15,871	15,871	15,871	15,871
Southeast Texas GCD Total		**Gulf Coast Aquifer System**	**182,985**	**182,985**	**182,985**	**182,985**	**182,985**	**182,985**	**182,985**
District Total		**Gulf Coast Aquifer System**	**606,772**	**606,747**	**606,725**	**606,711**	**606,707**	**606,703**	**606,703**
No District-County	Chambers	Chicot aquifer	21,935	21,946	21,957	21,966	21,967	21,968	21,968
No District-County	Chambers	Evangeline aquifer	386	386	386	386	386	386	386
No District-County	Jefferson	Chicot aquifer	15,214	15,214	15,214	15,214	15,214	15,214	15,214
No District-County	Jefferson	Evangeline aquifer	211	211	211	211	211	211	211
No District-County	Liberty	Chicot aquifer	18,594	18,594	18,593	18,594	18,594	18,594	18,594
No District-County	Liberty	Evangeline aquifer	51,924	51,923	51,922	51,922	51,923	51,924	51,924
No District-County	Liberty	Burkeville confining	243	243	243	243	243	243	243
No District-County	Liberty	Jasper aquifer	900	900	900	900	900	900	900
No District-County	Orange	Chicot aquifer	22,854	22,854	22,854	22,854	22,854	22,854	22,854

[4] A zero value in the table indicates the groundwater availability model pumping scenario did not include any pumping in that part of the aquifer.

TABLE A.1 (CONTINUED)

GCD	County	Aquifer	2020	2030	2040	2050	2060	2070	2080
No District-County	Orange	Evangeline aquifer	2,351	2,351	2,351	2,351	2,351	2,351	2,351
No District-County	Washington	Evangeline aquifer	11,231	11,231	11,231	11,231	11,231	11,231	11,231
No District-County	Washington	Burkeville confining	421	421	421	421	421	421	421
No District-County	Washington	Jasper aquifer	28,746	28,746	28,746	28,746	28,746	28,746	28,746
No District Total		**Gulf Coast Aquifer System**	**175,010**	**175,020**	**175,029**	**175,039**	**175,041**	**175,043**	**175,043**
GMA 14	**Total**	**Gulf Coast Aquifer System**	**781,782**	**781,767**	**781,754**	**781,750**	**781,748**	**781,746**	**781,746**

TABLE A. GROUNDWATER PUMPAGE PROJECTIONS FOR THE GULF COAST AQUIFER SYSTEM IN GROUNDWATER MANAGEMENT AREA 14 SPLIT BY MODEL LAYER FOR SUBSIDENCE DISTRICT COUNTIES FOR EACH DECADE BETWEEN 2020 AND 2080. VALUES ARE IN ACRE-FEET PER YEAR.

Subsidence District	County	Aquifer	2020	2030	2040	2050	2060	2070	2080
Fort Bend	Fort Bend	Chicot aquifer	58,273	52,870	62,897	73,277	84,381	97,154	97,154
Fort Bend	Fort Bend	Evangeline aquifer	71,572	51,072	56,659	61,881	66,953	72,193	72,193
Fort Bend	Fort Bend	Burkeville confining	0[5]	0	0	0	0	0	0
Fort Bend	Fort Bend	Jasper aquifer	0	0	0	0	0	0	0
Fort Bend Subsidence District Total		**Gulf Coast Aquifer System**	**129,845**	**103,942**	**119,556**	**135,158**	**151,334**	**169,347**	**169,347**
Harris-Galveston	Galveston	Chicot aquifer	5,817	6,535	7,151	7,746	8,301	8,807	8,807
Harris-Galveston	Galveston	Evangeline aquifer	215	254	284	314	346	373	373
Harris-Galveston	Harris	Chicot aquifer	136,644	108,688	80,496	86,816	90,263	93,781	93,781
Harris-Galveston	Harris	Evangeline aquifer	264,622	176,464	114,859	121,185	126,268	131,389	131,389
Harris-Galveston	Harris	Burkeville confining	0	0	0	0	0	0	0
Harris-Galveston	Harris	Jasper aquifer	8,212	5,432	3,164	3,368	3,519	3,658	3,658
Harris-Galveston Subsidence District Total		**Gulf Coast Aquifer System**	**415,510**	**297,373**	**205,954**	**219,429**	**228,697**	**238,008**	**238,008**
GMA 14	**Total**	**Gulf Coast Aquifer System**	**545,355**	**401,315**	**325,510**	**354,587**	**380,031**	**407,355**	**407,355**

[5] A zero value in the table indicates the groundwater availability model pumping scenario did not include any pumping in that part of the aquifer.

TABLE A.3. MODELED AVAILABLE GROUNDWATER AND PROJECTED GROUNDWATER PUMPAGE VALUES (*IN ITALICS*) BY DECADE FOR THE GULF COAST AQUIFER SYSTEM IN GROUNDWATER MANAGEMENT AREA 14 SPLIT BY MODEL LAYER. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), RIVER BASIN, AND AQUIFER.

County	RWPA	River Basin	Gulf Coast Aquifer System	2030	2040	2050	2060	2070	2080
Austin	H	Brazos-Colorado	Chicot aquifer	1,432	1,432	1,432	1,432	1,432	1,432
Austin	H	Brazos-Colorado	Evangeline aquifer	19,027	19,027	19,027	19,027	19,027	19,027
Austin	H	Brazos-Colorado	Burkeville confining unit	0[6]	0	0	0	0	0
Austin	H	Brazos-Colorado	Jasper aquifer	192	192	192	192	192	192
Austin	H	Brazos	Chicot aquifer	1,462	1,462	1,462	1,462	1,462	1,462
Austin	H	Brazos	Evangeline aquifer	22,217	22,217	22,217	22,217	22,217	22,217
Austin	H	Brazos	Burkeville confining unit	0	0	0	0	0	0
Austin	H	Brazos	Jasper aquifer	1,565	1,565	1,565	1,565	1,565	1,565
Austin	H	Colorado	Chicot aquifer	0	0	0	0	0	0
Austin	H	Colorado	Evangeline aquifer	450	450	450	450	450	450
Austin	H	Colorado	Burkeville confining unit	0	0	0	0	0	0
Austin	H	Colorado	Jasper aquifer	214	214	214	214	214	214
Brazoria	H	Brazos-Colorado	Chicot aquifer	10,044	9,842	9,577	9,319	9,066	9,066
Brazoria	H	Brazos-Colorado	Evangeline aquifer	4	5	5	5	5	5
Brazoria	H	Brazos	Chicot aquifer	3,641	3,578	3,510	3,454	3,407	3,407
Brazoria	H	Brazos	Evangeline aquifer	0	0	0	0	0	0
Brazoria	H	San Jacinto-Brazos	Chicot aquifer	29,375	29,620	29,940	30,248	30,545	30,545
Brazoria	H	San Jacinto-Brazos	Evangeline aquifer	11,865	11,863	11,863	11,863	11,863	11,863
Chambers	H	Neches-Trinity	Chicot aquifer	9,968	9,968	9,968	9,968	9,968	9,968
Chambers	H	Neches-Trinity	Evangeline aquifer	0	0	0	0	0	0
Chambers	H	Trinity-San Jacinto	Chicot aquifer	1,756	1,766	1,775	1,777	1,778	1,778
Chambers	H	Trinity-San Jacinto	Evangeline aquifer	386	386	386	386	386	386
Chambers	H	Trinity	Chicot aquifer	10,222	10,222	10,222	10,222	10,222	10,222

[6] A zero value in the table indicates the groundwater availability model pumping scenario did not include any pumping in that part of the aquifer.

TABLE A.3 (CONTINUED)

County	RWPA	River Basin	Gulf Coast Aquifer System	2030	2040	2050	2060	2070	2080
Chambers	H	Trinity	Evangeline aquifer	0[7]	0	0	0	0	0
Fort Bend	H	Brazos-Colorado	Chicot aquifer	7,162	8,504	10,466	13,339	17,547	17,547
Fort Bend	H	Brazos-Colorado	Evangeline aquifer	729	1,082	1,590	2,321	3,380	3,380
Fort Bend	H	Brazos-Colorado	Burkeville confining unit	0[i]	0	0	0	0	0
Fort Bend	H	Brazos-Colorado	Jasper aquifer	0	0	0	0	0	0
Fort Bend	H	Brazos	Chicot aquifer	24,308	30,446	36,552	42,837	49,691	49,691
Fort Bend	H	Brazos	Evangeline aquifer	13,537	16,080	18,582	21,174	24,041	24,041
Fort Bend	H	Brazos	Burkeville confining unit	0	0	0	0	0	0
Fort Bend	H	Brazos	Jasper aquifer	0	0	0	0	0	0
Fort Bend	H	San Jacinto-Brazos	Chicot aquifer	15,320	17,795	20,101	22,054	23,759	23,759
Fort Bend	H	San Jacinto-Brazos	Evangeline aquifer	25,524	28,118	30,370	32,165	33,499	33,499
Fort Bend	H	San Jacinto-Brazos	Burkeville confining unit	0	0	0	0	0	0
Fort Bend	H	San Jacinto-Brazos	Jasper aquifer	0	0	0	0	0	0
Fort Bend	H	San Jacinto	Chicot aquifer	6,081	6,153	6,157	6,151	6,156	6,156
Fort Bend	H	San Jacinto	Evangeline aquifer	11,282	11,379	11,340	11,293	11,273	11,273
Fort Bend	H	San Jacinto	Burkeville confining unit	0	0	0	0	0	0
Fort Bend	H	San Jacinto	Jasper aquifer	0	0	0	0	0	0
Galveston	H	Neches-Trinity	Chicot aquifer	0	0	0	0	0	0
Galveston	H	Neches-Trinity	Evangeline aquifer	0	0	0	0	0	0
Galveston	H	San Jacinto-Brazos	Chicot aquifer	6,535	7,151	7,746	8,301	8,807	8,807
Galveston	H	San Jacinto-Brazos	Evangeline aquifer	254	284	314	346	373	373
Grimes	G	Brazos	Chicot aquifer	0	0	0	0	0	0
Grimes	G	Brazos	Evangeline aquifer	8,670	8,670	8,670	8,670	8,670	8,670
Grimes	G	Brazos	Burkeville confining unit	0	0	0	0	0	0
Grimes	G	Brazos	Jasper aquifer	22,446	22,446	22,446	22,446	22,446	22,446

[7] A zero value in the table indicates the groundwater availability model pumping scenario did not include any pumping in that part of the aquifer.

TABLE A.3 (CONTINUED)

County	RWPA	River Basin	Gulf Coast Aquifer System	2030	2040	2050	2060	2070	2080
Grimes	G	San Jacinto	Chicot aquifer	0[8]	0	0	0	0	0
Grimes	G	San Jacinto	Evangeline aquifer	7,247	7,247	7,247	7,247	7,247	7,247
Grimes	G	San Jacinto	Burkeville confining unit	0	0	0	0	0	0
Grimes	G	San Jacinto	Jasper aquifer	11,840	11,840	11,840	11,840	11,840	11,840
Grimes	G	Trinity	Jasper aquifer	1,283	1,283	1,283	1,283	1,283	1,283
Hardin	I	Neches	Chicot aquifer	1,492	1,492	1,492	1,492	1,492	1,492
Hardin	I	Neches	Evangeline aquifer	36,079	36,079	36,079	36,079	36,079	36,079
Hardin	I	Neches	Burkeville confining unit	0	0	0	0	0	0
Hardin	I	Neches	Jasper aquifer	0	0	0	0	0	0
Hardin	I	Trinity	Chicot aquifer	0	0	0	0	0	0
Hardin	I	Trinity	Evangeline aquifer	150	150	150	150	150	150
Hardin	I	Trinity	Burkeville confining unit	0	0	0	0	0	0
Hardin	I	Trinity	Jasper aquifer	0	0	0	0	0	0
Harris	*H*	*San Jacinto-Brazos*	*Chicot aquifer*	*4,859*	*5,406*	*5,959*	*6,383*	*6,906*	*6,906*
Harris	*H*	*San Jacinto-Brazos*	*Evangeline aquifer*	*2,097*	*2,212*	*2,323*	*2,436*	*2,557*	*2,557*
Harris	*H*	*San Jacinto*	*Chicot aquifer*	*101,266*	*72,533*	*78,138*	*81,077*	*83,988*	*83,988*
Harris	*H*	*San Jacinto*	*Evangeline aquifer*	*173,978*	*112,296*	*118,483*	*123,437*	*128,422*	*128,422*
Harris	*H*	*San Jacinto*	*Burkeville confining unit*	*0*	*0*	*0*	*0*	*0*	*0*
Harris	*H*	*San Jacinto*	*Jasper aquifer*	*5,432*	*3,164*	*3,368*	*3,519*	*3,658*	*3,658*
Harris	*H*	*Trinity-San Jacinto*	*Chicot aquifer*	*2,563*	*2,557*	*2,718*	*2,803*	*2,887*	*2,887*
Harris	*H*	*Trinity-San Jacinto*	*Evangeline aquifer*	*389*	*351*	*379*	*395*	*410*	*410*
Harris	*H*	*Trinity-San Jacinto*	*B Burkeville confining unit*	*0*	*0*	*0*	*0*	*0*	*0*
Harris	*H*	*Trinity-San Jacinto*	*Jasper aquifer*	*0*	*0*	*0*	*0*	*0*	*0*
Jasper	I	Neches	Chicot aquifer	7,740	7,740	7,740	7,740	7,740	7,740
Jasper	I	Neches	Evangeline aquifer	18,534	18,534	18,534	18,534	18,534	18,534

[8] A zero value in the table indicates the groundwater availability model pumping scenario did not include any pumping in that part of the aquifer.

TABLE A.3 (CONTINUED)

County	RWPA	River Basin	Gulf Coast Aquifer System	2030	2040	2050	2060	2070	2080
Jasper	I	Neches	Burkeville confining unit	0[9]	0	0	0	0	0
Jasper	I	Neches	Jasper aquifer	14,546	14,546	14,546	14,546	14,546	14,546
Jasper	I	Sabine	Chicot aquifer	3,118	3,118	3,118	3,118	3,118	3,118
Jasper	I	Sabine	Evangeline aquifer	25,308	25,308	25,308	25,308	25,308	25,308
Jasper	I	Sabine	Burkeville confining unit	8	8	8	8	8	8
Jasper	I	Sabine	Jasper aquifer	4,111	4,111	4,111	4,111	4,111	4,111
Jefferson	I	Neches-Trinity	Chicot aquifer	13,571	13,571	13,571	13,571	13,571	13,571
Jefferson	I	Neches-Trinity	Evangeline aquifer	0	0	0	0	0	0
Jefferson	I	Neches	Chicot aquifer	1,643	1,643	1,643	1,643	1,643	1,643
Jefferson	I	Neches	Evangeline aquifer	211	211	211	211	211	211
Liberty	H	Neches-Trinity	Chicot aquifer	1,397	1,397	1,397	1,397	1,397	1,397
Liberty	H	Neches-Trinity	Evangeline aquifer	656	656	656	656	656	656
Liberty	H	Neches	Chicot aquifer	2,860	2,860	2,860	2,860	2,860	2,860
Liberty	H	Neches	Evangeline aquifer	5,872	5,872	5,872	5,872	5,872	5,872
Liberty	H	Neches	Burkeville confining unit	0	0	0	0	0	0
Liberty	H	Neches	Jasper aquifer	0	0	0	0	0	0
Liberty	H	San Jacinto	Chicot aquifer	973	973	973	973	973	973
Liberty	H	San Jacinto	Evangeline aquifer	9,183	9,183	9,183	9,183	9,184	9,184
Liberty	H	San Jacinto	Burkeville confining unit	243	243	243	243	243	243
Liberty	H	San Jacinto	Jasper aquifer	900	900	900	900	900	900
Liberty	H	Trinity-San Jacinto	Chicot aquifer	3,330	3,329	3,330	3,330	3,330	3,330
Liberty	H	Trinity-San Jacinto	Evangeline aquifer	7,214	7,213	7,214	7,214	7,215	7,215
Liberty	H	Trinity-San Jacinto	Burkeville confining unit	0	0	0	0	0	0
Liberty	H	Trinity-San Jacinto	Jasper aquifer	0	0	0	0	0	0
Liberty	H	Trinity	Chicot aquifer	10,034	10,034	10,034	10,034	10,034	10,034

[9] A zero value in the table indicates the groundwater availability model pumping scenario did not include any pumping in that part of the aquifer.

TABLE A.3 (CONTINUED)

County	RWPA	River Basin	Gulf Coast Aquifer System	2030	2040	2050	2060	2070	2080
Liberty	H	Trinity	Evangeline aquifer	28,997	28,997	28,997	28,997	28,997	28,997
Liberty	H	Trinity	Burkeville confining unit	0	0	0	0	0	0
Liberty	H	Trinity	Jasper aquifer	0	0	0	0	0	0
Montgomery	H	San Jacinto	Chicot aquifer	22,117	22,136	23,202	22,878	21,030	21,030
Montgomery	H	San Jacinto	Evangeline aquifer	41,160	41,397	40,200	40,269	39,815	39,815
Montgomery	H	San Jacinto	Burkeville confining unit	0	0	0	0	0	0
Montgomery	H	San Jacinto	Jasper aquifer	33,676	33,412	33,527	33,769	36,028	36,028
Newton	I	Neches	Jasper aquifer	199	199	199	199	199	199
Newton	I	Sabine	Chicot aquifer	547	547	547	547	547	547
Newton	I	Sabine	Evangeline aquifer	23,162	23,162	23,162	23,162	23,162	23,162
Newton	I	Sabine	Burkeville confining unit	0	0	0	0	0	0
Newton	I	Sabine	Jasper aquifer	13,600	13,600	13,600	13,600	13,600	13,600
Orange	I	Neches-Trinity	Chicot aquifer	280	280	280	280	280	280
Orange	I	Neches-Trinity	Evangeline aquifer	0[10]	0	0	0	0	0
Orange	I	Neches	Chicot aquifer	4,039	4,039	4,039	4,039	4,039	4,039
Orange	I	Neches	Evangeline aquifer	2,228	2,228	2,228	2,228	2,228	2,228
Orange	I	Sabine	Chicot aquifer	18,535	18,535	18,535	18,535	18,535	18,535
Orange	I	Sabine	Evangeline aquifer	124	124	124	124	124	124
Polk	I	Neches	Chicot aquifer	0	0	0	0	0	0
Polk	I	Neches	Evangeline aquifer	4,247	4,247	4,247	4,247	4,247	4,247
Polk	I	Neches	Burkeville confining unit	142	142	142	142	142	142
Polk	I	Neches	Jasper aquifer	12,376	12,376	12,376	12,376	12,376	12,376
Polk	H	Trinity	Chicot aquifer	0	0	0	0	0	0
Polk	H	Trinity	Evangeline aquifer	5,239	5,239	5,239	5,239	5,239	5,239
Polk	H	Trinity	Burkeville confining unit	687	687	687	687	687	687

[10] A zero value in the table indicates the groundwater availability model pumping scenario did not include any pumping in that part of the aquifer.

TABLE A.3 (CONTINUED)

County	RWPA	River Basin	Gulf Coast Aquifer System	2030	2040	2050	2060	2070	2080
Polk	H	Trinity	Jasper aquifer	18,055	18,055	18,055	18,055	18,055	18,055
San Jacinto	H	San Jacinto	Chicot aquifer	0	0	0	0	0	0
San Jacinto	H	San Jacinto	Evangeline aquifer	10,472	10,476	10,484	10,491	10,512	10,512
San Jacinto	H	San Jacinto	Burkeville confining unit	0	0	0	0	0	0
San Jacinto	H	San Jacinto	Jasper aquifer	7,972	7,976	7,983	7,991	8,012	8,012
San Jacinto	H	Trinity	Chicot aquifer	0	0	0	0	0	0
San Jacinto	H	Trinity	Evangeline aquifer	4,644	4,644	4,644	4,644	4,644	4,644
San Jacinto	H	Trinity	Burkeville confining unit	2,762	2,762	2,762	2,762	2,762	2,762
San Jacinto	H	Trinity	Jasper aquifer	9,198	9,198	9,198	9,198	9,198	9,198
Tyler	I	Neches	Chicot aquifer	0	0	0	0	0	0
Tyler	I	Neches	Evangeline aquifer	18,519	18,519	18,519	18,519	18,519	18,519
Tyler	I	Neches	Burkeville confining unit	0	0	0	0	0	0
Tyler	I	Neches	Jasper aquifer	15,871	15,871	15,871	15,871	15,871	15,871
Walker	H	San Jacinto	Chicot aquifer	0	0	0	0	0	0
Walker	H	San Jacinto	Evangeline aquifer	3,143	3,143	3,143	3,143	3,143	3,143
Walker	H	San Jacinto	Burkeville confining unit	0[11]	0	0	0	0	0
Walker	H	San Jacinto	Jasper aquifer	23,479	23,479	23,479	23,479	23,479	23,479
Walker	H	Trinity	Jasper aquifer	15,881	15,881	15,881	15,881	15,881	15,881
Waller	H	Brazos	Chicot aquifer	632	632	632	632	632	632
Waller	H	Brazos	Evangeline aquifer	22,437	22,437	22,437	22,437	22,437	22,437
Waller	H	Brazos	Burkeville confining unit	0	0	0	0	0	0
Waller	H	Brazos	Jasper aquifer	329	329	329	329	329	329
Waller	H	San Jacinto	Chicot aquifer	159	159	159	159	159	159

[11] A zero value in the table indicates the groundwater availability model pumping scenario did not include any pumping in that part of the aquifer.

TABLE A.3 (CONTINUED)

County	RWPA	River Basin	Gulf Coast Aquifer	2030	2040	2050	2060	2070	2080
Waller	H	San Jacinto	Evangeline aquifer	31,976	31,976	31,976	31,976	31,976	31,976
Waller	H	San Jacinto	Burkeville confining unit	0[12]	0	0	0	0	0
Waller	H	San Jacinto	Jasper aquifer	0	0	0	0	0	0
Washington	G	Brazos	Evangeline aquifer	11,231	11,231	11,231	11,231	11,231	11,231
Washington	G	Brazos	Burkeville confining unit	421	421	421	421	421	421
Washington	G	Brazos	Jasper aquifer	28,512	28,512	28,512	28,512	28,512	28,512
Washington	G	Colorado	Jasper aquifer	233	233	233	233	233	233
GMA 14 Total			**Gulf Coast Aquifer System**	**1,183,076**	**1,107,258**	**1,136,330**	**1,161,773**	**1,189,095**	**1,189,095**

[12] A zero value in the table indicates the groundwater availability model pumping scenario did not include any pumping in that part of the aquifer.

Appendix 4-A

Major Water Provider First and Second-Tier Water Needs

Per TWDB guidance, regional water planning groups (RWPGs) must define "Major Water Providers" (MWPs) in their respective regions. Defining MWPs enables RWPGs to establish a more static list of large water providers for which they report information and to provide regional water planning groups with more flexibility in deciding which large water provider(s) they want to report information on in their regional water plans. MWPs represent wholesale water providers (WWPs) and/or water user groups (WUGs) that use, are responsible for developing, and/or are delivering significant quantities of water in the region. It is up to each region to decide which entities are designated as MWPs. In the East Texas Regional Water Planning Area (ETRWPA), a MWP is defined as a non-aggregated group that provides more than 5,000 acre-feet per year and has direct surface water rights or owns their own groundwater wells.

The East Texas Regional Water Planning Group (ETRWPG) identified 16 MWPs for the 2026 regional water plan, including:

1) Angelina and Neches River Authority (ANRA)
2) Angelina-Nacogdoches Water Control & Improvement District (A-N WCID) No. 1
3) Athens Municipal Water Authority (AMWA)
4) City of Beaumont
5) City of Carthage
6) City of Center
7) City of Jacksonville
8) City of Lufkin
9) City of Nacogdoches
10) City of Port Arthur
11) City of Tyler
12) Houston County Water Control & Improvement District (WCID) No. 1
13) Lower Neches Valley Authority (LNVA)
14) Panola County Freshwater Supply District (FWSD) No. 1
15) Sabine River Authority (SRA)
16) Upper Neches River Municipal Water Authority (UNRMWA)

Regional water plans must present the following data for MWPs, in accordance with the following Texas Water Code(s):

a) Projected water demands by planning decade and category of use (31 TAC §357.31(b))
b) Existing water supply analysis by category of use (31 TAC §357.32(g))
c) Water supply needs analysis by category of use (31 TAC §357.33(b))
d) Secondary water needs analysis where demand reduction and direct reuse WMSs are recommended, by MWP and decade (31 TAC §357.33(e))
e) Recommended water management strategies (WMS) and recommended WMS projects, and results of all WMS evaluations (31 TAC §357.35(g)(1))
f) Calculated management supply factor by entity and decade (31 TAC §357.35(g)(2))

The following appendix includes a summary of a) – d) above (projected water demands, existing water supplies, and first and secondary needs analysis by planning decade and category of use) for each MWP in the ETRWPA. The other requirements will be addressed in Appendix 5B-A through 5B-C.

Angelina and Neches River Authority (ANRA)
Demands, Supplies, and Needs

Water Use Type	2030	2040	2050	2060	2070	2080
Demands						
Municipal	1,304	46,535	46,434	46,337	76,395	76,203
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	2,302	2,302	2,302	2,302	2,302	2,302
Steam Electric Power	0	0	0	0	0	0
TOTAL	**3,606**	**48,837**	**48,736**	**48,639**	**78,697**	**78,505**
Supplies						
Municipal	1,305	1,217	1,116	1,019	916	804
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	2,302	2,302	2,302	2,302	2,302	2,302
Steam Electric Power	0	0	0	0	0	0
TOTAL	**3,607**	**3,519**	**3,418**	**3,321**	**3,218**	**3,106**
First Tier Needs						
Municipal	1	-45,318	-45,318	-45,318	-75,479	-75,399
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**1**	**-45,318**	**-45,318**	**-45,318**	**-75,479**	**-75,399**
Second Tier Needs						
Municipal	1	-45,318	-45,318	-45,318	-75,479	-75,399
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**1**	**-45,318**	**-45,318**	**-45,318**	**-75,479**	**-75,399**

Note: The needs associated with ANRA are contractual rather than demand-driven.

Angelina and Nacogdoches Water Control & Improvement District (AN WCID#1)
Demands, Supplies, and Needs

Water Use Type	2030	2040	2050	2060	2070	2080
Demands						
Municipal	153	168	185	204	224	246
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	1,925	2,117	2,328	2,561	2,817	3,099
TOTAL	**2,078**	**2,285**	**2,513**	**2,765**	**3,041**	**3,345**
Supplies						
Municipal	153	168	185	204	224	246
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	1,925	2,117	2,328	2,561	2,817	3,099
Surplus (Unallocated)	8,575	7,873	7,152	6,409	5,643	4,851
TOTAL	**10,653**	**10,158**	**9,665**	**9,174**	**8,684**	**8,196**
First Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**
Second Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**

Athens Municipal Water Authority (AMWA)
Demands, Supplies, and Needs

Water Use Type	2030	2040	2050	2060	2070	2080
Demands						
Municipal	2,633	3,161	4,150	4,998	6,023	6,649
Irrigation	85	90	95	100	105	110
Livestock	3,023	3,023	3,023	3,023	3,023	3,023
Manufacturing	20	20	20	20	20	20
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**5,761**	**6,294**	**7,288**	**8,141**	**9,171**	**9,802**
Supplies						
Municipal	2,633	3,161	3,786	3,945	3,947	3,948
Irrigation	85	90	79	71	63	60
Livestock	3,023	3,023	2,516	2,139	1,807	1,638
Manufacturing	20	20	17	14	12	11
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**5,761**	**6,294**	**6,398**	**6,169**	**5,829**	**5,657**
First Tier Needs						
Municipal	0	0	-364	-1,053	-2,076	-2,701
Irrigation	0	0	-16	-29	-42	-50
Livestock	0	0	-507	-884	-1,216	-1,385
Manufacturing	0	0	-3	-6	-8	-9
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**-890**	**-1,972**	**-3,342**	**-4,145**
Second Tier Needs						
Municipal	0	0	0	-149	-964	-1,475
Irrigation	0	0	-16	-29	-42	-50
Livestock	0	0	-507	-884	-1,216	-1,385
Manufacturing	0	0	-3	-6	-8	-9
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**-526**	**-1,068**	**-2,230**	**-2,919**

City of Beaumont
Demands, Supplies, and Needs

Water Use Type	2030	2040	2050	2060	2070	2080
Demands						
Municipal	30,960	31,672	32,505	32,103	31,705	31,312
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	2,296	2,755	3,214	3,674	4,133	4,592
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**33,256**	**34,427**	**35,719**	**35,777**	**35,838**	**35,904**
Supplies						
Municipal	22,347	22,554	22,737	22,310	22,057	21,938
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	1,401	1,652	1,886	2,131	2,393	2,677
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**23,748**	**24,206**	**24,623**	**24,441**	**24,450**	**24,615**
First Tier Needs						
Municipal	-8,613	-9,118	-9,768	-9,793	-9,648	-9,374
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	-895	-1,103	-1,328	-1,543	-1,740	-1,915
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**-9,508**	**-10,221**	**-11,096**	**-11,336**	**-11,388**	**-11,289**
Second Tier Needs						
Municipal	-6,519	-3,612	-2,448	-2,466	-2,316	-2,038
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	-895	-1,103	-1,328	-1,543	-1,740	-1,915
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**-7,414**	**-4,715**	**-3,776**	**-4,009**	**-4,056**	**-3,953**

City of Carthage
Demands, Supplies, and Needs

Water Use Type	2030	2040	2050	2060	2070	2080
Demands						
Municipal	1,949	1,923	1,889	1,851	1,815	1,779
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	1,088	1,128	1,170	1,214	1,259	1,306
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**3,037**	**3,051**	**3,059**	**3,065**	**3,074**	**3,085**
Supplies						
Municipal	1,949	1,923	1,889	1,851	1,815	1,779
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	1,088	1,128	1,170	1,214	1,259	1,306
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
Surplus (Unallocated)	3,803	3,763	3,721	3,677	3,632	3,585
TOTAL	**6,840**	**6,814**	**6,780**	**6,742**	**6,706**	**6,670**
First Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**
Second Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**

City of Center
Demands, Supplies, and Needs

Water Use Type	2030	2040	2050	2060	2070	2080
Demands						
Municipal	3,391	3,432	3,467	3,476	3,477	3,471
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	1,860	1,929	2,000	2,074	2,151	2,231
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**5,251**	**5,361**	**5,467**	**5,550**	**5,628**	**5,702**
Supplies						
Municipal	3,391	3,432	3,467	3,476	3,477	3,471
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	721	668	620	599	585	579
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**4,112**	**4,100**	**4,087**	**4,075**	**4,062**	**4,050**
First Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	-1,139	-1,261	-1,380	-1,475	-1,566	-1,652
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**-1,139**	**-1,261**	**-1,380**	**-1,475**	**-1,566**	**-1,652**
Second Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	-1,059	-1,067	-1,139	-1,237	-1,330	-1,420
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**-1,059**	**-1,067**	**-1,139**	**-1,237**	**-1,330**	**-1,420**

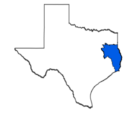
Note: The reduction in second-tier manufacturing needs is due to municipal conservation efforts by the city, which have resulted in additional supplies being available to meet manufacturing demands. The City also noted that the demand projection likely includes a significant portion of the demand from manufacturing. As a result, the needs shown above reflect double-counting, and the City expects it has sufficient supply to meet its actual demand.

Houston County Water Control & Improvement District (WCID#1)
Demands, Supplies, and Needs

Water Use Type	2030	2040	2050	2060	2070	2080
Demands						
Municipal	2,977	2,959	2,918	2,927	2,922	2,909
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	201	208	216	224	232	241
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**3,178**	**3,167**	**3,134**	**3,151**	**3,154**	**3,150**
Supplies						
Municipal	2,977	2,959	2,918	2,927	2,922	2,909
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	201	208	216	224	232	241
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
Surplus (Unallocated)	322	333	366	349	346	350
TOTAL	**3,500**	**3,500**	**3,500**	**3,500**	**3,500**	**3,500**
First Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**
Second Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**

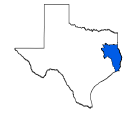
City of Jacksonville
Demands, Supplies, and Needs

Water Use Type	2030	2040	2050	2060	2070	2080
Demands						
Municipal	5,088	5,194	5,236	5,265	5,292	5,314
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	82	85	88	91	94	97
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**5,170**	**5,279**	**5,324**	**5,356**	**5,386**	**5,411**
Supplies						
Municipal	5,088	5,194	5,236	5,265	5,292	5,314
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	82	85	88	91	94	97
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
Surplus (Unallocated)	2,221	2,112	2,067	2,035	2,005	1,980
TOTAL	**7,391**	**7,391**	**7,391**	**7,391**	**7,391**	**7,391**
First Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**
Second Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**



Lower Neches Valley Authority (LNVA)
Demands, Supplies, and Needs

Water Use Type	2030	2040	2050	2060	2070	2080
Demands						
Municipal	60,954	64,999	64,994	64,949	64,904	64,861
Irrigation	70,000	70,000	70,000	70,000	70,000	70,000
Livestock	0	0	0	0	0	0
Manufacturing	310,171	310,171	310,171	310,171	310,171	310,171
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**441,125**	**445,170**	**445,165**	**445,120**	**445,075**	**445,032**
Supplies						
Municipal	60,954	64,999	64,994	64,949	64,904	64,861
Irrigation	70,000	70,000	70,000	70,000	70,000	70,000
Livestock	0	0	0	0	0	0
Manufacturing	310,171	310,171	310,171	310,171	310,171	310,171
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
Surplus (Unallocated)	760,751	728,706	728,711	728,756	728,801	728,844
TOTAL	**1,201,876**	**1,173,876**	**1,173,876**	**1,173,876**	**1,173,876**	**1,173,876**
First Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**
Second Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**



City of Lufkin
Demands, Supplies, and Needs

Water Use Type	2030	2040	2050	2060	2070	2080
Demands						
Municipal	9,582	9,664	9,716	9,782	9,847	9,912
Irrigation	779	779	779	779	779	779
Livestock	0	0	0	0	0	0
Manufacturing	1,122	1,164	1,207	1,252	1,298	1,346
Mining	0	0	0	0	0	0
Steam Electric Power	16,802	16,802	16,802	16,802	16,802	16,802
TOTAL	**28,285**	**28,408**	**28,503**	**28,614**	**28,725**	**28,838**
Supplies						
Municipal	9,582	9,664	9,716	9,782	9,847	9,912
Irrigation	779	779	779	779	779	779
Livestock	0	0	0	0	0	0
Manufacturing	1,122	1,164	1,207	1,252	1,298	1,346
Mining	0	0	0	0	0	0
Steam Electric Power	16,802	16,802	16,802	16,802	16,802	16,802
Surplus (Unallocated)	7,028	6,928	6,856	6,768	6,680	6,590
TOTAL	**35,313**	**35,336**	**35,359**	**35,382**	**35,405**	**35,428**
First Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**
Second Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**

City of Nacogdoches
Demands, Supplies, and Needs

Water Use Type	2030	2040	2050	2060	2070	2080
Demands						
Municipal	8,138	8,338	8,540	8,848	9,154	9,460
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	2,892	2,999	3,110	3,225	3,344	3,468
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**11,030**	**11,337**	**11,650**	**12,073**	**12,498**	**12,928**
Supplies						
Municipal	8,138	8,338	8,540	8,848	9,154	9,460
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	2,892	2,999	3,110	3,225	3,344	3,468
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
Surplus (Unallocated)	9,797	9,128	8,453	7,668	6,881	6,089
TOTAL	**20,827**	**20,465**	**20,103**	**19,741**	**19,379**	**19,017**
First Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**
Second Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**

Panola County Freshwater Supply District (FWSD 1)
Demands, Supplies, and Needs

Water Use Type	2030	2040	2050	2060	2070	2080
Demands						
Municipal	13,452	13,452	13,452	13,452	13,452	13,452
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	1,368	1,368	1,368	1,368	1,368	1,368
Steam Electric Power	0	0	0	0	0	0
TOTAL	**14,820**	**14,820**	**14,820**	**14,820**	**14,820**	**14,820**
Supplies						
Municipal	13,452	13,452	13,452	13,452	13,452	13,452
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	1,368	1,368	1,368	1,368	1,368	1,368
Steam Electric Power	0	0	0	0	0	0
Surplus (Unallocated)	5,980	5,196	4,662	3,628	2,844	2,060
TOTAL	**20,800**	**20,016**	**19,482**	**18,448**	**17,664**	**16,880**
First Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**
Second Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**

City of Port Arthur
Demands, Supplies, and Needs

Water Use Type	2030	2040	2050	2060	2070	2080
Demands						
Municipal	18,314	18,459	18,410	18,188	17,969	17,753
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	15,641	19,531	19,580	19,802	20,021	20,237
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**33,955**	**37,990**	**37,990**	**37,990**	**37,990**	**37,990**
Supplies						
Municipal	18,314	18,459	18,410	18,188	17,969	17,753
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	15,641	19,531	19,580	19,802	20,021	20,237
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**33,955**	**37,990**	**37,990**	**37,990**	**37,990**	**37,990**
First Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**
Second Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**

Sabine River Authority (SRA) - ETRWPA (Lower Basin) Portion Only
Demands, Supplies, and Needs

Water Use Type	2030	2040	2050	2060	2070	2080
Demands						
Municipal	1,581	1,581	1,581	1,581	1,581	1,581
Irrigation	2,402	2,402	2,402	2,402	2,402	2,402
Livestock	0	0	0	0	0	0
Manufacturing	114,243	114,470	114,706	117,362	121,899	126,605
Mining	7,500	7,500	7,500	7,500	7,500	7,500
Steam Electric Power	42,443	42,443	42,443	42,443	42,443	42,443
TOTAL	**168,169**	**168,396**	**168,632**	**171,288**	**175,825**	**180,531**
Supplies						
Municipal	1,581	1,581	1,581	1,581	1,581	1,581
Irrigation	2,402	2,402	2,402	2,402	2,402	2,402
Livestock	0	0	0	0	0	0
Manufacturing	114,243	114,470	114,706	117,362	121,899	126,605
Mining	7,500	7,500	7,500	7,500	7,500	7,500
Steam Electric Power	42,443	42,443	42,443	42,443	42,443	42,443
Surplus (Unallocated)	903,692	903,148	902,559	899,622	894,768	889,745
TOTAL	**1,071,861**	**1,071,544**	**1,071,191**	**1,070,910**	**1,070,593**	**1,070,276**
First Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**
Second Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**

Note: The information shown in this table only represent SRA's Lower Basin in the ETRWPA.

City of Tyler
Demands, Supplies, and Needs

Water Use Type	2030	2040	2050	2060	2070	2080
Demands						
Municipal	37,861	41,943	46,619	49,163	51,858	54,709
Irrigation	400	400	400	400	400	400
Livestock	0	0	0	0	0	0
Manufacturing	1,714	1,778	1,843	1,912	1,982	2,056
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**39,975**	**44,121**	**48,862**	**51,474**	**54,240**	**57,165**
Supplies						
Municipal	37,861	41,943	46,619	49,163	51,858	54,709
Irrigation	400	400	400	400	400	400
Livestock	0	0	0	0	0	0
Manufacturing	1,714	1,778	1,843	1,912	1,982	2,056
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
Surplus (Unallocated)	26,955	22,574	17,598	14,759	11,767	8,615
TOTAL	**66,930**	**66,695**	**66,460**	**66,233**	**66,007**	**65,780**
First Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**
Second Tier Needs						
Municipal	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**

Upper Neches River Municipal Water Authority (UNRMWA)
Demands, Supplies, and Needs

Water Use Type	2030	2040	2050	2060	2070	2080
Demands						
Municipal	209,537	209,537	209,537	209,537	209,537	209,537
Irrigation	610	587	565	547	532	532
Livestock	0	0	0	0	0	0
Manufacturing	100	100	100	100	100	100
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**210,247**	**210,224**	**210,202**	**210,184**	**210,169**	**210,169**
Supplies						
Municipal	176,400	174,353	172,305	170,303	168,298	166,278
Irrigation	610	587	565	547	532	532
Livestock	0	0	0	0	0	0
Manufacturing	100	100	100	100	100	100
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**177,110**	**175,040**	**172,970**	**170,950**	**168,930**	**166,910**
First Tier Needs						
Municipal	-33,137	-35,184	-37,232	-39,234	-41,239	-43,259
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**-33,137**	**-35,184**	**-37,232**	**-39,234**	**-41,239**	**-43,259**
Second Tier Needs						
Municipal	-33,137	-35,184	-37,232	-39,234	-41,239	-43,259
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
TOTAL	**-33,137**	**-35,184**	**-37,232**	**-39,234**	**-41,239**	**-43,259**

Note: The needs associated with UNRMWA are contractual rather than demand-driven.

Appendix 5A-A

Screening Criteria for Potentially Feasible Water Management Strategies

Appendix 5A-A documents the screening process used to assess the feasibility of potential water management strategies (WMS) in the East Texas Regional Planning Area (ETRWPA).

Appendix 5A-A
Screening Process for Potentially Feasible Water Management Strategies

The screening process used to assess the feasibility of potential water management strategies (WMS) in the East Texas Regional Planning Area (ETRWPA) are provided as follows. This process was adopted as guidelines, and strategies could be retained or dismissed at the discretion of the East Texas Regional Water Planning Group (ETRWPG).

5A-A.1 GENERAL GUIDELINES

The ETRWPG identified a series of general guidelines when considering the potential feasibility of WMSs for the region. The guidelines are as follows:

- Feasible strategy must have an identified sponsor or authority.
- Feasible strategy must consider the end use. This includes water quality, distance to end use, etc. For example, long transmission systems with pumping are not likely to be economically feasible for irrigation use.
- Strategy should provide a reasonable percentage of the projected need (except conservation, which will be evaluated for all needs).
- Strategy must meet existing federal and state regulations.
- Strategies must be based on proven technology.
- Strategy must be able to be implemented.
- Strategy must be appropriate for regional water planning.

5A-A.2 POTENTIAL FEASIBILITY BY WATER MANAGEMENT STRATEGY TYPE

In accordance with 31 TAC Chapter 357.34, the ETRWPG must evaluate all WMSs the regional water planning group determines to be potentially feasible. The types of WMSs evaluated and their potential feasibility within the ETRWPA are described below.

5A-A.2.1 Water Conservation.

The guidelines for regional water planning require that water conservation be considered as a strategy for every identified need. If water conservation is not adopted, the reason must be documented. Water conservation in the ETRWPA is driven more by economics than lack of readily available supply, and therefore, not every user will have the need to implement conservation. Additional screening criteria for conservation strategies were adopted to comply with this general policy. The criteria are outlined below.

- Municipal conservation strategies will be evaluated for all municipal WUGs. A new requirement from the 2026 RWP distinguishes water conservation into two separate categories: water use reduction and water loss mitigation. Water use reduction is recommended only for WUGs with baseline GPCDs above their associated thresholds based on their population group. On the other hand, water loss mitigation is recommended for all municipal WUGs, as it is considered a best management practice by the ETRWPG.

- The ETRWPG does not recommend water conservation for manufacturing WUGs. Although it is expected that manufacturers will implement water conservation measures during the planning period, the ETRWPG does not have the industry and site-specific information necessary to identify the current status of manufacturing water conservation or to recommend which measures should be implemented. In addition, changes to processes and equipment required for effective water conservation may be costly for manufacturing users, especially considering that water is readily available in the ETRWPA.

- The ETRWP does not recommend further water conservation beyond the irrigation conservation measures already implemented within the region. The ETRWPG encourages the implementation of irrigation water conservation measures; however, it does not have the farm-specific information necessary to identify the current status of on-farm water conservation or to recommend what measures should be implemented.

- Conservation will not be considered for steam electric power, livestock or mining water demands. The cost of water in these industries comprises a small percentage of the overall business cost, and it is not expected that these industries will see an economic benefit to water conservation.

5A-A.2.2 Drought Management Measures

Drought management WMSs are implemented in response to drought conditions. These strategies provide a safety factor for water users during drought. In the ETRPWP, drought management measures were not considered as strategies to meet long-range water supply needs.

5A-A.2.3 Wastewater Reuse

Reuse projects will be considered on a case-by-case basis. Both direct and indirect reuse will be considered based on current practices and other opportunities, as appropriate.

5A-A.2.4 Management of Existing Supplies

Use of existing supplies should be optimized, where possible, to meet new demands. Following is a discussion of how various types of existing supplies might be expanded and were considered as potentially feasible strategies for the ETRWA.

5A-A.2.4.1 Conjunctive Use of Groundwater and Surface Water

The conjunctive use of groundwater and surface water supplies may be considered when groundwater supplies are available. Applicable groundwater conservation district rules will be considered for such conjunctive systems.

5A-A.2.4.2 Acquisition of Available Existing Water Supplies

In general, supplies should be owned by a strategy sponsor or be available to that group for purchase;

however, the connection to existing supplies will be considered on a case-by-case basis. Acquisition of supplies may include purchasing existing groundwater wells or the right to surface water that another entity already has the physical and legal means to access. The ETRWPG will consider acquisition of supplies when an entity in need of supplies is adjacent to an entity with a surplus of supplies and both entities have shown an interest in the proposed acquisition.

5A-A.2.4.3 Regional Water Supply Facilities

Development of regional water supply facilities will be considered by the ETRWPG on a case-by-case basis. One or more regional sponsors will be required to manage this facility, and it will need to have consensus from involved parties.

5A-A.2.4.4 Voluntary Water Transfer/Redistribution

This strategy type would include, but not be limited to, contracts, water marketing, regional water banks, sales, leases, options, subordination agreements, and financing agreements. Voluntary redistribution with the involved parties will be considered and the ETRWPG will come to a consensus on an approach. If the involved parties are not interested, this option will not be pursued. Voluntary subordination of existing water rights will be considered if the involved parties are amenable to the strategy. Alternatively, the ETRWPG may recommend that the water right holder consider selling water under their water right to the willing buyer.

5A-A.2.4.5 Emergency Transfers

Emergency Transfers of water will be considered in accordance with Texas Administrative Code §11.139 for temporary, interim supplies. Existing and potential emergency interconnects available to water users in the ETRWP is documented in Chapter 7.

5A-A.2.4.6 Interbasin Transfers

The ETRWPG will recommend interbasin transfers when necessary to transport water from the source to its destination. Interbasin transfers will be evaluated in accordance with current regulations.

5A-A.2.4.7 System Operation/Optimization

New or additional system operations may be considered if they are feasible and the owner wishes to adopt such strategies. Existing operating policies will be considered during evaluation of available supplies.

5A-A.2.4.8 Reallocation of Reservoir Storage

Reallocation of reservoir storage will be considered if the owner is amenable to reallocation and, where reallocation in federal reservoirs is being considered (such as from flood to conservation storage), an appropriate and willing local sponsor can be found to sponsor a federal study.

5A-A.2.4.9 Yield Enhancement

ETRWPG will consider yield enhancement projects, as appropriate, for the water source and identified need. Projects such as dredging and application for additional water rights, where permissible, will be considered.

5A-A.2.4.10 Area-Capacity Relationships

The connection of existing supplies will be considered on a case-by-case basis. In general, supplies should be owned by the water group with a need for additional supply or available to that group for purchase or permitting.

5A-A.2.4.11 Water Quality Improvement

Water quality improvement projects will be considered for municipal supplies that bring the existing water supply into compliance with state and federal regulations. General water quality projects may be considered if they improve the usability of the water source to help meet demands.

5A-A.2.5 New Supply Development

The development of new water supplies may be necessary to meet new water demands. A discussion of the development of new water supplies follows.

5A-A.2.5.1 Surface Water Resources

New surface water resources that can be permitted will be considered, provided a reasonable amount of supply to meet the identified need is located within a reasonable distance of the end users, and recommended new sources would be expected to provide water supplies at a reasonable cost.

5A-A.2.5.2 Groundwater Resources

The ETRWPG will consider groundwater supplies in areas where additional groundwater supply is available and can be produced at a sustainable level long-term. Regulation of the development of additional groundwater supply may be subject to the local Groundwater Conservation District (GCD) and/or Groundwater Management Area (GMA).

5A-A.2.5.3 Brush Control

Brush control is not considered a cost-effective water supply strategy in the ETRWPA due to the large amount of rainfall and lack of invasive brush species, and will not be considered a WMS.

5A-A.2.5.4 Precipitation Enhancement

The ETRWPA has an abundance of precipitation. Precipitation enhancement will not be considered as a WMS.

5A-A.2.5.5 Rainwater Harvesting

Rainwater harvesting can be applied as a best management practice on an individual, local basis by users across the ETRWPA to take advantage of the plentiful rain in the region. However, it will not be considered as a WMS.

5A-A.2.5.6 Seawater or Brackish Groundwater Desalination Facilities

A strategy of this type would be large-scale and would serve local or regional brackish groundwater zones identified and designated under Texas Water Code §16.060(b)(5). The ETRWPG will consider desalination on a case-by-case basis.

5A-A.2.5.7 Marine Seawater Desalination

A strategy of this type would be large-scale and would service local or regional entities. The ETRWPG will consider desalination on a case-by-case basis.

5A-A.2.5.8 Water Right Cancellation

The ETRWPG will generally not pursue water right cancellation as a means of obtaining additional water supplies. Instead, the ETRWPG will recommend that the water right holder consider selling water under their water right to the willing buyer.

5A-A.2.5.9 Aquifer Storage and Recovery

Aquifer storage and recovery (ASR) will be considered where the structure of the aquifer is such that this method is applicable. An ASR study must have already been performed to consider an area feasible for an ASR project. The ETRWPG will consider ASR on a case-by-case basis.

Appendix 5A-B Potentially Feasible Water Management Strategies

This appendix includes a table (Table 5A-B.1) summarizing identified water management strategies (WMSs) that were considered by the East Texas Regional Water Planning Group (ETRWPG) as potentially feasible for meeting Water User Groups (WUGs) with needs in the East Texas Regional Water Planning Area (ETRWPA) per 31 TAC §357.12(b). This includes consideration of the water management strategy types required by statute and rules (TWC §16.053(e)(5), and 31 TAC §357.34(c)).

Additionally, a list of the potentially feasible WMSs and water management strategy projects (WMSPs) considered by the ETRPWG is included in Table 5A-B.2. This includes potentially feasible WMSs/WMSPs identified for entities with needs, as well as other potentially feasible WMSs/WMSPs considered by the ETRWPG based on feedback from sponsors in the ETRWPA.

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Table 5A-B.1. Potentially Feasible Water Management Strategies Identified fo WUGs with Needs

Every WUG Entity with an Identified Need			WMSs to be considered by statute[1]												Additional WMSs to be considered by rule								
Water User Group Name	County	Maximum Need 2030-2080 (acf/yr)	Conservation - Water Use Reduction	Conservation - Water Loss Mitigation	Drought Management	Reuse	Management of Existing Supplies	Development of Large-Scale Marine Seawater or Brackish Groundwater	Conjunctive Use	Acquisition of Available Existing Supplies	Development of New Supplies	Development of Regional Water Supply or Regional Management of Water Supply Facilities	Voluntary Transfer of Water (Including Regional Water Banks, Sales, Leases, Options,	Emergency Transfer of Water Under Section 11.139	System Optimization, Reallocation of Reservoir Storage to New uses, Contracts, Water Marketing,	New Surface Water Supply	New Groundwater Supply	Brush Management; Precipitation Eenhancement	Interbasin Transfers of Surface Water	Aquifer Storage and Recovery	Cancellation of Water Rights	Rainwater Harvesting	Other
Steam Electric Power	Anderson	2,296	□	□	□	□	□	□	□	□	■	□	□	□	□	□	■	□	□	□	□	□	□
Manufacturing	Angelina	3,055	□	□	□	□	□	□	□	□	■	□	■	□	□	□	■	□	□	□	□	□	□
Mining	Angelina	533	□	□	□	□	□	□	□	□	■	□	■	□	□	□	■	□	□	□	□	□	□
Alto Rural WSC	Cherokee	665	■	■	□	□	□	□	□	□	■	□	□	□	□	□	■	□	□	□	□	□	□
Athens	Henderson	2,701	■	■	□	■	■	□	■	□	■	□	□	□	□	□	■	□	□	□	□	□	□
Chandler	Henderson	934	■	■	□	□	□	□	□	□	■	□	■	□	□	□	■	□	□	□	□	□	□
Edom WSC [2]	Henderson, Van Zandt	87	■	■	□	□	□	□	□	□	■	□	□	□	□	□	■	□	□	□	□	□	□
Livestock	Henderson	490	□	□	□	■	■	□	□	□	■	□	□	□	□	□	■	□	□	□	□	□	□
Mining	Henderson	143	□	□	□	□	■	□	□	□	■	□	□	□	□	□	■	□	□	□	□	□	□
Steam Electric Power	Henderson	2,061	□	□	□	□	□	□	□	□	■	□	□	□	□	□	■	□	□	□	□	□	□
TDCJ Eastham Unit	Houston	113	■	■	□	□	□	□	□	□	■	□	□	□	□	□	■	□	□	□	□	□	□
Livestock	Houston	285	□	□	□	□	□	□	□	□	■	□	□	□	□	□	■	□	□	□	□	□	□
Manufacturing	Jasper	11,943	□	□	□	□	□	□	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□
Beaumont	Jefferson	9,768	■	■	□	□	■	□	■	□	■	■	■	□	□	□	■	□	□	□	□	□	□
Trinity Bay Conservation District [2]	Jefferson, Chambers	207	■	■	□	□	□	□	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□
Manufacturing	Jefferson	175,165	□	□	□	□	□	□	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□
D&M WSC	Nacogdoches	218	■	■	□	□	□	□	□	□	■	□	□	□	□	□	■	□	□	□	□	□	□
Jacobs WSC	Rusk	58	■	■	□	□	■	□	□	□	■	□	□	□	□	□	■	□	□	□	□	□	□
Livestock	Sabine	96	□	□	□	□	■	□	□	□	■	□	□	□	□	□	■	□	□	□	□	□	□
Manufacturing	Shelby	1,325	□	□	□	□	□	□	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□
Liberty Utilities Silverleaf Water [2]	Smith, Wood	524	■	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
Southern Utilities	Smith, Cherokee, Rusk	401	■	■	□	□	□	□	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□
County-Other	Smith	273	■	■	□	□	□	□	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□
Manufacturing	Smith	567	□	□	□	□	■	□	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□
Mining	Smith	421	□	□	□	□	■	□	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□
Irrigation	Trinity	215	□	□	□	□	■	□	□	□	■	□	□	□	□	□	■	□	□	□	□	□	□
Manufacturing	Tyler	102	□	□	□	□	■	□	□	□	■	□	□	□	□	□	■	□	□	□	□	□	□

[1] Texas Water Code §16.053(e)(5)

[2] These WUGs are primarily located in other regions (Regions C, D, or H). The needs shown reflect the total identified need across all regions, including Region I. The WMSs identified for these WUGs are discussed in their respective primary

Table 5A-B.2. List of Potentially Feasible Water Management Strategies Considered by the ETRWPG

Sponsor(s)	Water Management Strategy/Project
Multiple Entities	Municipal Conservation (Water Use Reduction)
Multiple Entities	Municipal Conservation (Water Loss Mitigation)
Multiple Entities	Irrigation Conservation
Multiple Entities	Manufacturing Conservation
Anderson County Steam Electric Power	New Wells in Carrizo-Wilcox Aquifer
B C Y WSC	New Wells in Carrizo-Wilcox Aquifer
Angelina County Mining	Purchase from Provider (Voluntary Transfer)
Angelina County Manufacturing	Purchase from Provider (Voluntary Transfer)
Alto Rural WSC	New Wells in Carrizo-Wilcox Aquifer
Athens	Purchase from Provider (Voluntary Transfer)
Edom WSC	New Wells in Carrizo-Wilcox Aquifer
Chandler	New Wells in Carrizo-Wilcox Aquifer
Chandler	Purchase from Provider (Voluntary Transfer)
Henderson County Livestock	Reuse from Lake Athens (Voluntary Transfer from Athens MWA)
Henderson County Mining	New Wells in Yegua-Jackson Aquifer
Henderson County Steam Electric Power	New Wells in Carrizo-Wilcox Aquifer
TDCJ Eastham Unit	New Wells in Carrizo-Wilcox Aquifer
Houston County Livestock	New Wells in Carrizo-Wilcox Aquifer
South Jasper County WSC	New Wells in Gulf Coast Aquifer
Jasper County Manufacturing	Purchase from Provider (Voluntary Transfer)
China	New Wells in Gulf Coast Aquifer
Trinity Bay Conservation District	Purchase from Provider (Voluntary Transfer)
Jefferson County Manufacturing	Purchase from Provider (Voluntary Transfer)
D & M WSC	New Wells in Carrizo-Wilcox Aquifer
Nacogdoches County-Other	Lake Naconiche Regional Water Supply System
Orange County WCID 1	New Wells in Gulf Coast Aquifer
Gaston WSC	New Wells in Carrizo-Wilcox Aquifer
Jacobs WSC	New Wells in Carrizo-Wilcox Aquifer
Sabine County Livestock	New Wells in Yegua-Jackson Aquifer
Shelby County Manufacturing	Purchase from Provider (Voluntary Transfer)
Liberty Utililties Silverleaf Water	New Wells in Queen City Aquifer
Southern Utilities	Purchase from Provider (Voluntary Transfer)

Table 5A-B.2. List of Potentially Feasible Water Management Strategies Considered by the ETRWPG

Sponsor(s)	Water Management Strategy/Project
Smith County-Other	Purchase from Provider (Voluntary Transfer)
Smith County Manufacturing	Purchase from Provider (Voluntary Transfer)
Smith County Mining	Purchase from Provider (Voluntary Transfer)
Trinity County Irrigation	Purchase from Provider (Voluntary Transfer)
Tyler County Manufacturing	New Wells in Gulf Coast Aquifer
Angelina Neches River Authority	Lake Columbia
Angelina Neches River Authority	Treatment and Distribution System
Angelina Nacogdoches WCID #1	Hydraulic Dredging
Athens Municipal Water Authority	Reuse of Fish Hatchery Return Flows
Athens Municipal Water Authority	Water Treatment Plant Booster Pump Station Expansion
Athens Municipal Water Authority	New Wells in Carrizo-Wilcox Aquifer
Beaumont	Amendment to Supplementary Contract with LNVA (Voluntary Transfer)
Beaumont	Well Field Infrastructure Improvements
Beaumont	Bunn's Canal Rehabilitation
Beaumont	New Westside Surface Water Treatment Plant
Center	Reuse Pipeline to Industrial Customers
Center	Pipeline from Toledo Bend Reservoir (Voluntary Transfer)
Houston County WCID #1	New Wells in Carrizo-Wilcox Aquifer
Jacksonville	Supply from Lake Columbia
Lower Neches Valley Authority	Devers Pump Station Relocation
Lower Neches Valley Authority	Neches Pump Station Upgrades and Fuel Diversifiction
Lower Neches Valley Authority	West Beaumont Reservoir
Lower Neches Valley Authority	Neches-Trinity Basin Interconnect
Lower Neches Valley Authority	Purchase from SRA (Toledo Bend)
Lufkin	Transfer from Sam Rayburn to Lake Kurth (Phase I - Phase III)
Nacogdoches	Supply from Lake Columbia
Tyler	Lake Palestine Infrastructure Expansion
Upper Neches River Municipal Water Authority	Neches Run-of-River with Lake Palestine

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Appendix 5B-A

Water Management Strategies and Projects Technical Memoranda

This Appendix provides the technical memoranda for the water management strategies identified for Region I entities.

Appendix 5B-A
Water Management Strategy Analysis Technical Memorandums

The 2026 East Texas Regional Water Plan (ETRWP) includes a total of 47 unique recommended and 3 alternative water management strategies (WMS) and water management strategy projects (WMSP) developed to ensure the East Texas Regional Water Planning Area (ETRWPA) continues to appropriately plan for water demands across the region. Appendix 5B-A provides the required evaluation of each proposed WMS contained in a technical memorandum. As required, each technical memorandum addresses the following elements:

- Strategy Description
- Supply Development
- Environmental Considerations
- Permitting and Development
- Planning-Level Opinion of Cost
- Project Evaluation

Technical memoranda are shown first for WUGs in counties in alphabetical order (e.g., Anderson County to Tyler County), then for Major Water Providers in alphabetical order (e.g., Angelina Neches River Authority to Upper Neches River Municipal Water Authority).

The planning-level opinion of cost (PLOC) is a critical element of the regional water planning process. The PLOC is important to project prioritization, which is one of a number of considerations in the TWDB's funding evaluation for water supply projects. For the 2026 Plan, PLOCs have been analyzed using the TWDB's costing tool, except where a WUG or MWP has provided more detailed cost analysis. In accordance with TWDB Guidance (Exhibit C, Second Amended General Guidelines for Regional Water Planning Development of the 2026 Regional Water Plans – September 2023), the analysis of costs for recommended and alternative WMSs includes capital costs, debt service, and annual operating and maintenance expenses over the planning horizon.

Costs include expenses associated with infrastructure needed to convey water from sources and treat water (if necessary) for end-user requirements. Capital costs consist of construction, engineering, contingencies, financial, legal, administration, environmental, permitting and mitigation, land acquisition and easements, and interest on loans. Water transmission lines were assumed to take the shortest route, following existing highways or roads where possible. Profiles were developed using geospatial information systems (GIS) mapping software and U.S. Geological Survey (USGS) topographic maps. Pipes were sized to deliver peak-day flows within reasonable pressure and velocity ranges. Water losses associated with transmission were assumed to be negligible for regional planning purposes.

The annual cost for operation and maintenance infrastructure are generally based on percentages of estimated construction cost of the infrastructure. Power costs are estimated to be $0.09 per kwh based on the TWDB Guidance. Where applicable, an allowance for cost to purchase water supply was included. Generalized regional rates to purchase water in the ETRWPA were estimated based on current wholesale water rates in the region. Estimated regional rates varied depending on the quality of the water (treated versus raw) and end user (municipal, manufacturing, mining). Ultimately, the cost to purchase water will need to be negotiated between individual users and the wholesale water provider, and will reflect their wholesale water rates at that time.

Technical Memorandum Table of Contents

B C Y WSC – NEW GROUNDWATER WELL IN CARRIZO-WILCOX AQUIFER

Entity Name:	B C Y WSC (Anderson County)
Strategy Name:	New Groundwater Well in Carrizo-Wilcox Aquifer
Strategy ID:	BCYW-GW
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	170 ac-ft per year (0.15 MGD)
Implementation Decade:	2040
Development Timeline:	< 5 years
Project Capital Cost:	$4,254,000 (September 2023)
Annual Cost	$525,000
Unit Water Cost (Rounded):	$3,088 per ac-ft ($9.48 per 1,000 gallons)

STRATEGY DESCRIPTION

B C Y WSC is a municipal water user group in Anderson County. This water user currently relies on groundwater from the Carrizo-Wilcox Aquifer in Anderson County. B C Y WSC has no identified need during the current planning cycle based on their projected demand and currently available supply., but requested a strategy be added for a new well. However, they are considering developing an additional groundwater well and associated infrastructure to provide supply to potential future water demands.

A strategy is recommended for B C Y WSC that involves the development of approximately 170 acre-feet per year from the Carrizo-Wilcox Aquifer in Anderson County. The conceptual design for this strategy involves one public supply well (capacity of 200 gpm, depth of 750 ft) that produces groundwater from the Carrizo-Wilcox Aquifer, conveyance infrastructure (e.g., well collection piping, transmission pipeline, pump station, and storage tank), and a groundwater treatment system. A peaking factor of two was assumed to size infrastructure at this well field.

SUPPLY DEVELOPMENT

The estimated supply quantity from this strategy is approximately 170 ac-ft per year based on a peaking factor of 2. There is sufficient modeled available groundwater in the Carrizo-Wilcox Aquifer in Anderson County to develop the supply assumed for this water management strategy. This strategy is projected to be able to provide supply by 2040. Overall, the reliability of this supply is considered medium, based on the proven use of this groundwater source and groundwater availability models. There are other strategies involving use of this groundwater source, so there may be competition for supply.

ENVIRONMENTAL CONSIDERATIONS

The environmental impacts from this strategy are expected to be low. However, groundwater development from this source should be evaluated for potential impacts on spring flows and base flows of surface water is in close proximity. The impact to the environment due to pipeline construction is expected to be temporary and minimal. Impacts to environmental water needs, habitat, and cultural resources are expected to be low due to the relatively low footprint of this strategy.

PERMITTING AND DEVELOPMENT

This strategy is located within the Neches & Trinity Valleys Groundwater Conservation District (NTVGCD). Any additional groundwater withdrawal by B C Y WSC will require that an operating permit from the NTVGCD be obtained.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs assume account for one well, 500 feet of well field piping, 600 feet of transmission pipeline, a pump station, storage tank, and a groundwater treatment system.

WUG	**B C Y WSC**
STRATEGY	**New Well in Carrizo-Wilcox Aquifer**
QUANTITY (AC-FT/YR)	**170**
CAPITAL COST	
Booster Pump Stations	$511,000
Transmission Pipeline (6 in. dia., 0.1 miles)	$71,000
Well Fields (Wells, Pumps, and Piping)	$732,000
Storage Tanks (Other Than at Booster Pump Stations)	$1,051,000
Water Treatment Plant (0.3 MGD)	$568,000
Integration, Relocations, Backup Generator & Other	$1,000
TOTAL COST OF FACILITIES	**$2,934,000**
- Planning (3%)	$88,000
- Design (7%)	$205,000
- Construction Engineering (1%)	$29,000
Legal Assistance (2%)	$59,000
Fiscal Services (2%)	$59,000
Pipeline Contingency (15%)	$11,000
All Other Facilities Contingency (20%)	$572,000
Environmental & Archaeology Studies and Mitigation	$80,000
Land Acquisition and Surveying (8 acres)	$83,000
Interest During Construction (3.5% for 1 years with a 0.5% ROI)	$134,000
TOTAL COST OF PROJECT	**$4,254,000**
ANNUAL COST	
Debt Service (3.5 percent, 20 years)	$299,000
Operation and Maintenance	
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)	$19,000
Intakes and Pump Stations (2.5% of Cost of Facilities)	$13,000
Water Treatment Plant	$187,000
Pumping Energy Costs (74,108 kW-hr @ 0.09 $/kW-hr)	$7,000
TOTAL ANNUAL COST	**$525,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$3,088
Per 1,000 Gallons	$9.48
UNIT COSTS (After Amortization)	
Per Acre-Foot	$1,329
Per 1,000 Gallons	$4.08

PROJECT EVALUATION

This strategy benefits B C Y WSC and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. Developing groundwater supplies in Anderson County will have no other apparent impact on other state water resources. This strategy does not involve a voluntary redistribution of water from a rural and/or agricultural area, so it will have low to no third-party social and economic impact to those areas. B C Y WSC is a rural WUG, and this strategy will benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	5	No shortage identified for WUG. Supply would be surplus
Reliability	3	Medium reliable supply. May encounter competition for supply from other users
Cost	2	Medium to high cost ($3,000 to $5,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	4	Sponsor identified, committed to strategy
Implementation Issues	4	No known risks

REFERENCES

Correspondence with B C Y WSC for the 2026 East Texas Regional Water Plan.

ANDERSON COUNTY STEAM ELECTRIC POWER – NEW GROUNDWATER WELLS IN CARRIZO-WILCOX AQUIFER

Entity Name:	Steam Electric Power, Anderson County
Strategy Name:	New Groundwater Wells in Carrizo-Wilcox Aquifer
Strategy ID:	ADSN-GW
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	2,300 ac-ft per year (2.05 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$21,908,000 (September 2023)
Annual Cost:	$1,834,000
Unit Water Cost (Rounded):	$797 per ac-ft ($2.45 per 1,000 gallons)

STRATEGY DESCRIPTION

Two new power generation facilities with water demands have been identified in Anderson County: the Palestine Power Peaking Facility (PPPF), which is located approximately eight miles northeast of the City of Palestine, and the Apex Bethel Energy Center (ABEC), located approximately 17 miles northwest of Palestine. These plants are not constructed at this time and therefore, do not use any existing water supply (groundwater, surface water, etc.). Most groundwater use in the areas around these facilities rely on groundwater from the Carrizo-Wilcox Aquifer in Anderson County. The PPPF has an identified need of 890 acre-feet per year beginning in 2030, and the ABEC has an identified need of 1,410 acre-feet per year beginning in 2030 (approximately 2,300 ac-ft per year total in 2030). To meet these projected needs, a strategy is recommended for steam-electric power users in Anderson County that involves the development of two well fields, one at each facility. The well fields at both locations will produce groundwater from the Carrizo-Wilcox Aquifer, as this aquifer has been identified as a potential source of water near these facilities.

Generalized estimates of infrastructure are included as part of this strategy. Ultimately, individual entities will need to develop infrastructure based on their individualized needs for water supply. The conceptual design for this strategy involves construction of a new well field at each power generation facility (two well fields total). Well fields were assumed to include public supply wells located within the Carrizo-Wilcox Aquifer with sufficient capacities to generate the identified supply needed, as well as conveyance infrastructure (e.g., well collection piping, transmission pipeline, pump station, and storage tank). A peaking factor of two was assumed to size infrastructure at these well fields.

SUPPLY DEVELOPMENT

The estimated supply quantity from this strategy is approximately 2,300 ac-ft per year based on the identified need for steam electric power water users in Anderson County across the planning horizon (2030-2080). There is sufficient groundwater available in the Carrizo-Wilcox Aquifer in Anderson County to develop the supply assumed for this water management strategy. This strategy is projected to be able to provide supply by 2030. Overall, the reliability of this supply is considered medium, based on the historical use of this groundwater source and groundwater availability models. There are other strategies involving use of this groundwater source, so there may be competition for supply.

ENVIRONMENTAL CONSIDERATIONS

There are not any significant environmental considerations associated with this strategy and environmental impacts are expected to be low. However, the environmental impacts of developing infrastructure are site-specific and will be dependent upon the location and size of the project. Site-specific evaluations of potential impacts to the environment from construction activities will need to be conducted by individual entities. This strategy is anticipated to have a minimal impact on environmental water needs, low impact to the surrounding habitat, and a low impact to cultural resources in the area due to the relatively small footprint of this strategy. The potential impact to surrounding habitat and cultural resources will need to be evaluated by entities on a project-specific basis.

PERMITTING AND DEVELOPMENT

This strategy is located within the Neches & Trinity Valleys Groundwater Conservation District (NTVGCD). Any new groundwater withdrawal by either of these proposed facilities will require that an operating permit from the NTVGCD be obtained.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs assume well fields located around each proposed power facility, with minimal distance required to transport water from the well field to the power facility. Additionally, capital costs assume pipelines to connect the wells within each well field, transmission pipelines from the well field to the power facility, pump stations, and ground storage tanks.

WUG	**Steam Electric Power, Jasper County**
STRATEGY	**New Wells in Carrizo-Wilcox Aquifer**
QUANTITY (AC-FT/YR)	**2,300**
CAPITAL COST	
Booster Pump Stations	$1,671,000
Transmission Pipeline (6 in. dia., 0.1 miles)	$642,000
Well Fields (Wells, Pumps, and Piping)	$10,520,000
Storage Tanks (Other Than at Booster Pump Stations)	$2,403,000
Integration, Relocations, Backup Generator & Other	$7,000
TOTAL COST OF FACILITIES	**$15,243,000**
- Planning (3%)	$458,000
- Design (7%)	$1,067,000
- Construction Engineering (1%)	$153,000
Legal Assistance (2%)	$305,000
Fiscal Services (2%)	$305,000
Pipeline Contingency (15%)	$96,000
All Other Facilities Contingency (20%)	$2,920,000
Environmental & Archaeology Studies and Mitigation	$372,000
Land Acquisition and Surveying (11 acres)	$299,000
Interest During Construction (3.5% for 1 years with a 0.5% ROI)	$690,000
TOTAL COST OF PROJECT	**$21,908,000**
ANNUAL COST	
Debt Service (3.5 percent, 20 years)	$1,541,000
Operation and Maintenance	
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)	$135,000
Intakes and Pump Stations (2.5% of Cost of Facilities)	$41,000
Water Treatment Plant	$117,000
Pumping Energy Costs (29,714 kW-hr @ 0.09 $/kW-hr)	$0
TOTAL ANNUAL COST	**$1,834,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$797
Per 1,000 Gallons	$2.45
UNIT COSTS (After Amortization)	
Per Acre-Foot	$127
Per 1,000 Gallons	$0.39

PROJECT EVALUATION

This strategy benefits new power generation users in Anderson County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. Developing groundwater supplies in Anderson County will have no other apparent impact on other state water resources. This strategy does not involve a voluntary redistribution of water from a rural and/or agricultural area, so it will have low to no third-party social and economic impact to those areas.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 100% of supply need
Reliability	3	Medium reliable supply. May encounter competition for supply from other users
Cost	4	Low cost (< $1,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Other Natural Resources	4	Low to no impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	2	Potential sponsors identified, but willingness to develop strategy is unknown
Implementation Issues	4	No known risks

REFERENCES

East Texas Regional Water Planning Group.

ANGELINA COUNTY MANUFACTURING – PURCHASE FROM LUFKIN

Entity Name:	Manufacturing, Angelina County
Strategy Name:	Purchase from Lufkin
Strategy ID:	ANGL-MFG
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	2,150 - 3,060 ac-ft per year (1.9 - 2.7 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$90,393,000 (September 2023)
Annual Cost:	$8,493,000
Unit Water Cost (Rounded):	$1,379 per ac-ft ($4.23 per 1,000 gallons)

STRATEGY DESCRIPTION

Manufacturing water users in Angelina County were identified to have a need for approximately 2,150 ac-ft per year in 2030 and 3,060 ac-ft per year by 2080. In order to meet this need, a recommended water management project is included for individual manufacturers to enter into a contract with the City of Lufkin for raw water from their system, as their permit allows. Lufkin currently supplies water to manufacturing water users in Angelina County. Most of the need identified is associated with projected growth in manufacturing demand in Angelina County over the planning horizon. Thus, generalized estimates of infrastructure needed to access supplies from Lufkin are included as part of this strategy. Ultimately, individual manufacturing entities will need to develop infrastructure based on their individualized needs for water supply. The cost estimate included in this technical memorandum utilizes an assumed rate for the East Texas Regional Water Planning Area regional rate for raw surface water. Ultimately, this cost will need to be negotiated between individual manufacturers and Lufkin and will reflect their wholesale water rates at that time.

SUPPLY DEVELOPMENT

The strategy recommended for Angelina County manufacturing is assumed to be equal to the need projected for this entity during the planning period (2030-2080). The contract with Lufkin required for this strategy increases their supply by approximately 2,150 ac-ft per year beginning in 2030 and increases over time to approximately 3,060 ac-ft per year by 2080. These supplies are considered highly reliable; however, the supply is dependent on coordination with the City of Lufkin.

ENVIRONMENTAL CONSIDERATIONS

There are not any significant environmental considerations associated with this strategy. The environmental impacts of developing infrastructure are site-specific and will be dependent upon the location and size of the project. Site-specific evaluations of potential impacts to the environment from construction activities will need to be conducted by individual entities. A contract between manufacturers in Angelina County and the City of Lufkin are anticipated to have a minimal impact on environmental water needs, low impact to the surrounding habitat, and a low impact to cultural resources in the area. The potential impact to surrounding habitat and cultural resources will need to be evaluated by entities on a project-specific basis. There is no impact expected on bays or estuaries associated with this strategy since it is in Angelina County.

PERMITTING AND DEVELOPMENT

There are no anticipated permitting or development issues associated with this strategy. There may be some minor permitting related to construction of the infrastructure required associated with this strategy.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. Generalized estimates of conveyance infrastructure to access and deliver supply from Lufkin, including pipeline, intake pump stations, and storage, are included as part of this strategy. A regional rate for raw surface water was used for the purchase costs ($1.00 per 1,000 gallons).

WUG	**Angelina County - Manufacturing**				
STRATEGY:	**Purchase from Lufkin**				
QUANTITY (AC-FT/YR)	**2,150 – 3,060**				
CAPITAL COST					
Pipelines	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	6 – 16 in.	158,400	LF		$27,893,000
Rural Right of Way (ROW) Easements and Surveying (73)			Acres	$9,038	$726,000
Engineering and Contingencies (30%)					$8,368,000
Subtotal of Pipeline(s)	**5**	**miles per pipeline**			**$36,987,000**
Pump Station(s)					
Pump with intake	21 – 257 HP	6	LS		$29,924,000
Power connection(s)		6	LS		$450,000
Engineering and Contingencies (35%)					$10,632,000
Subtotal of Pump Station(s)					**$41,006,000**
Storage Tanks	0.1 – 0.4 MG	6	LS		$3,795,000
Engineering and Contingencies (35%)					$1,603,000
Subtotal of Storage Tanks					**$5,121,000**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$47,000
Engineering and Contingencies (35%)					$16,000
Subtotal of Integration, Relocations, Backup Generator & Other					**$63,000**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$420,000
Environmental - Studies and Mitigation					$1,279,596
CONSTRUCTION TOTAL					**$84,875,000**
Interest During Construction (3.5% for 2 years with a 0.5% ROI)				24Months	$5,518,000
TOTAL COST OF PROJECT					**$90,393,000**
ANNUAL COST					
Debt Service (3.5% for 20 years)					$6,361,000
Pumping Energy Costs					$68,000
Operation and Maintenance (O&M)					$1,067,000
Raw Water Purchase		997,000	1000 gal	$1.00	$997,000
TOTAL ANNUAL COST					**$8,493,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot (2030-2080 Average)					$1,379
Per 1,000 Gallons (2030-2080 Average)					$4.23
UNIT COSTS (After Amortization)					
Per Acre-Foot					$697
Per 1,000 Gallons					$2.14

PROJECT EVALUATION

This strategy benefits manufacturers in Angelina County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. A contract to pull water from the City of Lufkin system will reduce future demands on other water supplies in Angelina County and is anticipated to have no other apparent impact on other State water resources. This strategy involves a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. However, this supply benefits various industries in those rural areas, which could contribute to their economic growth.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 75-100% of Shortage
Reliability	5	High reliable supply as Lufkin currently serves manufacturing customers in Angelina County.
Cost	3	Medium cost ($1,000 to $3,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	3	Low negative impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	3	Sponsor(s) identified, commitment level uncertain.
Implementation Issues	4	Low implementation issues

REFERENCES

Discussions with the City of Lufkin.

ANGELINA COUNTY MINING – PURCHASE FROM LUFKIN

Entity Name:	Mining, Angelina County
Strategy Name:	Purchase from City of Lufkin
Strategy ID:	ANGL-MIN
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	540 ac-ft per year (0.72 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$13,921,000 (September 2023)
Annual Cost:	$1,702,000
Unit Water Cost (Rounded):	$3,152 per ac-ft ($9.67 per 1,000 gallons)

PROJECT DESCRIPTION

A strategy is recommended for mining water users in Angelina County to purchase water from the City of Lufkin. The cost for supply includes the cost of raw water and infrastructure related to water conveyance. Ultimately, the cost for raw water will need to be negotiated with Lufkin and will reflect the wholesale water rates of this entity at the time a contract is made. The cost estimate included in this technical memorandum utilizes an assumed rate for the East Texas Regional Water Planning Area regional rate for raw surface water.

SUPPLY DEVELOPMENT

The strategy recommended for Angelina County manufacturing is assumed to be equal to the need projected for this entity during the planning period (2030-2080). The contract with Lufkin required for this strategy increases their supply by approximately 380 ac-ft per year beginning in 2030 and increases over time to approximately 540 ac-ft per year by 2080. These supplies are considered highly reliable; however, the supply is dependent on coordination with the City of Lufkin.

ENVIRONMENTAL CONSIDERATIONS

There are not any significant environmental considerations associated with this strategy. The environmental impacts of developing infrastructure are site-specific and will be dependent upon the location and size of the project. Site-specific evaluations of potential impacts to the environment from construction activities will need to be conducted by individual entities. A contract between manufacturers in Angelina County and the City of Lufkin are anticipated to have a minimal impact on environmental water needs, low impact to the surrounding habitat, and a low impact to cultural resources in the area. The potential impact to surrounding habitat and cultural resources will need to be evaluated by entities on a project-specific basis. There is no impact expected on bays or estuaries associated with this strategy since it is in Angelina County.

PERMITTING AND DEVELOPMENT

There are no anticipated permitting or development issues associated with this strategy.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs assumed 5 miles of pipeline, a pump station with an intake, a booster pump station, and one terminal storage tank with one day of storage. The annual cost was estimated using the East Texas Regional Water Planning Area regional rate for raw surface water.

WUG	**Angelina County - Mining**				
STRATEGY	**Purchase from Lufkin**				
QUANTITY (AC-FT/YR)	**540**				
CAPITAL COSTS					
Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	8 in.	26,400	LF	$165	$4,353,000
Right of Way Easements Rural (ROW)		12	Acres	$9,038	$121,000
Engineering and Contingencies (30%)					$1,306,000
Subtotal of Pipeline	**5**	**miles**			**$5,780,000**
Pump Station(s)					
Pump with intake	55 HP	1	LS	$4,784,000	$4,784,000
Power connection(s)		55	HP	$200	$75,000
Engineering and Contingencies (35%)					$1,701,000
Subtotal of Pump Station(s)					**$6,560,000**
Storage Tanks	0.1 MG	1	LS	$626,772	$627,000
Engineering and Contingencies (35%)					$219,000
Subtotal of Storage Tanks					**$846,000**
Integration, Relocations, Backup Generator & Other	$ per kw		$ per kw	$534	$10,000
Engineering and Contingencies (35%)					$4,000
Subtotal of Integration, Relocations, Backup Generator & Other					**$14,000**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$ 70,000
Environmental - Studies and Mitigation					$ 213,000
CONSTRUCTION TOTAL					**$13,483,000**
Interest During Construction (3.5% for 1 years with a 0.5% ROI)					$438,000
TOTAL CAPITAL COST					**$13,921,000**
ANNUAL COSTS					

Debt Service (3.5% for 20 years)			$979,000
Pumping Energy Costs			$15,000
Operation and Maintenance (O&M)			$180,000
Raw Water Purchase	1000 gal	$3.00	$528,000
Treatment	Kgal	$0.00	$0
Total Annual Costs			**$1,702,000**
UNIT COSTS (Until Amortized)			
Per Acre-Foot			$3,152
Per 1,000 Gallons			$9.67
UNIT COSTS (After Amortization)			
Per Acre-Foot			$1,339
Per 1,000 Gallons			$4.11

PROJECT EVALUATION

This strategy benefits manufacturers in Angelina County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. A contract to pull water from the City of Lufkin system will reduce future demands on other water supplies in Angelina County and is anticipated to have no other apparent impact on other State water resources. This strategy involves a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. However, this supply benefits various mining industries in those rural areas, which could contribute to their economic growth.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 75-100% of Shortage
Reliability	3	Medium reliable supply
Cost	2	$3,000 to $5,000/ac-ft (Medium-High)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	3	Low negative impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	2	Potential sponsors identified, but willingness to develop strategy is unknown
Implementation Issues	4	Low implementation issues

REFERENCES

2026 East Texas Regional Water Plan.

ALTO RURAL WSC – NEW GROUNDWATER WELLS IN CARRIZO-WILCOX AQUIFER

Entity Name:	Alto Rural WSC (Cherokee County)
Strategy Name:	New Groundwater Wells in Carrizo-Wilcox Aquifer
Strategy ID:	ALRU-GW
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	670 ac-ft per year (0.05 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$7,612,000 (September 2023)
Annual Cost:	$970,000
Unit Water Cost (rounded):	$4.44 per 1,000 gallons

PROJECT DESCRIPTION

Alto Rural WSC is a municipal water user group in Cherokee County. This water user group currently relies on groundwater from the Carrizo- Wilcox Aquifer in Cherokee County. Alto Rural has an identified need of 665 ac-ft/yr by 2030. To meet this need, it is recommended that Alto Rural WSC continue to use supplies from the Carrizo-Wilcox Aquifer by developing additional groundwater wells.

A strategy is recommended for Alto Rural WSC in Cherokee County, which involves the development of approximately 670 acre-feet per year from the Carrizo Wilcox Aquifer in Cherokee County. The conceptual design for this strategy involves two public supply wells (capacity of 250 gpm, depth of 800 ft) located within the Carrizo Wilcox Aquifer, conveyance infrastructure (e.g., well collection piping, transmission pipeline, pump station, and storage tank), and chlorine disinfection. A peaking factor of two was assumed to size infrastructure at this well field.

SUPPLY DEVELOPMENT

The estimated supply quantity from this strategy is approximately 670 ac-ft per year based on a peaking factor of 2. There is sufficient modeled available groundwater available in the Carrizo Wilcox Aquifer in Cherokee County to develop the supply assumed for this water management strategy. This strategy is projected to be online and able to provide supply by 2030. Overall, the reliability of this supply is considered medium to high, based on the proven use of this groundwater source and groundwater availability models.

ENVIRONMENTAL CONSIDERATIONS

The environmental impacts from this strategy are expected to be low. However, groundwater development from this source should be evaluated for potential impacts on spring flows and base flows if surface water is in close proximity. The impact to the environment due to pipeline construction is expected to be temporary and minimal. Impacts to environmental water needs, habitat, and cultural resources are expected to be low due to the relatively low footprint of this strategy.

PERMITTING AND DEVELOPMENT

This strategy is located within the Neches & Trinity Valleys Groundwater Conservation District (NTVGCD). Any additional groundwater withdrawal by Alto Rural WSC will require that an operating permit from the NTVGCD be obtained.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital cost accounts for two 250 gpm well at a depth of 800 feet, 1 mile of pipeline, a pump station, storage tank, and chlorine disinfection.

WUG	**Alto Rural WSC**	
STRATEGY	**New Well in Carrizo-Wilcox Aquifer**	
QUANTITY (AC-FT/YR)	**670**	
CAPITAL COST		
Intake Pump Stations (0.72 MGD)		$736,000
Transmission Pipeline (8 in. dia., 1 miles)		$871,000
Well Fields (Wells, Pumps, and Piping)		$1,551,000
Storage Tanks (Other Than at Booster Pump Stations)		$1,092,000
Water Treatment Plant (0.7 MGD)		$1,073,000
Integration, Relocations, Backup Generator & Other		$2,000
TOTAL COST OF FACILITIES		**$5,325,000**
- Planning (3%)		$160,000
- Design (7%)		$373,000
- Construction Engineering (1%)		$53,000
Legal Assistance (2%)		$106,000
Fiscal Services (2%)		$106,000
Pipeline Contingency (15%)		$131,000
All Other Facilities Contingency (20%)		$891,000
Environmental & Archaeology Studies and Mitigation		$114,000
Land Acquisition and Surveying (11 acres)		$113,000
Interest During Construction (3.5% for 1 years with a 0.5% ROI)		$240,000
TOTAL COST OF PROJECT		**$7,612,000**
ANNUAL COST		
Debt Service (3.5 percent, 20 years)		$535,000
Operation and Maintenance		
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)		$35,000
Intakes and Pump Stations (2.5% of Cost of Facilities)		$18,000
Water Treatment Plant		$354,000
Pumping Energy Costs (196,295 kW-hr @ 0.09 $/kW-hr)		$28,000
TOTAL ANNUAL COST		**$970,000**
UNIT COSTS (Until Amortized)		
Per Acre-Foot		$1,448
Per 1,000 Gallons		$4.44
UNIT COSTS (After Amortization)		
Per Acre-Foot		$649
Per 1,000 Gallons		$1.99

PROJECT EVALUATION

This strategy will benefit the Alto Rural WSC, a municipal user in Cherokee County, and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. Developing groundwater supplies in Cherokee County will have no other apparent impact on other State water resources. This strategy does not involve a voluntary redistribution of water from a rural and/or agricultural area, so it will have low to no third-party social and economic impact to those areas. Alto Rural WSC is a rural WUG, and this strategy will benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 75-100% of shortage
Reliability	4	Medium to high reliable supply
Cost	3	Medium cost ($1,000 to $3,000/ac-ft)
Environmental Factors	3	Low to medium Impacts
Impact on Other State Water Resources	4	No known impacts to other projects.
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no negative impacts and/or some positive impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	3	Sponsor identified
Implementation Issues	4	Low implementation issues

REFERENCES

2026 East Texas Regional Water Plan.

CHANDLER – PURCHASE FROM TYLER

Entity Name:	Chandler
Strategy Name:	Purchase from Tyler (Lake Palestine)
Strategy ID:	CHAN-TYL
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	940 ac-ft per year (0.84 MGD)
Implementation Decade:	2050
Development Timeline:	< 5 years
Project Capital Cost:	$15,028,000 (September 2023)
Annual Cost:	$2,774,000
Unit Water Cost (Rounded):	$2,951 per ac-ft ($9.06 per 1,000 gallons)

STRATEGY DESCRIPTION

The City of Chandler is a municipal water user in Henderson County. The City currently relies on groundwater pumped from the Carrizo-Wilcox Aquifer in Henderson County. Considering their projected demands and existing infrastructure constraints, the City has an identified need starting in 2050 of approximately 43 ac-ft per year and that need increases to 934 ac-ft per by 2080. Historically, the City has been solely reliant on groundwater; however, due to limited modeled available groundwater (MAG) in Henderson County from the Carrizo-Wilcox aquifer, the recommended strategy for the City is to purchase treated water from the City of Tyler to meet their needs. Chandler is adjacent to Lake Palestine (a current water supply source for the City of Tyler) and is located approximately 6 miles from the outer extent of Tyler's existing distribution system.

The recommended strategy for Chandler is to construct a water transmission line and other associated conveyance infrastructure connected to Tyler's existing distribution system to deliver water to their service area. The cost of this strategy includes the cost of treated water and infrastructure related to water conveyance. Ultimately, the cost of treated water will need to be negotiated between the cities of Chander and Tyler. The cost estimate included in this technical memorandum utilizes an assumed rate for the East Texas Regional Water Planning Area for treated surface water.

SUPPLY DEVELOPMENT

The quantity of supply from this strategy represents the water needs projected for the City of Chandler during the planning period (2030-2080): 43 ac-ft/yr starting in 2050 and increasing to 934 ac-ft/yr in 2080. The reliability of this water supply is considered high due to the availability of water in the City of Tyler's sources of supply. The City of Tyler obtains its water supply from Lake Tyler and has a contract for water from Lake Palestine. In addition to this, Tyler also has groundwater supplies in Smith County. For this evaluation, it is assumed that treated water from Lake Palestine will be used to supply the needs of the City of Chandler; however, any of Tyler's available treated water supplies could be used to meet Chandler's needs. The development of this strategy will ultimately be dependent on coordination and agreement(s) between the cities of Chander and Tyler.

ENVIRONMENTAL CONSIDERATIONS

The impact on the environment due to the construction of infrastructure associated with this strategy is expected to be low to moderate. There may be some surface disturbance associated with the construction of infrastructure, but it is expected to occur primarily on land that is previously disturbed. In addition, it is anticipated that this strategy will have a minimal impact on environmental water needs, a low impact on the surrounding habitat, and a low impact on cultural resources in the area. There are no bays or estuaries in close proximity to Henderson County, so this project is anticipated to have no impact.

PERMITTING AND DEVELOPMENT

There are no anticipated permitting or development issues associated with this strategy. There may be some minor permitting related to the construction of the infrastructure required associated with this strategy.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs for this strategy assume 6 miles of pipeline, one pump station, and one ground storage tank. The annual was estimated assuming a debt service of 3.5% and using the assumed East Texas Regional Water Planning Area rate for treated surface water ($3.00 per 1,000 gallons).

WUG	**Chandler**				
STRATEGY	**Purchase from City of Tyler**				
QUANTITY (AC-FT/YR)	**940**				
CAPITAL COST					
Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	10 in.	36,960	LF	$189	$6,998,000
Right of Way Easements Rural (ROW)		17	Acres	$9,250	$173,000
Engineering and Contingencies (30%)					$2,099,000
Subtotal of Pipeline	**7**	**miles**			**$9,270,000**
Pump Station(s)					
Booster Pump Station	211 HP	1	LS	$2,302,000	$2,302,000
Power connection(s)		205	HP	$200	$75,000
Engineering and Contingencies (35%)					$3,020,000
Subtotal of Storage Tanks					**$11,723,000**
Storage Tanks	0.2 MG	1	LS	$1,143,000	**$1,143,000**
Engineering and Contingencies (35%)					$400,000
Subtotal of Pump Station(s)					**$1,543,000**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$19,400
Engineering and Contingencies (35%)					$6,800
Subtotal of Integration, Relocations, Backup Generator & Other					**$26,200**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$122,100
Environmental - Studies and Mitigation					$411,000
CONSTRUCTION TOTAL					**$14,555,300**
Interest During Construction (3.5% for 1 years with a 0.5% ROI)					$473,000
TOTAL COST OF PROJECT					**$15,028,000**
ANNUAL COST					
Debt Service (3.5% for 20 years)					$1,057,000
Pumping Energy Costs					$29,000
Operation and Maintenance (O&M)					$157,000
Treated Water Purchase			1000 gal	$5.00	$1,531,000
TOTAL ANNUAL COST					**$2,774,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot					$2,951
Per 1,000 Gallons					$9.06
UNIT COSTS (After Amortization)					
Per Acre-Foot					$1,827
Per 1,000 Gallons					$5.61

PROJECT EVALUATION

This strategy benefits the City of Chandler and is expected to have a positive impact on their water supply security. A contract to obtain water from the City of Tyler will reduce future demands on other water supplies in Henderson County and provide relief to the Carrizo-Wilcox aquifer as more entities switch from groundwater to alternative sources. This strategy analysis did not find any potential impacts to agricultural or natural resources or key parameters of water quality, and no other apparent impact on other State water resources. This strategy involves a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. Chandler is a rural WUG, and this strategy will benefit them from a social and economic perspective. Additionally, the supply associated with this strategy is relatively small compared to the surplus supply Tyler has available.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 100% of supply need
Reliability	4	Medium to high reliable supply
Cost	3	Medium cost ($1,000 to $3,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low impact to surface water resources, some positive impact to groundwater resources due to reduction of future demand
Threat to Agricultural Resources/Rural Areas	4	Low to no known impacts
Other Natural Resources	4	Low to no known impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	3	Low impacts. Involves voluntary redistribution of water that could be used to sere rural and/or agricultural areas. Chandler is a rural WUG, and this strategy will benefit them.
Major Impacts on Key Water Quality Parameters	3	Low impacts. There may be some consideration with mixing new source supply (surface water) with currently supply (groundwater)
Political Feasibility	3	Local sponsorship by Chandler, commitment level uncertain
Implementation Issues	3	Requires contract between the cities of Chandler and Tyler

REFERENCES

East Texas Regional Water Planning Group.

CHANDLER – NEW GROUNDWATER WELLS IN CARRIZO-WILCOX AQUIFER (ALTERNATIVE)

Entity Name:	Chandler
Strategy Name:	New Groundwater Wells in Carrizo-Wilcox Aquifer *(Alternative WMS)*
Strategy ID:	CHAN-GW
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	940 ac-ft per year (0.64 MGD)
Implementation Decade:	2050
Development Timeline:	< 5 years
Project Capital Cost:	$10,727,000 (September 2023)
Annual Cost:	$1,387,000
Unit Water Cost (Rounded):	$1,476 per ac-ft ($4.53 per 1,000 gallons)

STRATEGY DESCRIPTION

The strategy involves the development of new groundwater wells in the Carrizo-Wilcox Aquifer in Henderson County. The Carrizo-Wilcox Aquifer in Henderson County (both in Region C and I) has very limited modeled available groundwater (MAG) beyond what is currently used. Consequently, this is included as an alternative strategy for Chandler. The strategy could be changed to a recommended strategy if the MAG volumes increase in the future.

The City currently relies on groundwater pumped from the Carrizo-Wilcox Aquifer in Henderson County. Considering their projected demands and existing infrastructure constraints, the City has an identified need starting in 2050 of approximately 43 ac-ft per year and that need increases to 934 ac-ft per by 2080.. Historically, the City has been solely reliant on groundwater; however, due to the MAG limitations in Henderson County from the Carrizo-Wilcox Aquifer, the recommended strategy for the City is to purchase treated water from the City of Tyler to meet their needs (discussed in a separate technical memorandum).

This strategy assumes the development of approximately 940 acre-feet per year from the Carrizo-Wilcox Aquifer in Henderson County to meet the City's maximum projected need. The conceptual design for this strategy involves four public supply wells (capacities of 250 gpm, depth of 700 ft depth each) that produces groundwater from the Carrizo-Wilcox Aquifer, conveyance infrastructure (e.g., well collection piping, transmission pipeline, pump station, and storage tank), and a groundwater treatment system. A peaking factor of two was assumed to size infrastructure at this well field.

SUPPLY DEVELOPMENT

The estimated supply quantity from this strategy is approximately 940 ac-ft per year. There is not sufficient modeled available groundwater from the Carrizo-Wilcox Aquifer in Henderson County (both in Region C and I) to develop the supply assumed for this water management strategy, so this is considered as an alternative strategy. This strategy is projected to be online by 2050. Based on historical use, this supply is considered to have medium to high reliability.

ENVIRONMENTAL CONSIDERATIONS

The environmental impacts from this strategy are expected to be low. However, groundwater development from this source should be evaluated for potential impacts on spring flows and base flows if surface water is in close proximity. The impact to the environment due to pipeline construction is expected to be temporary and minimal. Impacts to environmental water needs, habitat, and cultural resources are expected to be low due to the relatively low footprint of this strategy.

PERMITTING AND DEVELOPMENT

This strategy is located within the Neches & Trinity Valleys Groundwater Conservation District (NTVGCD). Any new groundwater withdrawal by Chandler would require that an operating permit from the NTVGCD be obtained. The assumed supply from this strategy exceeds the Carrizo-Wilcox Aquifer MAG limits in Henderson County in Regions C and I. If and when the MAG numbers are updated, the yield from the wells will be compared with the MAG. If there is sufficient MAG for this strategy in the future, this could be converted to a recommended strategy.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs assume account for three wells, 1,400 feet of well field piping, one mile of transmission pipeline, a pump station, storage tank, and a groundwater treatment system.

WUG	**Chandler**
STRATEGY	**New Wells in Carrizo-Wilcox Aquifer (Alternative)**
QUANTITY (AC-FT/YR)	**940**
CAPITAL COST	
Booster Pump Stations	$875,000
Transmission Pipeline (10 in. dia., 1 mile)	$1,000,000
Well Fields (Wells, Pumps, and Piping)	$2,882,000
Storage Tanks (Other Than at Booster Pump Stations)	$1,160,000
Water Treatment Plant (1.1 MGD)	$1,617,000
Integration, Relocations, Backup Generator & Other	$3,000
TOTAL COST OF FACILITIES	**$7,537,000**
- Planning (3%)	$226,000
- Design (7%)	$528,000
- Construction Engineering (1%)	$75,000
Legal Assistance (2%)	$151,000
Fiscal Services (2%)	$151,000
Pipeline Contingency (15%)	$150,000
All Other Facilities Contingency (20%)	$1,307,000
Environmental & Archaeology Studies and Mitigation	$134,000
Land Acquisition and Surveying (13 acres)	$130,000
Interest During Construction (3.5% for 1 years with a 0.5% ROI)	$338,000
TOTAL COST OF PROJECT	**$10,727,000**
ANNUAL COST	
Debt Service (3.5 percent, 20 years)	$755,000
Operation and Maintenance	
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)	$50,000
Intakes and Pump Stations (2.5% of Cost of Facilities)	$22,000
Water Treatment Plant	$534,000
Pumping Energy Costs (287,550 kW-hr @ 0.09 $/kW-hr)	$26,000
TOTAL ANNUAL COST	**$1,387,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$1,476
Per 1,000 Gallons	$4.53
UNIT COSTS (After Amortization)	
Per Acre-Foot	$672
Per 1,000 Gallons	$2.06

PROJECT EVALUATION

This strategy benefits the City of Chandler in Henderson County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. Developing groundwater supplies in Henderson County will have no other apparent impact on other state water resources. However, the supply quantity from this strategy would exceed the Carrizo-Wilcox MAG in Henderson County, so this strategy is designated as an alternative strategy rather than recommended. This strategy does not involve a voluntary redistribution of water from a rural and/or agricultural area, so it will have low to no third-party social and economic impact to those areas. Chandler is a rural WUG, and this strategy will benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 100% of supply need
Reliability	2	Medium to high reliable supply historically. However, there is limited to no MAG from the Carrizo-Wilcox Aquifer in Henderson County, so long-term reliability is uncertain
Cost	3	Medium cost ($1,000 to $3,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	3	Chandler is the local sponsor.
Implementation Issues	2	Supply quantity exceeds the Carrizo-Wilcox MAG in Henderson County.

REFERENCES

East Texas Regional Water Planning Group.

HENDERSON COUNTY MINING – NEW GROUNDWATER WELLS IN QUEEN CITY AQUIFER

Entity Name:	Mining, Henderson County
Strategy Name:	New Groundwater Wells in Queen City Aquifer
Strategy ID:	HDSN-MIN
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	170 ac-ft per year (0.15 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$471,000 (September 2023)
Annual Cost:	$40,000
Unit Water Cost (Rounded):	$235 per ac-ft ($0.72 per 1,000 gallons)

STRATEGY DESCRIPTION

Mining water users in Henderson County were identified to have a need of approximately 15 acre-feet per year beginning in 2030 and 150 acre-feet per year by 2080. To meet these projected needs, a strategy is recommended for mining water users in Henderson County that involves the development of a new well field. The well field is assumed to produce groundwater from the Queen City Aquifer.

Generalized estimates of infrastructure are included as part of this strategy. Ultimately, individual entities will need to develop infrastructure based on their individualized needs for water supply. The conceptual design for this strategy involves construction of a new well field comprised of two wells (100 gpm capacity, 200 feet depth each). A peaking factor of two was assumed to size infrastructure at this well field.

SUPPLY DEVELOPMENT

The estimated supply quantity from this strategy is approximately 170 acre-feet per year based on the maximum identified need for mining water users in Henderson County across the planning horizon (2030-2080). There is sufficient modeled available groundwater in the Queen City Aquifer in Henderson County to develop the supply assumed for this water management strategy. This strategy is projected to be able to provide supply by 2030. Overall, the reliability of this supply is considered medium to high, based on the historical use of this groundwater source and groundwater availability models.

ENVIRONMENTAL CONSIDERATIONS

There are not any significant environmental considerations associated with this strategy and environmental impacts are expected to be low. However, the environmental impacts of developing infrastructure are site-specific and will be dependent upon the location and size of the project. Site-specific evaluations of potential impacts to the environment from construction activities will need to be conducted by individual entities. This strategy is anticipated to have a minimal impact on environmental water needs, low impact to the surrounding habitat, and a low impact to cultural resources in the area due to the relatively small footprint of this strategy. The potential impact to surrounding habitat and cultural resources will need to be evaluated by entities on a project-specific basis.

PERMITTING AND DEVELOPMENT

This strategy is located within the Neches & Trinity Valleys Groundwater Conservation District (NTVGCD).

Any new groundwater withdrawal by either of these proposed facilities will require that an operating permit from the NTVGCD be obtained.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs assume a new well field comprised of two wells and 700 feet of piping to produce groundwater for local mining water users in Henderson County.

WUG	Mining, Henderson County
STRATEGY	New Wells in Queen City Aquifer
QUANTITY (AC-FT/YR)	150

CAPITAL COST	
Well Fields (Wells, Pumps, and Piping)	$317,000
TOTAL COST OF FACILITIES	**$317,000**
- Planning (3%)	$10,000
- Design (7%)	$22,000
- Construction Engineering (1%)	$3,000
Legal Assistance (2%)	$6,000
Fiscal Services (2%)	$6,000
Pipeline Contingency (15%)	$0
All Other Facilities Contingency (20%)	$63,000
Environmental & Archaeology Studies and Mitigation	$16,000
Land Acquisition and Surveying (11 acres)	$13,000
Interest During Construction (3.5% for 1 years with a 0.5% ROI)	$15,000
TOTAL COST OF PROJECT	**$471,000**
ANNUAL COST	
Debt Service (3.5 percent, 20 years)	$33,000
Operation and Maintenance	
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)	$3,000
Intakes and Pump Stations (2.5% of Cost of Facilities)	$0
Water Treatment Plant	$0
Pumping Energy Costs (45,440 kW-hr @ 0.09 $/kW-hr)	$4,000
TOTAL ANNUAL COST	**$40,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$267
Per 1,000 Gallons	$0.82
UNIT COSTS (After Amortization)	
Per Acre-Foot	$47
Per 1,000 Gallons	$0.14

PROJECT EVALUATION

This strategy benefits mining water users in Henderson County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. Developing groundwater supplies in Henderson County will have no other apparent impact on other state water resources. This strategy does not involve a voluntary redistribution of water from a rural and/or agricultural area, so it will have low to no third-party social and economic impact to those areas.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 100% of supply need
Reliability	4	Medium to high reliable supply
Cost	4	Low cost (< $1,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	1	Local sponsorship unknown
Implementation Issues	4	No known risks

REFERENCES

East Texas Regional Water Planning Group.

TDCJ EASTHAM UNIT – NEW GROUNDWATER WELLS IN CARRIZO-WILCOX AQUIFER

Entity Name:	TDCJ Eastham Unit (Houston County)
Strategy Name:	New Groundwater Wells in Carrizo-Wilcox Aquifer
Strategy ID:	HOUS-TDCJ
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	120 ac-ft per year (0.11 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$5,018,000 (September 2023)
ANNUAL COST:	$538,000
Unit Water Cost (Rounded):	$4,858 per ac-ft ($14.91 per 1,000 gallons)

STRATEGY DESCRIPTION

TDCJ Eastham Unit is a municipal water user in Houston County. This water user currently relies on groundwater in the Carrizo-Wilcox Aquifer in Houston County. TDCJ Eastham Unit has a need of approximately 113 ac-ft per year. To meet this need, it is recommended that TDCJ Eastham Unit continue to use supplies from Carrizo-Wilcox Aquifer by drilling additional wells to meet future water demands. A recommended strategy is included for TDCJ Eastham to develop an additional groundwater well and associated infrastructure to provide supply to potential future water demands.

A strategy is recommended for TDCJ Eastham that involves the development of approximately 200 acre-feet per year from the Carrizo-Wilcox Aquifer in Houston County. The conceptual design for this strategy involves one public supply well (capacity of 200 gpm, depth of 200 ft) that produces groundwater from the Carrizo-Wilcox Aquifer, conveyance infrastructure (e.g., well collection piping, transmission pipeline, pump station, and storage tank), and a groundwater treatment system. A peaking factor of two was assumed to size infrastructure at this well field.

SUPPLY DEVELOPMENT

The supply is required starting in 2030. The estimated supply quantity from this strategy is approximately 200 ac-ft per year based on a peaking factor of 2. There is sufficient modeled available groundwater in the Carrizo-Wilcox Aquifer in Houston County to develop the supply assumed for this water management strategy. This strategy is projected to be able to provide supply by 2030. Overall, the reliability of this supply is considered medium to high, based on the proven use of this groundwater source and groundwater availability models.

ENVIRONMENTAL CONSIDERATIONS

The environmental impacts from this strategy are expected to be low. However, groundwater development from this source should be evaluated for potential impacts on spring flows and base flows if surface water is in close proximity. The impact to the environment due to pipeline construction is expected to be temporary and minimal. Impacts to environmental water needs, habitat, and cultural resources are expected to be low due to the relatively low footprint of this strategy.

PERMITTING AND DEVELOPMENT

This strategy is located within the Neches & Trinity Valleys Groundwater Conservation District (NTVGCD). Any new groundwater withdrawal by either of these proposed facilities will require that an operating permit from the NTVGCD be obtained.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs account for one well, 600 feet of well field piping, one mile of transmission pipeline, a pump station, storage tank, and a groundwater treatment system.

WUG	**TDCJ Eastham Unit, Houston County**
STRATEGY	**New Wells in Carrizo-Wilcox Aquifer**
QUANTITY (AC-FT/YR)	**120**
CAPITAL COST	
Intake Pump Stations	$660,000
Transmission Pipeline (6 in. dia., 0.1 miles)	$747,000
Well Fields (Wells, Pumps, and Piping)	$444,000
Storage Tanks (Other Than at Booster Pump Stations)	$1,051,000
Water Treatment Plant (0.3 MGD)	$568,000
TOTAL COST OF FACILITIES	**$3,471,000**
- Planning (3%)	$104,000
- Design (7%)	$243,000
- Construction Engineering (1%)	$35,000
Legal Assistance (2%)	$69,000
Fiscal Services (2%)	$69,000
Pipeline Contingency (15%)	$112,000
All Other Facilities Contingency (20%)	$545,000
Environmental & Archaeology Studies and Mitigation	$107,000
Land Acquisition and Surveying (10 acres)	$105,000
Interest During Construction (3.5% for 1 years with a 0.5% ROI)	$158,000
TOTAL COST OF PROJECT	**$5,018,000**
ANNUAL COST	
Debt Service (3.5 percent, 20 years)	$353,000
Operation and Maintenance	
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)	$22,000
Intakes and Pump Stations (2.5% of Cost of Facilities)	$17,000
Water Treatment Plant	$187,000
Pumping Energy Costs (49,453 kW-hr @ 0.09 $/kW-hr)	$4,000
TOTAL ANNUAL COST	**$583,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$4,858
Per 1,000 Gallons	$14.91
UNIT COSTS (After Amortization)	
Per Acre-Foot	$1,917
Per 1,000 Gallons	$5.88

PROJECT EVALUATION

This strategy benefits municipal user TDCJ Eastham in Houston County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. Developing groundwater supplies in Houston County will have no other apparent impact on other state water resources. This strategy does not involve a voluntary redistribution of water from a rural and/or agricultural area, so it will have low to no third-party social and economic impact to those areas. TDCJ Eastham Unit is a rural WUG, and this strategy will benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 100% of supply need
Reliability	4	Medium to high reliable supply
Cost	2	Medium to high cost ($3,000 to $5,000/ac-ft)
Environmental Factors	3	Low to medium Impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no negative impacts and/or some positive impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	3	Sponsor Identified
Implementation Issues	4	Low implementation issues

REFERENCES

East Texas Regional Water Planning Group.

HOUSTON COUNTY LIVESTOCK – NEW GROUNDWATER WELL IN CARRIZO-WILCOX AQUIFER

Entity Name:	Houston County Livestock
Strategy Name:	New Groundwater Wells in Carrizo-Wilcox Aquifer
Strategy ID:	HOUS-LTK
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	290 ac-ft per year (0.26 MGD)
Implementation Decade:	2060
Development Timeline:	< 5 years
Project Capital Cost:	$969,000 (September 2023)
Annual Cost:	$87,000
Unit Water Cost:	$300 per ac-ft
(Rounded):	($0.92 per 1,000 gallons)

STRATEGY DESCRIPTION

Livestock water users in Houston County currently rely on groundwater from the Carrizo-Wilcox Aquifer. Livestock has identified need during the current planning cycle based on their projected demand and currently available supply. Five groundwater wells and associated infrastructure are recommended to provide supply to potential future water demands.

A strategy is recommended for Houston County livestock that involves the development of approximately 290 ac-ft per year from the Carrizo-Wilcox Aquifer in Houston County. The conceptual design for this strategy involves five public supply wells (capacity of 50 gpm, depth of 300 ft per well) that produce groundwater from the Carrizo-Wilcox Aquifer and conveyance infrastructure. A peaking factor of two was assumed to size infrastructure at this well field.

SUPPLY DEVELOPMENT

The estimated supply quantity from this strategy is approximately 290 ac-ft per year based on a peaking factor of 2. There is sufficient modeled available groundwater in the Carrizo-Wilcox Aquifer in Houston County to develop the supply assumed for this water management strategy. This strategy is projected to be able to provide supply by 2060. Overall, the reliability of this supply is considered medium to high, based on the proven use of this groundwater source and groundwater availability models.

ENVIRONMENTAL CONSIDERATIONS

The environmental impacts from this strategy are expected to be low. However, groundwater development from this source should be evaluated for potential impacts on spring flows and base flows if surface water is in close proximity. The impact to the environment due to pipeline construction is expected to be temporary and minimal. Impacts to environmental water needs, habitat, and cultural resources are expected to be low.

PERMITTING AND DEVELOPMENT

There are no anticipated permitting or development issues associated with this strategy. Currently, there is no groundwater conservation district in Houston County.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs account for five wells, pumps, and piping.

WUG	**Houston County Livestock**	
STRATEGY	**New Wells in Carrizo-Wilcox Aquifer (Alternative)**	
QUANTITY (AC-FT/YR)	**290**	
CAPITAL COST		
Well Fields (Wells, Pumps, and Piping)		$637,000
TOTAL COST OF FACILITIES		**$637,000**
- Planning (3%)		$19,000
- Design (7%)		$45,000
- Construction Engineering (1%)		$6,000
Legal Assistance (2%)		$13,000
Fiscal Services (2%)		$13,000
All Other Facilities Contingency (20%)		$127,000
Environmental & Archaeology Studies and Mitigation		$43,000
Land Acquisition and Surveying (3 acres)		$35,000
Interest During Construction (3.5% for 1 years with a 0.5% ROI)		$31,000
TOTAL COST OF PROJECT		**$969,000**
ANNUAL COST		
Debt Service (3.5 percent, 20 years)		$68,000
Operation and Maintenance		
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)		$6,000
Pumping Energy Costs (287,550 kW-hr @ 0.09 $/kW-hr)		$13,000
TOTAL ANNUAL COST		**$87,000**
UNIT COSTS (Until Amortized)		
Per Acre-Foot		$300
Per 1,000 Gallons		$0.92
UNIT COSTS (After Amortization)		
Per Acre-Foot		$66
Per 1,000 Gallons		$0.20

PROJECT EVALUATION

This strategy benefits livestock users in Houston County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. New groundwater wells in the county will reduce demands on other water supplies in Houston County and will have no other apparent impact on other State water resources. This strategy does not involve a voluntary redistribution of water from a rural and/or agricultural area, so it will have low to no third-party social and economic impact to those areas.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 100% of supply need
Reliability	4	Medium to high reliable supply
Cost	4	Low cost (<$1,000/ac-ft)
Environmental Factors	3	Low to medium Impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no negative impacts and/or some positive impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	1	No sponsor readily identifiable.
Implementation Issues	4	Low implementation issues

REFERENCES

East Texas Regional Water Planning Group.

SOUTH JASPER COUNTY WSC – NEW GROUNDWATER WELL IN GULF COAST AQUIFER

Entity Name:	South Jasper County WSC (Jasper County)
Strategy Name:	New Groundwater Well in Gulf Coast Aquifer
Strategy ID:	SJWS-GW
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	330 ac-ft per year (0.29 MGD)
Implementation Decade:	2040
Development Timeline:	< 5 years
Project Capital Cost:	$6,553,000 (September 2023)
Annual Cost:	$812,000
Unit Water Cost (Rounded):	$2,461 per ac-ft ($7.55 per 1,000 gallons)

STRATEGY DESCRIPTION

South Jasper WSC is a municipal water user group in Jasper County. This water user currently relies on groundwater from the Gulf Coast Aquifer System in Jasper County. South Jasper WSC has no identified need during the current planning cycle based on their projected demand and currently available supply. However, they are considering developing an additional groundwater well and associated infrastructure to provide supply to potential future water demands.

A strategy is recommended for South Jasper WSC that involves the development of approximately 330 acre-feet per year from the Gulf Coast Aquifer in Jasper County. The conceptual design for this strategy involves one public supply well (capacity of 400 gpm, depth of 800 ft) that produces groundwater from the Gulf Coast Aquifer, conveyance infrastructure (e.g., well collection piping, transmission pipeline, pump station, and storage tank), and a groundwater treatment system. A peaking factor of two was assumed to size infrastructure at this well field.

SUPPLY DEVELOPMENT

The estimated supply quantity from this strategy is approximately 330 ac-ft per year based on a peaking factor of 2. There is sufficient modeled available groundwater in the Gulf Coast Aquifer in Jasper County to develop the supply assumed for this water management strategy. This strategy is projected to be able to provide supply by 2040. Overall, the reliability of this supply is considered medium to high, based on the proven use of this groundwater source and groundwater availability models.

ENVIRONMENTAL CONSIDERATIONS

The environmental impacts from this strategy are expected to be low. However, groundwater development from this source should be evaluated for potential impacts on spring flows and base flows if surface water is in close proximity. The impact to the environment due to pipeline construction is expected to be temporary and minimal. Impacts to environmental water needs, habitat, and cultural resources are expected to be low due to the relatively low footprint of this strategy.

PERMITTING AND DEVELOPMENT

This strategy is located within the Southeast Texas Groundwater Conservation District (SETGCD). Any additional groundwater withdrawal by South Jasper WSC will require that an operating permit from the

SETGCD be obtained.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs assume account for one well, 600 feet of well field piping, one mile of transmission pipeline, a pump station, storage tank, and a groundwater treatment system.

WUG	**South Jasper WSC**
STRATEGY	**New Well in Gulf Coast Aquifer**
QUANTITY (AC-FT/YR)	**330**
CAPITAL COST	
Booster Pump Stations	$700,000
Transmission Pipeline (8 in. dia., 1 mile)	$871,000
Well Fields (Wells, Pumps, and Piping)	$1,023,000
Storage Tanks (Other Than at Booster Pump Stations)	$1,078,000
Water Treatment Plant (0.6 MGD)	$904,000
Integration, Relocations, Backup Generator & Other	$1,000
TOTAL COST OF FACILITIES	**$4,577,000**
- Planning (3%)	$137,000
- Design (7%)	$320,000
- Construction Engineering (1%)	$46,000
Legal Assistance (2%)	$92,000
Fiscal Services (2%)	$92,000
Pipeline Contingency (15%)	$131,000
All Other Facilities Contingency (20%)	$741,000
Environmental & Archaeology Studies and Mitigation	$106,000
Land Acquisition and Surveying (10 acres)	$104,000
Interest During Construction (3.5% for 1 years with a 0.5% ROI)	$207,000
TOTAL COST OF PROJECT	**$6,553,000**
ANNUAL COST	
Debt Service (3.5 percent, 20 years)	$461,000
Operation and Maintenance	
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)	$30,000
Intakes and Pump Stations (2.5% of Cost of Facilities)	$18,000
Water Treatment Plant	$298,000
Pumping Energy Costs (58,985 kW-hr @ 0.09 $/kW-hr)	$5,000
TOTAL ANNUAL COST	**$812,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$2,461
Per 1,000 Gallons	$7.55
UNIT COSTS (After Amortization)	
Per Acre-Foot	$1,064
Per 1,000 Gallons	$3.26

PROJECT EVALUATION

This strategy benefits South Jasper WSC and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. Developing groundwater supplies in Jasper County will have no other apparent impact on other state water resources. This strategy does not involve a voluntary redistribution of water from a rural and/or agricultural area, so it will have low to no third-party social and economic impact to those areas. South Jasper WSC is a rural WUG, and this strategy will benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	5	No shortage identified for WUG. Supply would be surplus.
Reliability	4	Medium to high reliable supply
Cost	3	Medium cost ($1,000 to $3,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	4	Low to no impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	4	Sponsor identified, committed to strategy
Implementation Issues	4	No known risks

REFERENCES

Correspondence with South Jasper WSC for the 2026 East Texas Regional Water Plan.

JASPER COUNTY MANUFACTURING – PURCHASE FROM LNVA

Entity Name:	Manufacturing, Jasper County
Strategy Name:	Purchase from LNVA (Sam Rayburn)
Strategy ID:	JASP-MFG
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	460 - 11,950 ac-ft per year (0.41 - 10.7 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$159,597,000 (September 2023)
Annual Cost:	$17,386,000
Unit Water Cost (Rounded):	$1,076 per ac-ft ($3.30 per 1,000 gallons)

STRATEGY DESCRIPTION

Manufacturing water users in Jasper County were identified to have a need for approximately 500 ac-ft per year in 2030 and 12,000 ac-ft per year by 2080. In order to meet this need, a recommended water management project is included for individual manufacturers to enter into a contract with the Lower Neches Valley Authority (LNVA) for raw water from their Sam Rayburn system, as their permit allows. LNVA currently supplies water to manufacturing water users in Jasper County. Most of the need identified is associated with projected growth in manufacturing demand in Jasper County over the planning horizon. Thus, generalized estimates of infrastructure needed to access supplies from LNVA are included as part of this strategy. Ultimately, individual manufacturing entities will need to develop infrastructure based on their individualized needs for water supply. The cost estimate included in this technical memorandum utilizes an assumed rate for the East Texas Regional Water Planning Area regional rate for raw surface water. Ultimately, this cost will need to be negotiated between individual manufacturers and LNVA and will reflect their wholesale water rates at that time.

SUPPLY DEVELOPMENT

The strategy recommended for Jasper County manufacturing is assumed to be equal to the need projected for this entity during the planning period (2030-2080). The contract with LNVA required for this strategy increases their supply by approximately 500 ac-ft per year beginning in 2030 and increases over time to approximately 12,000 ac-ft per year by 2080. These supplies are considered highly reliable; however, the supply is dependent on coordination with the Lower Neches Valley Authority.

ENVIRONMENTAL CONSIDERATIONS

There are not any significant environmental considerations associated with this strategy. The environmental impacts of developing infrastructure are site-specific and will be dependent upon the location and size of the project. Site-specific evaluations of potential impacts to the environment from construction activities will need to be conducted by individual entities. A contract between manufacturers in Jasper County and the Lower Neches Valley Authority are anticipated to have a minimal impact on environmental water needs, low impact to the surrounding habitat, and a low impact to cultural resources in the area. The potential impact to surrounding habitat and cultural resources will need to be evaluated by entities on a project-specific basis. There is no impact expected on bays or estuaries associated with this strategy since it is in Jasper County.

PERMITTING AND DEVELOPMENT

There are no permitting or development issues associated with this strategy. There may be some minor permitting related to construction of the infrastructure required associated with this strategy.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. Generalized estimates of conveyance infrastructure to access and deliver supply from LNVA, including pipeline, intake pump stations, and storage, are included as part of this strategy. A regional rate for raw surface water was used for the purchase costs ($1.00 per 1,000 gallons).

WUG	**Jasper County - Manufacturing**				
STRATEGY:	**Purchase from Lower Neches Valley Authority (Sam Rayburn)**				
QUANTITY (AC-FT/YR)	**500 – 12,000**				
CAPITAL COST					
Pipelines	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	8 – 16 in.	158,400	LF		$47,187,000
Rural Right of Way (ROW) Easements and Surveying (73)			Acres	$9,038	$726,000
Engineering and Contingencies (30%)					$14,154,000
Subtotal of Pipeline(s)	**5**	**miles per pipeline**			**$62,067,000**
Pump Station(s)					
Pump with intake	87 – 341 HP	6	LS		$58,583,000
Power connection(s)		6	LS		$450,000
Engineering and Contingencies (35%)					$20,637,000
Subtotal of Pump Station(s)					**$79,670,000**
Storage Tanks	0.1 – 0.4 MG	6	LS		$4,579,000
Engineering and Contingencies (35%)					$1,603,000
Subtotal of Storage Tanks					**$6,182,000**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$176,000
Engineering and Contingencies (35%)					$62,000
Subtotal of Integration, Relocations, Backup Generator & Other					**$238,000**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$ 420,000
Environmental - Studies and Mitigation					$ 1,279,330
CONSTRUCTION TOTAL					**$149,855,000**
Interest During Construction (3.5% for 2 years with a 0.5% ROI)					$9,742,000
TOTAL COST OF PROJECT					**$159,597,000**
ANNUAL COST					
Debt Service (3.5% for 20 years)					$11,230,000
Pumping Energy Costs					$259,000
Operation and Maintenance (O&M)					$1,986,000
Raw Water Purchase		3,911,000	1000 gal	$1.00	$3,911,000
TOTAL ANNUAL COST					**$17,386,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot (2030-2080 Average)					$1,076
Per 1,000 Gallons (2030-2080 Average)					$3.30
UNIT COSTS (After Amortization)					
Per Acre-Foot					$513
Per 1,000 Gallons					$1.57

PROJECT EVALUATION

This strategy benefits manufacturers in Jasper County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. A contract to pull water from the Lower Neches Valley Authority's Sam Rayburn system will reduce future demands on other water supplies in Jasper County and is anticipated to have no other apparent impact on other State water resources. This strategy involves a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. However, this supply benefits various industries in those rural areas, which could contribute to their economic growth.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 100% of supply need
Reliability	4	Medium to highly reliable supply
Cost	3	Medium cost ($1,000 to $3,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	No known impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	3	Low impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	1	Local sponsorship unknown
Implementation Issues	4	No known risks

REFERENCES

Discussions with the Lower Neches Valley Authority.

CHINA – NEW GROUNDWATER WELL IN GULF COAST AQUIFER

Entity Name:	China (Jefferson County)
Strategy Name:	New Groundwater Well in Carrizo-Wilcox Aquifer
Strategy ID:	CHNA-GW
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	250 ac-ft per year (0.22 MGD)
Implementation Decade:	2040
Development Timeline:	< 5 years
Project Capital Cost:	$6,182,000 (September 2023)
ANNUAL COST:	$741,000
Unit Water Cost (Rounded):	$2,964 per ac-ft ($9.09 per 1,000 gallons)

STRATEGY DESCRIPTION

China is a municipal water user group in Jefferson County. This water user currently relies on groundwater from the Gulf Coast Aquifer in Jefferson County. China has no identified need during the current planning cycle based on their projected demand and currently available supply. However, the City is considering developing an additional groundwater well and associated infrastructure to provide supply to potential future water demands.

A strategy is recommended for China that involves the development of approximately 250 acre-feet per year from the Gulf Coast Aquifer in Jefferson County. The conceptual design for this strategy involves one public supply well (capacity of 300 gpm, depth of 250 ft) that produces groundwater from the Gulf Coast Aquifer, conveyance infrastructure (e.g., well collection piping, transmission pipeline, pump station, and storage tank), and a groundwater treatment system. A peaking factor of two was assumed to size infrastructure at this well field.

SUPPLY DEVELOPMENT

The estimated supply quantity from this strategy is approximately 250 ac-ft per year based on a peaking factor of 2. There is sufficient modeled available groundwater in the Gulf Coast Aquifer in Jefferson County to develop the supply assumed for this water management strategy. This strategy is projected to be able to provide supply by 2040. Overall, the reliability of this supply is considered medium to high, based on the proven use of this groundwater source and groundwater availability models.

ENVIRONMENTAL CONSIDERATIONS

The environmental impacts from this strategy are expected to be low. However, groundwater development from this source should be evaluated for potential impacts on spring flows and base flows if surface water is in close proximity. The impact to the environment due to pipeline construction is expected to be temporary and minimal. Impacts to environmental water needs, habitat, and cultural resources are expected to be low due to the relatively low footprint of this strategy.

PERMITTING AND DEVELOPMENT

There are no anticipated permitting or development issues associated with this strategy. Currently, there is no groundwater conservation district in Jefferson County.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs assume account for one well, 2,100 feet of well field piping, one mile of transmission pipeline, a pump station, storage tank, and a groundwater treatment system.

WUG	China	
STRATEGY	**New Well in Gulf Coast Aquifer**	
QUANTITY (AC-FT/YR)	**250**	
CAPITAL COST		
Booster Pump Stations		$672,000
Transmission Pipeline (6 in. dia., 0.1 miles)		$871,000
Well Fields (Wells, Pumps, and Piping)		$820,000
Storage Tanks (Other Than at Booster Pump Stations)		$1,065,000
Water Treatment Plant (0.3 MGD)		$736,000
Integration, Relocations, Backup Generator & Other		$1,000
TOTAL COST OF FACILITIES		**$4,165,000**
- Planning (3%)		$125,000
- Design (7%)		$291,000
- Construction Engineering (1%)		$42,000
Legal Assistance (2%)		$83,000
Fiscal Services (2%)		$83,000
Pipeline Contingency (15%)		$131,000
All Other Facilities Contingency (20%)		$659,000
Environmental & Archaeology Studies and Mitigation		$194,000
Land Acquisition and Surveying (11 acres)		$214,000
Interest During Construction (3.5% for 1 years with a 0.5% ROI)		$195,000
TOTAL COST OF PROJECT		**$6,182,000**
ANNUAL COST		
Debt Service (3.5 percent, 20 years)		$435,000
Operation and Maintenance		
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)		$28,000
Intakes and Pump Stations (2.5% of Cost of Facilities)		$17,000
Water Treatment Plant		$243,000
Pumping Energy Costs (196,295 kW-hr @ 0.09 $/kW-hr)		$18,000
TOTAL ANNUAL COST		**$525,000**
UNIT COSTS (Until Amortized)		
Per Acre-Foot		$2,967
Per 1,000 Gallons		$9.09
UNIT COSTS (After Amortization)		
Per Acre-Foot		$1,224
Per 1,000 Gallons		$3.76

PROJECT EVALUATION

This strategy benefits China and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. Developing groundwater supplies in Jefferson County will have no other apparent impact on other state water resources. This strategy does not involve a voluntary redistribution of water from a rural and/or agricultural area, so it will have low to no third-party social and economic impact to those areas. China is a rural WUG, and this strategy will benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	5	No shortage identified for WUG. Supply would be surplus.
Reliability	4	Medium to high reliable supply
Cost	3	Medium cost ($1,000 to $3,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	4	Sponsor identified, committed to strategy
Implementation Issues	4	No known risks

REFERENCES

Correspondence with China for the 2026 East Texas Regional Water Plan.

JEFFERSON COUNTY MANUFACTURING – PURCHASE FROM LNVA

Entity Name:	Manufacturing, Jefferson County
Strategy Name:	Purchase from Lower Neches Valley Authority (Sam Rayburn)
Strategy ID:	JEFF-MFG
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	6,100 – 175,100 ac-ft per year (5.4 – 156.3 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$692,273,000 (September 2023)
ANNUAL COST:	$116,348,000
Unit Water Cost (Rounded):	$558 per ac-ft ($1.71 per 1,000 gallons)

STRATEGY DESCRIPTION

Manufacturing water users in Jefferson County were identified to have a need for approximately 6,000 ac-ft per year in 2030 and 175,000 ac-ft per year by 2080. In order to meet this need, a recommended strategy is included for individual manufacturers to enter into a contract with the Lower Neches Valley Authority (LNVA) for raw water from their Sam Rayburn system, as their permit allows. LNVA currently supplies water to manufacturing water users in Jefferson County. Most of the need identified is associated with projected growth in manufacturing demand in Jefferson County over the planning horizon. Thus, generalized estimates of infrastructure needed to access supplies from LNVA are included as part of this strategy. Ultimately, individual manufacturing entities will need to develop infrastructure based on their individualized needs for water supply. The cost estimate included in this technical memorandum utilizes an assumed rate for the East Texas Regional Water Planning Area regional rate for raw surface water. Ultimately, this cost will need to be negotiated between individual manufacturers and LNVA and will reflect their wholesale water rates at that time.

SUPPLY DEVELOPMENT

The strategy recommended for Jefferson County manufacturing is assumed to be equal to the need projected for this entity during the planning period (2030-2080). The contract with LNVA required for this strategy increases their supply by approximately 6,100 ac-ft per year beginning in 2030 and increases over time to approximately 175,100 ac-ft per year by 2080. These supplies are considered highly reliable; however, the supply is dependent on coordination with the Lower Neches Valley Authority.

ENVIRONMENTAL CONSIDERATIONS

There are not any significant environmental considerations associated with this strategy. The environmental impacts of developing infrastructure are site-specific and will be dependent upon the location and size of the project. Site-specific evaluations of potential impacts to the environment from construction activities will need to be conducted by individual entities. A contract between manufacturers in Jefferson County and the Lower Neches Valley Authority should have a minimal impact on environmental water needs, low impact to the surrounding habitat, and a low impact to cultural resources in the area. Jefferson County is located along the Gulf Coast adjacent to bays and estuaries. The potential impact to surrounding habitat, cultural resources, and/or bays and estuaries will need to be evaluated by entities on a project-specific basis.

PERMITTING AND DEVELOPMENT

There are no permitting or development issues associated with this strategy. There may be some minor permitting related to construction of the infrastructure required associated with this strategy.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. Generalized estimates of conveyance infrastructure to access and deliver supply from LNVA, including pipeline, intake pump stations, and storage, are included as part of this strategy. A regional rate for raw surface water was used for the purchase costs ($1.00 per 1,000 gallons).

WUG	**Jefferson County - Manufacturing**				
STRATEGY	**Purchase from Lower Neches Valley Authority (Sam Rayburn)**				
QUANTITY (AC-FT/YR)	**6,100 – 175,100**				
CAPITAL COST					
Pipelines	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	24 – 60 in.	158,400	LF		$181,512,000
Rural Right of Way (ROW) Easements and Surveying		133	Acres	$17,500	$2,568,000
Engineering and Contingencies (30%)					$54,454,000
Subtotal of Pipeline(s)	**5**	**miles per pipeline**			**$238,534,000**
Pump Station(s)					
Pump with intake	426 – 2,032 HP	6	LS		$280,041,000
Power connection(s)		6	LS		$2,045,000
Engineering and Contingencies (35%)					$98,731,000
Subtotal of Pump Station(s)					**$380,817,000**
Storage Tanks	0.9 – 5.8 MG	6	LS		$19,462,000
Engineering and Contingencies (35%)					$6,812,000
Subtotal of Storage Tanks					**$26,274,000**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$1,443,000
Engineering and Contingencies (35%)					$506,000
Subtotal of Integration, Relocations, Backup Generator & Other					**$1,949,000**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$810,000
Environmental - Studies and Mitigation					$1,635,000
CONSTRUCTION TOTAL					**$650,022,000**
Interest During Construction (3.5% for 2 years with a 0.5% ROI)					$42,251,000
TOTAL COST OF PROJECT					**$692,273,000**
ANNUAL COST					
Debt Service (3.5% for 20 years)					$48,710,000
Pumping Energy Costs					$2,132,000
Operation and Maintenance (O&M)					$9,029,000
Raw Water Purchase		56,477,000	1000 gal	$1.00	$56,477,000
TOTAL ANNUAL COST					**$116,348,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot (2030-2080 Average)					$558
Per 1,000 Gallons (2030-2080 Average)					$1.71
UNIT COSTS (After Amortization)					
Per Acre-Foot					$390
Per 1,000 Gallons					$1.20

PROJECT EVALUATION

This strategy benefits manufacturers in Jefferson County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. A contract to pull water from the Lower Neches Valley Authority's Sam Rayburn system will reduce future demands on other water supplies in Jefferson County and is anticipated to have no other apparent impact on other State water resources. This strategy involves a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. However, this supply benefits various industries in those rural areas, which could contribute to their economic growth.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 100% of supply need
Reliability	4	Medium to highly reliable supply
Cost	4	Low cost (< $1,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	No known impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	3	Low impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	1	Local sponsorship unknown
Implementation Issues	4	No known risks

REFERENCES

Discussions with the Lower Neches Valley Authority.

NACOGDOCHES COUNTY-OTHER – LAKE NACONICHE REGIONAL WATER SYSTEM

Entity Name:	Multiple Water Users in Nacogdoches County
Strategy Name:	Lake Naconiche Regional Water System
Strategy ID:	NACW-NAC
Strategy Type:	New Surface Water Source
Potential Supply Quantity:	1,700 ac-ft per year (1.5 MGD)
Implementation Decade:	2040
Development Timeline:	5-10 years
Project Capital Cost:	$105,317,000 (September 2023)
Annual Cost:	$11,116,000
Unit Water Cost (Rounded):	$6,539 per ac-ft ($20.07 per 1,000 gallons)

STRATEGY DESCRIPTION

Lake Naconiche is located in northeast Nacogdoches County on Naconiche Creek. Construction of the Lake Naconiche dam was completed in 2006. This lake was built by the Natural Resources Conservation Service (NRCS) for flood storage and recreation, but there are plans to develop water supply from the lake for rural communities. A study was completed in 1992 that evaluated a potential regional water system using water from Lake Naconiche. A strategy is recommended for the development of a regional water system from Lake Naconiche to provide water to several rural WUGs and users in Nacogdoches County-Other.

This strategy includes a new lake intake, a new surface water treatment plant located near Lake Naconiche, and regional distribution system that includes pipelines, pump stations, and storage tanks to deliver supply to water users. The project is initially sized for 3 MGD peak capacity and is estimated to provide a supply of approximately 1,700 ac-ft per year.

SUPPLY DEVELOPMENT

Under Water Right Permit Number 5585, Lake Naconiche is authorized to store 9,072 ac-ft of water for flood control and recreational purposes. To use water from Lake Naconiche for water supply, the County must seek a permit amendment to divert for other purposes. According to the Neches WAM, the firm yield of the lake is approximately 4,500 ac-ft per year.

It is assumed that the regional water system would serve County-Other entities in Nacogdoches County (including Caro WSC, Lilbert-Looneyville, Libby and others), Appleby WSC, Lily Grove WSC and Swift WSC. At this time, the primary sponsor of the system has not been confirmed. The sponsor could possibly be one of the entities served or a new water provider dedicated to the operation of this system.

ENVIRONMENTAL CONSIDERATIONS

The impact on the environment due to the construction of infrastructure associated with this strategy is expected to be low to medium. There may be some surface disturbance associated with the construction of infrastructure, but it is expected to occur primarily on land that is previously disturbed. In addition, it is anticipated that this strategy will have a minimal impact on environmental water needs, a low impact on the surrounding habitat, and a low impact on cultural resources in the area. There are no bays or estuaries in close proximity to Nacogdoches County, so this project is anticipated to have no impact.

PERMITTING AND DEVELOPMENT

The water right permit for Lake Naconiche has to be changed from recreational use to multi-purpose use. In 2017, Nacogdoches County submitted an application to TCEQ to amend the Lake Naconiche water right to authorize the diversion and use of up to 4,750 ac-ft per year from the lake for municipal, industrial, and agricultural purposes in Nacogdoches County. This application is pending TCEQ review.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs assumed 28 miles of pipeline (serving all the potential customers for this source of supply), a pump station with an intake, a booster pump station, a 3 MGD treatment plant, and one terminal storage tank with 0.38 MG of storage. A regional rate to purchase treated surface was included in the annual cost ($5.00 per 1,000 gallons). Ultimately, this cost will need to be negotiated between individual users and the ultimate sponsor of the project and will reflect the wholesale water rates at that time.

The costs for each participant are based on the unit cost of water for the strategy and capital costs are proportioned by strategy amounts. Actual individual costs would be negotiated by each user.

WUG	**Nacogdoches County-Other**				
STRATEGY	**Lake Naconiche Regional Water System - Phase 1**				
QUANTITY (AC-FT/YR)	**1,700**				
CAPITAL COSTS					
Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Total		147,840	LF	Varies	$29,851,000
Right of Way (ROW) Easements and Surveying		68	Acres	$9,250	$691,000
Engineering and Contingencies (30%)					$8,955,000
Subtotal of Pipeline					**$39,497,000**
Pump Station(s)					
Booster Pump Station	240 HP	1	LS	$2,547,000	$2,547,000
Lake Intake Pump Station	240 HP	1	LS	$6,972,000	$6,972,000
Power connection(s)		480	HP	$200	$96,000
Engineering and Contingencies (35%)					$3,365,000
Subtotal of Pump Station(s)					**$12,980,000**
Storage Tanks	0.38 MG	1	LS	$786,000	$786,000
Engineering and Contingencies (35%)					$275,000
Subtotal of Storage Tanks					**$1,061,000**
Water Treatment Plant					
Water Treatment Plant	3.0 MGD	1	LS	$32,742,000	**$32,742,000**
Engineering and Contingencies (35%)					$11,460,000
Subtotal of Water Treatment Plant					**$44,202,000**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$49,000

Engineering and Contingencies (35%)				$17,000
Subtotal of Integration, Relocations, Backup Generator & Other				**$66,000**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)				$127,000
Environmental - Studies and Mitigation				$955,000
Construction Total				**$98,889,000**
Interest During Construction (3.5% for 2 years with a 0.5% ROI)				$6,428,000
TOTAL COST OF PROJECT				**$105,317,000**
ANNUAL COSTS				
Debt Service (3.5% for 20 years)				$7,410,000
Pumping Energy Costs				$72,000
Operation and Maintenance (O&M)				$864,000
Treated Water Purchase	554,000	1000 gal	$5.00	$2,770,000
TOTAL ANNUAL COST				**11,116,000**
UNIT COSTS (Until Amortized)				
Per Acre-Foot				$6,539
Per 1,000 Gallons				$20.07
UNIT COSTS (After Amortization)				
Per Acre-Foot				$2,180
Per 1,000 Gallons				$6.69

PROJECT EVALUATION

This strategy benefits multiple municipal users in Nacogdoches County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. Using supplies from this source will reduce the demands on other water supplies in Nacogdoches County and will have no other apparent impact on other State water resources. From a third party social and economic perspective, this voluntary redistribution of water will be beneficial because it provides water for residents in Nacogdoches County, which could contribute to economic growth.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	5	No shortage identified for WUG. Supply would be surplus.
Reliability	4	Medium to high reliable supply

Cost	1	High cost (>$5,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	5	Involves a voluntary redistribution of water to rural areas across Nacogdoches County
Major Impacts on Key Water Quality Parameters	4	Low to no impacts
Political Feasibility	1	No sponsor readily identifiable
Implementation Issues	3	Water right permit application to TCEQ pending

REFERENCES

2021 East Texas Regional Water Plan.

Texas Commission on Environmental Quality, *Water Right Permit Application No. 5585 to Amend Water Use Permit No. 5585*. 2017.

Texas Natural Resource Conservation Commission, *Water Right Permit Number 5585*. 1998.

D&M WSC - NEW GROUNDWATER WELL IN CARRIZO-WILCOX AQUIFER

Entity Name:	D&M WSC (Nacogdoches County)
Strategy Name:	New Groundwater Well in Carrizo-Wilcox Aquifer
Strategy ID:	NACW-DMW
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	220 ac-ft per year (0.20 MGD)
Implementation Decade:	2040
Development Timeline:	< 5 years
Project Capital Cost:	$5,542,000 (September 2023)
Annual Cost:	$652,000
Unit Water Cost:	$2,964 per ac-ft
Rounded:	($9.09 per 1,000 gallons)

STRATEGY DESCRIPTION

D&M WSC is a municipal water user group in Nacogdoches County. This water user group currently relies on groundwater from the Carrizo-Wilcox Aquifer in Nacogdoches County. D&M WSC has a maximum identified need of 218 ac-ft/yr based on their projected demand and currently available supply. To meet this need, it is recommended that the D&M WSC continue to use supplies from the Carrizo-Wilcox Aquifer by drilling additional wells.

A strategy is recommended for D&M WSC that involves the development of approximately 220 acre-feet per year from the Carrizo-Wilcox Aquifer in Nacogdoches County. The conceptual design for this strategy involves one public supply well (capacity of 250 gpm, depth of 600 ft) that produces groundwater from the Carrizo Wilcox Aquifer, conveyance infrastructure (e.g., well collection piping, transmission pipeline, pump station, and storage tank), and chlorine disinfection. A peaking factor of two was assumed to size infrastructure at this well field.

SUPPLY DEVELOPMENT

The estimated supply quantity from this strategy is approximately 220 ac-ft per year. There is sufficient groundwater available in the Carrizo Wilcox Aquifer in Nacogdoches County to develop the supply assumed for this water management strategy. This strategy is projected to be online and able to provide supply by 2040. Overall, the reliability of this supply is considered medium to high, based on the proven use of this groundwater source and groundwater availability models.

ENVIRONMENTAL CONSIDERATIONS

The environmental impacts from this strategy are expected to be low. However, groundwater development from this source should be evaluated for potential impacts on spring flows and base flows if surface water is in close proximity. The impact to the environment due to pipeline construction is expected to be temporary and minimal. Impacts to environmental water needs, habitat, and cultural resources are expected to be low due to the relatively low footprint of this strategy.

PERMITTING AND DEVELOPMENT

This strategy is located within the Pineywoods Groundwater Conservation District. Any new groundwater withdrawal by either of these proposed facilities will require that an operating permit from the Pineywoods Groundwater Conservation District be obtained.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital cost accounts for one well, 1 mile of pipeline, a pump station, storage tank, and chlorine disinfection.

WUG	**D&M WSC**	
STRATEGY	**New Well in Carrizo-Wilcox Aquifer**	
QUANTITY (AC-FT/YR)	**220**	
CAPITAL COST		
Intake Pump Stations		$680,000
Transmission Pipeline (6 in. dia., 0.1 miles)		$747,000
Well Fields (Wells, Pumps, and Piping)		$708,000
Storage Tanks (Other Than at Booster Pump Stations)		$1,058,000
Water Treatment Plant (0.4 MGD)		$652,000
Integration, Relocations, Backup Generator & Other		$1,000
TOTAL COST OF FACILITIES		**$3,846,000**
- Planning (3%)		$115,000
- Design (7%)		$269,000
- Construction Engineering (1%)		$38,000
Legal Assistance (2%)		$77,000
Fiscal Services (2%)		$77,000
Pipeline Contingency (15%)		$112,000
All Other Facilities Contingency (20%)		$620,000
Environmental & Archaeology Studies and Mitigation		$107,000
Land Acquisition and Surveying (10 acres)		$106,000
Interest During Construction (3.5% for 1 years with a 0.5% ROI)		$175,000
TOTAL COST OF PROJECT		$5,542,000
ANNUAL COST		
Debt Service (3.5 percent, 20 years)		$390,000
Operation and Maintenance		
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)		$25,000
Intakes and Pump Stations (2.5% of Cost of Facilities)		$17,000
Water Treatment Plant		$215,000
Pumping Energy Costs (196,295 kW-hr @ 0.09 $/kW-hr)		$5,000
TOTAL ANNUAL COST		**$652,000**

UNIT COSTS (Until Amortized)	
Per Acre-Foot	$2,964
Per 1,000 Gallons	$9.09
UNIT COSTS (After Amortization)	
Per Acre-Foot	$1,191
Per 1,000 Gallons	$3.65

PROJECT EVALUATION

This strategy benefits D&M WSC and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. Developing groundwater supplies in Nacogdoches County will have no other apparent impact on other state water resources. This strategy does not involve a voluntary redistribution of water from a rural and/or agricultural area, so it will have low to no third-party social and economic impact to those areas.

Based on the conceptual strategy described above, this strategy was evaluated across twelve different criteria for the purpose of quick comparison against other strategies that may be incorporated into the 2026 East Texas Regional Water Plan. The results of this evaluation can be seen in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 75-100% of shortage
Reliability	4	Medium to high reliable supply
Cost	3	Medium cost ($1,000 to $3,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no negative impacts and/or some positive impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	2	Sponsor identifiable.

Implementation Issues	4	Low implementation issues

REFERENCES

2026 East Texas Regional Water Plan.

ORANGE COUNTY WCID 1 – NEW GROUNDWATER WELL IN GULF COAST AQUIFER

Entity Name:	Orange County WCID 1 (Orange County)
Strategy Name:	New Groundwater Well in Gulf Coast Aquifer
Strategy ID:	OCWC-GW
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	1,610 ac-ft per year (1.44 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$9,364,000 (September 2023)
Annual Cost:	$1,512,000
Unit Water Cost (Rounded):	$939 per ac-ft ($2.88 per 1,000 gallons)

STRATEGY DESCRIPTION

Orange County WCID 1 is a municipal water user group in Orange County. This water user currently relies on groundwater from the Gulf Coast Aquifer System in Orange County. Orange County WCID 1 has no identified need during the current planning cycle based on their projected demand and currently available supply. However, they are considering developing an additional groundwater well and associated infrastructure to provide supply to potential future water demands.

A strategy is recommended for Orange County WCID 1 that involves the development of approximately 1,610 acre-feet per year from the Carrizo-Wilcox Aquifer in Rusk County. The conceptual design for this strategy involves one public supply well (capacity of 2,000 gpm, depth of 500 ft) that produces groundwater from the Gulf Coast Aquifer, conveyance infrastructure (e.g., well collection piping, transmission pipeline, pump station, and storage tank), and a groundwater treatment system. A peaking factor of two was assumed to size infrastructure at this well field.

SUPPLY DEVELOPMENT

The estimated supply quantity from this strategy is approximately 1,610 ac-ft per year based on a peaking factor of 2. There is sufficient modeled available groundwater in the Gulf Coast Aquifer in Orange County to develop the supply assumed for this water management strategy. This strategy is projected to be able to provide supply by 2040. Overall, the reliability of this supply is considered medium, based on the proven use of this groundwater source and groundwater availability models.

ENVIRONMENTAL CONSIDERATIONS

The environmental impacts from this strategy are expected to be low. However, groundwater development from this source should be evaluated for potential impacts on spring flows and base flows if surface water is in close proximity. The impact to the environment due to pipeline construction is expected to be temporary and minimal. Impacts to environmental water needs, habitat, and cultural resources are expected to be low due to the relatively low footprint of this strategy.

PERMITTING AND DEVELOPMENT

There are no anticipated permitting or development issues associated with this strategy. Currently, there is no groundwater conservation district in Orange County.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs assume account for one well, 600 feet of well field piping, 0.25 miles of transmission pipeline, a pump station, storage tank, and a groundwater treatment system.

WUG	**Orange County WCID 1**	
STRATEGY	**New Well in Gulf Coast Aquifer**	
QUANTITY (AC-FT/YR)	**1,610**	
CAPITAL COST		
Booster Pump Stations		$949,000
Transmission Pipeline (14 in. dia., 0.3 miles)		$314,000
Well Fields (Wells, Pumps, and Piping)		$1,574,000
Storage Tanks (Other Than at Booster Pump Stations)		$1,297,000
Water Treatment Plant (2.9 MGD)		$2,323,000
Integration, Relocations, Backup Generator & Other		$5,000
TOTAL COST OF FACILITIES		**$6,462,000**
- Planning (3%)		$194,000
- Design (7%)		$452,000
- Construction Engineering (1%)		$65,000
Legal Assistance (2%)		$129,000
Fiscal Services (2%)		$129,000
Pipeline Contingency (15%)		$47,000
All Other Facilities Contingency (20%)		$1,230,000
Environmental & Archaeology Studies and Mitigation		$172,000
Land Acquisition and Surveying (10 acres)		$189,000
Interest During Construction (3.5% for 1 years with a 0.5% ROI)		$295,000
TOTAL COST OF PROJECT		**$9,364,000**
ANNUAL COST		
Debt Service (3.5 percent, 20 years)		$659,000
Operation and Maintenance		
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)		$32,000
Intakes and Pump Stations (2.5% of Cost of Facilities)		$24,000
Water Treatment Plant		$767,000
Pumping Energy Costs (332,294 kW-hr @ 0.09 $/kW-hr)		$30,000
TOTAL ANNUAL COST		**$1,512,000**
UNIT COSTS (Until Amortized)		
Per Acre-Foot		$939
Per 1,000 Gallons		$2.88
UNIT COSTS (After Amortization)		
Per Acre-Foot		$530
Per 1,000 Gallons		$1.63

PROJECT EVALUATION

This strategy benefits Orange County WCID 1 and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. Developing groundwater supplies in Orange County will have no other apparent impact on other state water resources. This strategy does not involve a voluntary redistribution of water from a rural and/or agricultural area, so it will have low to no third-party social and economic impact to those areas. Orange County WCID 1 is a rural WUG, and this strategy will benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	5	No shortage identified for WUG. Supply would be surplus.
Reliability	3	Medium reliable supply
Cost	4	Low cost (< $1,000/ac-ft)
Environmental Factors	3	Low to no impacts
Impact on Other State Water Resources	4	Low to no impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	4	Low to no impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	4	Sponsor identified, committed to strategy
Implementation Issues	4	No known risks

REFERENCES

Correspondence with Orange County WCID 1 for the 2026 East Texas Regional Water Plan.

JACOBS WSC – NEW GROUNDWATER WELL IN CARRIZO-WILCOX AQUIFER

Entity Name:	Jacobs WSC (Rusk County)
Strategy Name:	New Groundwater Well in Carrizo-Wilcox Aquifer
Strategy ID:	JACB-GW
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	60 ac-ft per year (0.05 MGD)
Implementation Decade:	2070
Development Timeline:	< 5 years
Project Capital Cost:	$5,975,000 (September 2023)
Annual Cost:	$738,000
Unit Water Cost (Rounded):	$12,300 per ac-ft (37.74 per 1,000 gallons)

STRATEGY DESCRIPTION

Jacobs WSC is a municipal water user group in Rusk County. This water user currently relies on groundwater from the Carrizo-Wilcox Aquifer in Rusk County. Jacobs WSC has an identified need of approximately 30 acre-feet per year by 2070 that increases to nearly 60 acre-feet per year by 2080 based on their projected demand and currently available supply.

To meet this need, a strategy is recommended for Jacobs WSC that involves the development of approximately 60 acre-feet per year from the Carrizo-Wilcox Aquifer in Rusk County by 2070. The conceptual design for this strategy involves one public supply well (capacity of 350 gpm, depth of 400 ft) that produces groundwater from the Carrizo-Wilcox Aquifer, conveyance infrastructure (e.g., well collection piping, transmission pipeline, pump station, and storage tank), and a groundwater treatment system. A peaking factor of two was assumed to size infrastructure at this well field.

SUPPLY DEVELOPMENT

The estimated supply quantity from this strategy is approximately 60 ac-ft per year based on the maximum identified need for Jacobs WSC across the planning horizon (2030-2080). There is sufficient modeled available groundwater in the Carrizo-Wilcox Aquifer in Rusk County to develop the supply assumed for this water management strategy. This strategy is projected to be able to provide supply by 2070. Overall, the reliability of this supply is considered medium to high, based on the proven use of this groundwater source and groundwater availability models.

ENVIRONMENTAL CONSIDERATIONS

The environmental impacts from this strategy are expected to be low. However, groundwater development from this source should be evaluated for potential impacts on spring flows and base flows if surface water is in close proximity. The impact to the environment due to pipeline construction is expected to be temporary and minimal. Impacts to environmental water needs, habitat, and cultural resources are expected to be low due to the relatively low footprint of this strategy.

PERMITTING AND DEVELOPMENT

This strategy is located within the Rusk County Groundwater Conservation District (RCGCD). Any additional groundwater withdrawal by Jacobs WSC will require that an operating permit from the RCGCD be obtained.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs assume account for one well, 600 feet of well field piping, one mile of transmission pipeline, a pump station, storage tank, and a groundwater treatment system.

WUG	**Jacobs WSC**	
STRATEGY	**New Well in Carrizo-Wilcox Aquifer**	
QUANTITY (AC-FT/YR)	**60**	
CAPITAL COST		
Booster Pump Stations		$685,000
Transmission Pipeline (6 in. dia., 0.1 miles)		$871,000
Well Fields (Wells, Pumps, and Piping)		$711,000
Storage Tanks (Other Than at Booster Pump Stations)		$1,071,000
Water Treatment Plant (0.3 MGD)		$820,000
Integration, Relocations, Backup Generator & Other		$1,000
TOTAL COST OF FACILITIES		**$4,159,000**
- Planning (3%)		$125,000
- Design (7%)		$291,000
- Construction Engineering (1%)		$42,000
Legal Assistance (2%)		$83,000
Fiscal Services (2%)		$83,000
Pipeline Contingency (15%)		$131,000
All Other Facilities Contingency (20%)		$658,000
Environmental & Archaeology Studies and Mitigation		$108,000
Land Acquisition and Surveying (11 acres)		$106,000
Interest During Construction (3.5% for 1 years with a 0.5% ROI)		$189,000
TOTAL COST OF PROJECT		**$5,975,000**
ANNUAL COST		
Debt Service (3.5 percent, 20 years)		$420,000
Operation and Maintenance		
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)		$27,000
Intakes and Pump Stations (2.5% of Cost of Facilities)		$17,000
Water Treatment Plant		$271,000
Pumping Energy Costs (29,714 kW-hr @ 0.09 $/kW-hr)		$3,000
TOTAL ANNUAL COST		**$525,000**
UNIT COSTS (Until Amortized)		
Per Acre-Foot		$12,300
Per 1,000 Gallons		$37.74
UNIT COSTS (After Amortization)		
Per Acre-Foot		$5,300
Per 1,000 Gallons		$16.26

PROJECT EVALUATION

This strategy benefits Jacobs WSC and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. Developing groundwater supplies in Rusk County will have no other apparent impact on other state water resources. This strategy does not involve a voluntary redistribution of water from a rural and/or agricultural area, so it will have low to no third-party social and economic impact to those areas. Jacobs WSC is a rural WUG, and this strategy will benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 100% of supply need
Reliability	4	Medium to high reliable supply
Cost	1	High cost (> $5,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	4	Low to no impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	4	Sponsor identified, committed to strategy
Implementation Issues	4	No known risks

REFERENCES

East Texas Regional Water Planning Group.

GASTON WSC – NEW GROUNDWATER WELL IN CARRIZO-WILCOX AQUIFER

Entity Name:	Gaston WSC (Rusk County)
Strategy Name:	New Groundwater Well in Carrizo-Wilcox Aquifer
Strategy ID:	GSTW-GW
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	130 ac-ft per year (0.11 MGD)
Implementation Decade:	2040
Development Timeline:	< 5 years
Project Capital Cost:	$3,700,000 (September 2023)
Annual Cost:	$454,000
Unit Water Cost (Rounded):	$3,492 per ac-ft ($10.72 per 1,000 gallons)

STRATEGY DESCRIPTION

Gaston WSC is a municipal water user group in Rusk County. This water user currently relies on groundwater from the Carrizo-Wilcox Aquifer in Rusk County. Gaston WSC has no identified need during the current planning cycle based on their projected demand and currently available supply. However, they are considering developing an additional groundwater well and associated infrastructure to provide supply to potential future water demands.

A strategy is recommended for Gaston WSC that involves the development of approximately 130 acre-feet per year from the Carrizo-Wilcox Aquifer in Rusk County. The conceptual design for this strategy involves one public supply well (capacity of 150 gpm, depth of 500 ft) that produces groundwater from the Carrizo-Wilcox Aquifer, conveyance infrastructure (e.g., well collection piping, transmission pipeline, pump station, and storage tank), and a groundwater treatment system. A peaking factor of two was assumed to size infrastructure at this well field.

SUPPLY DEVELOPMENT

The estimated supply quantity from this strategy is approximately 130 ac-ft per year based on a peaking factor of 2. There is sufficient modeled available groundwater in the Carrizo-Wilcox Aquifer in Rusk County to develop the supply assumed for this water management strategy. This strategy is projected to be able to provide supply by 2040. Overall, the reliability of this supply is considered medium to high, based on the proven use of this groundwater source and groundwater availability models.

ENVIRONMENTAL CONSIDERATIONS

The environmental impacts from this strategy are expected to be low. However, groundwater development from this source should be evaluated for potential impacts on spring flows and base flows if surface water is in close proximity. The impact to the environment due to pipeline construction is expected to be temporary and minimal. Impacts to environmental water needs, habitat, and cultural resources are expected to be low due to the relatively low footprint of this strategy.

PERMITTING AND DEVELOPMENT

This strategy is located within the Rusk County Groundwater Conservation District (RCGCD). Any additional groundwater withdrawal by Gaston WSC will require that an operating permit from the RCGCD be obtained.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs assume account for one well, 600 feet of well field piping, 500 feet of transmission pipeline, a pump station, storage tank, and a groundwater treatment system.

WUG	Gaston WSC	
STRATEGY	**New Well in Carrizo-Wilcox Aquifer**	
QUANTITY (AC-FT/YR)	**130**	
CAPITAL COST		
Booster Pump Stations		$396,000
Transmission Pipeline (6 in. dia., 0.1 miles)		$71,000
Well Fields (Wells, Pumps, and Piping)		$542,000
Storage Tanks (Other Than at Booster Pump Stations)		$1,044,000
Water Treatment Plant (0.3 MGD)		$483,000
Integration, Relocations, Backup Generator & Other		$1,000
TOTAL COST OF FACILITIES		**$2,536,000**
- Planning (3%)		$76,000
- Design (7%)		$178,000
- Construction Engineering (1%)		$25,000
Legal Assistance (2%)		$51,000
Fiscal Services (2%)		$51,000
Pipeline Contingency (15%)		$11,000
All Other Facilities Contingency (20%)		$493,000
Environmental & Archaeology Studies and Mitigation		$79,000
Land Acquisition and Surveying (11 acres)		$83,000
Interest During Construction (3.5% for 1 years with a 0.5% ROI)		$117,000
TOTAL COST OF PROJECT		**$3,700,000**
ANNUAL COST		
Debt Service (3.5 percent, 20 years)		$260,000
Operation and Maintenance		
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)		$17,000
Intakes and Pump Stations (2.5% of Cost of Facilities)		$10,000
Water Treatment Plant		$160,000
Pumping Energy Costs (73,899 kW-hr @ 0.09 $/kW-hr)		$7,000
TOTAL ANNUAL COST		**$525,000**
UNIT COSTS (Until Amortized)		
Per Acre-Foot		$3,492
Per 1,000 Gallons		$10.72
UNIT COSTS (After Amortization)		
Per Acre-Foot		$1,492
Per 1,000 Gallons		$4.58

PROJECT EVALUATION

This strategy benefits Gaston WSC and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. Developing groundwater supplies in Rusk County will have no other apparent impact on other state water resources. This strategy does not involve a voluntary redistribution of water from a rural and/or agricultural area, so it will have low to no third-party social and economic impact to those areas. Gaston WSC is a rural WUG, and this strategy will benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	5	No shortage identified for WUG. Supply would be surplus.
Reliability	4	Medium to high reliable supply
Cost	2	Medium to high cost (3,000 - $5,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	4	Sponsor identified, committed to strategy
Implementation Issues	4	No known risks

REFERENCES

Correspondence with Gaston WSC for the 2026 East Texas Regional Water Plan.

SABINE COUNTY LIVESTOCK – NEW GROUNDWATER WELLS IN YEGUA JACKSON AQUIFER

Entity Name:	Sabine County Livestock
Strategy Name:	New Groundwater Well in Yegua Jackson Aquifer
Strategy ID:	SABN-LTK
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	100 ac-ft per year (0.09 MGD)
Implementation Decade:	2060
Development Timeline:	< 5 years
Project Capital Cost:	$601,000 (September 2023)
Annual Cost:	$47,000
Unit Water Cost (Rounded):	$470 per ac-ft ($1.44 per 1,000 gallons)

STRATEGY DESCRIPTION

A strategy is a recommended strategy for livestock users in Sabine County that involves the development of 100 acre-feet per year from the Yegua Jackson Aquifer in Sabine County. The conceptual design for this strategy involves three irrigation wells (capacity 50 gpm, depth of 200 ft) that produce groundwater from the Yegua Jackson Aquifer and Conveyance infrastructure. A peaking factor of two was assumed for the wells.

SUPPLY DEVELOPMENT

The estimated supply quantity from this strategy is approximately 100 ac-ft per year based on a peaking factor of 2. There is sufficient modeled available in Sabine County in the Yegua Jackson Aquifer to develop the supply needed for this water management strategy. This strategy is projected to be able to provide supply by 2060. Overall, the reliability of this supply is considered medium to high, based on the proven use of this source and groundwater availability models.

ENVIRONMENTAL CONSIDERATIONS

The environmental impacts from this strategy are expected to be low. However, groundwater development from this source should be evaluated for potential impacts on spring flows and base flows if surface water is in close proximity. The impact to the environment due to pipeline construction is expected to be temporary and minimal. Impacts to environmental water needs, habitat, and cultural resources are expected to be low.

PERMITTING AND DEVELOPMENT

There are no anticipated permitting or development issues associated with this strategy. Currently, there is no groundwater conservation district in Sabine County.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs assumed three wells, a peaking factor of two, and a maximum well yield of 50 gpm for each well.

WUG	**Sabine County Livestock**	
STRATEGY	**New Wells in Yegua-Jackson Aquifer**	
QUANTITY (AC-FT/YR)	**100**	
CAPITAL COST		
Well Fields (Wells, Pumps, and Piping)		$396,000
TOTAL COST OF FACILITIES		**$396,000**
- Planning (3%)		$12,000
- Design (7%)		$28,000
- Construction Engineering (1%)		$4,000
Legal Assistance (2%)		$8,000
Fiscal Services (2%)		$8,000
All Other Facilities Contingency (20%)		$79,000
Environmental & Archaeology Studies and Mitigation		$26,000
Land Acquisition and Surveying (2 acres)		$21,000
Interest During Construction (3.5% for 1 years with a 0.5% ROI)		$19,000
TOTAL COST OF PROJECT		**$601,000**
ANNUAL COST		
Debt Service (3.5 percent, 20 years)		$42,000
Operation and Maintenance		
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)		$4,000
Pumping Energy Costs (196,295 kW-hr @ 0.09 $/kW-hr)		$1,000
TOTAL ANNUAL COST		**$47,000**
UNIT COSTS (Until Amortized)		
Per Acre-Foot		$470
Per 1,000 Gallons		$1.44
UNIT COSTS (After Amortization)		
Per Acre-Foot		$50
Per 1,000 Gallons		$0.15

PROJECT EVALUATION

This strategy benefits livestock users in Sabine County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. New wells in Sabine County will reduce demands on other water supplies in Sabine County and will have no other apparent impact on other State water resources. his strategy does not involve a voluntary redistribution of water from a rural and/or agricultural area, so it will have low to no third-party social and economic impact to those areas.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 75-100% of shortage
Reliability	4	Medium to high reliable supply
Cost	4	Low cost (<$1,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no negative impacts and/or some positive impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	3	Sponsor identified
Implementation Issues	4	Low implementation issues

REFERENCES

2026 East Texas Regional Water Plan.

SHELBY COUNTY MANUFACTURING – PURCHASE FROM CENTER

Entity Name:	Manufacturing, Angelina County
Strategy Name:	Purchase from Center
Strategy ID:	SHEL-MFG
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	850 - 1,330 ac-ft per year (0.8 - 1.2 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$79,104,000 (September 2023)
Annual Cost:	$6,938,000
Unit Water Cost (Rounded):	$2,440 per ac-ft ($7.49 per 1,000 gallons)

STRATEGY DESCRIPTION

Manufacturing water users in Shelby County were identified to have a need for approximately 850 ac-ft per year in 2030 and 1,330 ac-ft per year by 2080. In order to meet this need, a recommended water management project is included for individual manufacturers to enter into a contract with the City of Center for raw water from their system, as their permit allows. Most of the need identified is associated with projected growth in manufacturing demand in Shelby County over the planning horizon. Thus, generalized estimates of infrastructure needed to access supplies from Center are included as part of this strategy. Ultimately, individual manufacturing entities will need to develop infrastructure based on their individualized needs for water supply. The cost estimate included in this technical memorandum utilizes an assumed rate for the East Texas Regional Water Planning Area regional rate for raw surface water. Ultimately, this cost will need to be negotiated between individual manufacturers and Lufkin and will reflect their wholesale water rates at that time.

SUPPLY DEVELOPMENT

The strategy recommended for Shelby County manufacturing is assumed to be equal to the need projected for this entity during the planning period (2030-2080). The contract with Center required for this strategy increases their supply by approximately 850 ac-ft per year beginning in 2030 and increases over time to approximately 1,330 ac-ft per year by 2080. These supplies are considered highly reliable; however, the supply is dependent on coordination with the City of Center.

ENVIRONMENTAL CONSIDERATIONS

There are not any significant environmental considerations associated with this strategy. The environmental impacts of developing infrastructure are site-specific and will be dependent upon the location and size of the project. Site-specific evaluations of potential impacts to the environment from construction activities will need to be conducted by individual entities. A contract between manufacturers in Shelby County and the City of Center are anticipated to have a minimal impact on environmental water needs, low impact to the surrounding habitat, and a low impact to cultural resources in the area. The potential impact to surrounding habitat and cultural resources will need to be evaluated by entities on a project-specific basis. There is no impact expected on bays or estuaries associated with this strategy since it is in Shelby County.

PERMITTING AND DEVELOPMENT

There are no anticipated permitting or development issues associated with this strategy. There may be some minor permitting related to construction of the infrastructure required associated with this strategy.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. Generalized estimates of conveyance infrastructure to access and deliver supply from Center, including pipeline, intake pump stations, and storage, are included as part of this strategy. A regional rate for raw surface water was used for the purchase costs ($1.00 per 1,000 gallons).

WUG	**Shelby County - Manufacturing**				
STRATEGY:	**Purchase from Center**				
QUANTITY (AC-FT/YR)	**850 – 1,330**				
CAPITAL COST					
Pipelines	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	6 – 10 in.	158,400	LF		$25,139,000
Rural Right of Way (ROW) Easements and Surveying (73)			Acres	$9,038	$738,000
Engineering and Contingencies (30%)					$7,542,000
Subtotal of Pipeline(s)	**5**	**miles per pipeline**			**$33,419,000**
Pump Station(s)					
Pump with intake	8 – 136 HP	6	LS		$24,852,000
Power connection(s)		6	LS		$450,000
Engineering and Contingencies (35%)					$8,855,000
Subtotal of Pump Station(s)					**$34,157,000**
Storage Tanks	0.05 – 0.14 MG	6	LS		$3,675,000
Engineering and Contingencies (35%)					$1,284,000
Subtotal of Storage Tanks					**$4,959,000**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$21,000
Engineering and Contingencies (35%)					$6,000
Subtotal of Integration, Relocations, Backup Generator & Other					**$27,000**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$426,000
Environmental - Studies and Mitigation					$1,288,500
CONSTRUCTION TOTAL					**$74,276,000**
Interest During Construction (3.5% for 2 years with a 0.5% ROI)					$4,828,000
TOTAL COST OF PROJECT					**$79,104,000**
ANNUAL COST					
Debt Service (3.5% for 20 years)					$5,565,000
Pumping Energy Costs					$31,000
Operation and Maintenance (O&M)					$910,000
Raw Water Purchase		432,000	1000 gal	$1.00	$432,000
TOTAL ANNUAL COST					**$6,938,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot (2030-2080 Average)					$2,440
Per 1,000 Gallons (2030-2080 Average)					$7.49
UNIT COSTS (After Amortization)					
Per Acre-Foot					$1,032
Per 1,000 Gallons					$3.17

PROJECT EVALUATION

This strategy benefits manufacturers in Shelby County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. A contract to pull water from the City of Center system will reduce future demands on other water supplies in Shelby County and is anticipated to have no other apparent impact on other State water resources. This strategy involves a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. However, this supply benefits various industries in those rural areas, which could contribute to their economic growth.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 75-100% of shortage
Reliability	4	Medium to high reliable supply
Cost	3	Medium cost ($1,000 to $3,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	3	Low negative impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	3	Sponsor(s) identified, commitment level uncertain.
Implementation Issues	4	Low implementation issues

REFERENCES

Discussions with the City of Center.

SMITH COUNTY-OTHER – PURCHASE FROM TYLER

Entity Name:	Smith County-Other
Strategy Name:	Purchase from Center
Strategy ID:	SMTH-TYL
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	280 ac-ft per year (0.37 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$16,362,000 (September 2023)
Annual Cost:	$1,615,000
Unit Water Cost (Rounded):	$2,440 per ac-ft ($17.70 per 1,000 gallons)

STRATEGY DESCRIPTION

This strategy is a recommended strategy for Smith County-Other and involves a contract to purchase raw surface water from the City of Tyler as their permit allows. The estimated strategy cost for supply from Tyler includes the cost of raw water and infrastructure related to water conveyance. Ultimately, the cost for raw water will need to be negotiated with the City of Tyler and will reflect the wholesale water rates of this entity at the time a contract is made. The cost estimate included in this technical memorandum utilizes an assumed rate for the East Texas Regional Water Planning Area regional rate for raw surface water.

SUPPLY DEVELOPMENT

The strategy recommended for Smith County-Other is assumed to be equal to the need projected for this entity during the planning period (2030-2080). This is equal to 280 ac-ft/yr beginning in 2030 and continuing through 2050 with 40 ac-ft/yr. The reliability of this water supply is considered medium to high due to the availability of water from the system. However, this project is dependent on coordination with the City of Tyler.

ENVIRONMENTAL CONSIDERATIONS

The impact to the environment due to pipeline construction is expected to be moderate. In addition, a contract between Smith County-Other and the City of Tyler should have a minimum impact to environmental water needs, no impact to the surrounding habitat, and a low impact to cultural resources in the area. There are no bays or estuaries in close proximity to the project area located in Jefferson and Orange Counties.

PERMITTING AND DEVELOPMENT

There are no anticipated permitting or development issues associated with this strategy. There may be some minor permitting related to construction of the infrastructure required associated with this strategy.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. Generalized estimates of conveyance infrastructure to access and deliver supply from Tyler, including pipeline, intake pump stations, and storage, are included as part of this strategy. A regional rate for treated surface water was used for the purchase costs ($5.00 per 1,000 gallons).

WUG	**Smith County-Other**				
STRATEGY:	**Purchase from City of Tyler**				
QUANTITY (AC-FT/YR)	**280**				
CAPITAL COST					
Pipelines	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	6 in.	52,800	LF	$141	$7,471,000
Rural Right of Way (ROW)		24	Acres	$9,038	$247,000
Engineering and Contingencies (30%)					$2,241,000
Subtotal of Pipeline(s)	**10**	**miles**			**$9,959,000**
Pump Station(s)					
Pump with intake	8 – 136 HP	6	LS	$3,511,000	$3,511,000
Power connection(s)		6	LS	$200	$75,000
Engineering and Contingencies (35%)					$8,855,000
Subtotal of Pump Station(s)					**$4,841,000**
Storage Tanks	0.1 MG	1	LS	$632,000	$632,000
Engineering and Contingencies (35%)					$221,000
Subtotal of Storage Tanks					**$853,000**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$8,000
Engineering and Contingencies (35%)					$3,000
Subtotal of Integration, Relocations, Backup Generator & Other					**$11,000**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$71,225
Environmental - Studies and Mitigation					$364,750
CONSTRUCTION TOTAL					**$16,099,975**
Interest During Construction (3.5% for 2 years with a 0.5% ROI)				6 Months	$262,000
TOTAL COST OF PROJECT					**$16,362,000**
ANNUAL COST					
Debt Service (3.5% for 20 years)					$1,151,000
Pumping Energy Costs					$11,000
Operation and Maintenance (O&M)					$179,080
Raw Water Purchase		432,000	1000 gal	$5.00	$456,000
TOTAL ANNUAL COST					**$1,797,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot (2030-2080 Average)					$6,418
Per 1,000 Gallons (2030-2080 Average)					$19.70
UNIT COSTS (After Amortization)					
Per Acre-Foot					$2,307
Per 1,000 Gallons					$7.08

PROJECT EVALUATION

This strategy benefits water users in Smith County-Other and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. A contract to pull water from the City of Tyler system will reduce future demands on other water supplies in Smith County and is anticipated to have no other apparent impact on other State water resources. From a third party social and economic perspective, this voluntary redistribution of water will be beneficial because it provides water for economic growth and serves rural water users.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 75-100% of shortage
Reliability	4	Medium to high reliable supply
Cost	1	High cost (>$5,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	4	Low to no negative impacts and/or some positive impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	3	Sponsor(s) identified, commitment level uncertain.
Implementation Issues	4	Low implementation issues

REFERENCES

Discussions with the City of Tyler.

SOUTHERN UTILITLES – PURCHASE FROM TYLER

Entity Name:	Southern Utilities (Cherokee & Smith Counties)
Strategy Name:	Purchase from Tyler
Strategy ID:	SUTL-TYL
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	410 ac-ft per year (0.5 MGD)
Implementation Decade:	2070
Development Timeline:	< 5 years
Project Capital Cost:	$0 (September 2023)
Annual Cost:	$670,000
Unit Water Cost (Rounded):	$1,634 per ac-ft ($5.02per 1,000 gallons)

STRATEGY DESCRIPTION

Southern Utilities, located in Cherokee and Smith Counties, is projected to need 410 acre-feet per year starting in 2070. In order to meet this need, a recommended water management project is included for Southern Utilities to amend their supplemental contract with the City of Tyler to purchase raw water from their system, as their permit allows. Southern Utilities currently purchases a small portion of their supply from Tyler. Therefore, it is assumed that there is no infrastructure needed for this strategy.

SUPPLY DEVELOPMENT

The strategy recommended for Southern Utilities is assumed to be equal to the need projected for this entity during the planning period (2030-2080). The contract with Tyler required for this strategy increases their supply by approximately 410 ac-ft per year beginning in 2070. The reliability of this supply is considered medium to high; however, the supply is dependent on coordination with the City of Tyler.

ENVIRONMENTAL CONSIDERATIONS

The impact on the environment due to the construction of infrastructure associated with this strategy is expected to be low to moderate. In addition, it is anticipated that this strategy will have a minimal impact on environmental water needs, a low impact on the surrounding habitat, and a low impact on cultural resources in the area. There are no bays or estuaries in close proximity to Cherokee and Smith Counties, so this project is anticipated to have no impact.

PERMITTING AND DEVELOPMENT

There are no anticipated permitting or development issues associated with this strategy.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. Generalized estimates of conveyance infrastructure to access and deliver supply from Tyler. A regional rate for raw surface water was used for the purchase costs ($5.00 per 1,000 gallons).

WUG	Cherokee & Smith County - Southern Utilities			
STRATEGY:	**Amendment to Supplemental Contract with City of Tyler**			
QUANTITY (AC-FT/YR)	**410**			
ANNUAL COST				
O&M and Other Costs	134,000	1000 gal	$5.00	$670,000
TOTAL ANNUAL COST				**$670,000**
UNIT COSTS (Until Amortized)				
Per Acre-Foot (2030-2080 Average)				$1,634
Per 1,000 Gallons (2030-2080 Average)				$5.02
UNIT COSTS (After Amortization)				
Per Acre-Foot				NA
Per 1,000 Gallons				NA

PROJECT EVALUATION

This strategy benefits Southern Utilities in Cherokee and Smith Counties and is expected to have a positive impact on their water supply security. This strategy involves a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. Additionally, the supply associated with this strategy is relatively small compared to the surplus supply Tyler has available.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 75-100% of shortage
Reliability	4	Medium to high reliable supply
Cost	3	Medium cost ($1,000 to $3,000/ac-ft)
Environmental Factors	4	Low environmental impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	4	Low to no negative impacts and/or some positive impacts

Criteria	Rating	Explanation
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	3	Sponsor(s) identified, commitment level uncertain.
Implementation Issues	4	Low implementation issues

REFERENCES

Discussions with the City of Tyler.

SMITH COUNTY MANUFACTURING – PURCHASE FROM TYLER

Entity Name:	Manufacturing, Smith County
Strategy Name:	Purchase from Tyler
Strategy ID:	SMIT-MFG
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	40 – 560 ac-ft per year (0.04 – 0.5 MGD)
Implementation Decade:	2050
Development Timeline:	< 5 years
Project Capital Cost:	$50,202,000 (September 2023)
Annual Cost:	$4,295,000
Unit Water Cost (Rounded):	$5,461 per ac-ft ($16.76 per 1,000 gallons)

STRATEGY DESCRIPTION

Manufacturing water users in Smith County were identified to have a need for approximately 40 ac-ft per year in 2050 and 560 ac-ft per year by 2080. In order to meet this need, a recommended water management project is included for individual manufacturers to enter into a contract with the City of Tyler for raw water from their system, as their permit allows. Most of the need identified is associated with projected growth in manufacturing demand in Smith County over the planning horizon. Thus, generalized estimates of infrastructure needed to access supplies from Tyler are included as part of this strategy. Ultimately, individual manufacturing entities will need to develop infrastructure based on their individualized needs for water supply. The cost estimate included in this technical memorandum utilizes an assumed rate for the East Texas Regional Water Planning Area regional rate for raw surface water. Ultimately, this cost will need to be negotiated between individual manufacturers and Lufkin and will reflect their wholesale water rates at that time.

SUPPLY DEVELOPMENT

The strategy recommended for Smith County manufacturing is assumed to be equal to the need projected for this entity during the planning period (2030-2080). The contract with Tyler required for this strategy increases their supply by approximately 40 ac-ft per year beginning in 2050 and increases over time to approximately 560 ac-ft per year by 2080. The reliability of this supply is considered medium to high; however, the supply is dependent on coordination with the City of Tyler.

ENVIRONMENTAL CONSIDERATIONS

There are not any significant environmental considerations associated with this strategy. The environmental impacts of developing infrastructure are site-specific and will be dependent upon the location and size of the project. Site-specific evaluations of potential impacts to the environment from construction activities will need to be conducted by individual entities. A contract between manufacturers in Smith County and the City of Tyler are anticipated to have a minimal impact on environmental water needs, low impact to the surrounding habitat, and a low impact to cultural resources in the area. The potential impact to surrounding habitat and cultural resources will need to be evaluated by entities on a project-specific basis. There is no impact expected on bays or estuaries associated with this strategy since it is in Smith County.

PERMITTING AND DEVELOPMENT

There are no anticipated permitting or development issues associated with this strategy. There may be some minor permitting related to construction of the infrastructure required associated with this strategy.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. Generalized estimates of conveyance infrastructure to access and deliver supply from Tyler, including pipeline, intake pump stations, and storage, are included as part of this strategy. A regional rate for raw surface water was used for the purchase costs ($1.00 per 1,000 gallons).

WUG	**Smith County - Manufacturing**				
STRATEGY:	**Purchase from Tyler**				
QUANTITY (AC-FT/YR)	**40 – 560**				
CAPITAL COST					
Pipelines	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	6 – 8 in.	105,600	LF		$16,446,000
Rural Right of Way (ROW) Easements and Surveying		48	Acres	$9,250	$492,000
Engineering and Contingencies (30%)					$4,934,000
Subtotal of Pipeline(s)	**5**	**miles per pipeline**			**$21,872,000**
Pump Station(s)					
Pump with intake	5 – 47 HP	4	LS		$15,139,000
Power connection(s)		4	LS		$300,000
Engineering and Contingencies (35%)					$5,404,000
Subtotal of Pump Station(s)					**$20,843,000**
Storage Tanks	0.05 – 0.06 MG	4	LS		$2,423,000
Engineering and Contingencies (35%)					$847,000
Subtotal of Storage Tanks					**$3,270,000**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$8,000
Engineering and Contingencies (35%)					$2,000
Subtotal of Integration, Relocations, Backup Generator & Other					**$10,000**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$284,000
Environmental - Studies and Mitigation					$859,000
CONSTRUCTION TOTAL					**$47,138,000**
Interest During Construction (3.5% for 2 years with a 0.5% ROI)				24Months	$3,064,000
TOTAL COST OF PROJECT					**$50,202,000**
ANNUAL COST					
Debt Service (3.5% for 20 years)					$3,532,000
Pumping Energy Costs					$12,000
Operation and Maintenance (O&M)					$568,000
Raw Water Purchase		432,000	1000 gal	$1.00	$183,000
TOTAL ANNUAL COST					**$4,295,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot (2030-2080 Average)					$5,461
Per 1,000 Gallons (2030-2080 Average)					$16.76
UNIT COSTS (After Amortization)					
Per Acre-Foot					$1,363
Per 1,000 Gallons					$4.18

PROJECT EVALUATION

This strategy benefits manufacturers in Smith County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. A contract to pull water from the City of Tyler system will reduce future demands on other water supplies in Smith County and is anticipated to have no other apparent impact on other State water resources. This strategy involves a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. However, this supply benefits various industries in those rural areas, which could contribute to their economic growth.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 75-100% of shortage
Reliability	4	Medium to high reliable supply
Cost	1	High cost (>$5,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	3	Low negative impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	3	Sponsor(s) identified, commitment level uncertain.
Implementation Issues	4	Low implementation issues

REFERENCES

Discussions with the City of Tyler.

SMITH COUNTY MINING – PURCHASE FROM TYLER

Entity Name:	Mining, Smith County
Strategy Name:	Purchase from Tyler
Strategy ID:	SMIT-MIN
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	430 ac-ft per year (0.58 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$17,996,000 (September 2023)
Annual Cost:	$1,890,000
Unit Water Cost (Rounded):	$4,395 per ac-ft ($13.49 per 1,000 gallons)

STRATEGY DESCRIPTION

Mining water users in Smith County were identified to have a need of approximately 320 acre-feet per year beginning in 2030 and 430 acre-feet per year by 2080. To meet these projected needs, a strategy is recommended for mining water users in Henderson County that involves the mining water users to enter into a contract with the City of Tyler for raw water from their system, as their permit allows. Most of the need identified is associated with projected growth in mining demand in Smith County over the planning horizon. Thus, generalized estimates of infrastructure needed to access supplies from Tyler are included as part of this strategy. Ultimately, individual mining entities will need to develop infrastructure based on their individualized needs for water supply. The cost estimate included in this technical memorandum utilizes an assumed rate for the East Texas Regional Water Planning Area regional rate for raw surface water. Ultimately, this cost will need to be negotiated between individual manufacturers and Lufkin and will reflect their wholesale water rates at that time.

SUPPLY DEVELOPMENT

The strategy recommended for Smith County manufacturing is assumed to be equal to the need projected for this entity during the planning period (2030-2080). The contract with Tyler required for this strategy increases their supply by approximately 320 ac-ft per year beginning in 2030 and increases over time to approximately 430 ac-ft per year by 2080. The reliability of this supply is considered medium to high; however, the supply is dependent on coordination with the City of Tyler.

ENVIRONMENTAL CONSIDERATIONS

There are not any significant environmental considerations associated with this strategy. The environmental impacts of developing infrastructure are site-specific and will be dependent upon the location and size of the project. Site-specific evaluations of potential impacts to the environment from construction activities will need to be conducted by individual entities. A contract between miners in Smith County and the City of Tyler are anticipated to have a minimal impact on environmental water needs, low impact to the surrounding habitat, and a low impact to cultural resources in the area. The potential impact to surrounding habitat and cultural resources will need to be evaluated by entities on a project-specific basis.

PERMITTING AND DEVELOPMENT

There are no anticipated permitting or development issues associated with this strategy. There may be some minor permitting related to construction of the infrastructure required associated with this strategy.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. Generalized estimates of conveyance infrastructure to access and deliver supply from Tyler, including pipeline, intake pump stations, and storage, are included as part of this strategy. A regional rate for raw surface water was used for the purchase costs ($3.00 per 1,000 gallons).

WUG	**Smith County - Mining**				
STRATEGY:	**Purchase from Tyler**				
QUANTITY (AC-FT/YR)	**430**				
CAPITAL COST					
Pipelines	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	8 in.	52,800	LF	$165	$8,707,000
Rural Right of Way (ROW) Easements		24	Acres	$9,250	$247,000
Engineering and Contingencies (30%)					$2,612,000
Subtotal of Pipeline(s)	**10**	**miles per pipeline**			**$11,566,000**
Pump Station(s)					
Pump with intake	5 HP	1	LS	$3,511,000	$3,511,000
Power connection(s)		5	LS	$200	$75,000
Engineering and Contingencies (35%)					$1,255,000
Subtotal of Pump Station(s)					**$4,841,000**
Storage Tanks	0.1 MG	1	LS	$632,000	$632,000
Engineering and Contingencies (35%)					$221,000
Subtotal of Storage Tanks					**$853,000**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$9,000
Engineering and Contingencies (35%)					$3,000
Subtotal of Integration, Relocations, Backup Generator & Other					**$12,000**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$71,225
Environmental - Studies and Mitigation					$364,750
CONSTRUCTION TOTAL					**$17,707,975**
Interest During Construction (3.5% for 2 years with a 0.5% ROI)				6 Months	$288,000
TOTAL COST OF PROJECT					**$17,996,000**
ANNUAL COST					
Debt Service (3.5% for 20 years)					$1,266,000
Pumping Energy Costs					$13,000
Operation and Maintenance (O&M)					$191,090
Raw Water Purchase			1000 gal	$3.00	$420,000
TOTAL ANNUAL COST					**$1,890,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot (2030-2080 Average)					$4,395
Per 1,000 Gallons (2030-2080 Average)					$13.49
UNIT COSTS (After Amortization)					
Per Acre-Foot					$1,451
Per 1,000 Gallons					$4.45

PROJECT EVALUATION

This strategy benefits mining water users in Smith County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. A contract to pull water from the City of Tyler system will reduce future demands on other water supplies in Smith County and is anticipated to have no other apparent impact on other State water resources. This strategy involves a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. However, this supply benefits various industries in those rural areas, which could contribute to their economic growth.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 75-100% of Shortage
Reliability	4	Medium to High reliable supply
Cost	2	Medium to high cost ($3,000 to $5,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	3	Low negative impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	3	Sponsor(s) identified, commitment level uncertain.
Implementation Issues	4	Low implementation issues

REFERENCES

Discussions with the City of Tyler.

TRINITY COUNTY IRRIGATION – NEW GROUNDWATER WELLS IN YEGUA JACKSON AQUIFER

Entity Name:	Irrigation, Trinity County
Strategy Name:	New Wells in Yegua Jackson Aquifer
Strategy ID:	TRI-IRR
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	220 ac-ft per year (0.20 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$646,000 (September 2023)
Annual Cost:	$52,000
Unit Water Cost (Rounded):	$236 per ac-ft ($0.73 per 1,000 gallons)

STRATEGY DESCRIPTION

A strategy is recommended for the irrigation water users in Trinity County to meet identified needs that involves the development of approximately 220 acre-feet per year from the Yegua Jackson Aquifer in Trinity County. The conceptual design for this strategy involves three irrigation wells (capacity of 100 gpm, depth of 250 ft) that produces groundwater from the Yegua Jackson Aquifer and conveyance infrastructure. A peaking factor of two was assumed to size infrastructure at this well field.

SUPPLY DEVELOPMENT

The estimated supply quantity from this strategy is approximately 220 ac-ft per year based on a peaking factor of 2. There are sufficient supplies available in the Trinity County Yegua Jackson to develop the supply needed for this water management strategy. This strategy is projected to be able to provide supply by 2030. Overall, the reliability of this supply is considered medium to high, based on the proven use of this source and groundwater availability models.

ENVIRONMENTAL CONSIDERATIONS

The environmental impacts from this strategy are expected to be low. However, groundwater development from this source should be evaluated for potential impacts on spring flows and base flows if surface water is in close proximity. The impact to the environment due to pipeline construction is expected to be temporary and minimal. Impacts to environmental water needs, habitat, and cultural resources are expected to be low due to the relatively low footprint of this strategy.

PERMITTING AND DEVELOPMENT

There are no anticipated permitting or development issues associated with this strategy. Currently, there is no groundwater conservation district in Trinity County.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs assumed three wells, a peaking factor of two, and a maximum well yield of 100 gpm for each well.

WUG	**Trinity County Irrigation**	
STRATEGY	**New Well in Yegua Jackson Aquifer**	
QUANTITY (AC-FT/YR)	**220**	
CAPITAL COST		
Well Fields (Wells, Pumps, and Piping)		$435,000
TOTAL COST OF FACILITIES		**$435,000**
- Planning (3%)		$13,000
- Design (7%)		$30,000
- Construction Engineering (1%)		$4,000
Legal Assistance (2%)		$9,000
Fiscal Services (2%)		$9,000
All Other Facilities Contingency (20%)		$87,000
Environmental & Archaeology Studies and Mitigation		$22,000
Land Acquisition and Surveying (11 acres)		$16,000
Interest During Construction (3.5% for 1 years with a 0.5% ROI)		$21,000
TOTAL COST OF PROJECT		**$646,000**
ANNUAL COST		
Debt Service (3.5 percent, 20 years)		$45,000
Operation and Maintenance		
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)		$4,000
Pumping Energy Costs (196,295 kW-hr @ 0.09 $/kW-hr)		$3,000
TOTAL ANNUAL COST		**$52,000**
UNIT COSTS (Until Amortized)		
Per Acre-Foot		$236
Per 1,000 Gallons		$0.73
UNIT COSTS (After Amortization)		
Per Acre-Foot		$32
Per 1,000 Gallons		$0.10

PROJECT EVALUATION

This strategy benefits The Trinity Irrigation Water User Group in Trinity County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. New wells in the county will reduce demands on other water supplies in Trinity County and will have no other apparent impact on other State water resources. his strategy does not involve a voluntary redistribution of water from a rural and/or agricultural area, so it will have low to no third-party social and economic impact to those areas.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 75-100% of shortage
Reliability	4	Medium to high reliable supply
Cost	4	Low cost (< $1,000/ac-ft)
Environmental Factors	3	Low to medium Impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	5	High Positive Impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no negative impacts and/or some positive impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	3	Potential Sponsor(s) identified, commitment level uncertain.
Implementation Issues	4	Low implementation issues

REFERENCES

2026 East Texas Regional Water Plan.

TYLER COUNTY MANUFACTURING - NEW GROUNDWATER WELLS IN GULF COAST AQUIFER

Entity Name:	Manufacturing, Tyler County
Strategy Name:	New Wells in Gulf Coast Aquifer
Strategy ID:	TYL-MFG
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	110 ac-ft per year (0.10 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$607,000 (September 2023)
Annual Cost:	$49,000
Unit Water Cost (Rounded):	$445 per ac-ft ($1.37 per 1,000 gallons)

STRATEGY DESCRIPTION

A strategy is recommended for manufacturing water users in Tyler County to meet identified needs that involves the development of approximately 110 acre-feet per year from the Gulf Coast Aquifer in Tyler County. The conceptual design for this strategy involves two wells (capacity of 120 gpm, depth of 350 ft) that produce groundwater from the Gulf Coast Aquifer, conveyance infrastructure (e.g., well collection piping, transmission pipeline, pump station). A peaking factor of two was assumed to size infrastructure at this well field.

SUPPLY DEVELOPMENT

The estimated supply quantity from this strategy is approximately 120 ac-ft per year based on a peaking factor of 2. There are sufficient supplies available in the Tyler County Gulf Coast Aquifer System to develop the supply needed for this water management strategy. This strategy is projected to be able to provide supply by 2030. Overall, the reliability of this supply is considered medium to high, based on the proven use of this source and groundwater availability models.

ENVIRONMENTAL CONSIDERATIONS

There are not any significant environmental considerations associated with this strategy. The environmental impacts of developing infrastructure are site-specific and will be dependent upon the location and size of the project. Site-specific evaluations of potential impacts to the environment from construction activities will need to be conducted by individual entities. The potential impact to surrounding habitat and cultural resources will need to be evaluated by entities on a project-specific basis. There are no bays or estuaries in close proximity of Tyler County.

PERMITTING AND DEVELOPMENT

This strategy is located within the Southeast Texas Groundwater Conservation District. Any new groundwater withdrawal by either of these proposed facilities will require that an operating permit from the Southeast Texas Groundwater Conservation District be obtained.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs assume account for two well, 700 feet of well field piping, and a pump station.

WUG	**Tyler County Manufacturing**
STRATEGY	**New Well in Gulf Coast Aquifer**
QUANTITY (AC-FT/YR)	**110**
CAPITAL COST	
Well Fields (Wells, Pumps, and Piping)	$414,000
TOTAL COST OF FACILITIES	**$414,000**
- Planning (3%)	$12,000
- Design (7%)	$29,000
- Construction Engineering (1%)	$4,000
Legal Assistance (2%)	$8,000
Fiscal Services (2%)	$8,000
All Other Facilities Contingency (20%)	$83,000
Environmental & Archaeology Studies and Mitigation	$16,000
Land Acquisition and Surveying (1 acres)	$13,000
Interest During Construction (3.5% for 1 years with a 0.5% ROI)	$20,000
TOTAL COST OF PROJECT	**$607,000**
ANNUAL COST	
Debt Service (3.5 percent, 20 years)	$43,000
Operation and Maintenance	
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)	$4,000
Pumping Energy Costs (196,295 kW-hr @ 0.09 $/kW-hr)	$2,000
TOTAL ANNUAL COST	**$49,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$445
Per 1,000 Gallons	$1.37
UNIT COSTS (After Amortization)	
Per Acre-Foot	$55
Per 1,000 Gallons	$0.17

PROJECT EVALUATION

This strategy benefits manufacturing water users in Tyler County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. New wells in the county will reduce demands on other water supplies in Tyler County and will have no other apparent impact on other State water resources. This strategy does not involve a voluntary redistribution of water from a rural and/or agricultural area, so it will have low to no third-party social and economic impact to those areas.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 100% of shortage
Reliability	4	Medium to high Reliable Supply
Cost	4	Low cost (< $1,000/ac-ft)
Environmental Factors	3	Low to medium Impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no negative impacts and/or some positive impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	3	Potential Sponsor(s) identified, commitment level uncertain.
Implementation Issues	4	Low implementation issues

REFERENCES

2026 East Texas Regional Water Plan.

ANGELINA AND NECHES RIVER AUTHORITY – LAKE COLUMBIA

Entity Name:	Angelina and Neches River Authority
Strategy Name:	Lake Columbia
Strategy ID:	ANRA-COL
Strategy Type:	New Surface Water Source
Potential Supply Quantity:	75,720 ac-ft per year (67.6 MGD)
Implementation Decade:	2040
Development Timeline:	10-20 years
Project Capital Cost:	$486,368,000 (September 2023)
Annual Cost:	$28,382,000
Unit Water Cost (Rounded):	$375 per ac-ft ($1.15 per 1,000 gallons)

STRATEGY DESCRIPTION

Angelina Neches River Authority is the sponsor for the Lake Columbia project on Mud Creek in Cherokee and Rusk Counties. Lake Columbia is a recommended strategy in this round of planning. Angelina Neches River Authority has been granted a water right permit (Permit No. 4228) by the TCEQ to impound 195,500 ac-ft/yr and the estimate yield of this reservoir is 75,720 ac-ft/yr (76.3 MGD), which will be used for municipal and industrial purposes. Angelina Neches River Authority currently has contracted with customers for 53 percent of the 75,720 ac-ft/yr yield of the proposed Lake Columbia reservoir. After considering the local needs in the East Texas Region, there are potential customers from Region C that are interesting in the remaining supply starting in 2070. This water management strategy for Angelina Neches River Authority was developed to address the total current contracted and potential future customer demand through the construction of Lake Columbia. Angelina Neches River Authority holds the water right for the supply source and will be the project sponsor. It is assumed Angelina & Neches River Authority will share the cost with potential project participants from Regions C and I who yet to be determined. The Lake Columbia dam site is located two to three miles downstream of Highway 79 on Mud Creek in Cherokee County. The contributing drainage area for the reservoir is approximately 384 square miles. The total conservation pool volume is 195,500 ac-ft/yr and the top of conservation pool is at the elevation of 315 ft MSL. The conservation pool covers an area of approximately 10,133 acres and the flood pool covers an additional area of 1,367 acres.

SUPPLY DEVELOPMENT

Firm yield for Lake Columbia was determined using the Texas Commission on Environmental Quality (TCEQ) Neches Basin Water Availability Model (WAM) adapted for the 2026 Region I Water Plan. This model was downloaded from TCEQ website in 2023. The firm yield of the Lake was estimated to be 75,720 ac-ft/yr in 2040 and reducing to 75,400 ac-ft/yr in 2080. It should be noted that the water management strategies for the reservoir development and the transmission connections were all based on the firm supplies available from Lake Columbia.

ENVIRONMENTAL CONSIDERATIONS

The summary of environmental considerations was developed based on the known environmental factors that have been discussed in the Draft Environmental Impact Study (DEIS).

Habitat – The footprint of Lake Columbia will impact approximately 5,746.5 acres of waters of the U.S., including 3,689 acres of forested wetlands and the remainder comprised of shrub and emergent wetlands (144 and 1,518 acres, respectively), open water, streams and a hillside bog.

Environmental Flows – The current TCEQ Permit No. 4228 allowing the construction and operation of Lake Columbia does not require any instream flow releases. However, if Region C customers were to move water from Lake Columbia in Neches Basin to Trinity River Basin, an amendment to the Permit is required to allow interbasin transfers. Amendments to the Permit may be subject to recently adopted instream flow standards.

Bays and Estuaries – Lake Columbia project is over 280 river miles upstream from the Neches estuary at Sabine Lake and is therefore expected to have no measurable effect on the freshwater inflows into Sabine Lake and Sabine Lake estuary. Recognizing the diminishing effect of upstream distance on bay and estuary inflows, the Texas Water Code (Section 11.147) requires consideration of such effects only if a proposed project is within 200 river miles of the coast.

Threatened and Endangered Species - The Lake Columbia project area includes six federally listed species, five of which are also listed by the state. The state lists fourteen additional species within Smith and Cherokee Counties where the lake would be developed.

PERMITTING AND DEVELOPMENT

Lake Columbia is currently projected to be online by 2040. To develop Lake Columbia, ANRA has:

- Secured a water right. Permit 4228, issued in June 1985, allows ANRA to impound up to 195,500 acre-feet in Lake Columbia and to divert up to 85,507 acre-feet per year for municipal, industrial, and recreation purposes.
- Applied for a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (USACE) in 2000 but was withdrawn in 2020 for insufficient purpose and need definition per USACE. ANRA continues to seek stakeholders who can satisfy the USACE purpose and need criteria requirements and the funding to complete the Section 404 permitting process. As part of the 404 permitting process, ANRA has:
  - Completed a downstream impact analysis.
  - Completed an archaeological field survey.
  - Completed a proposed mitigation plan.
  - Worked toward completion of a draft Environmental Impact Statement (EIS).

Angelina & Neches River Authority and participating entities will share the costs associated with the Lake Columbia water management strategy. For reservoir construction, unit costs are based on the WAM Run 3 yield estimate of 75,720 ac-ft/yr in 2040.

PLANNING LEVEL OPINION OF COST

Both Angelina Neches River Authority and participating entities will share in the costs associated with the Lake Columbia water management strategy. Construction costs are divided into three separate categories: reservoir, water treatment plant and transmission system. A planning level opinion of cost (PLOC) for the construction of the reservoir, which is based on inflation adjustment of the Lake Columbia Prospectus dated April 11, 2012, is included below. A planning level opinion of cost (PLOC) for the water treatment plant and distribution system is included in a separate Tech Memo. The cost estimate reported in this section is the cost for developing the total 2040 yield of Lake Columbia, 75,720 ac-ft/yr. It is assumed Angelina & Neches River Authority will share the cost with potential project participants who yet to be determined. However, the actual percent distribution of the project cost will be determined based on the future negotiations between Angelina Neches River Authority and other participants.

MWP	**ANRA**
STRATEGY	**Lake Columbia**
QUANTITY (AC-FT/YR)	**75,720**
Dam	**Cost**
Embankment	$38,678,516
Internal Drainage	$928,529
Slope Protection & Crest Roadway	$6,533,752
Service Spillway	$9,025,981
Outlet Works	$1,849,927
Instrumentation	$980,769
Miscellaneous Items	$7,517,431
Engineering	$10,692,415
Contingencies	$13,103,010
Sub Total For Dam	**$89,310,330**
Transportation Conflicts	
Roads	$4,648,319
Highways	$50,783,004
Railroads	$42,993,752
Erosion Protection	$6,258,439
Engineering	$16,423,072
Contingencies	$20,936,645
Subtotal for Transportation Conflicts	**$142,043,231**
Utility Conflicts	
Communications	$3,813,356
Electric Utilities	$22,872,280
Oil and Gas	$5,716,542
Water Utilities	$241,409
Engineering	$97,931
Contingencies	$6,528,659
Subtotal for Utility Conflicts	**$39,270,178**
Project Site Acquisition	
Property Purchase	$34,646,596
Conservation Easement	$2,510,564
Survey and Appraisal	$1,964,593
Professional Fees	$1,140,544
Engineering	$1,237,456
Contingencies	$8,052,488
Sub Total for Project Site Acquisition	**$49,552,242**

Mitigation	
Mitigation	$129,610,578
Contingencies	$10,984,026
Sub Total for Mitigation	**$140,594,604**
Cultural Resources	
Archeological/Historical Resources	$20,981,463
Engineering	$419,664
Contingencies	$4,196,351
Sub Total for Cultural Resources	**$25,597,478**
TOTAL CONSTRUCTION COST	**$486,368,000**
ANNUAL COSTS	
Debt Service for Reservoirs (3.5% for 40 years)	$14,284,880
Debt Service for Relocations (3.5% for 20 years)	$12,757,407
Operation & Maintenance	$1,339,700
Total Annual Costs	**$28,382,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$375
Per 1,000 Gallons	$1.15
UNIT COSTS (After Amortization)	
Per Acre-Foot	$17
Per 1,000 Gallons	$0.05

PROJECT EVALUATION

This strategy benefits both municipal customers of ANRA and would have a positive impact on their water supply security. This analysis did not identify any impacts natural resources or to key parameters of water quality. The reservoir site may impact agricultural and/or rural land, but it will provide a water supply benefit to agricultural and/or rural water users served by ANRA. The strategy will have no other apparent impact on other State water resources. This strategy does not involve a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. Ultimately, this strategy will enable ANRA to provide a more reliable water supply to their customers, which could benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets >100% of shortage
Reliability	4	Medium to high reliable supply
Cost	4	$0 to $1,000/ac-ft (Low)
Environmental Factors	3	Medium impacts
Impact on Other State Water Resources	3	Low negative impacts
Threat to Agricultural Resources/Rural Areas	2	Medium negative Impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		Yes
Third Party Social & Economic Impacts	2	Medium negative Impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	4	ANRA is the local sponsor. Sponsor is committed.
Implementation Issues	3	Low to medium implementation issues

REFERENCES

East Texas Regional Water Planning Group.

Cost Estimate from Lake Columbia Prospectus, April 11, 2012.

ANGELINA AND NECHES RIVER AUTHORITY – REGIONAL WATER TREATMENT FACILITIES

Entity Name:	Angelina and Neches River Authority
Strategy Name:	Regional Water Treatment Facilities
Strategy ID:	ANRA-WTP
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	22,232 ac-ft per year (20 MGD)
Implementation Decade:	2040
Development Timeline:	< 5 years
Project Capital Cost:	$455,353,000 (September 2023)
Annual Cost:	$84,250,000
Unit Water Cost (Rounded):	$3,790 per ac-ft ($11.63 per 1,000 gallons)

STRATEGY DESCRIPTION

Angelina Nacogdoches River Authority is the sponsor for the Lake Columbia project on Mud Creek in Cherokee and Rusk Counties.

Angelina Neches River Authority has contracts with several customers in East Texas Regional Water Planning Area. It is assumed that Afton Grove WSC, Stryker Lake WSC, New Summerfield, and all municipal customers in Smith County will purchase treated water from Angelina Neches River Authority.

The purpose of this water management strategy is to develop a treatment facility to treat the supplies delivered to potential municipal customers purchasing treated water from Angelina Neches River Authority. The municipal customers are Stryker WSC, Afton Grove WSC, Jackson WSC, Blackjack WSC, City of New Summerfield, City of New London, City of Troup, City of Arp, and City of Whitehouse.

SUPPLY DEVELOPMENT

The cities of Nacogdoches, Jacksonville, and Rusk are assumed to purchase raw water from Lake Columbia and develop their own raw water transmission and treatment facilities. The strategy of Nacogdoches and Jacksonville to access the Lake Columbia supply are discussed in other tech memos. Most of the municipal water users (and current customers of Angelina Neches River Authority) in Cherokee, Rusk, and Smith Counties will be purchasing treated water from Angelina Neches River Authority. Costs for water treatment and transmission system are shared among currently contracted entities that are assumed to buy treated water from Angelina Neches River Authority.

ENVIRONMENTAL CONSIDERATIONS

There are no significant environmental considerations associated with the treatment plant construction and the transmission system strategy.

PERMITTING AND DEVELOPMENT

There are no anticipated permitting issues associated with the construction of the water treatment facilities and the transmission facilities.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for the water treatment plant and distribution system is included below. Construction costs include the construction of water treatment plant, pipeline segments, pump station and storage tank to deliver the supplies. The annual costs were estimated assuming 3.5% interest rate over a period of 20 years. The planning level opinion of probable annual cost estimates also include cost of purchase of raw water and treated water from Angelina Neches River Authority.

MWP	**Angelina and Neches River Authority**				
STRATEGY	**Regional Water Treatment Facilities**				
QUANTITY (AC-FT/YR)	**22,232**				
CONSTRUCTION COSTS					
Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Segment A: WTP to Troup	30 in.	57,771	LF	$432	$25,139,000
Segment B: Troup to Arp	12 in.	36,610	LF	$214	$7,826,000
Segment C: Troup to Whitehouse & Jackson WSC	24 in.	40,879	LF	$358	$14,647,000
Segment D: Arp to New London & Blackjack WSC	8 in.	42,398	LF	$165	$6,991,000
Segment E: WTP to New Summerfield	18 in.	1,916	LF	$286	$548,000
Pipeline Segments Subtotal					**$54,946,000**
Right of Way Easements Rural (ROW)		82	Acres	$9,038	$820,000
Engineering and Contingencies (30%)					$16,484,000
Subtotal of Pipeline					**$72,250,000**
Pump Station(s)					
Pump with intake & building	3859 HP	2	LS	$58,335,000	$116,670,000
Power connection(s)		7718	HP	$200	$1,544,000
Engineering and Contingencies (35%)					$41,374,900
Subtotal of Pump Station(s)					**$159,588,900**
Water Treatment Plant	30 MGD	1	LS	$150,534,000	$150,534,000
Storage Tanks	3.7 MG	1	LS	$2,508,963	$2,509,000
Engineering and Contingencies (35%)					$53,565,000
Subtotal of Storage Tanks					**$206,608,000**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$975,000
Engineering and Contingencies (35%)					$341,000
Subtotal of Integration, Relocations, Backup Generator & Other					**$1,316,000**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$124,273
Environmental - Studies and Mitigation					$1,132,975
CONSTRUCTION TOTAL					**$441,020,148**
Interest During Construction (3.5% for 2 years with a 0.5% ROI)				12 Months	$14,333,000
TOTAL COST OF PROJECT					**$455,353,000**

ANNUAL COST				
Debt Service (3.5% for 20 years)				$32,039,000
Pumping Energy Costs				$1,439,000
Operation and Maintenance (O&M)				$7,302,000
Raw Water Purchase	7,245,000	1000 gal	$1.00	$7,245,000
Treated Water Purchase	7,245,000	1000 gal	$5.00	$36,225,000
TOTAL ANNUAL COST				**$84,250,000**
UNIT COSTS (Until Amortized)				
Per Acre-Foot				$3,790
Per 1,000 Gallons				$11.63
UNIT COSTS (After Amortization)				
Per Acre-Foot				$2,348
Per 1,000 Gallons				$7.21

PROJECT EVALUATION

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	5	Exceeds shortage
Reliability	4	Medium to high reliable supply
Cost	2	Medium to high cost ($3,000 to $5,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	4	Low to no negative impacts and/or some positive impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	4	ANRA is the local sponsor. Sponsor is committed.

Criteria	Rating	Explanation
Implementation Issues	3	Low to medium implementation issues

REFERENCES

East Texas Regional Water Planning Group.

ANGELINA NACOGDOCHES WCID #1 – HYDRAULIC DREDGING AND VOLUMETRIC SURVEY OF LAKE STRYKER

Entity Name:	Angelina Nacogdoches WCID #1
Strategy Name:	Hydraulic Dredging and Volumetric Survey of Lake Stryker
Strategy ID:	ANWCID-DRE
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	5,600 ac-ft per year (5.0 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$27,980,652 (September 2023)
Unit Water Cost (Rounded):	$4,997 per ac-ft ($15.33 per 1,000 gallons)

PROJECT DESCRIPTION

Internal studies conducted by Angelina Nacogdoches WCID #1 resulted in higher yield estimates for Lake Striker than those obtained from the Water Availability Model used for the 2026 Region I Plan. Angelina Nacogdoches WCID #1 believes that the additional yield in Lake Striker is sufficient to meet the shortages manifested for this entity in this planning cycle. To address this inconsistency, Angelina Nacogdoches WCID #1 is considering a recommended strategy to conduct volumetric survey of Lake Striker to determine an updated estimate of the Lake yield. Angelina Nacogdoches WCID #1 will coordinate with TWDB to get on a schedule for the lake volumetric survey. Angelina Nacogdoches WCID #1 believes that the volumetric survey will result in an additional yield. The strategy is to work with the Texas Water Development Board on the Normal Pool Elevation Adjustment of Lake Striker through an updated volumetric survey. The estimated timing for the volumetric surveys and potential normal pool elevation adjustment is 2040.

SUPPLY DEVELOPMENT

At this time, it is not known how much (if any) additional yield will be realized from the normal pool elevation adjustment but for planning purposes, it is assumed to be 5,600 ac-ft/yr.

ENVIRONMENTAL CONSIDERATIONS

No known environmental considerations at this time but these would be studied in further details during the volumetric survey process.

PERMITTING AND DEVELOPMENT

The process for volumetric survey and adjusting of the normal pool elevation may require somecoordination with the Texas Water Development Board and Texas Council on Environmental Quality on permitting and development issues.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) was not developed for this strategy. TWDB will charge a fixed fee for conducting volumetric surveys.

MWP	Angelina Nacogdoches WCID#1
STRATEGY	Hydraulic Dredging and Volumetric Survey of Lake Stryker
QUANTITY (AC-FT/YR)	5,600

CONSTRUCTION COSTS	
Dredging and Volumetric Survey Costs	$27,980,652
TOTAL COST	**$27,980,652**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$4,997
Per 1,000 Gallons	$15.33
UNIT COSTS (After Amortization)	
Per Acre-Foot	NA
Per 1,000 Gallons	NA

PROJECT EVALUATION

The addition of the additional yield from Lake Striker will help increase the supply reserve for Angelina Nacogdoches WCID #1 to meet their existing customer's and potential new customer's demands.

The recommended strategy was evaluated across twelve different criteria for the purpose of quick comparison against alternative projects that may be incorporated into the 2026 East Texas Regional Water Plan. The results of this evaluation can be seen in the table below.

Criteria	Rating	Explanation
Quantity	5	>100%
Reliability	2	Low to medium supply
Cost	2	Medium to high cost ($3,000 to $5,000/ac-ft)
Environmental Factors	4	Low environmental impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	3	Low to no negative impacts and/or some positive impacts

Criteria	Rating	Explanation
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	4	Angelina Nacogdoches WCID #1 is the local sponsor. Sponsor is committed.
Implementation Issues	4	Low implementation issues

REFERENCES

Discussions with Angelina Nacogdoches WCID #1.

ATHENS MWA – INDIRECT REUSE OF FLOWS FROM FISH HATCHERY

Entity Name:	Athens Municipal Water Authority
Strategy Name:	Indirect Reuse of Flows from Fish Hatchery
Strategy ID:	AMWA-REU
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	2,872 ac-ft per year (2.6 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$0 (September 2023)
ANNUAL COST:	$0 per ac-ft
Unit Water Cost (Rounded):	$0 per ac-ft ($0 per 1,000 gallons)

STRATEGY DESCRIPTION

This is a recommended strategy for Athens Municipal Water Authority (MWA) that involves an indirect reuse project from the flows returned by a fish hatchery to Lake Athens. Athens MWA has a contract to supply 3,023 acre-feet per year to the fish hatchery along Lake Athens. The fish hatchery has a separate intake on Lake Athens to access the lake supplies. Currently, approximately 95 to 100 percent of the diverted water for the fish hatchery is returned to Lake Athens; however, the fish hatchery is under no contractual obligation to continue this practice. To ensure adequate supplies for the fish hatchery and other uses, Athens MWA should work with the fish hatchery to assure that the hatchery continues to return diverted water to Lake Athens for subsequent reuse. For purposes of this plan, it is assumed that 95 percent of the contracted water will be returned. This equates to 2,872 ac-ft per year of additional supply. Athens MWA would have to apply for an amendment to their existing permits to supply water to the fish hatchery and be authorized to the flows that the fish hatchery returns to Lake Athens.

SUPPLY DEVELOPMENT

According to Athens MWA, the fish hatchery returns approximately 95 to 100 percent of the water that they are diverted from Lake Athens. Assuming that 95 percent of water that is contacted to the fish hatchery is returned, approximately 2,872 acre-feet per year of supplies can be developed from this strategy.

ENVIRONMENTAL CONSIDERATIONS

The yield of this strategy will be dependent upon negotiations with TCEQ regarding environmental flow requirements. Environmental flow requirements will be set so the new permit has a minimum impact to environmental water needs and the surrounding habitat. No impacts to cultural resources in the area are expected.

PERMITTING AND DEVELOPMENT

Athens MWA has to apply for an amendment to their permit to supply water to the fish hatcheries. This amendment will allow them to utilize the water returned by the fish hatcheries to Lake Athens. Previous attempts of working with TCEQ on the permit amendment have not been successful. Athens MWA is hopeful that the amendment will be approved during the planning period. This permit amendment is dependent upon coordination with the TCEQ.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) was not prepared for this strategy because costs associated with the permit amendment are considered minimal. Any costs incurred by Athens MWA will be related to administrative and legal fees.

PROJECT EVALUATION

This strategy benefits customers of the Athens Municipal Water Authority, including the City of Athens. This strategy may reduce demands on other water supplies in Henderson County and provide relief to the Carrizo-Wilcox aquifer as more entities switch from groundwater to alternative sources. This analysis did not identify any impacts to agricultural or natural resources. The reuse associated with this strategy is already occurring, so it will have not impact on any key water quality parameters. Use of this reuse water may reduce the have no apparent impact on other state water resources. This strategy does not involve a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. Ultimately, this strategy will enable Athens MWA to provide a more reliable water supply to their various rural customers, which could benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	3	Meets 75-100% of supply need
Reliability	4	Medium to high reliable supply
Cost	5	No cost (excluding administrative and legal fees)
Environmental Factors	4	Low to no impacts
Impact on Other State Water Resources	5	Low impact to other water resources, positive impact by adding supply available for use from Lake Athens and reducing future demand on groundwater supply
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	No impacts on other natural resources
Interbasin Transfers		No
Third Party Social & Economic Impacts	4	No impacts on other natural resources
Major Impacts on Key Water Quality Parameters	4	No known impact. Reuse supply from Lake Athens is already being used.
Political Feasibility	4	Athens MWA is the local sponsor. Sponsor is committed.

Implementation Issues	3	Requires agreement with fish hatchery. If a permit for the supply is pursued, the process would be administered through TCEQ.

REFERENCES

2026 East Texas Regional Water Plan. September 2020.

ATHENS MWA – WATER TREATMENT PLANT BOOSTER PUMP STATION EXPANSION

Entity Name:	Athens Municipal Water Authority
Strategy Name:	WTP Pump Station Expansion
Strategy ID:	AMWA-PSE
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	4,600 ac-ft per year (4.1 MGD)
Implementation Decade:	2050
Development Timeline:	1-2 years
Project Capital Cost:	$3,121,000 (September 2023)
ANNUAL COST:	$309,000 per ac-ft
Unit Water Cost (Rounded):	$67 per ac-ft ($0.21 per 1,000 gallons)

STRATEGY DESCRIPTION

A recommended strategy for Athens Municipal Water Authority (AMWA) involves an expansion of their existing high service pump station (HSPS) to be able to deliver sufficient supply from their water sources to meet the projected demands of their treated water customer: the City of Athens. AMWA treats surface water diverted from Lake Athens at their Water Treatment Plant (WTP). Additionally, AMWA supplements Lake Athens water with groundwater from a well on the property of their WTP. Water from this well is chloraminated and then blended with treated surface water prior to being pumped to the City of Athens' distribution system.

AMWA's existing WTP has a capacity of 8.0 MGD. However, the AMWA WTP high service pump station (HSPS) that delivers treated water to the City of Athens only has a firm capacity of 4.9 MGD. The projected peak (maximum) treated water demand from AMWA's WTP sources (i.e., after accounting for alternative groundwater sources available to AMWA and Athens that are not linked to the WTP) is estimated to be approximately 5.5 MGD by 2050 and 9.0 MGD by 2070, assuming a peaking factor of 2.1 based on historical flow data from the City of Athens. Consequently, the projected peak day treated water demands exceed the WTP HSPS capacity by 2050 and this infrastructure deficit continues to grow in later decades (2070-2080).

This strategy includes an expansion of AMWA's WTP HSPS. The capacity was assumed to be expanded to the largest projected peak treated water demand from AMWA's WTP sources (9.0 MGD) across the planning horizon (2030-2080). Correspondingly, this involves an expansion of approximately 4.1 MGD. Expansion of the WTP HSPS was assumed to occur in one single phase; however, expansions could be phased incrementally to meet projected treated water demands.

SUPPLY DEVELOPMENT

This infrastructure expansion will ensure that AMWA is able to distribute treated water supply from their existing treated sources (Lake Athens, AMWA WTP groundwater well) and potential future sources (indirect reuse of fish hatchery flows from Lake Athens) to meet projected demands from the City of Athens. This strategy does not generate new or additional supply.

ENVIRONMENTAL CONSIDERATIONS

This project will facilitate an increase in treated water delivery capacity from AMWA's water treatment plant. This project does not develop new surface water supply sources. Diversions will be made using existing water rights at existing diversion locations, so this strategy should have a minimal impact on environmental water needs. Construction of infrastructure may result in some surface disturbance; however, this is expected to be minimal as the proposed infrastructure has a limited footprint and could be developed at AMWA's WTP adjacent to existing facilities. Therefore, it is anticipated to have low to no impact on any surrounding habitat and/or cultural resources in the area. There are no bays or estuaries in close proximity to Henderson County, so this project is anticipated to have no impact.

PERMITTING AND DEVELOPMENT

The development of this strategy may require some permitting due to surface disturbance from the construction of the infrastructure included in this project. This impact is expected to be minimal as the proposed infrastructure has a limited footprint and could be developed at AMWA's WTP adjacent to existing facilities. The supply source is provided through AMWA's existing water rights and diversion points on Lake Athens, as well as permitted groundwater production from their WTP well in the Carrizo-Wilcox Aquifer. Permitting for either new or amended water rights will not be required for this strategy.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for AMWA's WTP pump station expansion is provided in the table below. The cost was estimated for a booster pump station expansion of 4.1 MGD. It was assumed that construction of this upgrade would occur on property owned by AMWA.

MWP	**Athens Municipal Water Authority**				
STRATEGY	**WTP Pump Station Expansion**				
QUANTITY (AC-FT/YR)	**4,600**				
CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pump Station(s)					
Booster Pump Station	190 HP	1	LS	$2,127,000	$2,127,000
Power connection(s)		190	HP	$200	$75,000
Engineering and Contingencies (35%)					$771,000
Subtotal of Pump Station(s)					**$2,973,000**
CONSTRUCTION TOTAL					**$2,973,000**
Interest During Construction (3.5% for 1 years with a 0.5% ROI)					$97,000
Land Acquisition and Surveying					$5,000
Environmental - Studies and Mitigation					$46,000
TOTAL CAPITAL COST					**$3,121,000**
ANNUAL COSTS					
Debt Service (3.5% for 20 years)					$220,000
Pumping Energy Costs					$36,000
Operation and Maintenance (O&M)					$53,000
Total Annual Costs					**$309,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot					$67
Per 1,000 Gallons					$0.21
UNIT COSTS (After Amortization)					
Per Acre-Foot					$19
Per 1,000 Gallons					$0.06

PROJECT EVALUATION

This strategy benefits treated water customers of the Athens Municipal Water Authority, including the City of Athens. This analysis did not identify any impacts to agricultural or natural resources or key parameters of water quality. The strategy will have no apparent impact on other state water resources. This strategy does not involve a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. Ultimately, this strategy will enable Athens MWA to provide a more reliable water supply to their various rural customers, which could benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 100% of supply need

Criteria	Rating	Explanation
Reliability	4	Medium to high reliable supply
Cost	4	Low cost (< $1,000/ac-ft)
Environmental Factors	4	Low to no impacts
Impact on Other State Water Resources	4	Low to no impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Third Party & Social Economic Factors	4	Low to no impacts
Major Impacts on Key Water Quality Parameters	4	Low to no impacts
Political Feasibility	4	Athens MWA is the local sponsor. Sponsor is committed.
Implementation Issues	4	No known risk

REFERENCES

Discussions with Athens Municipal Water Authority and City of Athens.

Garver. December 2017. *City of Athens, TX Water Distribution Model Report*.

ATHENS MWA – NEW GROUNDWATER WELLS IN CARRIZO-WILCOX AQUIFER (ALTERNATIVE)

Entity Name:	Athens Municipal Water Authority
Strategy Name:	New Groundwater Wells in Carrizo-Wilcox Aquifer *(Alternative WMS)*
Strategy ID:	AMWA-GW
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	720 ac-ft per year (0.64 MGD)
Implementation Decade:	2070
Development Timeline:	< 5 years
Project Capital Cost:	$10,270,000 (September 2023)
Annual Cost:	$1,286,000
Unit Water Cost (Rounded):	$1,768 per ac-ft ($5.48 per 1,000 gallons)

STRATEGY DESCRIPTION

The strategy involves the development of new groundwater wells in the Carrizo-Wilcox Aquifer in Henderson County. The Carrizo-Wilcox Aquifer in Henderson County (both in Region C and I) has very limited modeled available groundwater (MAG) beyond what is currently used. Consequently, this is included as an alternative strategy for Athens MWA. The strategy could be changed to a recommended strategy if the MAG volumes increase in the future.

Athens MWA currently has two wells that produce groundwater from the Carrizo-Wilcox Aquifer in Henderson County. When comparing Athens MWA's projected demands to their existing water supplies (Lake Athens and groundwater) and future water supplies (indirect reuse), but not factoring in potential water conservation strategy savings, Athens MWA is projected to have a need of approximately 30 acre-feet per year from the Carrizo-Wilcox Aquifer by 2070 and 720 acre-feet per year by 2080.

This strategy assumes the development of approximately 720 acre-feet per year from the Carrizo-Wilcox Aquifer in Henderson County by 2070. The conceptual design for this strategy involves three public supply wells (capacities of 250 gpm, depth of 700 ft depth each) located within the Carrizo-Wilcox Aquifer, conveyance infrastructure (e.g., well collection piping, transmission pipeline, pump station, and storage tank), and a groundwater treatment system. A peaking factor of two was assumed to size infrastructure at this well field.

SUPPLY DEVELOPMENT

The estimated supply quantity from this strategy is approximately 720 ac-ft per year by 2070. There is not sufficient modeled available groundwater from the Carrizo-Wilcox Aquifer in Henderson County (both in Region C and I) to develop the supply assumed for this water management strategy, so this is considered as an alternative strategy. This strategy is projected to be online by 2070. Based on historical use, this supply is considered to have medium to high reliability.

ENVIRONMENTAL CONSIDERATIONS

The environmental impacts from this strategy are expected to be low. However, groundwater development from this source should be evaluated for potential impacts on spring flows and base flows if surface water is in close proximity. The impact to the environment due to pipeline construction is expected to be temporary and minimal. Impacts to environmental water needs, habitat, and cultural resources are expected to be low due to the relatively low footprint of this strategy.

PERMITTING AND DEVELOPMENT

This strategy is located within the Neches & Trinity Valleys Groundwater Conservation District (NTVGCD). Any new groundwater withdrawal by Athens MWA would require that an operating permit from the NTVGCD be obtained. The assumed supply from this strategy exceeds the Carrizo-Wilcox Aquifer MAG limits in Henderson County in Regions C and I. If and when the MAG numbers are updated, the yield from the wells will be compared with the MAG. If there is sufficient MAG for this strategy in the future, this could be converted to a recommended strategy.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs assume account for three wells, 1,300 feet of well field piping, one mile of transmission pipeline, a pump station, storage tank, and a groundwater treatment system.

MWP STRATEGY QUANTITY (AC-FT/YR)	Athens MWA New Wells in Carrizo-Wilcox Aquifer (Alternative) 720	
CAPITAL COST		
Booster Pump Stations		$776,000
Transmission Pipeline (10 in. dia., 1 mile)		$1,000,000
Well Fields (Wells, Pumps, and Piping)		$2,868,000
Storage Tanks (Other Than at Booster Pump Stations)		$1,126,000
Water Treatment Plant (1.1 MGD)		$1,441,000
Integration, Relocations, Backup Generator & Other		$2,000
TOTAL COST OF FACILITIES		**$7,213,000**
- Planning (3%)		$216,000
- Design (7%)		$505,000
- Construction Engineering (1%)		$72,000
Legal Assistance (2%)		$144,000
Fiscal Services (2%)		$144,000
Pipeline Contingency (15%)		$150,000
All Other Facilities Contingency (20%)		$1,243,000
Environmental & Archaeology Studies and Mitigation		$131,000
Land Acquisition and Surveying (13 acres)		$128,000
Interest During Construction (3.5% for 1 years with a 0.5% ROI)		$324,000
TOTAL COST OF PROJECT		**$10,270,000**
ANNUAL COST		
Debt Service (3.5 percent, 20 years)		$722,000
Operation and Maintenance		
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)		$50,000
Intakes and Pump Stations (2.5% of Cost of Facilities)		$19,000
Water Treatment Plant		$475,000
Pumping Energy Costs (220,017 kW-hr @ 0.09 $/kW-hr)		$20,000
TOTAL ANNUAL COST		**$1,286,000**
UNIT COSTS (Until Amortized)		
Per Acre-Foot		$1,786
Per 1,000 Gallons		$5.48
UNIT COSTS (After Amortization)		
Per Acre-Foot		$783
Per 1,000 Gallons		$2.40

PROJECT EVALUATION

This strategy benefits Athens MWA and their customers in Henderson County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. Developing groundwater supplies in Henderson County will have no other apparent impact on other state water resources. However, the supply quantity from this strategy would exceed the Carrizo-Wilcox MAG in Henderson County, so this strategy is designated as an alternative strategy rather than recommended. This strategy does not involve a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. Ultimately, this strategy will enable Athens MWA to provide a more reliable water supply to their various rural customers, which could benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	1	Meets < 25% of supply need
Reliability	2	Medium to high reliable supply historically. However, there is limited to no MAG from the Carrizo-Wilcox Aquifer in Henderson County, so long-term reliability is uncertain
Cost	3	Medium cost ($1,000 to $3,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	4	Low to no impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	3	Athens MWA is the local sponsor.
Implementation Issues	2	Supply quantity exceeds the Carrizo-Wilcox MAG in Henderson County.

REFERENCES

East Texas Regional Water Planning Group.

Discussions with Athens Municipal Water Authority.

BEAUMONT – WELL FIELD INFRASTRUCTURE UPGRADES

Entity Name:	Beaumont
Strategy Name:	Well Field Infrastructure Upgrades
Strategy ID:	BMNT-WFI
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	2,823 ac-ft per year (2.5 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$97,980,000 (September 2023)
ANNUAL COST:	$8,074,000
Unit Water Cost (Rounded):	$2,860 per ac-ft ($8.78 per 1,000 gallons)

STRATEGY DESCRIPTION

The City of Beaumont has three groundwater wells (public supply wells) at its Loeb Groundwater Facility in south Hardin County that are each permitted for a maximum production rate of 3,500 gallons per minute (approximately 5 MGD each) and permitted total annual production of 5,645.525 acre-feet per year. One of these wells is currently not in service due to its condition. A condition assessment of the Loeb Groundwater Facility (Freese and Nichols, 2019) and the City of Beaumont's Water Supply Planning Report (Freese and Nichols, 2024) highlighted that substantial infrastructure improvements are necessary to upgrade and restore the Loeb Groundwater Facility to be able to produce at its full capacity.

A recommended strategy for the City of Beaumont is to upgrade facilities at their Loeb Groundwater Facility to allow the City to fully utilize their permitted groundwater supply at a sustainable level. Major project components include construction of a new well, well collection piping, transmission pipelines, pumping facilities, storage tanks, chemical treatment systems, and other supporting infrastructure.

SUPPLY DEVELOPMENT

The estimated annual supply from this strategy is assumed to be equal to half of the permitted volume of one of the wells at the City's Loeb Groundwater Facility (2.5 MGD or 2,803 ac-ft per year). Based on groundwater simulations conducted by Advanced Groundwater Solutions (AGS) for the City of Beaumont in 2020 using the current North Gulf Coast Groundwater Availability Model (GAM), it is recommended to maintain groundwater production levels at or below 7.5 MGD, which is slightly less than 50% of the permitted annual production on average to ensure that the Desired Future Condition (DFC) is no more than 1 foot of subsidence on average by 2080. The Maximum Available Groundwater (MAG) based on the adopted DFC for the Gulf Coast Aquifer System in Hardin County is shown to remain constant at 37,571 ac-ft/year from 2030 through 2080. The combined annual permitted production of the City's Loeb wells is 16,936.58 ac-ft/year and accounts for about 45% of the total MAG value in Hardin County. These supplies are considered reliable.

ENVIRONMENTAL CONSIDERATIONS

The environmental impacts from this strategy are expected to be low. However, groundwater development from this source should be evaluated for potential impacts on spring flows and base flows if surface water is in close proximity. The impact to the environment due to pipeline construction is expected to be temporary and minimal. Impacts to environmental water needs, habitat, and cultural resources are expected to be low due to the relatively low footprint of this strategy and since construction will be conducted on property already owned by the City.

PERMITTING AND DEVELOPMENT

The City of Beaumont already has a total permitted annual production capacity of 16,936.58 acre-feet per year from three wells in Hardin County through the Southeast Texas Groundwater Conservation District (SETGCD). The upgrades to infrastructure at their Loeb Groundwater Facility are anticipated to enable the City to fully utilize their permitted groundwater supply at a sustainable level. The City will need to apply for new permits from the SETGCD to replace the existing well that is out of service with a new well. The new well is anticipated to produce from the same production zone(s) and the amounts will be the same maximum production amounts in its operating permit as the existing well that is out of service. Additional local permits may be needed for construction of the other project infrastructure, but they are anticipated to be marginal since development of this strategy will be conducted on property already owned by the City.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The PLOC for this strategy is based on data provided by the sponsor (Beaumont) developed by a consultant (Freese and Nichols, 2023).

MWP	Beaumont
STRATEGY	Well Field Infrastructure Improvements
QUANTITY (AC-FT/YR)	2,823
CAPITAL COST	
Loeb Well Construction Cost	$2,700,000
Water Treatment and Disinfection	$1,300,000
Conveyance Infrastructure	$7,100,000
Ground Storage Tanks	$22,500,000
Booster Pumps	$3,200,000
Transmission Lines	$19,500,000
Other Facility Improvements	$2,700,000
Engineering and Contingencies	$33,000,000
CONSTRUCTION COST	**$92,000,000**
Interest During Construction (3.5% for 2 years with a 0.5% ROI)	$5,980,000
TOTAL COST OF PROJECT	**$97,980,000**
ANNUAL COST	
Debt Service (3.5% for 20 years)	$6,894,000
Pumping Energy Costs	$500,000
Operation and Maintenance (O&M)	$630,000
Groundwater Production Fee	$50,000
TOTAL ANNUAL COST	**$8,074,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$2,860
Per 1,000 Gallons	$8.78
UNIT COSTS (After Amortization)	
Per Acre-Foot	$418
Per 1,000 Gallons	$1.28

PROJECT EVALUATION

This strategy benefits the City of Beaumont and its customers and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts from this strategy to agricultural or natural resources or to key parameters of water quality. Restoring the Loeb Groundwater Facility to its permitted production capacity will reduce future demands on other water supplies used the City of Beaumont (run-of-river diversions, supplies from LNVA). It will have no other apparent impact on other State water resources. This strategy does not involve a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. Ultimately, this strategy will enable Beaumont to provide a more reliable water supply to their various rural customers, which could benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	2	Meets 25-50% of supply need
Reliability	4	Reliable supply
Cost	3	Medium cost ($1,000 to $3,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	4	Local sponsorship by Beaumont. Sponsor is committed.
Implementation Issues	4	No known risks

REFERENCES

Discussions with the City of Beaumont.

Advanced Groundwater Consultants. 2020. *Groundwater Regulations and Well Pumping Simulations Report, Prepared for the City of Beaumont, Texas.*

Freese and Nichols, Inc. 2019. *Loeb Groundwater Facility Condition Assessment Report, Prepared for the City of Beaumont, Texas.*

Freese and Nichols, Inc. March 2024. *Water Supply Planning Study, Prepared for the City of Beaumont, Texas.*

BEAUMONT – AMENDMENT TO SUPPLEMENTAL CONTRACT WITH LNVA

Entity Name:	Beaumont
Strategy Name:	Amendment to Supplemental Contract with LNVA
Strategy ID:	BMNT-LNV
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	6,700 – 8,600 ac-ft per year (6.0 – 7.7 MGD)
Implementation Decade:	2030
Development Timeline:	1 year
Project Capital Cost:	$0 (September 2023)
ANNUAL COST:	$2,803,000
Unit Water Cost (Rounded):	$326 per ac-ft ($1.00 per 1,000 gallons)

STRATEGY DESCRIPTION

The City of Beaumont has an existing contractual agreement with the Lower Neches Valley Authority (LNVA) for up to 6,000 ac-ft per year. A recommended strategy is included for Beaumont to amend their existing supplement contract with LNVA for additional water supply. Based on their existing supplies and potential supplies from their well field infrastructure improvement strategy, the City of Beaumont will need approximately 6,700 ac-ft per year of additional supply from LNVA in 2030. The City's need for additional water supply from LNVA increases across the planning horizon, with a maximum need of approximately 8,600 ac-ft per year in 2070. The City of Beaumont already has existing infrastructure and transmission lines to access supply from the LNVA; however, there are some infrastructure constraints that may limit their ability to access the full supply from this strategy. Other recommended projects are included for the City to expand the capacity of their infrastructure to fully access this supply, including a new surface water treatment plant and rehabilitating (dredging) one of their canals. These projects were analyzed in separate technical memoranda. For this strategy, the only cost for additional supply from the Lower Neches Valley Authority is the cost of raw water. Ultimately, this cost will need to be negotiated between Beaumont and LNVA and will reflect their wholesale water rates at that time. The cost estimate included in this technical memorandum utilizes an assumed rate for the East Texas Regional Water Planning Area regional rate for raw surface water.

SUPPLY DEVELOPMENT

Beaumont has an existing contractual agreement with LNVA to supply up to 6,000 ac-ft per year. The quantity of supply from this strategy represents a contract increase of approximately 6,700 ac-ft per year beginning in 2030 and increases to approximately 8,600 ac-ft per year by 2060 to meet Beaumont's needs projected by the East Texas Regional Water Planning Group. These supplies are considered reliable. Development of this strategy will ultimately be dependent on coordination and agreement(s) between Beaumont and LNVA.

ENVIRONMENTAL CONSIDERATIONS

There are not any significant environmental considerations associated with this strategy. A contract between the City of Beaumont and the Lower Neches Valley Authority should have a minimal impact to environmental water needs, no impact to the surrounding habitat, and a low impact to cultural resources in the area. As there is no new infrastructure required for this strategy, there will be no impacts to bays or estuaries in close proximity to the City of Beaumont.

PERMITTING AND DEVELOPMENT

There are no permitting or development issues associated with this strategy.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. No capital costs were assumed for this strategy, but an annual cost was estimated using the East Texas Regional Water Planning Area regional rate for raw surface water.

MWP	**City of Beaumont**			
STRATEGY	**Amendment to Supplemental Contract with LNVA**			
QUANTITY (AC-FT/YR)	**8,600**			
ANNUAL COST	**Quantity**	**Unit**	**Unit Price**	**Cost**
Raw Water Purchase	2,803,000	1,000 gal	$1.00	$2,803,000
TOTAL ANNUAL COST				**$2,803,000**
UNIT COSTS (Until Amortized)				
Per Acre-Foot				$326
Per 1,000 Gallons				$1.00
UNIT COSTS (After Amortization)				
Per Acre-Foot				$326
Per 1,000 Gallons				$1.00

PROJECT EVALUATION

This strategy benefits municipal users in Jefferson County and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. A contract to obtain water from the Sam Rayburn system will reduce future demands on other water supplies in Jefferson County and will have no other apparent impact on other State water resources. This strategy involves a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. However, the supply associated with this strategy is relatively small compared to the surplus supply available from LNVA and it will enable Beaumont to provide a more reliable water supply to their various rural customers, which could benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 75-100% of supply need
Reliability	4	Medium to highly reliable supply
Cost	4	Low cost (< $1,000/ac-ft)

Criteria	Rating	Explanation
Environmental Factors	4	Low impacts
Impact on Other State Water Resources	4	Low to no impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	4	Local sponsorship by Beaumont
Implementation Issues	4	Requires amendment to supplemental contract with LNVA

REFERENCES

Discussions with the City of Beaumont.

Freese and Nichols, Inc. March 2024. *Water Supply Planning Study, Prepared for the City of Beaumont, Texas.*

BEAUMONT – BUNN'S CANAL REHABILITATION

Entity Name:	Beaumont
Strategy Name:	Bunn's Canal Rehabilitation
Strategy ID:	BEAU-BCR
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	8,970 ac-ft per year (8 MGD)
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$1,139,000 (September 2023)
ANNUAL COST:	$91,000
Unit Water Cost (Rounded):	$10 per ac-ft ($0.03 per 1,000 gallons)

STRATEGY DESCRIPTION

Bunn's Canal is situated near the Neches River northeast of the City of Beaumont. The canal starts at Bunn's Bluff and runs parallel to the Neches River for about 3 miles to Lawson's Crossing. The City of Beaumont primarily uses Bunn's Canal to convey raw water diverted from the Neches River to the Beaumont Water Canal, which is then conveyed to the City of Beaumont Pine Street Surface Water Treatment Plant (WTP). Bunn's Canal is a critical component of Beaumont's water supply system and provides a steady flow of fresh water to the city's treatment facilities. In 2017, Hurricane Harvey damaged the water canal system due to overtopping, scour, erosion, and slope instability. Additionally, sediment has accumulated in the canal over time. These events have reduced the potential conveyance capacity of the canal.

A project is recommended for Beamont to rehabilitate Bunn's Canal to its pre-storm condition so that it can convey water supply diverted from the Neches River at its full capacity.

SUPPLY DEVELOPMENT

Bunn's Canal consists of excavation between and construction of two parallel earthen levees which convey canal flow through the low-lying wetlands occurring on either side. The flooding due to Hurricane Harvey in 2017 submerged canal banks causing levee overtopping and erosion in Bunn's canal. The canal has also accumulated sediment to some degree based on a recent analysis (Freese and Nichols, Inc., 2019). The purpose of this project is to improve canal access, stabilize the bank canal including levee restoration, and remove sediment materials from the canal. These improvements will increase the carrying capacity of the canal.

The City of Beaumont estimates that the canal is only able to convey 37 MGD, which is less than the treatment capacity of Beaumont's Pine Street Surface Water WTP (45 MGD). The repair and restoration of the canal will require excavation and removal of debris and sediment and importing compacted select fill and riprap material for bank stabilization to restore the canal to its pre-storm capacity. It is estimated that this will increase Beaumont's ability to convey raw water from the Neches River to their Pine Street WTP by approximately 8 MGD (8,970 ac-ft per year).

ENVIRONMENTAL CONSIDERATIONS

There are some environmental considerations associated with this project. According to an evaluation conducted by Freese and Nichols, Inc. (2019), the project area includes expanses of forested wetlands that are dominated by bald cypress (*Taxodium distichum*) and/or water tupelo (*Nyssa aquatic*). Due to their proximity of these wetlands to the Neches River, they would be considered jurisdictional and therefore, subject to regulation under Section 404 of the Clean Water Act (CWA). Construction activities along the canal may temporarily impact flow, but ultimately this strategy will not impact environmental water needs long-term. Additional study will be needed to determine potential impacts of construction activities to local habitat, including threatened and endangered species, and cultural resources, but there are anticipated to be low or no impacts. The project is not located along the Gulf of Mexico and would not impinge on the Neches River and it would not impact any bays or estuaries.

PERMITTING AND DEVELOPMENT

Proposed repair and restoration construction activities could affect jurisdictional waters of the U.S. and therefore, could be subject to permitting under Section 404 of the Clean Water Act (CWA). Additionally, the activities may be subject to several other permits and coordination with state and federal agencies, including the Texas Commission on Environmental Quality (TCEQ) and U.S. Fish and Wildlife Service (USFWS).

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this project is included in the table below. The PLOC for this project is based on data provided by the sponsor (Beaumont) developed by a consultant (Freese and Nichols, 2019) and scaled to a September 2023 cost index.

MWP	**Beaumont**
STRATEGY	**Bunn's Canal Rehabilitation**
QUANTITY (AC-FT/YR)	**8,970**
CAPITAL COSTS	
Levee Clearing and Grubbing	$12,668
Levee Repair Access	$11,954
Topographic/Hydrographic Survey	$70,483
Levee Repair - Compacted Select Fill	$102,188
Slope Protection	$245,973
Sediment Removal	$31,656
Levee Crest Road	$76,926
Seeding and Mulching	$10,557
OH&P	$84,360
Mobilization	$32,339
Engineering and Contingencies	$336,157
Construction Phase Services	$87,961
Construction Cost	**$1,103,000**
Interest During Construction (3.5% for 1 years with a 0.5% ROI)	$36,000
TOTAL CAPITAL COST	**$1,139,000**
ANNUAL COSTS	
Debt Service (3.5% for 20 years)	$80,000
Operation and Maintenance (O&M)	$11,390
TOTAL ANNUAL COST	**$91,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$10
Per 1,000 Gallons	$0.03
UNIT COSTS (After Amortization)	
Per Acre-Foot	$2
Per 1,000 Gallons	$0.01

PROJECT EVALUATION

This project benefits Beaumont and its customers and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. Restoring the Bunn's canal to its pre-storm conveyance capacity will allow the City to divert larger volumes of water to their treatment facilities. This strategy will have no other apparent impact on other State water resources. This project does not involve a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. Ultimately, this project will enable Beaumont to provide a more reliable water supply to their various rural customers, which could benefit them from a social and economic perspective.

The project described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	5	Meets 75-100% of supply need
Reliability	4	Moderate to highly reliable supply
Cost	4	Low cost (< $1,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	4	Local sponsorship by Beaumont. Sponsor is committed.
Implementation Issues	3	Major storm events have impacted the canal in the past, so there is some risk associated with water delivered through this canal

REFERENCES

Discussions with the City of Beaumont

FEMA Funding Assistance by Freese and Nichols, Inc. for the City of Beaumont. June 2019.

BEAUMONT – NEW WESTSIDE SURFACE WATER TREATMENT PLANT

Entity Name:	Beaumont
Strategy Name:	New Westside Surface Water Treatment Plant
Strategy ID:	BMNT-WTP
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	12,400 ac-ft per year (11.1 MGD)
Implementation Decade:	2040
Development Timeline:	5-10 years
Project Capital Cost:	$202,160,000 (September 2023)
ANNUAL COST:	$16,324,000
Unit Water Cost (Rounded):	$1,316 per ac-ft ($4.04 per 1,000 gallons)

STRATEGY DESCRIPTION

In response to the negative impacts on Beaumont's potable water supply system caused by Hurricane Harvey in 2017, the City of Beaumont, in partnership with Freese and Nichols, Inc. (FNI), conducted a condition assessment of their drinking water system. This study highlighted the costs and challenges associated with maintaining the current system, prompting the City to explore alternatives to mitigate future storm impacts. One of the proposed solutions involves the design and construction of a new surface water treatment plant (SWTP) on the west side of the City with a capacity of 11 MGD. This new Westside SWTP would supplement the City's existing Pine Street Surface Water Treatment Plant in order to provide reliable, potable water supply to their customers.

A project is recommended for the City of Beaumont to construct a new SWTP on the west side of their city and an associated distribution system to deliver treated water to its customers. This project includes the construction of an 11 MGD capacity SWTP, as well as transmission and distribution infrastructure.

SUPPLY DEVELOPMENT

This project involves construction of a new surface water treatment plant. The existing treatment capacity at Beaumont's Pine Street SWTP is 45 MGD. Based on Beaumont's projected water demands coupled with impacts coupled with impacts on the City's potable water system during storm events, the City's existing system may not be sufficient long-term. The new SWTP will be able to treat 11 MGD of surface water, thereby providing flexibility to the City to meet the needs of its customers. The new SWTP could treat surface water diverted using Beaumont's existing run-of-river rights and/or backup water supplied through the City's contractual agreement with LNVA.

ENVIRONMENTAL CONSIDERATIONS

The impact on the environment due to the construction of infrastructure associated with this project is expected to be low to moderate. There may be some surface disturbance associated with the construction of infrastructure, but it is expected to occur primarily on land that is previously disturbed. In addition, it is anticipated that this project will have a minimal impact on environmental water needs, a low impact on the surrounding habitat, a low impact on cultural resources in the area, and no impact to bays or estuaries.

PERMITTING AND DEVELOPMENT

There are no anticipated permitting or development issues associated with this project. There may be some minor permitting related to the construction of the infrastructure required associated with this project.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this project is included in the table below. The PLOC for this project is based on data provided by the sponsor (Beaumont) developed by a consultant (Freese and Nichols, 2023).

MWP	**Beaumont**	
STRATEGY	**New Westside Surface Water Treatment Plant**	
QUANTITY (AC-FT/YR)	**12,400**	
CAPITAL COSTS		
Treatment Plant Construction Cost		$103,000,000
Transmission and Distribution Infrastructure		$12,600,000
Land Acquisition Costs (Includes Environmental and Mitigation)		$2,400,000
Engineering and Contingencies		$66,200,000
CONSTRUCTION COST		**$184,200,000**
Interest During Construction (3.5% for 3 years with a 0.5% ROI)		$17,960,000
TOTAL COST OF PROJECT		**$202,160,000**
ANNUAL COST		
Debt Service (3.5% for 20 years)		$14,224,000
Pumping Energy Costs		$400,000
Operation and Maintenance (O&M)		$1,100,000
LNVA Water Surface Fee		$600,000
TOTAL ANNUAL COST		**$16,324,000**
UNIT COSTS (Until Amortized)		
Per Acre-Foot		$1,316
Per 1,000 Gallons		$4.04
UNIT COSTS (After Amortization)		
Per Acre-Foot		$169
Per 1,000 Gallons		$0.52

PROJECT EVALUATION

This project benefits the City of Beaumont customers and is expected to have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. The project will have no apparent impact on other state water resources. This strategy does not involve a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. Ultimately, this project will enable Beaumont to provide a more reliable water supply to their various rural customers, which could benefit them from a social and economic perspective.

The project described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	4	Meets 75-100% of supply need
Reliability	4	Moderate to highly reliable supply
Cost	3	Medium cost ($1,000 to $3,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no impacts
Other Natural Resources	4	Low to no impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	4	Local sponsorship by Beaumont. Sponsor is committed.
Implementation Issues	4	No known risks

REFERENCES

Discussions with the City of Beaumont.

Freese and Nichols, Inc. March 2024. *Water Supply Planning Study, Prepared for the City of Beaumont, Texas*

CENTER – REUSE PIPELINE

Entity Name:	Center
Strategy Name:	Reuse Pipeline to Industrial Customer
Strategy ID:	CENT-REU
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	1,121 ac-ft per year (1.5 MGD)
Implementation Decade:	2030
Development Timeline:	<5 years
Project Capital Cost:	$25,824,000 (September 2023)
Annual Cost:	$2,608,000
Unit Water Cost (Rounded):	$2,326 per ac-ft ($7.14per 1,000 gallons)

STRATEGY DESCRIPTION

The City of Center is permitted to use the return flows from the East Bank WWTP. The City is planning a direct reuse project by means of a reuse pipeline from East Bank WWTP to serve the City's industrial customers. The total capacity for the indirect reuse project will be approximately 1 MGD (1,121 ac-ft/yr) and the project is estimated to be online in 2030. The project is currently in TCEQ study phase, and the City anticipates the plant will be in operation in the next 2 to 5 years.

SUPPLY DEVELOPMENT

Supply is readily available at the East Bank WWTP owned and operated by the City. The City has a permit to use the return flows originating from the WWTP.

ENVIRONMENTAL CONSIDERATIONS

This project has a positive environmental impact by offsetting potable water demand with industrial use. While there may be some temporary environmental effects during pipeline construction, these impacts should be minimal once construction is complete. Additionally, the pump station and treatment facility might have a localized, minimal impact on the surrounding environment.

PERMITTING AND DEVELOPMENT

The City needs to apply for a TCEQ permit for the reuse project.

PLANNING LEVEL OPINION OF COST

Included below is a planning level opinion of cost (PLOC) for the Phase I of the pipeline from City of Center's East Bank WWTP to an industrial customer. The transmission system cost estimate includes a 90 HP pump station, expansion of the treatment plant to treat the additional supplies.

MWP	City of Center				
STRATEGY	Reuse Pipeline to Industrial Customer				
QUANTITY (AC-FT/YR)	1,121				
CAPITAL COSTS					
Pipeline to Lake Nacogdoches	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	10 in.	5,280	LF	$189	$25,139,000
Pipeline Urban	10 in.	5,280	LF	$284	$7,826,000
Right of Way Easements Rural (ROW)		2	Acres	$9,250	$24,700
Right of Way Easements Urban (ROW)		2	Acres	$435,600	$1,166,000
Engineering and Contingencies (30%)					$752,000
Subtotal of Pipeline					**$4,448,700**
Pump Station(s)					
Pump with intake & building	87 HP	1	LS	$5,601,000	$5,601,000
Power connection(s)		87	HP	$200	$75,000
Ground Storage Tank	0.19	1	EA	$680,000	$680,000
Engineering and Contingencies (35%)					$2,225,000
Subtotal of Pump Station(s)					**$8,581,000**
Water Treatment Facility					
Expand Existing Water Treatment Plant	2 MGD	1	LS	$8,706,000	$8,706,000
Engineering and Contingencies (35%)					$3,047,000
Subtotal of Storage Tanks					**$11,753,000**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$17,000
Engineering and Contingencies (35%)					$5,950
Subtotal of Integration, Relocations, Backup Generator & Other					**$22,950**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$76,313
Environmental - Studies and Mitigation					$129,375
CONSTRUCTION TOTAL					**$25,011,000**
Interest During Construction (3.5% for 2 years with a 0.5% ROI)				12 Months	$813,000
TOTAL COST OF PROJECT					**$25,824,000**

ANNUAL COST				
Debt Service (3.5% for 20 years)				$1,817,000
Pumping Energy Costs				$26,000
Operation and Maintenance (O&M)				$400,170
Additional Treatment	365,279	1000 gal	$1.00	$365,300
TOTAL ANNUAL COST				**$2,608,000**
UNIT COSTS (Until Amortized)				
Per Acre-Foot				$2,326
Per 1,000 Gallons				$7.14
UNIT COSTS (After Amortization)				
Per Acre-Foot				$706
Per 1,000 Gallons				$2.17

PROJECT EVALUATION

City of Center already has a permit to use the return flows, so this project has the benefit of providing a source of supply that is readily available in the close proximity of Lake Center. The addition of the additional 1,121 ac-ft/yr will help City of Center supply to the increasing manufacturing demand in Shelby County despite the potential double-counting of existing manufacturing demand currently serving by the City.

The recommended strategy for infrastructure improvements was evaluated across twelve different criteria for the purpose of quick comparison against alternative projects that may be incorporated into the 2026 East Texas Regional Water Plan. The results of this evaluation can be seen in the table below.

Criteria	Rating	Explanation
Quantity	3	Meets 50-75% of Shortage
Reliability	5	High reliable supply
Cost	3	Medium cost ($1,000 to $3,000/ac-ft)
Environmental Factors	4	Low environmental impacts
Impact on Other State Water Resources	5	High positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	5	High positive impacts

Major Impacts on Key Water Quality Parameters	5	High positive impacts
Political Feasibility	4	Local sponsorship by Center. Sponsor is committed.
Implementation Issues	4	Low to no negative impacts and/or some positive impacts

REFERENCES

Correspondence with the City of Center.

CENTER – PIPELINE FROM TOLEDO BEND TO LAKE CENTER

Water User Group Name:	City of Center
Strategy Name:	Toledo Bend to Lake Center Pipeline
Strategy ID:	CENT-TOL
Strategy Type:	New Surface Water Source
Potential Supply Quantity:	2,242 ac-ft per year (2.00 MGD)
Implementation Decade:	2040
Development Timeline:	<5 years
Project Capital Cost:	$70,786,000 (September 2023)
Annual Cost:	$6,486,000
Unit Water Cost (Rounded):	$2, 893 per ac-ft ($8.88 per 1,000 gallons)

STRATEGY DESCRIPTION

The Toledo Bend to Lake Center pipeline is an alternate water management strategy for the City of Center. It is assumed that Center will be purchasing raw water from the Sabine River Authority. The City of Center will need a transmission project to transfer supplies from Toledo Bend Reservoir to Lake Center. The water management strategy associated with the transmission project is discussed in this tech memo. The current contract amount for the City of Center is 2,242 acre-feet. This value exceeds the City of Center's needs after considering current and future customer demands. Therefore, this strategy is considered as an alternate WMS for the City. The transmission project will include a 19-mile pipeline from Toledo Bend Reservoir to Lake Center, an intake pump station, and a 3-MGD expansion to the current water treatment plant.

SUPPLY DEVELOPMENT

The quantity of supply from this strategy represents the water requested by the City of Center as part of their long-term planning. This is equal to 2,242 ac-ft/yr beginning in 2040 and continuing through the end of the planning period, 2080. The reliability of this water supply is considered medium to high due to the potential availability of water from the Toledo Bend system.

ENVIRONMENTAL CONSIDERATIONS

The impact to the environment due to pipeline construction is expected to be low to moderate. While there may be some temporary environmental effects during pipeline construction, these impacts should be minimal once construction is complete. Additionally, the pump station and treatment facility might have a localized, minimal impact on the surrounding environment.

PERMITTING AND DEVELOPMENT

This strategy will likely require permits from TCEQ. The intake pump station at Toledo Bend Reservoir may need a water rights permit or an amendment, while the 19-mile pipeline and construction activities could require a TPDES general permit. Additionally, the 3-MGD expansion of the water treatment plant will likely require a Public Water System permit to ensure compliance with drinking water standards.

PLANNING LEVEL OPINION OF COST

Included below is a planning level opinion of cost (PLOC) for the pipeline from Toledo Bend Reservoir to Lake Center. Costs are estimated for 19 miles of pipeline. The transmission system cost estimate also includes the cost of a 56 HP intake pump station and a 3 MGD water treatment plant expansion for treating the raw water. The annual costs are calculated assuming 3.5% interest rate and 20 years of return period. The estimate includes the cost for the purchase of raw water from the Sabine River Authority. Overall, this strategy has a medium cost compared to other strategies in the 2026 East Texas Regional Water Plan.

WWPNAME:	**City of Center**				
STRATEGY:	**Pipeline from Toledo Bend to Lake Center**				
Quantity:	**2,242** AF/Y				
CAPITAL COSTS					
Pipeline	**Size**	**Qty**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	16 in.	100,320	LF	$262	$26,244,000
Right of Way Easements Rural (ROW)		46	Acres	$9,250	$469,000
Engineering and Contingencies (30%)					$7,873,000
Subtotal of Pipeline	**19**	**Miles**			**$34,586,000**
Pump Station(s)					
Pump with intake & building	56 HP	1	LS	$4,818,000	$4,818,000
Power connection(s)		56	HP	$200	$75,000
Booster Pump Station	56 HP	1	LS	$1,005,000	$1,005,000
Storage Tanks	0.38 MG	1	EA	$784,000	$784,000
Engineering and Contingencies (35%)					$2,338,700
Subtotal of Pump Station(s)					**$9,020,700**
Water Treatment Facility					
Expand Existing Water Treatment Plant	3 MGD	1	LS	$12,255,000	$12,255,000
Engineering and Contingencies (35%)					$4,289,250
Subtotal of WTP					**$16,544,250**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$27,000
Engineering and Contingencies (35%)					$9,000
Subtotal of Integration, Relocations, Backup Generator & Other					**$36,000**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$2,990,664
Environmental - Studies and Mitigation					$3,288,785
Construction Total					**$66,466,399**

Interest During Construction (3.5% for 2 years with a 0.5% ROI)	24	Months		$4,320,000
TOTAL COST				**$70,786,000**
ANNUAL COSTS				
Debt Service (3.5% for 20 years)				$4,981,000
Pumping Energy Costs				$40,000
Operation and Maintenance (O&M)				$734,270
Raw Water Purchase		Kgal	$1.00	$731,000
Total Annual Costs				**$6,486,000**
UNIT COSTS (Until Amortized)				
Per Acre-Foot				$2,893
Per 1,000 Gallons				$8.88
UNIT COSTS (After Amortization)				
Per Acre-Foot				$671
Per 1,000 Gallons				$2.06

PROJECT EVALUATION

Based on the analysis provided above, the Toledo Bend Reservoir to Lake Center Raw Water Transmission System project was evaluated across twelve different criteria for the purpose of quick comparison against alternative projects that may be incorporated into the Regional Water Plan. The results of this evaluation can be seen in the table below.

Criteria	Rating	Explanation
Quantity	5	Exceeds Shortage
Reliability	4	Medium to High reliable supply
Cost	3	$1,000 to $3,000/ac-ft (Medium)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	4	Low to no negative impacts and/or some positive impacts

Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	4	Local sponsorship by Center. Sponsor is committed.
Implementation Issues	4	Low implementation issues

REFERENCES

2026 East Texas Regional Water Plan.

HOUSTON COUNTY WCID #1 – NEW GROUNDWATER WELLS IN CARRIZO-WILCOX AQUIFER

Entity Name:	Houston County WCID #1
Strategy Name:	New Groundwater Wells in Carrizo-Wilcox Aquifer
Strategy ID:	HCWC-GW
Strategy Type:	Existing Groundwater Source
Potential Supply Quantity:	1,000 ac-ft per year
Implementation Decade:	2030
Development Timeline:	< 5 years
Project Capital Cost:	$16,528,000 (September 2023)
Annual Cost:	$1,447,000
Unit Water Cost (Rounded):	$1,447 per ac-ft ($4.44 per 1,000 gallons)

STRATEGY DESCRIPTION

A strategy is recommended for Houston County WCID #1 to develop four wells in Houston County within the Carrizo-Wilcox Aquifer. This aquifer has been identified as a potential source of water in Houston County. All four wells are estimated to have a maximum total capacity of 800 gpm, and a water depth of 300 feet was assumed. A peaking factor of two was assumed for the wells, and the cost estimate includes conveyance infrastructure in order to capture the peak supply.

SUPPLY DEVELOPMENT

It is assumed that each well will have a maximum yield of 250 ac-ft/yr to meet both municipal and non-municipal demands in Houston County, providing a total strategy yield of 1,000 ac-ft/yr for every decade in the planning period (2030-2080). A target yield for this strategy was set by the MAG limit in Carrizo-Wilcox Aquifer in Houston County.

ENVIRONMENTAL CONSIDERATIONS

The environmental impacts from this strategy are expected to be low. However, groundwater development from this source should be evaluated for potential impacts on spring flows and base flows if surface water is in close proximity. The impact to the environment due to pipeline construction is expected to be temporary and minimal. Impacts to environmental water needs, habitat, and cultural resources are expected to be low due to the relatively low footprint of this strategy.

PERMITTING AND DEVELOPMENT

There are no anticipated permitting or development issues associated with this strategy. Currently, there is no groundwater conservation district in Houston County.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs account for four wells, 820 feet of well field piping, three miles of transmission pipeline, a pump station, storage tank, and a groundwater treatment system.

WWP: Houston County WCID #1 - New Wells in Carrizo-Wilcox Aquifer WMS: Houston County, Carrizo-Wilcox Aquifer					
Supply		1,000	Ac-ft/yr	620	gpm
Depth to Water		300	ft		
Well Depth		820	ft		
Well Yield		200	gpm		
Well Size		10	in		
Wells Needed		4			
Construction Costs		Number		Unit Cost	Total Cost
Water Wells		4		$664,430	$2,658,000
Connection to Transmission System		4		$50,000	$200,000
Engineering and Contingencies (30% for pipelines, 35% for other items)					$990,000
Subtotal of Well(s)					**$3,848,000**
Transmission System	Size	Quantity	Unit	Unit Cost	Total Cost
Pipeline - Rural	20 in.	15,840	LF	$310	$4,918,000
Pump Station	156 HP	1	EA	$1,841,000	$1,841,000
Power Connection(s)		1	EA	$200	$75,000
Ground Storage Tank	0.22 MG	1	EA	$700,144	$700,000
Easement - Rural		145	Acres	$9,250	$1,479,500
Engineering and Contingencies (30% for pipelines, 35% for other items)					$2,391,000
Subtotal for Transmission		**3**	**miles**		**11,404,500**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$30,000
Engineering and Contingencies (35%)					$11,000
Subtotal of Integration, Relocations, Backup Generator & Other					**$41,000**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$71,225
Environmental - Studies and Mitigation					$ 154,750
Construction Total					**$15,519,475**
Interest During Construction (3.5% for 2 years with a 0.5% ROI)			24	Months	$1,009,000
TOTAL CAPITAL COST					**$16,528,000**
Debt Service (3.5% for 20 years)					$1,163,000
Operation and Maintenance (O&M)					$142,000
Transmission & Wells		1%			$78,000
Pump Station & Storage Tank		2.50%			$64,000
Misc		1%			$0
Disinfection		325,851	$0.30	per 1000 gal	$98,000
Pumping Energy Costs					$44,000
Total Annual Cost					**$1,447,000**
UNIT COSTS (First 20 Years)					

Cost per ac-ft	$1,447
Cost per 1000 gallons	$4.44
UNIT COSTS (After 20 Years)	
Cost per ac-ft	$284
Cost per 1000 gallons	$0.87

PROJECT EVALUATION

This strategy benefits both municipal and non-municipal users in Houston County and would have a positive impact on their water supply security. Since 2007, Houston County WCID #1 has received multiple requests for additional water supplies from entities and business including the City of Crockett, the Crockett Economic & Industrial Development Corporation, The Consolidated WSC, Nacogdoches Power, LLC, and the previous Houston County Judge, Erin Ford.

This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. New wells in the county will reduce demands on other water supplies in Houston County and will have no other apparent impact on other State water resources. From a third party social and economic perspective, this strategy will provide water for economic growth.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	5	Exceeds shortage
Reliability	3	Medium reliable supply
Cost	3	Medium cost ($1,000 to $3,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no negative impacts and/or some positive impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	4	Sponsor identified

Criteria	Rating	Explanation
Implementation Issues	3	Low implementation issues

REFERENCES

Correspondence with Houston County WCID.
2026 East Texas Regional Water Plan.

JACKSONVILLE – SUPPLY FROM LAKE COLUMBIA

Entity Name:	Jacksonville
Strategy Name:	Supply from Lake Columbia
Strategy ID:	JACK-COL
Strategy Type:	New Surface Water Source
Potential Supply Quantity:	1,700 ac-ft per year (1.5 MGD)
Implementation Decade:	2050
Development Timeline:	< 5 years
Project Capital Cost:	$67,185,000 (September 2023)
Annual Cost:	$6,428,000
Unit Water Cost (Rounded):	$3,781 per ac-ft ($11.60 per 1,000 gallons)

STRATEGY DESCRIPTION

Construction of Lake Columbia is a recommended water management strategy for Angelina Nacogdoches River Authority. Angelina Neches River Authority has contracts with several customers that are participants in the project development. The City of Jacksonville is included in the list, participating at five percent contribution. It is assumed that Jacksonville will be purchasing raw water from Angelina Neches River Authority. City of Jacksonville will need a transmission project to transfer supplies from Lake Columbia to the City. The water management strategy associated with the transmission project is discussed in this tech memo.

The current contract amount for the City of Jacksonville is 4,275 acre-feet. However, the City of Jacksonville currently does not have any supply shortages and is also not expecting tremendous growth in the recent future. For these reasons, it is assumed that the transmission strategy will be developed in phases with the first phase for a potential supply of 1,700 ac-ft/yr (2.27 MGD). The tech memo discussion is associated with the Phase I of the transmission project. Additional phases will be developed at a later stage. The transmission project includes a 5-mile pipeline from Lake Columbia to the City, an intake pump station, and a 3-MGD water treatment plant to treat the supplies before delivery.

SUPPLY DEVELOPMENT

The quantity of supply from this strategy represents the water requested by the City of Jacksonville as part of their long-term planning. This is equal to 1,700 ac-ft/yr beginning in 2050 and continuing through the end of the planning period, 2080. The reliability of this water supply is considered medium to high due to the potential availability of water from the new Lake Columbia system.

ENVIRONMENTAL CONSIDERATIONS

The impact to the environment due to pipeline construction, new raw water intake and a water treatment plant is expected to be moderate.

PERMITTING AND DEVELOPMENT

No additional permitting issues associated with the project. The project will commence after the commencement of the Lake Columbia project by Angelina Neches River Authority.

PLANNING LEVEL OPINION OF COST

Included below is a planning level opinion of cost (PLOC) for Phase I of the pipeline from Lake Columbia to City of Jacksonville. Costs are estimated for half-mile of pipeline in urban areas and 4.5 miles of pipeline in rural areas. The transmission system cost estimate also includes the cost of 190 HP intake pump station and a 3 MGD water treatment plant for treating the raw water. The annual costs are calculated assuming 3.5% interest rate and 20 year loan debt service period. The PLOC includes a regional estimate for costs to purchase raw water from Angelina Neches River Authority.

WWP NAME:	**Jacksonville**				
STRATEGY	**Lake Columbia Pipeline**				
Quantity for Phase I	**1,700** AF/Y				
CAPITAL COSTS					
Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	12 in.	23,544	LF	$214	$5,033,000
Pipeline Urban	12 in.	3,000	LF	$321	$962,000
Right of Way Easements Rural (ROW)		11	Acres	$9,250	$110,000
Right of Way Easements Urban (ROW)		1	Acres	$435,600	$660,000
Engineering and Contingencies (30%)					$1,799,000
Subtotal of Pipeline					**$8,564,000**
Pump Station(s)					
Pump with intake & building	190 HP	1	LS	$8,238,000	$8,238,000
Power connection(s)		190	HP	$200	$75,000
Storage Tanks	0.28 MG	1	EA	$734,000	$734,000
Engineering and Contingencies (35%)					$3,166,000
Subtotal of Pump Station(s)					**$12,213,000**
Water Treatment Facility					
New Water Treatment Plant	3 MGD	1	LS	$32,557,000	$32,557,000
Engineering and Contingencies (35%)					$11,394,950
Subtotal of WTP					**$43,951,950**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$33,000
Engineering and Contingencies (35%)					$12,000
Subtotal of Integration, Relocations, Backup Generator & Other					**$45,000**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$76,313
Environmental - Studies and Mitigation					$219,879
CONSTRUCTION TOTAL					**$65,070,000**
Interest During Construction (3.5% for 1 years with a 0.5% ROI)			12	Months	$2,115,000
TOTAL COST					**$67,185,000**
ANNUAL COSTS					
Debt Service (3.5% for 20 years)					$4,727,000
Pumping Energy Costs					$49,000
Operation and Maintenance (O&M)					$1,098,330
Raw Water Purchase			1000 gal	$1.00	$554,000
Total Annual Costs					**$6,428,000**

UNIT COSTS (Until Amortized)	
Per Acre-Foot of treated water	$3,781
Per 1,000 Gallons	$11.60
UNIT COSTS (After Amortization)	
Per Acre-Foot	$1,001
Per 1,000 Gallons	$3.07

PROJECT EVALUATION

Based on the analysis provided above, the Lake Columbia to Jacksonville Raw Water Transmission System project was evaluated across twelve different criteria for the purpose of quick comparison against alternative projects that may be incorporated into the Regional Water Plan. The results of this evaluation can be seen in the table below.

Criteria	Rating	Explanation
Quantity	5	Exceeds shortage
Reliability	4	Medium to high reliable supply
Cost	2	Medium to high cost ($3,000 to $5,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	4	Low to no negative impacts and/or some positive impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	4	Local sponsorship by Jacksonville. Sponsor is committed.
Implementation Issues	3	Low to medium implementation issues

REFERENCES

2026 East Texas Regional Water Plan.

LNVA – DEVERS PUMP STATION RELOCATION

Entity Name:	Lower Neches Valley Authority
Strategy Name:	Devers Pump Station Relocation (Region H)
Strategy ID:	LNVA-DPS
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	88,704 ac-ft/yr (79 MGD)
Implementation Decade:	2030
Development Timeline:	1-2 years
Project Capital Cost:	$21,338,000 (September 2023)
Project ANNUAL COST:	$1,883,000
Unit Water Cost (Rounded):	$21 per ac-ft ($0.07 per 1,000 gallons)

STRATEGY DESCRIPTION

The Lower Neches Valley Authority (LNVA) is a major water supplier to irrigators in the eastern portion of Region H, including rice production in Chambers and Liberty County. A substantial portion of this supply is provided through LNVA's Devers Canal System, which diverts water from the Trinity River at the Devers 1st Pump Station near Moss Bluff, TX for conveyance through a canal network to points of use. To meet the needs of current and future customers and increase deliverable supply in this area, LNVA has identified the need to develop a new Devers 1st Pump Station. The new pump station will be located adjacent to the current pump station, limiting the required permitting and the need to develop an additional conveyance to connect to existing canal infrastructure.

The proposed infrastructure associated with this strategy will increase pumping capacity to allow existing LNVA-owned or contracted surface water supply to be diverted from the Trinity River and delivered to LNVA's customers. Major project components include development of a new intake structure, high-capacity pump station, and discharge structures to connect the pump station to the Devers Canal System.

SUPPLY DEVELOPMENT

The LNVA Devers Pump Station Relocation project will increase deliverable supplies from existing sources and will not require a new water right appropriation. The new facility has a planned capacity of 200,000 gpm, resulting in an additional 55,000 gpm (88,704 ac ft/yr) of reliable pumping capacity.

ENVIRONMENTAL CONSIDERATIONS

The enhanced infrastructure will facilitate an increase in diversion capacity for the LNVA Devers Canal system. Impacts on instream flows and bay and estuary flows are anticipated to be minimal, as the proposed project increases supply from existing water rights to levels observed in prior historical conditions; the project does not develop new surface water sources. Diversions will be made using existing water rights at existing diversion locations, so this strategy should have a minimal impact on environmental water needs.

Infrastructure development may result in some surface disturbance from construction that could require mitigation; however, this is expected to be minimal as the proposed infrastructure has a limited footprint and will be developed on LNVA's existing property adjacent to existing facilities. Therefore, this strategy is anticipated to have low to no impact on any surrounding habitat and/or cultural resources in the area.

PERMITTING AND DEVELOPMENT

The supply source is provided through LNVA's existing water rights and authorized diversion points on the Trinity River. Permitting for either new or amended water rights will not be required for this strategy. The development of this strategy may require some permitting due to surface disturbance from the construction of the infrastructure included in this project. This impact is expected to be minimal as the proposed infrastructure has a limited footprint and will be developed on LNVA's existing property in close proximity to existing facilities.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this project includes costs from all aspects, including planning, design, real estate, environmental and permitting, and infrastructure construction. Projected capital cost estimates were provided by LNVA. The annual cost was estimated assuming a debt service at a rate of 3.5 percent for 20 years, in accordance with TWDB regional water planning cost assumptions. Costs are presented in September 2023 costs.

WWP	**Lower Neches Valley Authority**
STRATEGY	**Devers Pump Station Improvement (Region H)**
QUANTITY (AC-FT/YR)	**88,704**
CAPITAL COST	
Construction Cost	$15,262,337
Engineering and Contingencies (35%)	$5,342,000
Land Acquisition and Surveying	$6,000
Environmental - Studies and Mitigation	$59,195
CONSTRUCTION TOTAL	**$20,670,000**
Interest During Construction (3.5% for 3 years with a 0.5% ROI)	$668,717
TOTAL COST OF PROJECT	**$21,338,000**
ANNUAL COST	
Debt Service (3.5% for 20 years)	$1,501,000
Pumping Energy Costs	$0
Operation and Maintenance (O&M)	$381,558
TOTAL ANNUAL COST	**$1,883,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$21
Per 1,000 Gallons	$0.07
UNIT COSTS (After Amortization)	
Per Acre-Foot	$4
Per 1,000 Gallons	$0.01

PROJECT EVALUATION

This strategy benefits both municipal and non-municipal customers of the Lower Neches Valley Authority in Region H and would have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. The strategy will have no other apparent impact on other State water resources. This strategy does not involve a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. Ultimately, this strategy will enable LNVA to provide a more reliable water supply to their various rural and agricultural customers, which could benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	5	No shortage identified for LNVA. Infrastructure would allow them to access surplus supply and add resiliency to their system
Reliability	4	Medium to highly reliable supply
Cost	4	Low cost (< $1,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	5	Increases ability for LNVA to deliver reliable supplies to their customers, including those with projected needs
Threat to Agricultural Resources/Rural Areas	4	Low to no known impacts
Other Natural Resources	4	No known impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	No known impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	5	Sponsorship by Lower Neches Valley Authority. Sponsor is committed.
Implementation Issues	4	No known risks

REFERENCES

Discussions with Lower Neches Valley Authority.

2021 Region H Water Plan, Amendment No. 1. August 2023.

2026 Region H Initially Prepared Plan. March 2025.

LNVA – NECHES PUMP STATION UPGRADES AND FUEL DIVERSIFICATION

Entity Name:	Lower Neches Valley Authority
Strategy Name:	Neches Pump Station Improvements
Strategy ID:	LNVA-NPS
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	161,500 ac-ft per year (144 MGD)
Implementation Decade:	2030
Development Timeline:	2-4 years
Project Capital Cost:	$66,948,000 (September 2023)
Project ANNUAL COST:	$5,681,000
Unit Water Cost (Rounded):	$35 per ac-ft ($0.11 per 1,000 gallons)

STRATEGY DESCRIPTION

This is a recommended strategy for the Lower Neches Valley Authority (LNVA) that includes improvements to pump stations on their Neches River canal system in Jefferson County. LNVA serves municipal, agricultural, and industrial customers in Jefferson County through their canal systems. These canal systems are fed by intake pump stations. During Hurricane Harvey, the Neches First Lift Pump Stations and canal lift pump stations were flooded, requiring alternate measures to deliver water to LNVA customers. The Lower Neches Valley Authority is planning to construct a new pump station above the flood of record to improve resiliency and mitigate the risk to public health and safety. This will result in a dependable water supply during disaster events for the Cities of Port Arthur, Groves, Nederland, Port Neches, West Jefferson County MUD and Beaumont and other agricultural and industrial customers throughout Jefferson County.

This project includes constructing a new 200,000 gpm pump station at the Neches First Lift Pump Station with new pumps driven by electric motors with back-up diesel generators at a location that is less susceptible to flooding events. LNVA's existing 1930's pump station at Neches First Lift is driven only by natural gas engines and is within a building that is not able to be flood-proofed against the flood of record. In addition, this project involves a new 100,000 gpm pump and electric motor installed at the Neches Second Lift Pump Station, as well as a diesel generator for backup power. In addition to floodproofing their 1930's pump station, this project will diversify LNVA's fuel needs and provide back-up pumping capacity in case there is loss of natural gas to the facility.

SUPPLY DEVELOPMENT

The LNVA Neches Pump Station Rehabilitation project will increase deliverable supplies from existing sources and will not require a new water right appropriation. The new facility will add a total capacity of 300,000 gpm at Neches First and Second Lift Pump Stations, resulting in an additional 100,000 gpm (approximately 161,500 ac ft/yr) of firm pumping capacity.

ENVIRONMENTAL CONSIDERATIONS

The enhanced infrastructure from this project will facilitate an increase in diversion capacity for the LNVA Neches River canal system. Impacts on instream flows and bay and estuary flows are anticipated to be minimal, as the proposed project increases supply from LNVA's existing water rights to levels observed in prior historic conditions. This project does not develop new surface water supply sources. Diversions will be made using existing water rights at existing diversion locations, so this strategy should have a minimal impact on environmental water needs.

Construction of infrastructure may result in some surface disturbance that could require mitigation; however, this is expected to be minimal as the proposed infrastructure has limited footprint and will be developed on LNVA’s existing pump station sites and/or adjacent to existing facilities. Therefore, it is anticipated to have low to no impact to any surrounding habitat and/or cultural resources in the area.

PERMITTING AND DEVELOPMENT

The development of this strategy may require some permitting due to surface disturbance from construction of the infrastructure included in this project. This impact is expected to be minimal as the proposed infrastructure has limited footprint and will be developed on LNVA’s existing pump station site and/or adjacent to existing facilities. The supply source is provided through LNVA’s existing water rights and diversion points on the Neches River. Permitting for either new or amended water rights will not be required for this strategy.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this project includes costs from all aspects, including planning, design, real estate, environmental and permitting, and construction of infrastructure. Projected capital cost estimates were provided by LNVA. The annual cost was estimated assuming a debt service at a rate of 3.5 percent for 20 years, in accordance with TWDB regional water planning cost assumptions. Costs are presented in September 2023 costs.

WWP:	**Lower Neches Valley Authority**		
STRATEGY:	**Neches Pump Station Upgrade and Fuel Supply Diversification**		
QUANTITY (AC-FT/YR):	**161,500**		
CAPITAL COST			**Cost**
Planning			$412,000
Design			$7,645,000
Real Estate			$0
Environmental			$235,000
Permitting			$147,000
Construction			$38,813,000
Engineering and Contingencies (35%)			$13,585,000
CONSTRUCTION TOTAL			**$61,000,000**
Interest During Construction (3.5% for 3 years with a 0.5% ROI)	36	Months	$5,948,000
TOTAL COST OF PROJECT			**$66,948,000**
ANNUAL COST			
Debt Service (3.5% for 20 years)			$4,711,000
Operation and Maintenance (O&M)			$970,000
TOTAL ANNUAL COST			**$5,681,000**
UNIT COSTS (Until Amortized)			
Per Acre-Foot			$35
Per 1,000 Gallons			$0.11
UNIT COSTS (After Amortization)			
Per Acre-Foot			$6
Per 1,000 Gallons			$0.02

PROJECT EVALUATION

This strategy benefits both municipal and non-municipal customers of the Lower Neches Valley Authority and would have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. The strategy will have no other apparent impact on other State water resources. This strategy does not involve a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. Ultimately, this strategy will enable LNVA to provide a more reliable water supply to their various rural and agricultural customers, which could benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	5	No shortage identified for LNVA. Infrastructure would allow them to access surplus supply and add resiliency to their system

Criteria	Rating	Explanation
Reliability	4	Medium to highly reliable supply
Cost	4	Low cost (< $1,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	5	Increases ability for LNVA to deliver reliable supplies to their customers, including those with projected needs
Threat to Agricultural Resources/Rural Areas	4	Low to no known impacts
Other Natural Resources	4	No known impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	No known impacts
Major Impacts on Key Water Quality Parameters	4	No known impacts
Political Feasibility	5	Sponsorship by Lower Neches Valley Authority. Sponsor is committed.
Implementation Issues	4	No known risks

REFERENCES

Discussions with Lower Neches Valley Authority.

Lower Neches Valley Authority. 2020. *Community Development Block Grant – Mitigation (CDBG-MIT) Funding Application for Neches Lift Pump Stations Project.*

LNVA – BEAUMONT WEST REGIONAL RESERVOIR

Entity Name:	Lower Neches Valley Authority
Strategy Name:	Beaumont West Regional Reservoir
Strategy ID:	LNVA-WRR
Strategy Type:	New Surface Water Source
Potential Supply Quantity:	7,700 ac-ft per year (6.9 MGD)
Implementation Decade:	2030
Development Timeline:	5 years
Project Capital Cost:	$110,438,000 (September 2023)
Project ANNUAL COST:	$6,084,000
Unit Water Cost (Rounded):	$790 per ac-ft ($2.42 per 1,000 gallons)

STRATEGY DESCRIPTION

This recommended strategy involves the Lower Neches Valley Authority (LNVA) constructing an approximate 1,100-acre, off-channel reservoir on the northwest end of Beaumont in the Neches River Basin. The location of the reservoir provides LNVA with a significant advantage in providing water in case of an emergency fire water demand, source pollution in the Neches River or Pine Island Bayou, or losses of either of the Lower Neches Valley Authority pumping stations in severe events, such as what occurred during Hurricane Harvey.

SUPPLY DEVELOPMENT

The reservoir is anticipated to have an approximate capacity of 7,700 acre-feet, which could supply a minimum of 10 days of storage that could be utilized to serve LNVA's customers in case of flood inundation or loss of power at their pump stations. This reservoir is located so that stored water can be provided to customers across the LNVA system during disaster events, including the cities of Port Arthur, Groves, Nederland, Port Neches, West Jefferson County MUD, Beaumont, and other agricultural and industrial customers throughout Jefferson County.

ENVIRONMENTAL CONSIDERATIONS

With the construction of any new reservoir, several environmental impacts will be considered. A summary of environmental considerations would need to be developed based on the known environmental factors, such as habitat and aquatic resources for threatened or endangered species within surrounding the reservoir footprint. Environmental flow considerations and how the construction of a reservoir affects the surrounding hydrologic environment are other considerations. There are no bays or estuaries in close proximity to the project area located in Jefferson County. Before this project is developed, the Lower Neches Valley Authority will need to perform additional studies to identify environmental impacts associated with the project.

PERMITTING AND DEVELOPMENT

Several environmental permits and permitting activities may be needed prior to construction of this project, including a U.S. Army Corps of Engineers (USACE) Section 404 Permit and ancillary studies by the U.S. Fish and Wildlife Service (USFWS) and Texas Parks and Wildlife (TPWD). Diversions to fill the reservoir will utilize the diversions authorized under LNVA's existing water right permits, so a water right amendment is not required. However, LNVA may choose to pursue amendments to their water rights to authorize additional off-channel storage or bed-and-banks authority to increase flexibility within their system.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this project includes costs from all aspects, including planning, design, real estate, environmental and permitting, and construction of the reservoir. Projected capital cost estimates were provided by LNVA. The annual cost was estimated assuming a debt service at a rate of 3.5 percent for 40 years for a reservoir, in accordance with TWDB regional water planning cost assumptions. Costs are presented in September 2023 costs.

WWP	**Lower Neches Valley Authority**
STRATEGY	**Beaumont West Regional Reservoir**
QUANTITY (AC-FT/YR)	**7,700**
RESERVOIR STORAGE CAPACITY (1 day of storage = 1,100 AC-FT)	
CAPITAL COST	**Cost**
Planning	$418,000
Design	$2,032,000
Real Estate	$10,759,000
Environmental	$179,000
Permitting	$179,000
Construction	$60,409,000
Engineering and Contingencies (30%)	$7,545,000
CONSTRUCTION TOTAL	**$95,000,000**
Interest During Construction (3.5% for 5 years with a 0.5% ROI)	$15,538,000
TOTAL COST OF PROJECT	**$110,438,000**
ANNUAL COST	
Debt Service (3.5% for 40 years)	$5,172,000
Operational Costs	$912,000
TOTAL ANNUAL COST	**$6,084,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot of treated water	$790
Per 1,000 Gallons	$2.42
UNIT COSTS (After Amortization)	
Per Acre-Foot	$118
Per 1,000 Gallons	$0.36

PROJECT EVALUATION

This strategy benefits both municipal and non-municipal customers of the Lower Neches Valley Authority and would have a positive impact on their water supply security. This analysis did not identify any impacts natural resources or to key parameters of water quality. The reservoir site may impact agricultural and/or rural land, but it will provide a water supply benefit to agricultural and/or rural water users served by LNVA. The strategy will have no other apparent impact on other State water resources. This strategy does not involve a voluntary redistribution of water that could be used to serve rural and/or agricultural areas. Ultimately, this strategy will enable LNVA to provide a more reliable water supply to their various rural and agricultural customers, which could benefit them from a social and economic perspective.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	5	No shortage identified for LNVA. Reservoir would provide surplus supply and add resiliency to their system
Reliability	4	Medium to high reliable supply
Cost	4	Low cost (< $1,000/ac-ft)
Environmental Factors	2	Medium impacts
Impact on Other State Water Resources	4	Low to no known impact. Provides a water supply benefit to water users served through LNVA system in case of emergencies
Threat to Agricultural Resources/Rural Areas	3	Low to medium impact. May impact agricultural and/or rural land, but could provide additional water supply security for those water users
Other Natural Resources	4	Low to no known impacts
Interbasin Transfers		No
Third Party Social & Economic Factors	4	Low to no known impacts. Could provide additional water supply security for agricultural and rural water users served by LNVA
Major Impacts on Key Water Quality Parameters	4	Low to no known impacts
Political Feasibility	5	Sponsorship by Lower Neches Valley Authority. Strategy is in development.
Implementation Issues	3	Limited risk; requires permits and coordination with state/federal agencies

REFERENCES

Discussions with Lower Neches Valley Authority.

Project Budget Justification Developed for The Lower Neches Valley Authority, Freese and Nichols, Inc. 2020.

LNVA – NECHES-TRINITY BASIN INTERCONNECT

Entity Name:	Lower Neches Valley Authority
Strategy Name:	Neches-Trinity Basin Interconnect
Strategy ID:	LNVA-NTI
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	67,000 ac-ft per year (60 MGD)
Implementation Decade:	2040
Development Timeline:	15 years
Project Capital Cost:	$127,826,000 (September 2023)
Project ANNUAL COST:	$11,065,000
Unit Water Cost (Rounded):	$165 per ac-ft ($0.51 per 1,000 gallons)

STRATEGY DESCRIPTION

The Lower Neches Valley Authority (LNVA) is planning to construct an approximate 13-mile, single 84-inch pipeline that runs in an east-west direction, as well as a 62,000-gpm pump station. The proposed pipeline enables the movement of Neches River water westward toward the upper reaches of the Devers Canal system and potentially back into the Trinity River. The intake for the canal is on the Pine Island Bayou in the Neches River (Region I), but the connection point of the pipeline to LNVA's canal system is located within the Neches-Trinity Coastal Basin. The water from this strategy will enable LNVA to provide water for irrigation customers in Region H, as well as to serve new industries as they emerge along the IH-10 corridor. The cost estimated for the project includes infrastructure and operational costs related to water conveyance. Ultimately, individual water users will need to enter into contracts with LNVA to purchase water supply generated from this strategy. The cost for raw water will need to be negotiated with LNVA and will reflect the wholesale water rates at the time a contract is made.

SUPPLY DEVELOPMENT

The purpose of this water management strategy is to allow the Lower Neches Valley Authority to divert existing supply to areas with greater water needs and plan for water needs in areas of future development. The estimated quantity of supply from this strategy is 67,000 ac-ft per year by 2040, which represents LNVA's estimate of the average volume of water that could be conveyed through the pipeline. The reliability of this supply is considered high due to the availability of water in the Neches River.

ENVIRONMENTAL CONSIDERATIONS

The construction of the pipeline and pump station is expected to have a moderate impact on the environment. The route would be selected to minimize impacts to the environment. In addition, the transport of water from the Neches River westward should have a minimal impact on environmental water needs, no impact on the surrounding habitat, and a low impact to cultural resources in the area. Water transfers may also act as a potential route for exotic or invasive species to be introduced to another river basin. Potential impacts and evaluation of opportunities to avoid or mitigate impacts would be expected during the projected planning and design process. There are no bays or estuaries in close proximity to the project area located in Jefferson and Orange Counties. Before this project is pursued, the Lower Neches Valley Authority may need to perform additional studies to identify environmental impacts associated with the project.

PERMITTING AND DEVELOPMENT

The Lower Neches Valley Authority may need to apply for a bed and banks permit to discharge and transport supplies in the Devers Canal system and possibly the Trinity River. Additionally, there may be some permitting for the construction of the infrastructure associated with this strategy.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this project includes costs from all aspects, including planning, design, real estate, environmental and permitting, and construction of infrastructure. Projected capital cost estimates were provided by LNVA. The annual cost was estimated assuming a debt service at a rate of 3.5 percent for 20 years, in accordance with TWDB regional water planning cost assumptions. Costs are presented in September 2023 costs.

WWP	**Lower Neches Valley Authority**	
STRATEGY	**Neches-Trinity Basin Interconnect**	
QUANTITY	**67,000 AFY**	
CAPITAL COST		**Cost**
Planning		$1,811,000
Design		$8,210,000
Real Estate		$4,226,000
Environmental		$2,415,000
Permitting		$2,415,000
Construction	13 mile 84" pipeline, 62,000 gpm pump station	$64,591,000
Engineering and Contingencies (30% for the pipeline and 35% for all other facilities)		$25,100,000
CONSTRUCTION TOTAL		**$108,768,000**
Interest During Construction (3.5% for 5 years with a 0.5% ROI)		$19,057,922
TOTAL COST OF PROJECT		**$127,826,000**
ANNUAL COST		
Debt Service (3.5% for 20 years)		$8,994,000
Operation and Maintenance (O&M)		$895,000
Pumping Energy Costs		$1,175,820
TOTAL ANNUAL COST		**$11,065,000**
UNIT COSTS (Until Amortized)		
Per Acre-Foot		$165
Per 1,000 Gallons		$0.51
UNIT COSTS (After Amortization)		
Per Acre-Foot		$31
Per 1,000 Gallons		$0.09

PROJECT EVALUATION

This strategy benefits irrigation customers of the Lower Neches Valley Authority and would have a positive impact on their water supply security. Additionally, this strategy could potentially be used to benefit industrial and/or municipal customers. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. The strategy will have no other apparent impact on other State water resources. This strategy involves a voluntary redistribution of water that could be used to serve rural and/or agricultural areas in the Neches River Basin. However, the supply associated with this strategy is relatively small compared to LNVA's surplus supply available in the Neches River Basin and it enables LNVA to serve rural and/or agricultural customers in the Trinity River Basin.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	5	No shortage identified for LNVA. Strategy would provide surplus supply to irrigation and potential municipal/industrial customers in Region H
Reliability	4	Medium to highly reliable supply
Cost	4	Low cost (< $1,000/ac-ft)
Environmental Factors	2	Medium impact. Impacts along the pipeline route can be mitigated during development.
Impact on Other State Water Resources	3	Low to medium impact. Strategy involves transfer of water from Neches to Trinity River basins, which will reduce some water available in basin of origin.
Threat to Agricultural Resources/Rural Areas	5	Provides additional water supply to agricultural and rural water users
Other Natural Resources	3	Low to medium impacts
Interbasin Transfers		Yes. Transfer from the Neches River Basin to the Trinity River Basin.
Third Party Social & Economic Impacts	4	Some positive impacts. Involves voluntary redistribution of surplus supply in Neches River Basin to Trinity River Basin to provide supply to agricultural and rural water users
Major Impacts on Key Water Quality Parameters	4	Low to no known impacts
Political Feasibility	5	Sponsorship by Lower Neches Valley Authority. Sponsor is committed.
Implementation Issues	3	Limited risk; implementation may be dependent on permitting through TCEQ

REFERENCES

2026 Region H Initially Prepared Plan. March 2025.

Discussions with Lower Neches Valley Authority.

LNVA – PURCHASE FROM SRA

Entity Name:	Lower Neches Valley Authority
Strategy Name:	Purchase from Sabine River Authority (Toledo Bend)
Strategy ID:	LNVA-SRA
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	200,000 ac-ft per year (178.4 MGD)
Implementation Decade:	2050
Development Timeline:	15-20 years
Project Capital Cost:	$451,797,000 (September 2023)
ANNUAL COST:	$102,526,000
Unit Water Cost (Rounded):	$513 per ac-ft ($1.57 per 1,000 gallons)

STRATEGY DESCRIPTION

A recommended strategy for the Lower Neches Valley Authority (LNVA) involves entering into a contract with the Sabine River Authority (SRA) to obtain raw surface water from the Toledo Bend system in the Sabine River Basin, as their permit allows. This strategy includes a high-level concept for transmission of water from the Toledo Bend system through canal conveyance to diversion points in the Neches River Basin. Costs are estimated for the cost of raw water and infrastructure related to water conveyance. The cost estimate included in this technical memorandum utilizes an assumed rate for the East Texas Regional Water Planning Area regional rate for raw surface water. Ultimately, this cost will need to be negotiated between LNVA and SRA and will reflect their wholesale water rates at that time. Additionally, individual water users will need to enter into contracts with LNVA to purchase water supply generated from this strategy. The cost for raw water will need to be negotiated with LNVA and will reflect the wholesale water rates at the time a contract is made.

SUPPLY DEVELOPMENT

The quantity of supply from this strategy represents the water requested by the Lower Neches Valley Authority as part of their long-term planning. This is equal to 200,000 ac-ft per year beginning in 2050 and continuing through the end of the planning period (2080). The reliability of this water supply is considered medium to high due to the availability of water from the Toledo Bend system. However, this project is dependent on coordination with the Sabine River Authority.

ENVIRONMENTAL CONSIDERATIONS

The impact on the environment due to construction of infrastructure required for this strategy is expected to be medium. A project of this magnitude may encounter environmental challenges that would need to be resolved during planning, design, and construction. To the extent possible, existing canal conveyances could be utilized in order to mitigate the disturbance to the environment, including surrounding habitat, threatened and endangered species, and/or cultural resources. Before this project could be pursued, the

Lower Neches Valley Authority would need to perform site selection and routing studies to identify potential environmental impacts and obstacles associated with this project.

Development of this project would also need to consider opportunities to address the potential for introduction of exotic or invasive species into other river basins. For example, invasive aquatic species, including the giant salvinia (*Salvinia molestal*), have been discovered in the Toledo Bend Reservoir. Additionally, environmental flows will be impacted by the transfer of water from the Sabine River Basin to the Neches River Basin. These impacts will be determined during the interbasin transfer permitting process outside of the terms granted under existing permits.

There are no bays or estuaries in close proximity to the potential project area located in Jefferson and Orange Counties. Transfer of water from the Sabine to the Neches River Basin would have an impact on freshwater inflows that could serve environmental needs and bays and estuaries downstream; however, these impacts will be determined and would be mitigated through the TCEQ permitting process.

PERMITTING AND DEVELOPMENT

The Sabine River Authority holds existing water right permits for storage and appropriation of water in the Sabine River Basin. SRA is currently authorized to transfer a combined total of up to 110,000 acre-feet per year of this supply to the Neches River Basin for multiple purposes (Certification of Adjudication (COA) 05-4658 and 05-4662). Amendments to permits would be required to transfer the volume of supply assumed for this strategy (200,000 ac-ft per year). Additionally, unappropriated flows may also be permitted in excess of these supplies and conveyed out of the basin for the purpose of this project.

These permits would require a process with the Texas Commission on Environmental Quality (TCEQ) to make additional water supply available for this project. Use of this water through interbasin transfer is administered under Section 11.085 of the Texas Water Code, which includes several requirements to obtain necessary permits such as:

- Providing the cost of water, category of use and proposed users, and cost of diverting, conveying, distributing, supplying, and treating the water for proposed users.
- Conducting required public meetings in the basin of origin and the receiving basin.
- Providing notice of an application to permit holders, county judges, city mayors, and groundwater conservation districts in the basin of origin, and state legislators in both basins.
- Publishing notice of application in newspapers of general circulation in each county in both basins.
- Consideration of comments received through the permit application's public process.

In granting the permit, consideration will be given to:

- The need for water in the basin of origin and receiving basin.
- The availability of alternative water supplies to the receiving basin.
- The purpose of use for the water in the receiving basin.
- Proposed methods for avoiding waste and implementing water conservation and drought contingency measures.
- Proposed methods to put transferred water to beneficial use.
- The projected economic impacts.
- Impacts to existing water rights, instream uses, water quality, aquatic and riparian habitat, and

bays and estuaries.
- The proposed mitigation to the basin of origin.
- The continued need to use the water for purposes under the existing water right, if an amendment to an existing water right is sought.

Finally, the commission may grant the application only to the extent that:

- The detriments to the basin of origin are less than the benefits to the receiving basin.
- The applicant has prepared a drought contingency plan and has developed and implemented a water conservation plan that will result in the highest practicable level of conservation and efficiency.

Additional environmental permitting may also be required for the development of infrastructure, including but not limited to:

- U.S. Army Corps of Engineers Section 404 Permit and mitigation plan.
- National Environmental Policy Act (NEPA) Environmental Impact Statement (EIS).
- Cultural Resources Survey and National Register of Historic Places (NRHP) testing.
- Ancillary studies as directed by the Texas Parks and Wildlife (TPWD) and U.S. Fish and Wildlife Service (USFWS).

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The capital costs assume approximately 20 miles of open-channel canals and siphon structures to cross major highways, roads, and existing canals, one pump station with an intake, and balancing storage. The annual cost was estimated assuming a debt service of 3.5% for 20 years and using the East Texas Regional Water Planning Area regional rate for raw surface water.

WWP	**Lower Neches Valley Authority**				
STRATEGY	**Purchase from Sabine River Authority (Toledo Bend)**				
QUANTITY (AC-FT/YR)	**200,000**				
CAPITAL COST					
Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Canals and Siphon Crossings		1	LS	$250,062,000	$250,062,000
Right of Way (ROW) Easements and Surveying		279	Acres	$17,500	$5,367,000
Engineering and Contingencies (30%)					$75,019,000
Subtotal of Canal	**20**				**$330,448,000**
Pump Station(s)					
Intake Pump Station	4515 HP	1	LS	$59,658,000	$59,658,000
Booster Pump Station					
Subtotal of Pump Station(s)					**$81,757,000**
Balancing Storage	82 ac-ft	1	LS	$7,103,000	$7,103,000
Engineering and Contingencies (35%)					$2,486,000
Subtotal of Storage Tanks					**$9,589,000**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$1,006,000
Engineering and Contingencies (35%)					$352,000
Subtotal of Integration, Relocations, Backup Generator & Other					**$1,358,000**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$240,000
Environmental - Studies and Mitigation					$831,000
Construction Total					**$424,223,000**
Interest During Construction (3.5% for 2 years with a 0.5% ROI)			24	Months	$27,574,000
TOTAL COST OF PROJECT					**$451,797,000**
ANNUAL COST					
Debt Service (3.5% for 20 years)					$31,789,000
Pumping Energy Costs					$1,485,000
Operation and Maintenance (O&M)					$4,073,000
Raw Water Purchase		65,179,000	1000 gal	$1.00	$65,179,000
TOTAL ANNUAL COST					**$102,526,000**

UNIT COSTS (Until Amortized)	
Per Acre-Foot	$513
Per 1,000 Gallons	$1.57
UNIT COSTS (After Amortization)	
Per Acre-Foot	$354
Per 1,000 Gallons	$1.09

PROJECT EVALUATION

This strategy benefits customers of the Lower Neches Valley Authority and is expected to have a positive impact on their water supply security. There may be some level of impacts to agricultural or natural resources and/or to key parameters of water quality; however, additional study will be required to assess these impacts. A contract to pull water from the Toledo Bend system will reduce future demands on the LNVA system and Neches River Basin. This strategy will impact other State water resources, as it involves transferring water between river basins, which will alter environmental flow patterns. However, these impacts will be limited through prescribed environmental flow standards. This strategy involves a voluntary redistribution of water that could be used to serve rural and/or agricultural areas in the Sabine River Basin. However, there is surplus supply available from SRA's Toledo Bend Reservoir and it potentially enables LNVA to serve rural and/or agricultural customers in the Neches River Basin.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	5	No shortage identified for LNVA. Strategy would provide surplus supply for LNVA and their customers
Reliability	4	Medium to highly reliable supply
Cost	4	Low cost (< $1,000/ac-ft)
Environmental Factors	2	Medium impacts to the environment that may be mitigated through planning and design.
Impact on Other State Water Resources	2	Medium impact to environmental flows in each basin. Impacts will be limited through prescribed environmental flow standards.
Threat to Agricultural Resources/Rural Areas	3	Low to medium impacts. Additional study will be required to assess impacts
Other Natural Resources	3	Low to medium impacts. Additional study will be required to assess impacts
Interbasin Transfers		Yes. Transfer from the Sabine River Basin to the Neches River Basin

Third Party Social & Economic Factors	4	Some positive impacts. Involves voluntary redistribution of surplus supply in Sabine River Basin to Neches River Basin to provide supply to agricultural and rural water users
Major Impacts on Key Water Quality Parameters	3	Low to medium impacts. Additional study will be required to assess potential water quality impacts from transferring water between basins.
Political Feasibility	4	Local sponsorship by Lower Neches Valley Authority
Implementation Issues	2	Medium level of risk and potential challenges. Requires a contract with SRA. Requires a water right permit through TCEQ, including authorization for an interbasin transfer.

REFERENCES

2021 East Texas Regional Water Plan. September 2020.

2021 Region H Water Plan. September 2020.

Texas Water Code, Section 11.085 – Interbasin Transfers.

LUFKIN – TRANSFER FROM SAM RAYBURN TO LAKE KURTH

Entity Name:	Lufkin
Strategy Name:	Conveyance from Sam Rayburn to Kurth Lake
Strategy ID:	LUFK-RAY
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	11,210 - 28,000 ac-ft/yr per year (10 - 25 MGD)
Implementation Decade:	2030
Development Timeline:	2030 - 2050
Project Capital Cost:	Phase 1: $136,547,000 Phase 2: $125,310,000 Phase 3: $24,037,000 (September 2023)
Annual Cost	Phase 1: $15,519,000 Phase 2: $28,432,000 Phase 3: $20,419,000 (September 2023)
Unit Water Cost (Rounded):	$1,384 per ac-ft ($4.25 per 1,000 gallons) $1,278 per ac-ft ($3.92 per 1,000 gallons) $729 per ac-ft ($2.24 per 1,000 gallons)

PROJECT DESCRIPTION

This strategy is a recommended strategy for the City of Lufkin to provide conveyance from Sam Rayburn to Kurth Lake as their permit allows. The cost of the project will occur in three phases and includes the cost for construction of a new water treatment plant and infrastructure related to water conveyance. This is a supply that will provide water to both municipal and non-municipal customers in Angelina County. Manufacturing in Angelina County is projected to have a need and has a strategy to contract water from this supply. Ultimately, manufacturing water users in Angelina County will need to make contracts with the City of Lufkin to purchase the water supply created by this project. The cost for raw water will need to be negotiated with the City of Lufkin and will reflect the wholesale water rates of this entity at the time a contract is made.

SUPPLY DEVELOPMENT

As requested by the City of Lufkin, the supply from this strategy represents their water right from Sam Rayburn for 28,000 ac-ft/yr. However, since the strategy will be implemented in phases, the full supply will not be available until 2050, pending the demands of potential future customers. Based on these phases, it is estimated that 11,210 ac-ft/yr (10 MGD) of supply will be available in 2030, 22,420 ac-ft/yr (20 MGD) in 2040, and 28,000 ac-ft/yr (25 MGD) in 2050. The reliability of this water supply is considered high due to the availability of water from the Sam Rayburn system and because the City of Lufkin already has the water right in place to access this water. In addition, the City of Lufkin would not be dependent on sponsorship from another entity.

ENVIRONMENTAL CONSIDERATIONS

A specific location for the new water treatment plant has not been determined. Before this strategy could be pursued, a site selection study would need to be performed, in addition to other studies to identify and quantity potential environmental impacts associated with the projected. For the purposes of this analysis, it is assumed that a site could be selected that would have minimal impacts. Once the water treatment plant is constructed, expanding the water treatment plant will have minimum environmental impacts.

During the construction of the pipeline, impacts to the environment and other natural resources are expected to be minimal and temporary.

PERMITTING AND DEVELOPMENT

Additional study and mitigation may be required before construction of the transmission pipeline, intake pump station, and a water treatment plant.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. An estimate was prepared for each phase of this strategy. The total capital cost assumes a pipeline length of 12.4 miles, and the water treatment plant would include a 5-million-gallon storage tank constructed in the first phase. The annual cost was estimated assuming a debt service of 3.5% for 20 years as well as electrical and operation and maintenance costs.

MWP	**Lufkin**				
STRATEGY	**Develop Water from Sam Rayburn**				
QUANTITY (AC-FT/YR)	**28,000**				
PHASE 1 - 2030 DECADE		**Total Capacity (acre-feet per year)**			**11,210**
Pipeline & Treatment Facility	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline from Sam Rayburn	30 in.	65,500	LF	$432	$28,270,000
Right of Way Easements Rural (ROW)		90	Acres	$9,038	$897,000
Engineering and Contingencies (30%)					$8,481,000
Subtotal of Pipeline	**12.4**	**Miles**			**$37,648,000**
Pump Station(s)					
Lake Intake and Pump Station	1200 HP	1	LS	$34,098,000	$34,098,000
Power connection(s)		1200	HP	$200	$240,000
Engineering and Contingencies (35%)					$12,018,000
Subtotal of Pump Station(s)					**$46,356,000**
Water Treatment Facility					
Storage	5.00 MG	1	EA	$3,337,000	$3,337,000
Water Treatment Facility	10 MGD	1	LS	$28,814,000	$28,814,000
Engineering and Contingencies (35%)					$11,252,850
Subtotal of WTP					**$43,404,000**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$215,000
Engineering and Contingencies (35%)					$75,250
Subtotal of Integration, Relocations, Backup Generator & Other					**$290,250**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$74,564
Environmental - Studies and Mitigation					$ 439,944
CONSTRUCTION TOTAL					**$128,213,000**
Interest During Construction (3.5% for 2 years with a 0.5% ROI)					$8,334,000
PHASE I TOTAL CAPITAL COST					**$136,547,000**
Debt Service (3.5% for 20 years)					$9,608,000
Debt Service from Previous Phase					$0
Pumping Energy Costs					$317,000
Operation and Maintenance (O&M)					$1,941,000
Raw Water Treatment		3,653,000	1000 gal	$1.00	$3,653,000
Total Annual Costs					**$15,519,000**

PHASE 1 - 2030 DECADE (Cont.)	
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$1,384
Per 1,000 Gallons	$4.25
UNIT COSTS (After Amortization)	
Per Acre-Foot	$527
Per 1,000 Gallons	$1.62

PHASE 2 - 2040 DECADE	Total Capacity (acre-feet per year)			22,240	
Treated Water Quantity	**11,210**	AF/Y	**15**	MGD	
Upgrades to Pump Stations					
Lake Intake and Pump Station	1200 HP	1	LS	$34,098,000	$34,098,000
Power connection(s)		1200	HP	$200	$240,000
Engineering and Contingencies (35%)					$12,018,000
Subtotal of Pump Station(s)					**$46,356,000**
Water Treatment Facility					
Storage	0.00 MG	0	EA	$0	$0
Upgrade Treatment Facility	22 MGD	1	LS	$52,258,000	$52,258,000
Engineering and Contingencies (35%)					$18,290,300
Subtotal of WTP					**$70,548,300**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$215,000
Engineering and Contingencies (35%)					$75,250
Subtotal of Integration, Relocations, Backup Generator & Other					**$290,250**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$49,709
Environmental - Studies and Mitigation				$ 417,349	
CONSTRUCTION TOTAL					**$117,662,000**
Interest During Construction (3.5% for 2 years with a 0.5% ROI)					$7,648,000
PHASE 2 TOTAL CAPITAL COST					**$125,310,000**
Debt Service (3.5% for 20 years)					$8,817,000
Debt Service from Previous Phase					$9,608,000
Pumping Energy Costs					$317,000
Operation and Maintenance (O&M)					$2,443,000
Raw Water Treatment		7,248,000	1000 gal	$1.00	$7,247,000
Total Annual Costs					**$28,432,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot					$1,278
Per 1,000 Gallons					$3.92
UNIT COSTS (After Amortization)					
Per Acre-Foot					$882
Per 1,000 Gallons					$2.71

PHASE 3 - 2050 DECADE			Total Capacity (acre-feet per year)		28,000
Treated Water Quantity	**5,580**	AF/Y		**7**	MGD
Pump Station(s)					
Lake Intake and Pump Station	500 HP	1	LS	$16,173,000	$16,173,000
Power connection(s)		500	HP	$200	$100,000
Engineering and Contingencies (35%)					$5,696,000
Subtotal of Pump Station(s)					**$21,969,000**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$99,000
Engineering and Contingencies (35%)					$34,650
Subtotal of Integration, Relocations, Backup Generator & Other					**$133,650**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$49,709
Environmental - Studies and Mitigation					$417,349
CONSTRUCTION TOTAL					**$22,570,000**
Interest During Construction (3.5% for 2 years with a 0.5% ROI)					$1,467,000
PHASE 3 TOTAL CAPITAL COST					**$24,037,000**
Debt Service (3.5% for 20 years)					$1,691,000
Debt Service from Previous Phase					$8,817,000
Pumping Energy Costs					$147,000
Operation and Maintenance (O&M)					$640,000
Raw Water Treatment		9,125,000	1000 gal	$1.00	$9,124,000
Total Annual Costs					**$20,419,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot					$729
Per 1,000 Gallons					$2.24
UNIT COSTS (After Amortization)					
Per Acre-Foot					$669
Per 1,000 Gallons					$2.05

PROJECT EVALUATION

This strategy benefits both municipal and non-municipal customers in Angelina County, specifically manufacturing water users. Angelina Manufacturing has a recommended strategy to purchase water from Lufkin created by this new supply. Overall, providing conveyance from Sam Rayburn to Kurth Lake will have a positive impact on their water supply security. This analysis did not identify any impacts to agricultural or natural resources or to key parameters of water quality. This project may reduce demands on other water resources in Angelina County; however, the project is not expected to impact any other State water resources.

Based on the analyses provided above, the City of Lufkin recommended strategy to develop supplies from Sam Rayburn in Angelina County was evaluated across twelve different criteria for the purpose of quick comparison against alternative projects that may be incorporated into the 2026 East Texas Regional Water Plan. The results of this evaluation can be seen in the table below.

Criteria	Rating	Explanation
Quantity	5	Exceeds shortage
Reliability	4	Medium to high reliable supply
Cost	3	Medium cost ($1,000 to $3,000/ac-ft)
Environmental Factors	3	Low to medium impacts
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	4	Low to no negative impacts and/or some positive impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	4	Low to no negative impacts and/or some positive impacts
Implementation Issues	4	Low implementation issues

REFERENCES

2026 East Texas Regional Water Plan.

NACOGDOCHES – SUPPLY FROM LAKE COLUMBIA

Entity Name:	Nacogdoches
Strategy Name:	Supply from Lake Columbia
Strategy ID:	NACP-COL
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	8,551 ac-ft per year (7.6 MGD)
Implementation Decade:	2040
Development Timeline:	< 5 years
Project Capital Cost:	$82,440,000 (September 2023)
Annual Cost:	$9,278,000
Unit Water Cost (Rounded):	$1,085 per ac-ft ($3.33 per 1,000 gallons)

PROJECT DESCRIPTION

Construction of Lake Columbia is a recommended water management strategy for Angelina Nacogdoches River Authority. Angelina Neches River Authority has contracts with several customers that are participants in the project development. The City of Nacogdoches is included in the list, participating at 10 percent contribution, respectively. It is assumed that Nacogdoches will be purchasing raw water from Angelina Neches River Authority. The City of Nacogdoches will need a transmission project and a new treatment facility to transfer supplies from Lake Columbia to the City.

The water management strategy associated with the transmission project is discussed in this technical memorandum. The total current contract amount for City of Nacogdoches is 8,551 ac-ft/y. It is assumed that the transmission strategy will be developed for a potential supply of 8,551 ac-ft/yr. The transmission project will include a 3.5-mile pipeline from Lake Columbia to the City, an intake pump station, and a 12-MGD water treatment plant to treat the supplies before delivery.

ENVIRONMENTAL CONSIDERATIONS

The impact to the environment due to pipeline construction is expected to be temporary and minimal. There might be potential limited impacts from raw water intake and the treatment facility.

PERMITTING AND DEVELOPMENT

No additional permitting issues associated with the project. The project will commence after the commencement of the Lake Columbia project by Angelina Neches River Authority.

PLANNING LEVEL OPINION OF COST

Included below is a planning level opinion of cost (PLOC) for the pipeline from Lake Columbia to City of Nacogdoches. Costs are estimated for 3.5 miles of pipeline in urban areas. The transmission system cost estimate also includes the cost of 511 HP intake pump station and a 12 MGD water treatment plant for treating the raw water. The annual costs are calculated assuming 3.5% interest rate and 20 years of return period. The estimate includes the cost for the purchase of raw water from Angelina Neches River Authority.

MWP	**Nacogdoches**				
STRATEGY	**Lake Columbia Transmission System**				
QUANTITY (AC-FT/YR)	**8,551**				
CAPITAL COSTS					
Pipeline to Lake Nacogdoches	**Size**	**Qty**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	30 in.	18,117	LF	$432	$7,819,000
Right of Way Easements Rural (ROW)		8	Acres	$9,250	$85,000
Engineering and Contingencies (30%)					$2,346,000
Subtotal of Pipeline					**$10,250,000**
Pump Station(s)					
Pump with intake & building	511 HP	1	LS	$16,455,000	$16,455,000
Power connection(s)		511	HP	$200	$102,000
Engineering and Contingencies (35%)					$5,795,000
Subtotal of Pump Station(s)					**$22,352,000**
Water Treatment Facility					
Expand Existing Water Treatment Plant	11 MGD	1	LS	$31,526,000	$31,526,000
Storage Tanks	1.43 MG	1	LS	$1,366,000	$1,366,000
Engineering and Contingencies (35%)					$11,512,000
Subtotal of WTP					**$44,404,000**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$113,000
Engineering and Contingencies (35%)					$40,000
Subtotal of Integration, Relocations, Backup Generator & Other					**$153,000**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$76,313
Environmental - Studies and Mitigation					$ 172,375
Construction Total					**$77,408,000**
Interest During Construction (3.5% for 2 years with a 0.5% ROI)					$5,032,000
TOTAL COST					**$82,440,000**
ANNUAL COSTS					
Debt Service (3.5% for 20 years)					$5,801,000
Pumping Energy Costs					$166,000
Operational Costs*					$524,000
Raw Water Purchase	2,787,000		1000 gal	$1.00	$2,787,000
Total Annual Costs					**$9,278,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot					$1,085
Per 1,000 Gallons					$3.33
UNIT COSTS (After Amortization)					
Per Acre-Foot					$407
Per 1,000 Gallons					$1.25

PROJECT EVALUATION

Based on the analysis provided above, the Lake Columbia to Nacogdoches Raw Water Transmission System project was evaluated across twelve different criteria for the purpose of quick comparison against alternative projects that may be incorporated into the Regional Water Plan. The results of this evaluation can be seen in the table below.

Criteria	Rating	Explanation
Quantity	5	Exceeds shortage
Reliability	4	Medium to high
Cost	3	Medium cost ($1,000 to $3,000/ac-ft)
Environmental Factors	3	Low to medium environmental impacts. Impacts can be mitigated.
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	4	Low negative impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	4	Low to no negative impacts and/or some positive impacts
Implementation Issues	3	Low to medium implementation issues

REFERENCES

2026 East Texas Regional Water Plan.

TYLER – LAKE PALESTINE EXPANSION

Entity Name:	Tyler
Strategy Name:	Lake Palestine Expansion
Strategy ID:	TYLR-PAL
Strategy Type:	Existing Surface Water Source
Potential Supply Quantity:	33,635 ac-ft per year (30 MGD)
Implementation Decade:	2040 - 2060
Development Timeline:	20 years
Project Capital Cost:	$289,320,000 (September 2023)
Annual Cost:	$37,268,000
Unit Water Cost (Rounded):	$1,108 per ac-ft ($3.40 per 1,000 gallons)

PROJECT DESCRIPTION

The City of Tyler's current water supplies include a firm yield of approximately 32,000 acre-feet per year from Lake Tyler, 33,630 ac-ft/yr (i.e., 30 MGD) from Lake Palestine, and 400 acre-feet per year from Bellwood Lake. Based on TWDB-approved demand projections, the City is expected to have sufficient supplies throughout the planning period.

Additionally, there is significant interest from other water users in Smith County seeking to contract with the City for water supplies. Recommended strategies include providing additional water to Chandler, Smith County-Other, Southern Utilities, as well as mining and manufacturing users in Smith County. The City has sufficient supplies to meet these potential future demands.

The City of Tyler proposed the following strategies in the 2021 regional plan which was carried over to the 2026 Plan with minor adjustment: developing an additional 30 MGD from Lake Palestine. The City plans to utilize half of its contracted supply (15 MGD) by 2040 and the remaining half by 2060 as part of its long-term water supply plan.

SUPPLY DEVELOPMENT

The supply for this strategy represents City of Tyler's contract with Upper Neches River Municipal Water Authority for 67,200 ac-ft/yr supplies from Lake Palestine. The City of Tyler has transmission capacity to access half of the supplies and plans to develop this recommended strategy to access the other half.

ENVIRONMENTAL CONSIDERATIONS

A specific location for a new water treatment plant has been determined. The new water treatment plant will be at the same location as the current plant and the process train will be a mirror image of the current process train. For the purposes of this analysis, it is assumed that the current site would have limited impacts. Once the water treatment plant is constructed, expanding the water treatment plant will have minimum environmental impacts. During the construction of the pipeline, impacts to the environment and other natural resources are expected to be minimal and temporary.

PERMITTING AND DEVELOPMENT

Additional study and mitigation may be required before construction of the transmission pipeline, treatment facility, and intake pump station.

PLANNING LEVEL OPINION OF COST

A planning level opinion of cost (PLOC) for this strategy is included in the table below. The total capital cost assumes a pipeline length of 5 miles, and 30 MGD water treatment plant would include a 3.75-million-gallon storage tank. The annual cost was estimated assuming a debt service of 3.5% for 20 years as well as electrical and operation and maintenance costs.

WWPNAME:	**City of Tyler**				
STRATEGY:	**Lake Palestine Expansion**				
Quantity:	**33,630**				
CAPITAL COSTS					
Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	36 in.	23,400	LF	$590	$13,815,000
Pipeline Urban	36 in.	3,000	LF	$1,014	$3,042,000
Right of Way Easements Rural (ROW)		11	Acres	$9,250	$109,000
Right of Way Easements Urban (ROW)		1	Acres	$435,600	$660,000
Engineering and Contingencies (30%)					$5,057,000
Subtotal of Pipeline					**$22,683,000**
Pump Station(s)					
Ground Storage Tanks	3.75 MG	1	LS	$2,647,000	$2,647,000
Booster Pump Station	4125 HP	1	LS	$35,041,000	$35,041,000
Power connection(s)		4125	HP	$200	$825,000
Engineering and Contingencies (35%)					$13,191,000
Subtotal of Pump Station(s)					**$51,704,000**
Water Treatment Facility					
Expand Water Treatment Plant	30 MGD	1	LS	$151,536,000	$151,536,000
Engineering and Contingencies (35%)					$53,038,000
Subtotal of WTP					**$204,574,000**
Integration, Relocations, Backup Generator & Other			$ per kw	$534	$708,000
Engineering and Contingencies (35%)					$248,000
Subtotal of Integration, Relocations, Backup Generator & Other					**$956,000**
Land Acquisition and Surveying (All Facilities Excluding Pipelines)					$76,313
Environmental - Studies and Mitigation					$219,375
CONSTRUCTION TOTAL					**$280,212,688**
Interest During Construction			12	Months	$9,107,000
TOTAL COST					**$289,320,000**
ANNUAL COSTS					
Debt Service (3.5% for 20 years)					$20,357,000
Pumping Energy Costs					$1,046,000
Operation and Maintenance (O&M)					$4,907,000
Raw Water Purchase			1000 gal	$1.00	$10,958,000
Total Annual Costs					**$37,268,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot					$1,108
Per 1,000 Gallons					$3.40

UNIT COSTS (After Amortization)	
Per Acre-Foot	$503
Per 1,000 Gallons	$1.54

PROJECT EVALUATION

Based on the analysis provided above, the City of Tyler Lake Palestine Expansion project was evaluated across twelve different criteria for the purpose of quick comparison against alternative projects that may be incorporated into the Regional Water Plan. The results of this evaluation can be seen in the table below.

Criteria	Rating	Explanation
Quantity	5	Exceeds Shortage
Reliability	4	Medium to High
Cost	3	$1,000 to $3,000/ac-ft (Medium)
Environmental Factors	3	Low to medium environmental impacts. Impacts can be mitigated.
Impact on Other State Water Resources	4	Low to no negative impacts and/or some positive impacts
Threat to Agricultural Resources/Rural Areas	4	Low to no negative impacts and/or some positive impacts
Other Natural Resources	4	Low to no negative impacts and/or some positive impacts
Interbasin Transfers		No
Third Party Social & Economic Impacts	4	Low to no negative impacts and/or some positive impacts
Major Impacts on Key Water Quality Parameters	4	Low to no negative impacts and/or some positive impacts
Political Feasibility	3	Sponsor(s) identified, commitment level uncertain.
Implementation Issues	4	Low to no negative impacts and/or some positive impacts

REFERENCES

Coordination and correspondence with the City of Tyler.

2026 East Texas Regional Water Plan.

UNRMWA – NECHES RUN OF RIVER WITH LAKE PALESTINE

Entity Name:	Upper Neches River Municipal Water Authority
WMS Name:	Neches Run of River with Lake Palestine
WMS Project ID:	UNM-ROR
WMS Type:	New Surface Water Source
Potential Supply Quantity (Rounded):	82,900 ac-ft/yr (74.0 MGD)
Implementation Decade:	2070
Development Timeline:	10-15 years
Strategy Capital Cost:	$719,027,000 (September 2023)
Strategy ANNUAL COST:	$69,558,000
Unit Water Cost (Rounded):	$1,293 per ac-ft (during loan period) $3.97 per 1,000 gallons

STRATEGY DESCRIPTION

In 2013, the Upper Neches River Municipal Water Authority (UNRMWA) and Dallas initiated the Upper Neches River Water Supply Project Feasibility Study (HDR, 2014) to evaluate potential water supply strategies to replace the Lake Fastrill project. These strategies included Neches run-of-river diversions of unappropriated water from the Upper Neches River operated in system with Lake Palestine, tributary storage, and/or operated conjunctively with groundwater. Using the run-of-river diversions operated as a system with Lake Palestine was determined to be the recommended strategy for the 2014 Dallas Long Range Water Supply Plan (LRWSP; Dallas Water Utilities, 2014) and was a recommended strategy in the 2016 and 2021 regional water plans. The Draft 2024 Dallas Long Range Water Supply Plan (Dallas Water Utilities, 2024) re-evaluated this strategy and again designated the Neches run-of-river diversion operated as a system with Lake Palestine as a recommended strategy. The re-evaluated configuration of this strategy from the Draft 2024 Dallas LRWSP is included as a recommended strategy for UNRMWA and Dallas in the 2026 regional water plans.

This recommended strategy includes run-of-river diversions near SH 21 on Neches River operated as a system with storage in Lake Palestine. UNRMWA is the project sponsor for this strategy. The run-of-river diversions will be taken from the river segment between the existing Rocky Point diversion and the Weches Dam site below the SH21 crossing, between the Neches River National Wildlife Refuge and upstream of the Weches Dam site. The run-of-the-river diversions will be authorized under a new appropriation of surface water, subject to senior water rights and environmental flows. Diversions would be conveyed through a 42-mile pipeline (23 miles of 72-inch diameter pipeline and 19 miles of 66-inch pipeline) to Dallas' pump station located at Lake Palestine. This water supply would then be delivered to Dallas through their integrated pipeline project (IPL). New facilities required for this strategy include a small diversion dam on the Neches River, a river intake and pump station, and a transmission pipeline and booster pump station supporting transmission to Lake Palestine. The run-of-river diversions are an interruptible supply and the firm yield associated with the WMS is the incremental increase in the firm yield of Lake Palestine resulting from the system operation of the new diversions and the transmission facilities with the Lake Palestine.

For regional planning purposes, this strategy is expected to be online in 2070 when the City of Dallas is expected to use its share of supplies from this strategy. The timing can be changed to an earlier or later date if the timing of needs for customers change.

SUPPLY DEVELOPMENT

The supply available from this strategy was provided by the sponsor and is reported in the Draft 2024 Dallas Long Range Water Supply Plan (LRWSP; Dallas Water Utilities, 2024). According to this report, supply was computed using a 2021 version of TCEQ's Neches River WAM, which includes hydrology from 1940 to 2018.

Water availability at the designated diversion point was calculated based on a maximum diversion rate of 141 cfs (91 MGD). The estimated firm yield from this strategy is approximately 82,900 ac-ft per year (74 MGD). The run-of-river diversions are an interruptible supply, and the firm yield associated with the WMS is the incremental increase in the firm yield of Lake Palestine resulting from the system operation of the new diversions and the transmission facilities with Lake Palestine. Although the additional system firm yield from this strategy is approximately 82,900 ac-ft per year, the water available from this strategy is limited to the available capacity in Dallas' IPL, which is approximately 53,800 ac-ft per year (48 MGD).

ENVIRONMENTAL CONSIDERATIONS

The Draft 2024 Dallas LRWSP includes a preliminary desktop evaluation of potential environmental impacts of this strategy. According to this evaluation, the pipeline corridor for this project intersects environmental habitat and wetlands; however, flexibility in the pipeline siting would be used, as possible, to avoid or minimize potential impacts to environmental habitat and wetlands. Thus, any impacts to existing environmental habitat or wetlands are expected to be low.

The proposed project area includes 25 species that are federally or state listed as threatened or endangered, a federal candidate, or proposed species. These species would need to be considered and potentially mitigated for during project permitting and implementation. Additionally, there are proposed critical habitat for two species along the proposed pipeline corridor: the proposed threatened Louisiana pigtoe (*Pleurobema riddellii*) and proposed endangered Texas heelsplitter (*Potamilus amphichaenus*). These species are currently proposed and awaiting listing through the U.S. Fish and Wildlife Service (USFWS), so no mitigation or coordination is currently required; however, the status of these species will need to be monitored before and during construction. Overall, there is a moderate potential for impact to threatened and endangered species.

The implementation and operation of this strategy will comply with TCEQ environmental flow standards and will be set so the new permit has a minimal impact to environmental water needs and the surrounding habitat. Diversions from the Neches River are expected to have very limited effects on freshwater inflows to the bays and estuaries downstream.

PERMITTING AND DEVELOPMENT

This strategy requires a surface water permit from TCEQ for the channel dam and river diversion from the Neches River that would need to include authorization for an inter-basin transfer from the Neches River Basin to the Trinity River Basin. In addition, this strategy will require a Section 404 permit through the U.S. Army Corps of Engineers (USACE) for potential impacts to Waters of the U.S. (WOTUS) from construction activities associated with the diversion facilities and pipeline.

COST ANALYSIS

The cost estimate for this strategy was obtained from the Draft 2024 Dallas Long Range Water Supply Plan. Costs from this report are generally consistent with the TWDB regional water planning cost assumptions. Costs are presented in September 2023 costs. The unit cost shown is representative of the supply quantity that can be delivered to Dallas through their IPL (53,800 ac-ft per year). The additional firm yield benefit from this strategy is 82,900 ac-ft per year. Additional infrastructure costs may be required to obtain the additional supply available from this strategy. Additional details and assumptions related to this cost estimate can be obtained from the report.

WWP	**Upper Neches River MWA**
STRATEGY	**Neches Run of River with Lake Palestine**
QUANTITY (AC-FT/YR)	**53,800**
CAPITAL COST	**Cost**
Channel Dam	$13,201,000
Intake Pump Stations (91.4 MGD)	$69,929,000
Transmission Pipeline (66-72 in. dia., 42.3 miles)	$370,378,000
Transmission Pump Station(s) and Storage Tank(s)	$55,850,000
Integration, Relocations, Backup Generator & Other	$2,283,000
TOTAL COST OF FACILITIES	**$511,641,000**
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel and Contingencies (30% for pipes, 35% for all other facilities)	$160,556,000
Environmental and Archaeology Studies and Mitigation	$1,329,000
Land Acquisition and Surveying (266 acres)	$1,756,000
Interest During Construction (3.5% for 2 years with 0.5% ROI)	$43,745,000
TOTAL COST OF PROJECT	**$719,027,000**
ANNUAL COST	
Debt Service (3.5 percent, 20 years)	$50,592,000
Operation and Maintenance (O&M)	
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)	$3,806,000
Intakes and Pump Stations (2.5% of Cost of Facilities)	$2,945,000
Dam and Reservoir (1.5% of Cost of Facilities)	$198,000
Pumping Energy Costs	$3,371,000
Delivery Through Dallas IPL ($180,000 per MGD)	$8,646,000
TOTAL ANNUAL COST	**$69,558,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$1,293
Per 1,000 Gallons	$3.97
UNIT COSTS (After Amortization)	
Per Acre-Foot	$353
Per 1,000 Gallons	$1.08

PROJECT EVALUATION

This strategy benefits both municipal and non-municipal customers of Dallas (Region C) and would have a positive impact on their water supply security. In addition, this strategy could also be utilized as a supply for customers of UNRMWA in the East Texas Regional Water Planning Area (Region I) or Region C. According to the 2024 Draft Dallas LRWSP, the proposed pipeline corridor would impact 36 acres of prime farmland soils identified by the U.S. Department of Agriculture (USDA) and some agricultural activities may be disturbed during pipeline construction. However, these soils will be returned to original land uses and agricultural activities can continue undisturbed after construction, so impacts are anticipated to be low. This analysis did not identify any impacts to key parameters of water quality. This strategy will impact other State water resources, as it involves transferring water between river basins, which will alter-environmental flow patterns. However, these impacts will be limited through prescribed environmental flow standards. This strategy involves a voluntary redistribution of water that could be used to serve rural and/or agricultural areas in the Neches River Basin. Additional yield generated from this strategy that is not used by Dallas could potentially be used to serve those areas.

The strategy described was evaluated across twelve different criteria to compare against other strategies evaluated in the 2026 East Texas Regional Water Plan. The results of this evaluation are shown in the table below.

Criteria	Rating	Explanation
Quantity	5	Provides supply surplus of UNRMWA's contracted demands
Reliability	4	Medium to high reliable supply
Cost	3	Medium cost ($1,000 - $3,000/ac-ft)
Environmental Factors	2	Medium impact to the environment which may be mitigated through siting, planning, and design.
Impact on Other State Water Resources	3	Medium impact to environmental flows in the Neches River Basin. Impacts will be limited through prescribed environmental flow standards.
Threat to Agricultural Resources/Rural Areas	3	Low to medium impact. Additional study will be required to assess impacts
Other Natural Resources	3	Low to medium impact. Additional study will be required to assess impacts
Interbasin Transfers		Yes. Transfer from the Neches River Basin to the Trinity River Basin
Third Party Social & Economic Factors	2	Medium impacts. Involves voluntary redistribution of supply from Neches to Trinity basin. Some yield from this strategy could be used to serve rural and/or agricultural customers in basin of origin.
Major Impacts on Key Water Quality Parameters	3	Low to medium impacts. Additional study will be required to assess potential water quality impacts from transferring water between basins.
Political Feasibility	4	Local sponsorship by the Upper Neches River MWA
Implementation Issues	3	Medium level of risk and potential challenges. Requires a water right permit through TCEQ, including authorization for an interbasin transfer.

REFERENCES

Discussions with Upper Neches River Municipal Water Authority.
Dallas Water Utilities. October 2024. *Draft 2024 Dallas Long Range Water Supply Plan*.
HDR, Inc. 2014. *Upper Neches River Water Supply Project Feasibility Study*.
2021 East Texas Regional Water Plan. September 2020.
2026 Region C Initially Prepared Plan. March 2025.

Appendix 5B-B

Strategy Evaluation Matrix and Quantified Environmental Impacts Matrix

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This Appendix documents the strategy evaluation matrices.

Appendix 5B-B
Strategy Evaluation Matrix and Quantified Environmental Impacts Matrix

IDENTIFYING AND SELECTING STRATEGIES

In accordance with TWDB rules and guidelines pursuant to TAC 357.5 (e)(4), the East Texas Regional Planning Group (ETRWPG) is required to summarize the approach used for identifying and selecting Water Management Strategies (WMSs) for development of the 2026 Regional Water Plan (RWP). This approach classifies the strategies using the TWDB's standard categories developed for regional water planning.

Potential WMSs were developed based on the needs identified for Water User Groups (WUGs) from a comparison of projected demands and existing supplies. Similarly, Major Water Providers (MWP) supplies and projected demands/contracts were reviewed to determine needs, and appropriate WMSs were developed for the MWPs to address the needs. In some cases, WMSs were developed for WUGs and MWPs that wanted to develop additional supplies to increase their supply reliability even if there was no identified need.

The viability of the WMS for a given WUG or MWP was determined by using the following considerations:

- Is it preferable to identify a groundwater, surface water, reuse, and/or demand reduction strategy for the WUG/MWP?
- Does this strategy alone meet the entire need for the WUG/MWP, or does it need to be paired with another strategy?
- Is the strategy within a reasonable proximity to the location of the water need?
- Is this the most preferred strategy for the WUG/MWP?
- Is the unit cost supportable by the WUG/MWP?
- Are there any flaws identified with the implementation or formulation of the strategy for the WUG/MWP?

STRATEGY EVALUATION AND ENVIRONMENTAL IMPACTS

After WMSs are identified and developed based on the initial screening process, they are evaluated and assigned scores across several categories. In accordance with TWDB rules and guidelines, the ETRWPG adopted a standard methodology to evaluate WMSs based upon the following categories:

- Quantity
- Reliability
- Cost
- Environmental Factors
- Impact on Other State Water Resources
- Threat to Agricultural Resources/Rural Areas
- Interbasin Transfers
- Other Natural Resources
- Major Impacts on Key Water Quality Parameters
- Political Feasibility
- Implementation Issues

Each WMS analyzed in the ETRWP was quantitatively evaluated and assigned a score (from 1 to 5) for each category. A summary of the scoring gradations for each strategy evaluation category is summarized in **Table 5B-B.1**. A matrix summarizing the strategy evaluation scores for each strategy is included in **Table 5B-B.3.** Included below is a discussion of each evaluation category.

Quantity

This category is evaluated and scored based on the percentage of the WUG/MWP need the given strategy is expected to meet. If the strategy provides a supply surplus of the identified need for a WUG/MWP, it was assigned a score of 5.

Reliability

This category is evaluated based on the potential for the water to be available during drought. Strategies in which there is considerable competition for water, supplies are temporary, or the supply volume exceeds modeled available supply (e.g., Modeled Available Groundwater) are rated as low reliability. Strategies that use water from a source that would not exceed 90% of available supply are rated as low to medium reliability. Strategies that use water from a source that would not exceed 75% of available supply are rated as medium reliability. Strategies that use water from a source that would not exceed 50% of available supply are rated as medium to high reliability. Strategies that use water from a source that is resilient to drought are rated as high reliability. The reliability ranges are presented in **Table 5B-B.1**.

Cost

This category is evaluated based on the gradation of the unit cost for the given strategy compared to the range defining the scores 1 to 5. The ranges are presented in **Table 5B-B.1**.

Environmental Factors

The potential environmental impacts from each WMS to existing conditions is quantified across several environmental factors, which were used to determine the score for this category. These factors include:

- Total Acres Impacted
- Total Wetland Acres Impacted
- Environmental Water Needs
- Habitat
- Threatened and Endangered Species
- Cultural Resources
- Bays, Estuaries, and Arms of the Gulf of Mexico
- Environmental Water Quality

Each factor is quantitatively assessed and assigned a score from 1 to 5. **Table 5B-B.2** summarizes the scoring gradations for each environmental factor. The overall score for this category takes into account an average score of the environmental factors evaluated for each WMS. This value is illustrated in the strategy evaluation matrix as the "Environmental Factors" score. A matrix summarizing the environmental factors scores for each WMS is included in **Table 5B-B.4.** A description of each environmental factor evaluated is summarized below.

Acreage Impacted refers to the total amount of area that will be impacted due to the implementation of a strategy. The following conservative assumptions were made (unless more detailed information was available) based on suggested land area values for various facility types from the TWDB Uniform Costing

Model (UCM):

- Each well will impact approximately 1 acre of land
- The acres impacted for pipelines is equivalent to the right of way easements required
- Reservoirs will impact an area equal to their surface area
- A conventional water treatment plant will impact 5 acres
- Pump stations will impact approximately 5 acres
- Water storage tanks will impact approximately 2 acres
- Conservation strategies will have no impact on acreage

Wetland Acreage Impacted refers to the number of acres that are classified as wetlands that are impacted by implementation of the strategy. The only strategy identified that had an impact on surrounding wetlands was the Lake Columbia strategy.

Environmental Water Needs refers to how the strategy will impact the area's overall environmental water needs. Water is vital to the environmental health of a region, and so it is important to take into account how strategies will impact the amount of water that will be available to the environment. The following conservative assumptions were made (unless more detailed information was available):

- Strategies that involve surface water diversions that would decrease instream flows (i.e., water available for the environment) were assumed to have a medium impact on environmental water needs.
- All other strategies that involve infrastructure were conservatively assumed to have a low impact on environmental water needs (unless more detailed information was available).
- Strategies that either reduce demand (conservation) or return water supply (reuse) were assumed to have a positive impact.

Habitat refers to how the strategy will impact the habitat of the local area. The more area that is impacted due to the implementation of the strategy, the more the area's habitat will be disrupted. The following conservative assumptions were made (unless more detailed information was available):

- Strategies with no infrastructure, such as conservation, will have no impact.
- Strategies with less than 100 acres impacted will have a low impact
- Strategies with more than 100 acres impacted will have a medium impact.

Threatened and Endangered Species refers to how the strategy could potentially impact those species in the area once implemented. The following conservative assumptions were made (unless more detailed information was available):

- Only applicable to strategies implementing infrastructure and impact acreage.
- Rankings were based on the amount of threatened and endangered species located within the county. This amount was found using the Texas Parks and Wildlife Database located at http://tpwd.texas.gov/gis/rtest/ and the U.S. Fish and Wildlife Service Database located at http://www.fws.gov/endangered/.
- This ranking only includes threatened and endangered species as defined in the TWDB guidelines and does not include species without official protection such as those proposed for listing or species that are considered rare or otherwise of special concern.

Cultural Resources refers to how the strategy will impact cultural resources located within the area.

Cultural resources are defined as the collective evidence of the past activities and accomplishments of people. Locations, buildings and features with scientific, cultural or historic value are considered to be cultural resources. The following conservative assumptions were made (unless more detailed information was available):

- Only applicable to strategies implementing infrastructure and impact acreage.
- All transmission and groundwater strategies implementing infrastructure will have a low impact on cultural resources.
- Other infrastructure strategies were evaluated on an individual basis considering location.

Bays, Estuaries, and Arms of the Gulf of Mexico refers to the impact to bays, estuaries, and arms of the Gulf of Mexico (if any) due to a strategy.

- Strategies that involve surface water diversions that would decrease instream flows and are located in counties along the Gulf Coast were assumed to have a medium impact.
- All other strategies involving surface water (e.g., voluntary transfers, infrastructure expansions) were conservatively assumed to have a low impact.
- Groundwater strategies were conservatively assumed to have a low impact.
- Strategies that either reduce demand (conservation) or return water supply (reuse) were assumed to have a positive impact.

Environmental Water Quality refers to the impact that a strategy will have on water quality in the local environment.

- Conservation strategies were assumed to have no impact on environmental water quality.
- Most strategies were assumed to have a low impact on environmental water quality.
- If a strategy could have more than a low impact, then it was evaluated on an individual basis considering location.

Impact on Other State Water Resources

This category is quantified based on the impact of the strategy on other water resources of the state, including other WMSs and groundwater and surface water interrelationships.

Threat to Agricultural Resources/Rural Areas

This category is quantified based on the impacts to water supplies for agriculture (irrigation) and/or impacts to irrigated agricultural and/or rural land. Assumptions regarding this category include:

- If the location of the strategy is known and data is available, actual impacts to agricultural lands are used.
- Since most strategies could avoid direct, permanent impacts to agricultural lands, the quantity of agricultural acreage that could be impacted is estimated to be no more than 10% of the total acreage estimated for a strategy. Pipelines are anticipated to have a temporary, low impact and could be routed to avoid agricultural areas.
- Where applicable, the estimated impact on agricultural acreage from a strategy was used to assign scores for this category. If a strategy could impact more than 2,000 acres of agricultural land, impacts are rated as “high”. If a strategy could impact between 100 to 2,000 acres of agricultural land, impacts are rated as “medium”. If a strategy could impact between 10 to 100 acres of agricultural land, impacts as rated as “low”. If a strategy could impact less than 10 acres

of agricultural land, impacts as rated as "low to none".

- If a strategy will reduce the available water to an irrigation user (by county) by the greater of 10% or 5,000 ac-ft per year, then the strategy is determined to have a "high" impact. If a strategy will reduce the water available to an irrigation user (by county) by 1% of irrigation use or 500 ac-ft per year, the strategy is determined to have a "low" impact.
- If an entity already holds water rights for the strategy, it assumed to have no impact.
- If a strategy provides water to agricultural (irrigation) users, the strategy has a positive impact.

Other Natural Resources

This category is quantified based on the impact of the strategy to other natural resources in the region. The potential impact of a strategy on other natural resources was evaluated on a case-by-case basis. If the strategy does not alter the natural condition of other resources, the strategy is determined to have no impacts.

Interbasin Transfer

This category is quantified by means of a yes or no qualifier. If there is an interbasin transfer triggered because of the strategy, then the impact is quantified as a "yes". If there is no interbasin transfer triggered, then the impact is quantified as a "no".

Third Party Social & Economic Factors

This category is quantified based on the potential third-party social and economic factors impacts resulting from voluntary redistributions of water, including analysis of third-party impacts of moving water from rural and agricultural areas. If a strategy does not involve voluntary redistribution of water, then it has no impact. If a strategy voluntary redistribution of water, the impact was assessed on a case-by-case basis.

Major Impacts on Key Water Quality Parameters

This category is quantified based on the impact that the implementation of the strategy will have on the area's applicable water quality.

Political Feasibility

This category evaluates the local preference and likelihood for public support or opposition created by the strategy. This evaluation also takes into consideration if a local sponsor is identifiable and committed to implementing the strategy.

Implementation Issues

This category evaluates the potential for factors such as permitting and land acquisition to affect the strategy. It also evaluates the risk to the strategy's ability to deliver water from natural or man-made disasters such as hurricanes, climate change, or terrorism.

Navigation

RWPGs are required to assess the impact of strategies on navigation. No strategies identified in the ETRWP were identified to have an impact on navigation, so this was not included as a category in the strategy evaluation.

Table 5B-B.1 Strategy Evaluation Categories and Scoring Gradations

Category	Strategy Evaluation Category Ratings (1-5)				
	1	2	3	4	5
Quantity	Meets 0-25% Shortage	Meets 25-50% of Shortage	Meets 50-75% of Shortage	Meets 75-100% of Shortage	Exceeds Shortage
Reliability	Low	Low to Medium	Medium	Medium to High	High
Cost	>$5,000/ac-ft (High)	$3,000 to $5,000/ac-ft (Medium-High)	$1,000 to $3,000/ac-ft (Medium)	$0 to $1,000/ac-ft (Low)	No Cost
Environmental Factors	Significant environmental impacts	Medium environmental impacts	Low to medium environmental impacts. Impacts can be mitigated.	Low environmental impacts	No environmental impacts
Impact on Other State Water Resources	Significant negative impacts	Medium negative Impacts	Low negative impacts	Low to no negative impacts and/or some positive impacts	High positive impacts
Threat to Agricultural Resources/Rural Areas	Significant negative impacts	Medium negative Impacts	Low negative impacts	Low to no negative impacts and/or some positive impacts	High positive impacts
Other Natural Resources	Significant negative impacts	Medium negative Impacts	Low negative impacts	Low to no negative impacts and/or some positive impacts	High positive impacts
Interbasin Transfers	Yes/No				
Third Party Social & Economic Factors	Significant negative impacts	Medium negative Impacts	Low negative impacts	Low to no negative impacts and/or some positive impacts	High positive impacts
Major Impacts on Key Water Quality Parameters	Significant negative impacts	Medium negative Impacts	Low negative impacts	Low to no negative impacts and/or some positive impacts	High positive impacts
Political Feasibility	No sponsor readily identifiable.	Sponsor identifiable, but uncommitted.	Sponsor(s) identified, commitment level uncertain.	Sponsor(s) are identified and committed to strategy.	Sponsors identified and strategy is in development.
Implementation Issues	High implementation issues	Medium implementation issues	Low to medium implementation issues	Low implementation issues	Low to no implementation issues

Table 5B-B.2 Environmental Factors Evaluation and Scoring Gradations

Category	Environmental Factor Ratings (1-5)				
	1	2	3	4	5
Acres Impacted	Greater than 1,000 acres and/or impacts to wetlands	501-1,000 acres	101-500 acres	0-100 acres	None
Environmental Water Needs	High impact to instream flows	Moderate impact to instream flows	Low impact to instream flows	No impact to instream flows	Increases instream flows
Habitat	High impact	Medium impact	Low impact	No impact	Positive impact
Threatened and Endangered Species	> 30 designated T&E species occur in county	20-30 designated T&E species occur in county	10-20 designated T&E species occur in county	5-10 designated T&E species occur in county	< 5 designated T&E species occur in county
Cultural Resources	High impact	Medium impact	Low impact	No impact	Positive impact
Bays and Estuaries	High impact to B&E flows	Moderate impact to B&E flows	Low impact to B&E flows	No impact to B&E flows	Increases B&E flows
Environmental Water Quality	High impact	Medium impact	Low impact	No impact	Positive impact

Table 5B-B.3 – ETRWPA WMS Evaluation Matrix Rankings for Recommended and Alternative Water Management Strategies/Projects *(Alternative Strategies/Projects are identified in italics)*

									Strategy Evaluation Scores (1-5)													
#	County	Entity	Basin Used	Strategy/Project Name	Maximum Need from 2030-2080 (ac-ft/year)	Maximum Strategy Quantity (ac-ft/year)	Percentage of Maximum Need Met (%)	Unit Cost ($/ac-ft)	Quantity	Source Supply Available Before WMS	Percent Strategy Supply / Available Source Supply	Reliability	Cost	Environmental Factors	Impact on Other State Water Resources	Agricultural Resources	Other Natural Resources	Interbasin Transfers	Third Party Social & Economic Factors	Key Water Quality Parameters	Political Feasibility	Implementation Issues
1	Multiple	Multiple	Multiple	Conservation - Water Use Reduction	Varies by WUG	Varies by WUG	>100%	Varies by WUG	5	-	0%	2	4	5	5	4	5	No	4	4	3	3
2	Multiple	Multiple	Multiple	Conservation - Water Loss Mitigation	Varies by WUG	Varies by WUG	>100%	Varies by WUG	5	-	0%	2	4	5	5	4	5	No	4	4	3	3
3	Anderson	B C Y WSC	Neches	New Well(s) in Carrizo-Wilcox Aquifer	0	170	>100%	$3,088	5	14,245	1%	3	2	3	4	4	4	No	4	4	4	4
4	Anderson	Steam Electric Power	Neches/Trinity	New Well(s) in Carrizo-Wilcox Aquifer	2,296	2,300	100%	$797	4	14,245	16%	3	4	3	4	4	4	No	4	4	2	4
5	Angelina	Manufacturing	Neches	Purchase from Lufkin	3,055	3,060	100%	$1,379	4	6,590	46%	5	3	3	4	4	4	No	3	4	3	4
6	Angelina	Mining	Neches	Purchase from Lufkin	533	540	100%	$3,152	4	68,499	1%	3	2	3	4	4	4	No	3	4	2	4
7	Cherokee	Alto Rural WSC	Neches	New Well(s) in Carrizo-Wilcox Aquifer	665	670	100%	$1,448	4	8,976	7%	4	3	3	4	4	4	No	4	4	3	4
8	Henderson	Chandler	Neches	Purchase from Tyler	934	940	100%	$3,000	4	6,693	14%	4	3	3	4	4	4	No	4	4	3	3
9	*Henderson*	*Chandler*	*Neches*	*New Well(s) in Carrizo-Wilcox Aquifer*	*934*	*940*	*100%*	*$1,476*	*4*	*0*	100%	*2*	*3*	*3*	*4*	*4*	*4*	*No*	*4*	*4*	*3*	*2*
10	Henderson	Mining	Neches	New Well(s) in Queen City Aquifer	143	150	100%	$235	4	8,739	2%	4	4	3	4	4	4	No	4	4	1	4
11	Houston	TDCJ Eastham Unit	Trinity	New Well(s) in Carrizo-Wilcox Aquifer	111	120	100%	$4,858	4	1,223	10%	4	2	3	4	4	4	No	4	4	3	4
12	Houston	Livestock	Neches/Trinity	New Well(s) in Carrizo-Wilcox Aquifer	285	290	100%	$300	4	1,223	24%	4	4	3	4	4	4	No	4	4	1	4
13	Jasper	South Jasper County WSC	Sabine	New Well(s) in Gulf Coast Aquifer	0	330	>100%	$2,461	5	7,518	4%	4	3	3	4	4	4	No	4	4	3	4
14	Jasper	Manufacturing	Neches	Purchase from LNVA	11,943	11,950	100%	$1,074	4	561,278	2%	4	3	3	4	4	4	No	3	4	1	4
15	Jefferson	China	Neches-Trinity	New Well(s) in Gulf Coast Aquifer	0	250	>100%	$2,967	5	9,516	3%	4	3	3	4	4	4	No	4	4	4	4
16	Jefferson	Manufacturing	Neches-Trinity	Purchase from LNVA	175,165	175,200	>100%	$558	5	561,278	31%	4	4	3	4	4	4	No	3	4	1	4
17	Nacogdoches	D & M WSC	Neches	New Well(s) in Carrizo-Wilcox Aquifer	218	220	100%	$2,964	4	7,276	3%	4	3	3	4	4	4	No	4	4	2	4
18	Nacogdoches	County-Other	Neches	Lake Naconiche Regional Water Supply System	0	1,700	>100%	$6,539	5	4,500	38%	4	1	3	4	4	4	No	5	4	1	3
19	Orange	Orange County WCID 1	Sabine	New Well(s) in Gulf Coast Aquifer	0	1,610	>100%	$939	5	2,572	63%	3	4	3	4	4	4	No	4	4	4	4
20	Rusk	Gaston WSC	Neches	New Well(s) in Carrizo-Wilcox Aquifer	0	130	>100%	$3,492	5	2,188	6%	4	2	3	4	4	4	No	4	4	4	4
21	Rusk	Jacobs WSC	Sabine	New Well(s) in Carrizo-Wilcox Aquifer	60	60	100%	$12,300	4	0	100%	4	1	3	4	4	4	No	4	4	3	4
22	Sabine	Livestock	Neches/Sabine	New Well(s) in Yegua-Jackson Aquifer	97	100	100%	$470	4	1,005	10%	4	4	3	4	4	4	No	4	4	3	4
23	Shelby	Manufacturing	Neches	Purchase from Center	1,325	1,330	100%	$2,440	4	0	100%	4	3	3	4	4	4	No	3	4	3	4
24	Smith	Southern Utilities	Neches	Amendment to Supplemental Contract with Tyler	410	410	100%	$1,634	4	6,693	6%	4	3	4	4	4	4	No	4	4	3	4
25	Smith	County-Other	Neches	Purchase from Tyler	273	280	100%	$5,768	4	6,693	4%	4	1	3	4	4	4	No	4	4	3	4
26	Smith	Manufacturing	Neches	Purchase from Tyler	567	570	100%	$5,461	4	6,693	9%	4	1	3	4	4	4	No	3	4	3	4
27	Smith	Mining	Neches	Purchase from Tyler	421	430	100%	$4,395	4	6,693	6%	4	2	3	4	4	4	No	3	4	3	4
28	Trinity	Irrigation	Neches	New Well(s) in Yegua-Jackson Aquifer	215	220	100%	$236	4	266	83%	4	4	3	4	5	4	No	4	4	3	4
29	Tyler	Manufacturing	Neches	New Well(s) in Gulf Coast Aquifer	102	110	100%	$445	4	30,493	0%	4	4	3	4	4	4	No	4	4	3	4
30	Angelina	Angelina Neches River Authority	Neches	Lake Columbia	0	75,720	>100%	$375	5	-	0%	4	4	2	3	2	4	Yes	2	4	4	3
31	Angelina	Angelina Neches River Authority	Neches	ANRA Treatment and Distribution System	0	22,232	>100%	$3,790	5	-	0%	4	2	3	4	4	4	No	4	4	4	3

Table 5B-B.3 – ETRWPA WMS Evaluation Matrix Rankings for Recommended and Alternative Water Management Strategies/Projects *(Alternative Strategies/Projects are identified in italics)*

									Strategy Evaluation Scores (1-5)														
#	County	Entity	Basin Used	Strategy/Project Name	Maximum Need from 2030-2080 (ac-ft/year)	Maximum Strategy Quantity (ac-ft/year)	Percentage of Maximum Need Met (%)	Unit Cost ($/ac-ft)	Quantity	Source Supply Available Before WMS	Percent Strategy Supply / Available Source Supply	Reliability	Cost	Environmental Factors	Impact on Other State Water Resources	Agricultural Resources	Other Natural Resources	Interbasin Transfers	Third Party Social & Economic Factors	Key Water Quality Parameters	Political Feasibility	Implementation Issues
32	Cherokee/ Rusk	Angelina-Nacogdoches WCID #1	Neches	Hydraulic Dredging of Lake Striker	0	5,600	>100%	$4,997	5	-	0%	3	2	4	4	4	4	No	4	4	4	4
33	Henderson	Athens MWA	Neches	Indirect Reuse of Flows from Fish Hatcheries	4,145	2,872	69%	$0	3	-	0%	4	5	4	5	4	4	No	4	4	4	3
34	Henderson	Athens MWA	Neches	WTP Booster Pump Station Expansion	4,145	4,592	>100%	$67	5	-	0%	4	4	4	4	4	4	No	4	4	4	4
35	*Henderson*	*Athens MWA*	*Neches*	*New Well(s) in Carrizo-Wilcox Aquifer*	*4,145*	*720*	*17%*	*$1,786*	*1*	*0*	100%	*2*	*3*	*3*	*4*	*4*	*4*	*No*	*4*	*4*	*3*	*2*
36	Hardin	Beaumont	Neches-Trinity	Well Field Infrastructure Improvements	11,388	2,823	25%	$2,784	2	9,516	30%	4	3	3	4	4	4	No	4	4	4	4
37	Jefferson	Beaumont	Neches-Trinity	Amendment to Supplemental Contract with LNVA	11,388	8,565	75%	$326	4	561,278	2%	4	4	4	4	4	4	No	4	4	4	4
38	Jefferson	Beaumont	Neches-Trinity	Bunn's Canal Rehabilitation	11,388	8,968	79%	$10	4	-	0%	4	4	3	4	4	4	No	4	4	4	3
39	Jefferson	Beaumont	Neches-Trinity	New Westside Surface WTP	11,388	12,331	>100%	$1,316	5	-	0%	4	3	3	4	4	4	No	4	4	4	4
40	Shelby	Center	Sabine	Reuse Pipeline to Industrial Customer	1,652	1,121	68%	$2,326	3	-	0%	5	3	4	5	4	4	No	5	5	4	4
41	*Shelby*	*Center*	*Sabine*	*Pipeline from Toledo Bend Reservoir*	1,652	*2,242*	>100%	$2,893	5	936,835	0%	*4*	3	3	4	4	4	No	*4*	*4*	*4*	*4*
42	Houston	Houston Co. WCID #1	Trinity	New Well(s) in Carrizo-Wilcox Aquifer	0	3,500	>100%	$1,056	5	1,223	n/a	2	3	3	4	4	4	No	4	*4*	4	3
43	Cherokee	Jacksonville	Neches	Raw Water Transmission System from Lake Columbia	0	1,700	>100%	$3,781	5	68,499	2%	4	2	3	4	4	4	No	4	*4*	4	3
44	Jefferson	Lower Neches Valley Authority	Trinity	Devers Pump Station Relocation (Region H)	0	88,704	>100%	$21	5	-	0%	4	4	3	5	4	4	No	4	4	5	4
45	Jefferson	Lower Neches Valley Authority	Neches	Neches Pump Station Upgrade and Fuel Diversification	0	161,420	>100%	$35	5	-	0%	4	4	3	5	4	4	No	4	4	5	4
46	Jefferson	Lower Neches Valley Authority	Neches/Neches-Trinity	West Beaumont Reservoir	0	7,700	>100%	$790	5	-	0%	4	4	2	4	3	4	No	4	4	5	3
47	Jefferson	Lower Neches Valley Authority	Neches-Trinity/Trinity	Neches-Trinity Basin Interconnect (Region H)	0	67,000	>100%	$165	5	561,278	12%	4	4	2	3	5	3	Yes	4	3	5	3
48	Jefferson	Lower Neches Valley Authority	Neches-Trinity/Sabine	Purchase from SRA (Toledo Bend)	0	200,000	>100%	$513	5	936,835	21%	4	4	2	2	3	3	Yes	4	3	4	2
49	Angelina	Lufkin	Neches	Transfer from Sam Rayburn to Lake Kurth	0	28,000	>100%	$2,299	5	561,278	5%	4	3	3	4	4	4	No	4	*4*	4	4
50	Nacogdoches	Nacogdoches	Neches	Raw Water Transmission System from Lake Columbia	0	8,551	>100%	$1,085	5	68,499	12%	4	3	3	4	4	4	No	4	*4*	4	3
51	Smith	Tyler	Neches	Lake Palestine Infrastructure Expansion	0	16,815	>100%	$1,656	5	-	0%	4	3	3	4	4	4	No	4	*4*	3	4
52	Anderson	Upper Neches River MWA	Neches	Neches Run-of-River with Lake Palestine	43,259	82,900	>100%	$1,293	5	-	0%	4	3	2	3	3	3	Yes	2	3	4	3

Table 5B-B.4 – ETRWPA Water Management Strategy/Project Environmental Impact Analysis (*Alternative Strategies/Projects are identified in italics*)

					Environmental Factors and Scores (1-5)															
#	County	Entity	Basin	Strategy	Acres Impacted	Wetland Acres Impacted (Yes/No)	Acres Impacted Score	Environmental Water Needs Impact	Environmental Water Needs Score	Habitat Impact	Habitat Score	Potential Number of Threatened and Endangered Species in County	Threatened and Endangered Species Score	Cultural Resources Impact	Cultural Resources Score	Bays & Estuaries Impact	Bays & Estuaries Score	Environmental Water Quality Impact	Environmental Water Quality Score	Overall Environmental Impacts Score
1	Multiple	Multiple	Multiple	Conservation - Water Use Reduction	0	No	5	Positive	5	None	4	N/A	5	None	4	Positive	5	None	4	5
2	Multiple	Multiple	Multiple	Conservation - Water Loss Mitigation	0	No	5	Positive	5	None	4	N/A	5	None	4	Positive	5	None	4	5
3	Anderson	B C Y WSC	Neches	New Well(s) in Carrizo-Wilcox Aquifer	8	No	4	Low	3	Low	3	24	2	Low	3	None	4	Low	3	3
4	Anderson	Steam Electric Power	Neches, Trinity	New Well(s) in Carrizo-Wilcox Aquifer	30	No	4	Low	3	Low	3	24	2	Low	3	None	4	Low	3	3
5	Angelina	Manufacturing	Neches	Purchase from Lufkin	115	No	3	Low	3	Medium	2	19	3	Low	3	None	4	Low	3	3
6	Angelina	Mining	Neches	Purchase from ANRA	9	No	4	Low	3	Low	3	19	3	Low	3	None	4	Low	3	3
7	Cherokee	Alto Rural WSC	Neches	New Well(s) in Carrizo-Wilcox Aquifer	11	No	4	Low	3	Low	3	21	2	Low	3	None	4	Low	3	3
8	Henderson	Chandler	Neches	Purchase from Tyler	29	No	4	Low	3	Low	3	21	2	Low	3	Low	3	Low	3	3
9	*Henderson*	*Chandler*	*Neches*	*New Well(s) in Carrizo-Wilcox Aquifer*	13	No	4	Low	3	Low	3	21	2	Low	3	None	4	Low	3	3
10	Henderson	Mining	Neches	New Well(s) in Queen City Aquifer	1	No	4	Low	3	Low	3	21	2	Low	3	None	4	Low	3	3
11	Houston	TDCJ Eastham Unit	Trinity	New Well(s) in Carrizo-Wilcox Aquifer	13	No	4	Low	3	Low	3	21	2	Low	3	None	4	Low	3	3
12	Houston	Livestock	Neches/Trinity	New Well(s) in Carrizo-Wilcox Aquifer	3	No	4	Low	3	Low	3	21	2	Low	3	None	4	Low	3	3
13	Jasper	South Jasper County WSC	Sabine	New Well(s) in Gulf Coast Aquifer	13	No	4	Low	3	Low	3	21	2	Low	3	None	4	Low	3	3
14	Jasper	Manufacturing	Neches	Purchase from LNVA	95	No	4	Low	3	Low	3	21	2	Low	3	Low	3	Low	3	3
15	Jefferson	China	Neches-Trinity	New Well(s) in Gulf Coast Aquifer	14	No	4	Low	3	Low	3	43	1	Low	3	None	4	Low	3	3
16	Jefferson	Manufacturing	Neches-Trinity	Purchase from LNVA	95	No	4	Low	3	Low	3	43	1	Low	3	Low	3	Low	3	3
17	Nacogdoches	D & M WSC	Neches	New Well(s) in Carrizo-Wilcox Aquifer	13	No	4	Low	3	Low	3	19	3	Low	3	None	4	Low	3	3
18	Nacogdoches	County-Other	Neches	Lake Naconiche Regional Water Supply System	82	No	4	Low	3	Low	3	19	3	Low	3	Low	3	Low	3	3
19	Orange	Orange County WCID 1	Sabine	New Well(s) in Gulf Coast Aquifer	10	No	4	Low	3	Low	3	16	3	Low	3	None	4	Low	3	3
20	Rusk	Gaston WSC	Neches	New Well(s) in Carrizo-Wilcox Aquifer	8	No	4	Low	3	Low	3	18	3	Low	3	None	4	Low	3	3
21	Rusk	Jacobs WSC	Sabine	New Well(s) in Carrizo-Wilcox Aquifer	13	No	4	Low	3	Low	3	18	3	Low	3	None	4	Low	3	3
22	Sabine	Livestock	Neches, Sabine	New Well(s) in Yegua-Jackson Aquifer	2	No	4	Low	3	Low	3	20	3	Low	3	None	4	Low	3	3
23	Shelby	Manufacturing	Neches	Purchase from Center	115	No	3	Low	3	Medium	2	17	3	Low	3	None	4	Low	3	3
24	Smith	Southern Utilities	Neches	Amendment to Supplemental Contract with Tyler	0	No	5	Low	3	None	4	N/A	5	Low	3	None	4	Low	3	4
25	Smith	County-Other	Neches	Purchase from Tyler	31	No	4	Low	3	Low	3	17	3	Low	3	None	4	Low	3	3
26	Smith	Manufacturing	Neches	Purchase from Tyler	76	No	4	Low	3	Low	3	17	3	Low	3	None	4	Low	3	3
27	Smith	Mining	Neches	Purchase from Tyler	31	No	4	Low	3	Low	3	17	3	Low	3	None	4	Low	3	3
28	Trinity	Irrigation	Trinity	New Well(s) in Yegua-Jackson Aquifer	2	No	4	Low	3	Low	3	21	2	Low	3	None	4	Low	3	3
29	Tyler	Manufacturing	Neches	New Well(s) in Gulf Coast Aquifer	1	No	4	Low	3	Low	3	20	3	Low	3	None	4	Low	3	3
30	Angelina	Angelina Neches River Authority	Neches	Lake Columbia	10,133	Yes	1	Medium	2	Medium	2	19	3	Low	3	Medium	2	Medium	2	2
31	Angelina	Angelina Neches River Authority	Neches	ANRA Treatment and Distribution System	94	No	4	Low	3	Low	3	19	3	Low	3	None	4	Low	3	3
32	Cherokee/ Rusk	Angelina-Nacogdoches WCID #1	Neches	Hydraulic Dredging of Lake Striker	0	No	5	Low	3	None	4	N/A	5	Low	3	None	4	Low	3	4
33	Henderson	Athens MWA	Neches	Indirect Reuse of Flows from Fish Hatcheries	0	No	5	Positive	5	None	4	N/A	5	Low	3	Positive	5	Low	3	4
34	Henderson	Athens MWA	Neches	WTP Booster Pump Station Expansion	0	No	5	Low	3	None	4	N/A	5	Low	3	Low	3	Low	3	4
35	*Henderson*	*Athens MWA*	*Neches*	*New Well(s) in Carrizo-Wilcox Aquifer*	13	No	4	Low	3	Low	3	21	2	Low	3	None	4	Low	3	3

Table 5B-B.4 – ETRWPA Water Management Strategy/Project Environmental Impact Analysis (*Alternative Strategies/Projects are identified in italics*)

					Environmental Factors and Scores (1-5)															
#	County	Entity	Basin	Strategy	Acres Impacted	Wetland Acres Impacted (Yes/No)	Acres Impacted Score	Environmental Water Needs Impact	Environmental Water Needs Score	Habitat Impact	Habitat Score	Potential Number of Threatened and Endangered Species in County	Threatened and Endangered Species Score	Cultural Resources Impact	Cultural Resources Score	Bays & Estuaries Impact	Bays & Estuaries Score	Environmental Water Quality Impact	Environmental Water Quality Score	Overall Environmental Impacts Score
36	Hardin	Beaumont	Neches-Trinity	Well Field Infrastructure Improvements	28	No	4	Low	3	Low	3	20	3	Low	3	None	4	Low	3	3
37	Jefferson	Beaumont	Neches-Trinity	Amendment to Supplemental Contract with LNVA	0	No	5	Low	3	None	4	N/A	5	Low	3	Low	3	Low	3	4
38	Jefferson	Beaumont	Neches-Trinity	Bunn's Canal Rehabilitation	37	No	4	Low	3	Low	3	43	1	Low	3	Low	3	Low	3	3
39	Jefferson	Beaumont	Neches-Trinity	New Westside Surface WTP	85	No	4	Low	3	Low	3	43	1	Low	3	Low	3	Low	3	3
40	Shelby	Center	Sabine	Reuse Pipeline to Industrial Customer	11	No	4	Positive	5	Low	3	17	3	Low	3	Positive	5	Low	3	4
41	Shelby	Center	Sabine	Pipeline from Toledo Bend Reservoir	53	No	4	Low	3	Low	3	17	3	Low	3	None	4	Low	3	3
42	Houston	Houston Co. WCID #1	Trinity	New Well(s) in Carrizo-Wilcox Aquifer	174	No	3	Low	3	Medium	2	21	2	Low	3	None	4	Low	3	3
43	Cherokee	Jacksonville	Neches	Raw Water Transmission System from Lake Columbia	24	No	4	Low	3	Low	3	21	2	Low	3	None	4	Low	3	3
44	Jefferson	Lower Neches Valley Authority	Trinity	Devers Pump Station Relocation (Region H)	5	No	4	Low	3	Low	3	43	1	Low	3	Low	3	Low	3	3
45	Jefferson	Lower Neches Valley Authority	Neches	Neches Pump Station Upgrade and Fuel Diversification	5	No	4	Low	3	Low	3	43	1	Low	3	Low	3	Low	3	3
46	Jefferson	Lower Neches Valley Authority	Neches, Neches-Trinity	West Beaumont Reservoir	1,100	No	1	Medium	2	Medium	2	43	1	Low	3	Medium	2	Low	3	2
47	Jefferson	Lower Neches Valley Authority	Neches-Trinity, Trinity	Neches-Trinity Basin Interconnect (Region H)	163	No	3	Medium	2	Medium	2	43	1	Low	3	Medium	2	Low	3	2
48	Jefferson	Lower Neches Valley Authority	Neches-Trinity, Sabine	Purchase from SRA (Toledo Bend)	401	No	3	Medium	2	Medium	2	43	1	Low	3	Medium	2	Medium	2	2
49	Angelina	Lufkin	Neches	Transfer from Sam Rayburn to Lake Kurth	141	No	3	Low	3	Medium	2	19	3	Low	3	Low	3	Low	3	3
50	Nacogdoches	Nacogdoches	Neches	Raw Water Transmission System from Lake Columbia	20	No	4	Low	3	Low	3	19	3	Low	3	None	4	Low	3	3
51	Smith	Tyler	Neches	Lake Palestine Infrastructure Expansion	24	No	4	Low	3	Low	3	17	3	Low	3	None	4	Low	3	3
52	Anderson	Upper Neches River MWA	Neches	Neches Run-of-River with Lake Palestine	276	No	3	Medium	2	Medium	2	24	2	Low	3	Low	3	Medium	2	2

Appendix 5B-C

Managed Supply Factor for Major Water Providers

This appendix provides a summary of the managed supply factor (MSF) for the Region I Major Water Providers (MWPs).

Management Supply Factor						
MWP	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**
Angelina and Neches River Authority (ANRA)	1.00	1.62	1.62	1.62	1.00	1.00
Angelina-Nacogdoches Water Control & Improvement District (A-N WCID) No. 1	4.05	5.82	5.00	4.27	3.62	3.05
Athens Municipal Water Authority (AMWA)	1.65	1.53	1.37	1.24	1.12	1.05
Beaumont	1.06	1.16	1.20	1.20	1.20	1.20
Carthage	1.62	1.62	1.61	1.61	1.61	1.60
Center	1.20	1.20	1.18	1.16	1.14	1.12
Houston Co. WCID 1	1.10	1.11	1.12	1.11	1.11	1.11
Jacksonville	1.45	1.45	1.77	1.76	1.75	1.74
LNVA	2.67	2.40	2.61	2.44	2.29	2.16
Lufkin	1.26	1.65	2.05	2.23	2.23	2.22
Nacogdoches	2.81	3.44	3.28	3.08	2.89	2.71
Houston County Water Control & Improvement District (WCID) No. 1	1.40	1.35	1.31	1.24	1.19	1.14
Port Arthur	1.01	1.02	1.02	1.02	1.02	1.02
Sabine River Authority (SRA)	6.37	6.36	1.73	1.72	1.71	1.70
Tyler	1.70	1.94	1.76	2.00	1.90	1.81
Upper Neches River Municipal Water Authority (UNRMWA)	0.84	0.83	0.82	0.81	1.20	1.19

Appendix 5B-D

Implementation Status of Certain Water Management Strategies in Region I

The 2026 regional water plans must include a new sub-section documenting the implementation status of certain water management strategies that are recommended in the plan. The implementation status must be provided for the following types of recommended WMSs with any online decade:

- All reservoir strategies (including major and minor reservoirs)
- All seawater desalination strategies
- Direct potable reuse strategies that provide greater than 5,000 acre-feet per year (AFY) of supply in any planning decade
- Brackish groundwater strategies that provide greater than 10,000 AFY of supply in any planning decade
- Aquifer storage and recovery strategies that provide greater than 10,000 AFY in any decade
- All water transfers from out of state
- Any other innovative technology projects the RWPG considers appropriate

Two WMSs from the 2026 ETRWP meet the criteria above: Lake Columbia Reservoir and the West Beaumont Reservoir.

This Appendix provides the implementation status of the two WMSs above.

REGIONAL WATER PLAN WMS/PROJECT DATA						
						SPONSOR AUTHORIZATION
Water Management Strategy/Project Name	**Project Sponsor**	**WMS Project Sponsor Region**	**Online Decade**	**Capital Cost**	**Anticipated Footprint Acreage (acres)**	**Date(s) that the sponsor took an affirmative vote or other action to make expenditures necessary to construct or file applications for state or federal permits (date(s))**
West Beaumont Reservoir	Lower Neches Valley Authority	I	2030	$110,438,000	1,100	Sep 2024 - Began conceptual engineering design phase
ANRA-COL - Lake Columbia	Angelina & Neches River Authority	I	2040	$ 486,368,000	The conservation pool covers an area of approximately 10,133 acres and the flood pool covers an additional area of 1,367 acres.	N/A

FOOTNOTE 1 : ANY DATE ENTERED THAT IS PRIOR TO ADOPTION OF THE REGIONAL WATER PLAN IS ASSUMED TO BE AN 'ACTUAL' DATE

Table 5B-D.1
Template for Documenting the Implementation Status of Certain WMSs (see Exhibit C Section 2.5.2.7)

REGIONA	ANTICIPATED/ESTIMATED (OR ACT								
	PERMITTING STATUS (as applicable)								
	STATE WATER RIGHT STATUS				FEDERAL 404 PERMIT STATUS (if applicable)		DESALINATION PERMIT STATUS		OTHER KEY PERMITS
Water Management Strategy/Project Name	Anticipated (or actual) TCEQ application filed (date)	Anticipated (or actual) State Water Right Permit Administratively Complete (date)	Anticipated (or actual) Draft State Water Right Permit Issued (date)	Anticipated (or actual) Date Final State Water Right Permit Issued (date)	Anticipated (or actual) application for permit filed (date)	Anticipated (or actual) permit issuance (date)	Anticipated (or actual) diversion permit issued (date)	Anticipated (or actual) Discharge/Disposal Permit Issued (date)	Summary of other permits and status (summary)
West Beaumont Reservoir	N/A	N/A	N/A	N/A	Q4 2025	Q2 2027	N/A	N/A	TCEQ Dam Safety permitting (Q2 2027)
ANRA-COL - Lake Columbia	N/A	N/A	N/A	N/A	Currently seeking a 404 permit for construction as of October 2024	2028	N/A	N/A	unknown

FOOTNOTE 1 : /

REGIONAUAL[1]) IMPLEMENTATION ACTIVITIES AND DATES

Water Management Strategy/Project Name	PLANNING, DESIGN, AND CONSTRUCTION STATUS					
	GEOTECH/DESIGN	LAND ACQUISITION		CONSTRUCTION		
	Generally describe the types and amount (as %s) of geotechnical/ reconnaissance/ engineering feasibility or other technical, testing, and/or design work etc. performed to date (summary)	Percent Land Acquisition Completed (%)	Anticiptated land acquisition completion (date)	Anticipated start of construction (Date)	Percent construction completed (%)	Anticipated construction completion (date)
West Beaumont Reservoir	15-20% design	50	Q4 2025	Q4 2027	0	Q4 2030
ANRA-COL - Lake Columbia	As of September 2023, ANRA has spent over $5 million for studies, engineering and permitting.	0	2030	2029	0	2035

FOOTNOTE 1 : A

REGIONA		
Water Management Strategy/Project Name	**TOTAL FUNDS EXPENDED TO DATE** **Rough approximation of the total expenditures, to date, on ALL activities related to project implementation to date (millions of $s)**	**Other significant activities completed (summary)**
West Beaumont Reservoir	$4	Conceptual engineering design phase is ongoing, pursuing land acquisition
ANRA-COL - Lake Columbia	$5	As of September 2023, ANRA has spent over $5 million for studies, engineering and permitting.

FOOTNOTE 1 : /

Appendix 5C-A
Estimated Plumbing Code Efficiency Savings by County

Table 5C-A-1: Estimated Plumbing Code Efficiency Savings

County	Plumbing Code Efficiency Savings (ac-ft)					
	2030	2040	2050	2060	2070	2080
Anderson	314	356	354	351	348	345
Angelina	426	487	491	496	501	505
Cherokee	259	289	283	276	269	262
Hardin	321	398	434	422	411	400
Henderson	134	152	155	157	160	162
Houston	106	114	107	103	98	94
Jasper	166	179	168	158	148	138
Jefferson	1,398	1,609	1,601	1,579	1,558	1,537
Nacogdoches	377	439	451	470	489	507
Newton	50	50	44	39	33	28
Orange	430	485	485	476	467	458
Panola	119	131	125	120	115	110
Polk	45	54	56	58	60	63
Rusk	251	277	265	250	236	221
Sabine	21	22	20	19	17	16
San Augustine	38	39	35	33	30	28
Shelby	126	142	138	135	131	128
Smith	1,128	1,398	1,517	1,584	1,655	1,729
Trinity	16	16	15	14	13	13
Tyler	100	106	99	94	89	84
Total	**5,828**	**6,744**	**6,841**	**6,833**	**6,829**	**6,829**

Note: Values presented herein reflect the plumbing code savings associated with the municipal demand that are assigned to Region I.

Appendix 5C-B
GPCD Goals of Region I WUGs

Gallon per capita per day goals for municipal water user groups in Region I can be found in the following attachment.

Table 5C-B-1: GPCD Goals of Region I WUGs

Water User Group	Base GPCD	GPCD Goals 2030	2040	2050	2060	2070	2080
Afton Grove WSC	137	130	128	128	128	127	127
Alto	212	203	200	200	200	200	199
Alto Rural WSC	212	205	202	202	202	201	201
Anderson County Cedar Creek WSC	149	141	139	139	138	139	138
Angelina WSC	87	82	82	82	82	82	82
Appleby WSC	260	251	248	247	247	247	246
Arp	173	155	128	116	116	115	116
B B S WSC	120	114	112	112	111	111	111
B C Y WSC	148	140	138	137	137	137	138
Beaumont	212	192	168	157	157	156	155
Beckville	123	118	117	118	118	118	118
Berryville	121	116	114	114	115	115	115
Bethel Ash WSC	92	87	87	87	87	87	87
Bevil Oaks	90	85	85	85	85	85	85
Blackjack WSC	182	173	169	171	171	171	172
Bon Wier WSC	188	179	176	177	176	173	181
Bridge City	100	96	95	95	95	95	95
Brookeland FWSD	143	137	133	135	133	133	133
Brownsboro	176	167	166	166	166	165	165
Brushy Creek WSC	141	135	132	131	131	131	130
Bullard	218	210	207	207	206	206	205
Caro WSC	134	127	125	125	125	125	124
Carthage	241	232	229	229	229	228	228
Center	405	385	363	353	351	352	350
Centerville WSC	172	159	144	138	139	139	137
Central WCID of Angelina County	95	92	92	92	92	92	92
Chalk Hill SUD	79	75	74	74	74	74	74
Chandler	152	144	143	143	142	142	141
Chester WSC	156	149	148	147	147	145	144
China	167	159	157	157	156	156	155
Choice WSC	126	118	117	117	117	118	118
Clayton WSC	1225	1196	1186	1181	1179	1177	1179
Colmesneil	216	208	206	204	204	203	203
Corrigan	156	143	129	123	123	122	123
County-Other, Anderson	127	119	119	119	119	119	119
County-Other, Angelina	102	96	96	96	96	96	96
County-Other, Cherokee	105	100	99	99	99	99	99
County-Other, Hardin	107	101	100	100	101	101	100
County-Other, Houston	157	147	146	146	145	144	148
County-Other, Jasper	95	90	89	89	89	89	89
County-Other, Jefferson	142	136	135	135	135	135	134

Table 5C-B-1: GPCD Goals of Region I WUGs

Water User Group	Base GPCD	GPCD Goals 2030	2040	2050	2060	2070	2080
County-Other, Nacogdoches	92	86	85	85	85	86	85
County-Other, Newton	98	93	93	93	93	93	93
County-Other, Orange	104	99	98	98	98	98	98
County-Other, Panola	90	85	84	84	84	84	84
County-Other, Rusk	98	93	92	92	92	92	92
County-Other, Sabine	78	73	72	72	72	72	72
County-Other, San Augustine	87	82	81	81	81	81	82
County-Other, Shelby	99	94	94	94	94	94	94
County-Other, Smith	106	100	100	100	100	100	100
County-Other, Trinity	65	60	60	60	60	60	60
County-Other, Tyler	114	108	107	107	107	107	107
Craft Turney WSC	125	109	90	81	81	81	80
Crockett	163	144	119	107	107	106	106
Cross Roads SUD	98	94	93	93	93	93	93
Crystal Farms WSC	90	86	85	85	85	85	85
Cushing	162	154	150	149	148	148	146
Cypress Creek WSC	178	169	165	164	165	163	163
D & M WSC	130	124	121	121	121	121	121
Damascus-Stryker WSC	113	107	105	105	104	105	104
Dean WSC	145	138	136	136	135	135	135
Deberry WSC	180	171	169	170	169	168	163
Denning WSC	564	507	416	381	380	379	377
Diboll	139	131	130	130	130	128	128
East Lamar WSC	132	127	125	125	126	125	126
Ebenezer WSC	230	221	218	218	218	217	218
Elkhart	156	148	146	146	147	146	146
Emerald Bay MUD	225	215	214	213	214	213	213
Etoile WSC	212	204	201	201	200	200	200
Federal Correctional Complex Beaumont	124	119	118	117	117	117	117
Five Way WSC	120	113	112	111	111	111	110
Flat Fork WSC	198	190	187	187	186	184	184
Four Pines WSC	84	79	79	79	79	79	79
Four Way SUD	79	74	74	74	74	74	74
Frankston	194	185	183	183	183	183	182
Frankston Rural WSC	139	132	130	130	130	130	130
G M WSC	100	94	83	78	78	78	78
Garrison	273	244	201	181	181	180	178
Gaston WSC	104	99	99	99	99	99	99
Goodsprings WSC	95	91	90	90	90	90	90
Grapeland	155	147	145	145	144	145	144
Groves	125	111	96	89	89	89	89

Table 5C-B-1: GPCD Goals of Region I WUGs

Water User Group	Base GPCD	GPCD Goals					
		2030	2040	2050	2060	2070	2080
Gum Creek WSC	88	83	82	82	82	83	82
Hardin County WCID 1	122	117	116	116	116	116	116
Hemphill	433	419	415	414	415	413	412
Henderson	225	215	213	213	212	212	211
Hollands Quarter WSC	124	118	118	118	118	118	118
Hudson WSC	87	86	86	86	86	86	86
Huntington	115	105	96	93	93	92	92
Huxley	155	148	146	146	145	145	145
Jackson WSC	100	96	95	95	95	95	95
Jacksonville	177	164	153	148	148	147	147
Jacobs WSC	108	103	103	103	103	103	103
Jasper	221	212	210	209	209	209	208
Jasper County WCID 1	99	92	89	87	86	87	87
Jefferson County WCID 10	140	133	131	131	131	130	130
Joaquin	193	185	183	182	181	180	176
Kelly G Brewer	262	253	249	249	248	248	249
Kirbyville	185	176	175	175	174	174	172
Kountze	108	102	102	102	102	102	102
Leagueville WSC	96	92	91	91	91	91	91
Lilly Grove SUD	186	172	157	150	150	149	149
Lovelady	207	196	195	195	197	197	196
Lufkin	149	139	134	132	131	131	130
Lumberton MUD	94	90	89	89	89	89	89
M & M WSC	77	72	72	72	72	72	72
Mauriceville SUD	63	60	60	60	60	60	60
McClelland WSC	182	163	135	123	123	124	123
Meeker MWD	137	129	128	127	128	127	127
Melrose WSC	298	288	284	283	282	282	282
Minden Brachfield WSC	101	100	100	100	100	100	100
Moore Station WSC	164	157	155	155	154	155	154
Moscow WSC	133	128	127	127	127	127	128
Mt Enterprise WSC	147	139	138	138	138	137	136
Murchison	175	167	164	165	164	162	163
Nacogdoches	187	173	160	154	154	153	152
Neches WSC	118	112	109	108	109	109	109
Nederland	116	104	92	87	87	87	86
New London	325	314	311	310	308	309	309
New Prospect WSC	146	138	139	139	139	139	138
New Summerfield	115	110	109	109	109	109	108
New WSC	66	57	47	43	42	42	42
Newton	208	189	166	155	154	154	154

Table 5C-B-1: GPCD Goals of Region I WUGs

Water User Group	Base GPCD	GPCD Goals					
		2030	2040	2050	2060	2070	2080
Nome	257	236	208	196	195	195	194
North Cherokee WSC	110	103	102	102	102	101	102
North Hardin WSC	63	60	60	60	60	60	60
Norwood WSC	142	136	135	135	135	136	136
Orange	162	142	117	105	105	104	104
Orange County WCID 1	111	102	97	95	94	94	94
Orange County WCID 2	137	123	108	101	101	100	100
Orangefield WSC	115	109	107	107	106	106	106
Overton	208	199	196	197	196	196	195
Palestine	294	282	273	270	269	268	268
Panola-Bethany WSC	178	163	143	135	134	133	133
Pennington WSC	152	145	142	142	142	142	142
Pinehurst	151	143	141	141	141	140	140
Pineland	173	163	155	153	151	151	149
Pleasant Springs WSC	197	189	187	186	187	187	185
Pollok-Redtown WSC	103	98	98	98	98	98	97
Port Arthur	348	334	330	329	328	327	326
Port Neches	105	100	99	98	98	98	98
Rayburn Country MUD	306	287	266	256	255	255	254
Redland WSC	74	69	69	69	69	69	69
Rehobeth WSC	149	140	139	139	139	139	138
Rural WSC	93	88	88	88	88	88	88
Rusk	151	143	142	142	140	141	141
Rusk Rural WSC	92	85	82	81	81	81	81
San Augustine	320	309	306	305	305	304	304
San Augustine Rural WSC	165	151	134	128	127	127	126
Sand Hills WSC	154	137	112	101	101	100	100
Seneca WSC	154	146	143	143	144	144	145
Silsbee	119	111	106	104	104	104	103
Slocum WSC	107	102	101	101	101	101	101
Sour Lake	172	164	163	162	161	161	160
South Jasper County WSC	92	88	88	88	88	88	87
South Kirbyville Rural WSC	94	89	89	89	89	89	89
South Newton WSC	127	125	124	123	123	123	122
South Rusk County WSC	164	146	124	115	114	113	112
Southern Utilities	177	162	145	137	136	136	135
Swift WSC	152	144	143	143	142	142	142
Tatum	173	166	163	162	163	161	162
TDCJ Beto Gurney & Powledge Units	364	354	350	349	349	348	347
TDCJ Coffield Michael	543	528	523	522	521	520	519
TDCJ Eastham Unit	399	388	383	382	382	381	380

Table 5C-B-1: GPCD Goals of Region I WUGs

Water User Group	Base GPCD	GPCD Goals					
		2030	2040	2050	2060	2070	2080
Tenaha	278	248	205	184	183	182	185
The Consolidated WSC	155	149	146	146	146	145	145
Timpson	191	183	182	180	179	181	179
Troup	178	170	168	168	168	167	167
Tucker WSC	125	119	118	118	119	118	118
Tyler	266	254	246	243	242	241	240
Tyler County SUD	186	176	166	161	161	161	161
Upper Jasper County Water Authority	108	100	93	89	89	89	89
Virginia Hill WSC	111	104	103	103	103	102	103
Walnut Grove WSC	112	106	104	103	103	103	103
Walston Springs WSC	134	128	125	125	125	125	125
Warren WSC	122	116	115	114	114	114	114
Wells	144	139	138	138	138	138	138
West Hardin WSC	93	92	92	92	92	92	92
West Jacksonville WSC	132	117	96	86	86	86	86
West Jefferson County MWD	106	100	100	100	100	100	100
Whitehouse	126	119	118	117	117	117	117
Wildwood POA	174	166	163	163	163	163	164
Woden WSC	110	102	96	93	93	93	92
Woodlawn WSC	106	100	100	100	100	100	100
Woodville	192	183	182	181	180	181	181
Wright City WSC	135	127	124	124	124	123	124
Zavalla	137	131	131	131	130	130	131

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Appendix 6-A
TWDB Socioeconomic Impact Analysis
[Pending]

This appendix will be released by TWDB in August 2025.

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Appendix 8-A
Proposed Reservoir Site Locations

Chapter 8 of the 2026 Plan provides a description of proposed reservoirs in the ETRWPA. This appendix includes maps showing the locations of these proposed reservoirs.

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Figure 8-A.1: Proposed Reservoir Site Locations Northeast Area

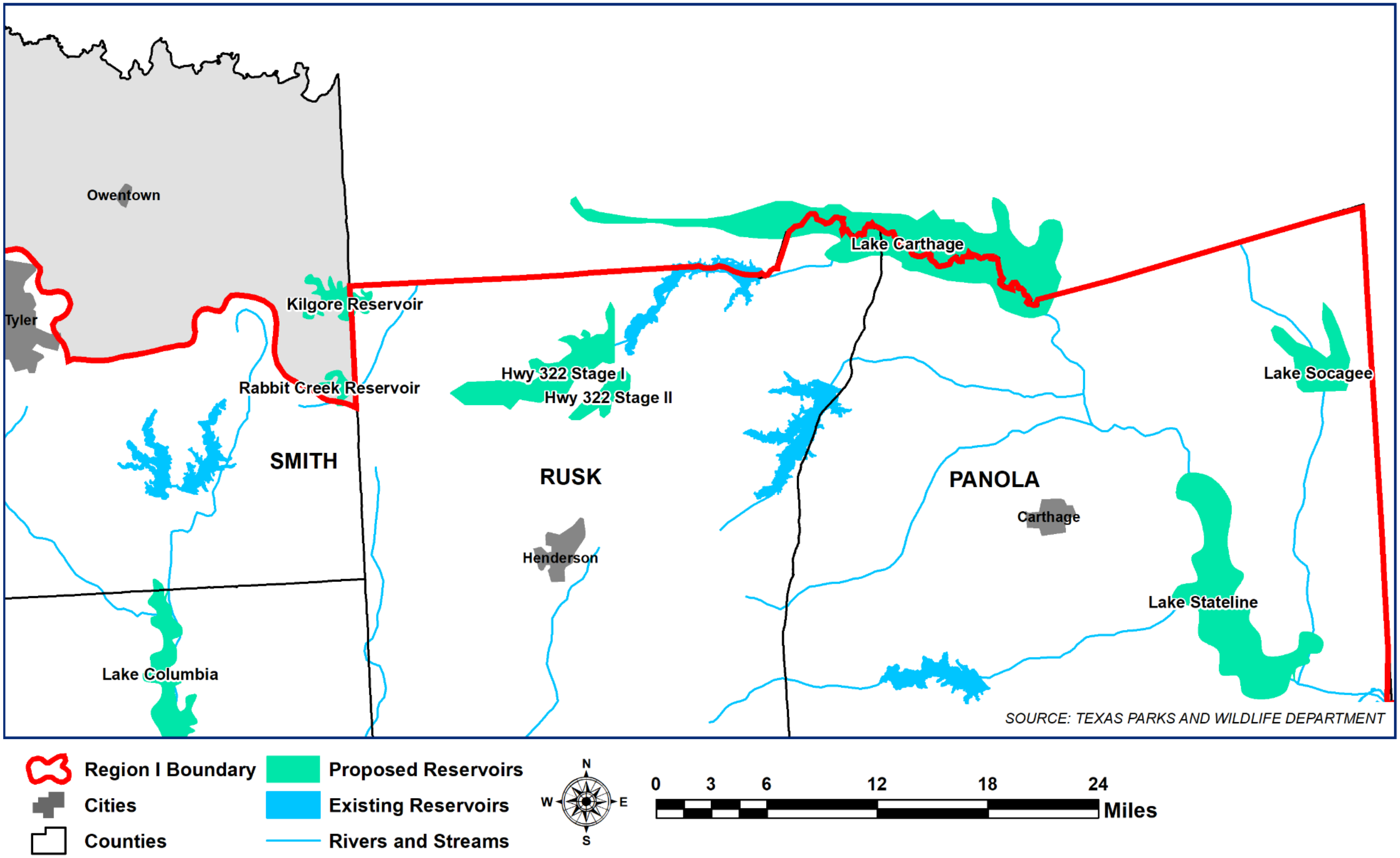


Figure 8-A.2: Proposed Reservoir Site Locations Northwest Area

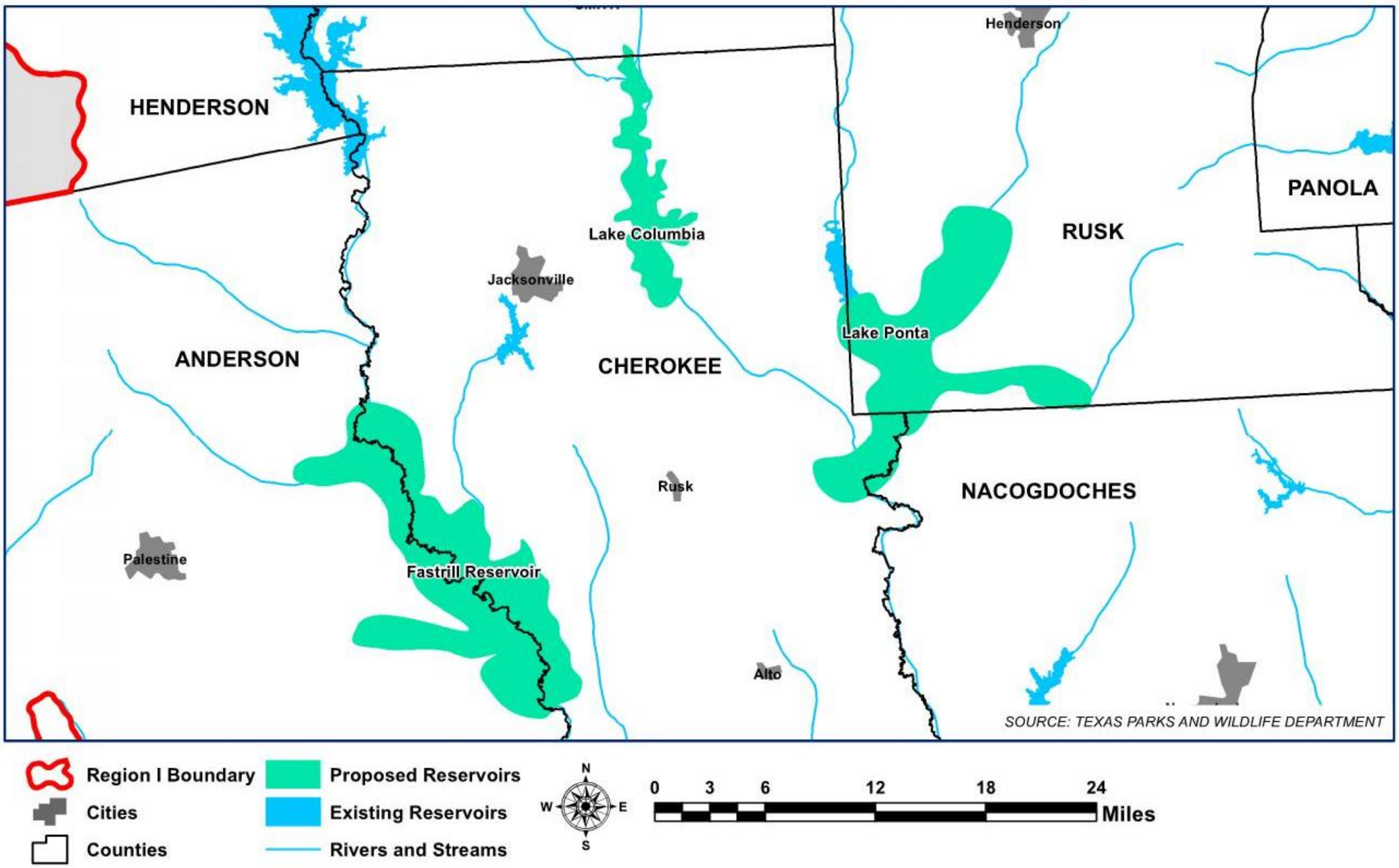


Figure 8-A.3: Proposed Reservoir Site Locations Rockland Reservoir

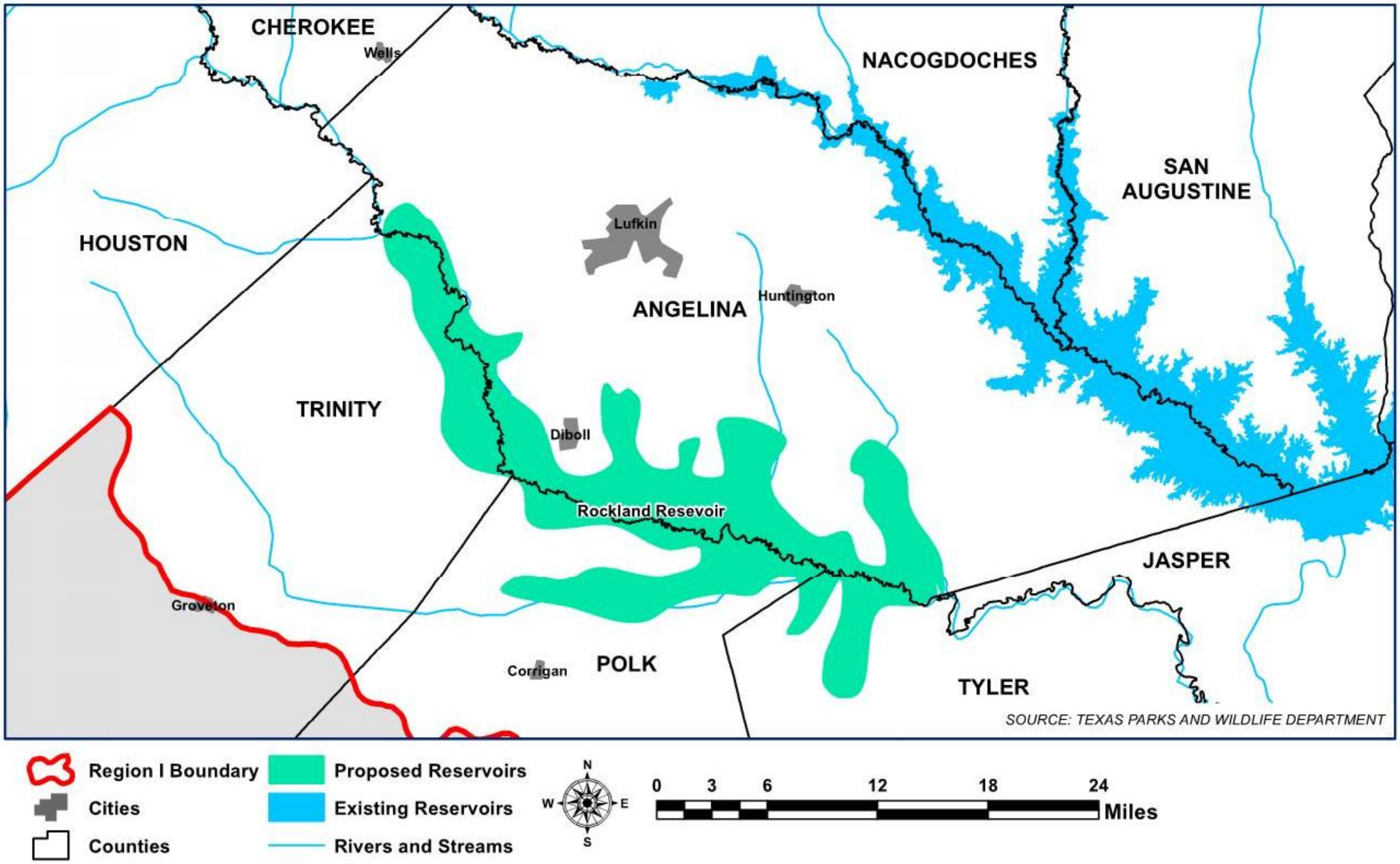
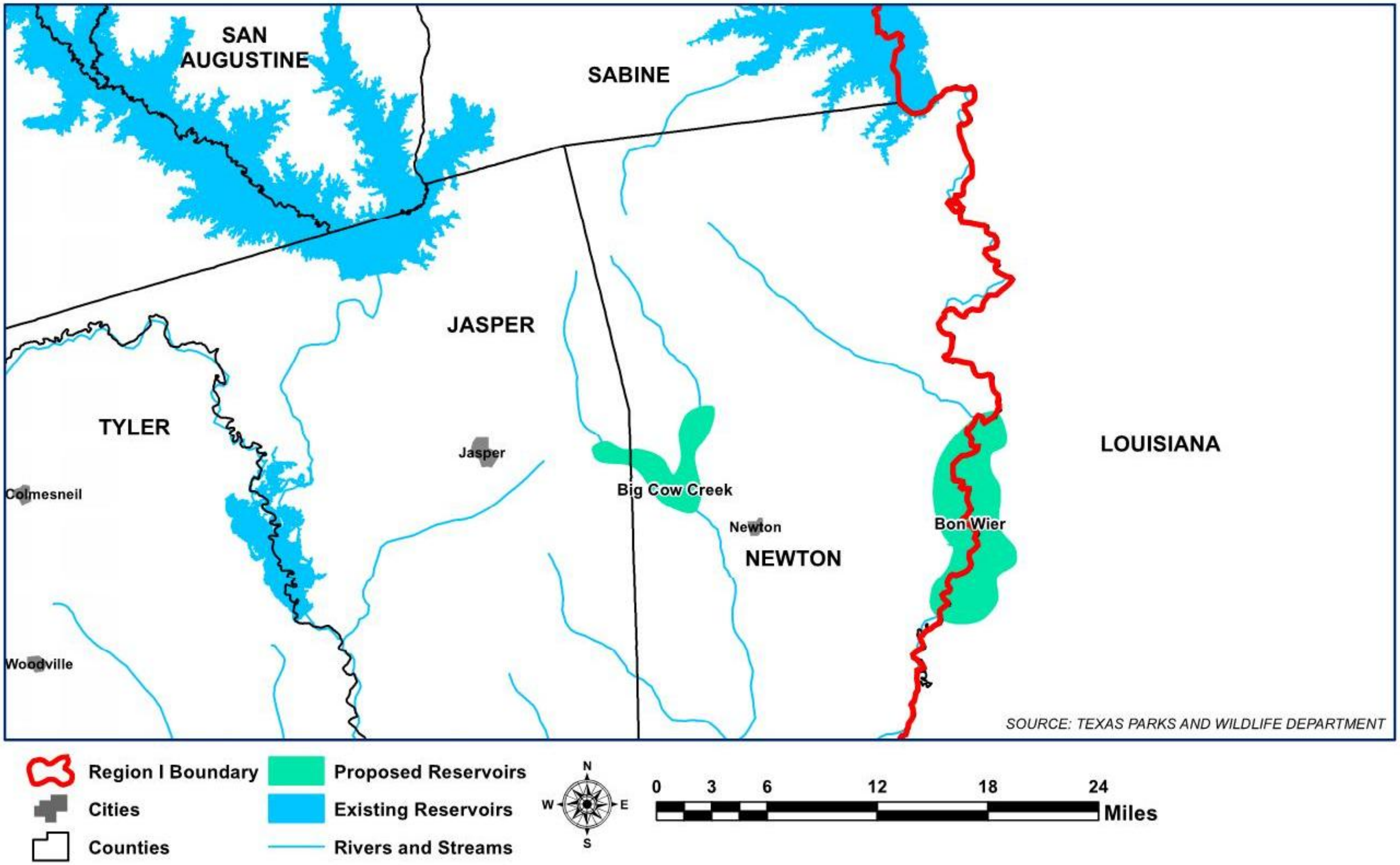


Figure 8-A.4: Proposed Reservoir Site Locations Eastern Area



Appendix 9-A

Water Management Strategy Implementation Survey

The Appendix provides a summary table of implementation status of the Water Management Strategies from the 2021 Regional Water Plan for Region I.

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Planning Region	WMS or WMS Project Name	Database Online Decade	Related Sponsor Entity and/or Benefitting WUGs	Implementation Survey Record Type	Database ID	Has the sponsor taken affirmative vote or actions? (TWC 16.053(h)(10))
I	Alto - Municipal Conservation	2020	WUG Reducing Demand: Alto	Recommended Demand Reduction Strategy Without WMS Project	28793	No
I	Alto Rural WSC - Municipal Conservation	2020	WUG Reducing Demand: Alto Rural WSC	Recommended Demand Reduction Strategy Without WMS Project	28798	No
I	ANCD-VOL-Volumetric Survey and Normal Pool Elevation Adjustment	2040	Project Sponsor(s): Angelina Nacogdoches WCID 1	Recommended WMS Project	2199	No
I	Angelina Manufacturing	2020	WMS Seller: Lufkin; WMS Supply Recipient: Manufacturing, Angelina	Recommended WMS Supply Without WMS Project	86900	Yes
I	ANGL-MIN-Purchase from Angelina Neches River Authority (Run of River, Angelina)	2030	Project Sponsor(s): Mining (Angelina)	Recommended WMS Project	2053	No
I	ANRA-COL-Lake Columbia	2030	Project Sponsor(s): Angelina and Neches River Authority	Recommended WMS Project	1696	Yes
I	ANRA-GW-ANRA Groundwater Wells	2030	Project Sponsor(s): Angelina and Neches River Authority	Recommended WMS Project	2051	No
I	ANRA-WTP-ANRA Treatment Plant and Distribution System	2030	Project Sponsor(s): Angelina and Neches River Authority	Recommended WMS Project	2136	No
I	Appleby WSC - Municipal Conservation	2020	WUG Reducing Demand: Appleby WSC	Recommended Demand Reduction Strategy Without WMS Project	28803	No
I	Arp - Municipal Conservation	2020	WUG Reducing Demand: Arp	Recommended Demand Reduction Strategy Without WMS Project	28808	Yes
I	Beaumont Contract Amendment	2060	WMS Seller: Lower Neches Valley Authority; WMS Supply Recipient: Beaumont	Recommended WMS Supply Without WMS Project	90251	Yes
I	Blackjack WSC - Municipal Conservation	2020	WUG Reducing Demand: Blackjack WSC	Recommended Demand Reduction Strategy Without WMS Project	28827	No
I	Brownsboro - Municipal Conservation	2020	WUG Reducing Demand: Brownsboro	Recommended Demand Reduction Strategy Without WMS Project	28832	No
I	Bullard - Municipal Conservation	2020	WUG Reducing Demand: Bullard	Recommended Demand Reduction Strategy Without WMS Project	28837	No

Planning Region	WMS or WMS Project Name	What is the status of the WMS project or WMS recommended in the 2022 SWP?	If the project has not been started or no longer is being pursued, please explain why by adding information in this column.	Please select one or more project impediments. If an impediment is not listed, select "Other" and provide information in Column K.	If you selected "Other" in Column J, please provide information about project impediments not shown in the impediment list provided.
I	Alto - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	Alto Rural WSC - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	ANCD-VOL-Volumetric Survey and Normal Pool Elevation Adjustment	Project/WMS not started	No need identified for sponsor until 2040 in the 2021 RWP. This is the same case as the 2026 RWP.	Other	No impediments
I	Angelina Manufacturing	Project/WMS completed		Other	No impediments
I	ANGL-MIN-Purchase from Angelina Neches River Authority (Run of River, Angelina)	Project/WMS not started	No need identified for sponsor until 2030 in the 2021 RWP. This is the same case as the 2026 RWP.	Other	No impediments
I	ANRA-COL-Lake Columbia	Project/WMS started	Currently seeking a 404 permit for construction as of October 2024	Other	No impediments
I	ANRA-GW-ANRA Groundwater Wells	Project/WMS no longer being pursued	No longer an active project that ANRA is pursuing.	Other	No impediments
I	ANRA-WTP-ANRA Treatment Plant and Distribution System	Project/WMS not started	Project is shifted by one decade.	Other	No impediments
I	Appleby WSC - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	Arp - Municipal Conservation	Project/WMS started		Other	Sponsor has prepared a 2024 WCP.
I	Beaumont Contract Amendment	Project/WMS started		Other	No impediments
I	Blackjack WSC - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	Brownsboro - Municipal Conservation	Project/WMS not started	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity
I	Bullard - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information

Planning Region	WMS or WMS Project Name	What funding type(s) are being used for the project? (Select all that apply)	Optional Comments
I	Alto - Municipal Conservation	Unknown	
I	Alto Rural WSC - Municipal Conservation	Unknown	
I	ANCD-VOL-Volumetric Survey and Normal Pool Elevation Adjustment	Unknown	
I	Angelina Manufacturing	Unknown; Private	City of Lufkin has been providing water to about 20% of the manufacturing demand in Angelina County. It is assumed that any unmet needs projected in the 2021 RWP have already been met through either contract amendment or increase groundwater pumping.
I	ANGL-MIN-Purchase from Angelina Neches River Authority (Run of River, Angelina)	Unknown	Groundwater is sufficient to meet the current mining demand in Angelina County.
I	ANRA-COL-Lake Columbia	Unknown; Private	Both ANRA and participating entities will share in the costs associated with the Lake Columbia construction.
I	ANRA-GW-ANRA Groundwater Wells	Unknown; Private	This project was included in the 2021 RWP for ANRA to supply water for non-municipal customers in Cherokee County. As of 2024, those customers have not requested water from ANRA yet. Project is on hold until they reach out with needs. Contract is already in place between some customers and ANRA.
I	ANRA-WTP-ANRA Treatment Plant and Distribution System	Unknown; Private	Both ANRA and participating entities will share in the costs associated with the project.
I	Appleby WSC - Municipal Conservation	Unknown	
I	Arp - Municipal Conservation	Unknown	Sponsor has a Water Conservation Plan summarizing various water conservation BMPs being implemented
I	Beaumont Contract Amendment	Unknown	Beaumont has an active contract with LNVA and can receive supplemental water supply from LNVA during drought conditions, if needed.
I	Blackjack WSC - Municipal Conservation	Unknown	
I	Brownsboro - Municipal Conservation	Unknown	
I	Bullard - Municipal Conservation	Unknown	

Planning Region	WMS or WMS Project Name	Database Online Decade	Related Sponsor Entity and/or Benefitting WUGs	Implementation Survey Record Type	Database ID	Has the sponsor taken affirmative vote or actions? (TWC 16.053(h)(10))
I	Carthage - Municipal Conservation	2020	WUG Reducing Demand: Carthage	Recommended Demand Reduction Strategy Without WMS Project	29573	Yes
I	CENT-REU-City of Center Reuse Pipeline from WWTP to Lake Center	2030	Project Sponsor(s): Center	Recommended WMS Project	2133	No
I	CENT-TOL-Pipeline from Toledo Bend to Lake Center	2040	Project Sponsor(s): Center	Recommended WMS Project	2134	No
I	Center - Municipal Conservation	2020	WUG Reducing Demand: Center	Recommended Demand Reduction Strategy Without WMS Project	29578	No
I	Chandler - Municipal Conservation	2020	WUG Reducing Demand: Chandler	Recommended Demand Reduction Strategy Without WMS Project	29583	No
I	CHER-ALT-New Wells in Carrizo-Wilcox Aquifer	2020	Project Sponsor(s): Alto Rural WSC	Recommended WMS Project	3926	No
I	CHER-MIN-Purchase from Angelina Neches River Authority (Angelina River)	2030	Project Sponsor(s): Angelina and Neches River Authority	Recommended WMS Project	2052	No
I	CHER-RUS New Wells in Carrizo-Wilcox Aquifer	2070	Project Sponsor(s): Rusk	Recommended WMS Project	3927	No
I	CHER-WCW-New Wells in Carrizo-Wilcox Aquifer	2050	Project Sponsor(s): Wright City WSC	Recommended WMS Project	3928	No
I	Chester WSC - Municipal Conservation	2020	WUG Reducing Demand: Chester WSC	Recommended Demand Reduction Strategy Without WMS Project	29588	No
I	Colmesneil - Municipal Conservation	2020	WUG Reducing Demand: Colmesneil	Recommended Demand Reduction Strategy Without WMS Project	29595	No
I	Conservation - Bethel-Ash WSC	2020	WUG Reducing Demand: Bethel Ash WSC	Recommended Demand Reduction Strategy Without WMS Project	3835	No
I	Conservation - Henderson County	2020	WUG Reducing Demand: County-Other, Henderson	Recommended Demand Reduction Strategy Without WMS Project	4459	No
I	County-Other, Houston - Municipal Conservation	2020	WUG Reducing Demand: County-Other, Houston	Recommended Demand Reduction Strategy Without WMS Project	29600	No

Planning Region	WMS or WMS Project Name	What is the status of the WMS project or WMS recommended in the 2022 SWP?	If the project has not been started or no longer is being pursued, please explain why by adding information in this column.	Please select one or more project impediments. If an impediment is not listed, select "Other" and provide information in Column K.	If you selected "Other" in Column J, please provide information about project impediments not shown in the impediment list provided.
I	Carthage - Municipal Conservation	Project/WMS started		Other	No impediments
I	CENT-REU-City of Center Reuse Pipeline from WWTP to Lake Center	Project/WMS no longer being pursued	No longer an active project.	Other	No impediments
I	CENT-TOL-Pipeline from Toledo Bend to Lake Center	Project/WMS no longer being pursued	No longer an active project.	Other	No impediments
I	Center - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	Chandler - Municipal Conservation	Project/WMS not started	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity
I	CHER-ALT-New Wells in Carrizo-Wilcox Aquifer	Project/WMS not started	Project sponser has not confirmed this project.	Other	unknown due to lack of information
I	CHER-MIN-Purchase from Angelina Neches River Authority (Angelina River)	Project/WMS not started	The mining customers in Cherokee County do not have a projected need.	Shift in timeline; Other; Economic feasibility/financing; Project sponsor not identified	No impediments
I	CHER-RUS New Wells in Carrizo-Wilcox Aquifer	Project/WMS not started	No need identified for sponsor until 2070 in the 2021 RWP. This entity no longer has a projected need.	Other	No impediments
I	CHER-WCW-New Wells in Carrizo-Wilcox Aquifer	Project/WMS not started	No need identified for sponsor until 2050 in the 2021 RWP. This entity no longer has a projected need.	Other	No impediments
I	Chester WSC - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	Colmesneil - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	Conservation - Bethel-Ash WSC	Project/WMS not started	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity
I	Conservation - Henderson County	Project/WMS not started	No specific sponsor to confirm whether project(s) have started or not. However, individual County-Other water systems may be implementing conservation BMPs	Other	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity
I	County-Other, Houston - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information

Planning Region	WMS or WMS Project Name	What funding type(s) are being used for the project? (Select all that apply)	Optional Comments
I	Carthage - Municipal Conservation	Unknown	
I	CENT-REU-City of Center Reuse Pipeline from WWTP to Lake Center	Unknown	City of Center no longer pursued this project and has identified a revised project, which is to provide treated wastewater to an industrial customer to offset its potable demand.
I	CENT-TOL-Pipeline from Toledo Bend to Lake Center	Unknown	No longer an active project. It is now an alternate project.
I	Center - Municipal Conservation	Unknown	
I	Chandler - Municipal Conservation	Unknown	
I	CHER-ALT-New Wells in Carrizo-Wilcox Aquifer	Unknown	Region I RWPG has contacted this entities multiple times and has not heard back.
I	CHER-MIN-Purchase from Angelina Neches River Authority (Angelina River)	Unknown	This entity no longer shows a need. Impediment column should show "other", but it does not allow us to edit it.
I	CHER-RUS New Wells in Carrizo-Wilcox Aquifer	Unknown	This entity no longer shows a need
I	CHER-WCW-New Wells in Carrizo-Wilcox Aquifer	Unknown	This entity no longer shows a need
I	Chester WSC - Municipal Conservation	Unknown	
I	Colmesneil - Municipal Conservation	Unknown	
I	Conservation - Bethel-Ash WSC	Unknown	
I	Conservation - Henderson County	Unknown	
I	County-Other, Houston - Municipal Conservation	Unknown	

Planning Region	WMS or WMS Project Name	Database Online Decade	Related Sponsor Entity and/or Benefitting WUGs	Implementation Survey Record Type	Database ID	Has the sponsor taken affirmative vote or actions? (TWC 16.053(h)(10))
I	County-Other, Jefferson - Municipal Conservation	2020	WUG Reducing Demand: County-Other, Jefferson	Recommended Demand Reduction Strategy Without WMS Project	29613	No
I	Crockett - Municipal Conservation	2020	WUG Reducing Demand: Crockett	Recommended Demand Reduction Strategy Without WMS Project	29620	No
I	Cypress Creek WSC - Municipal Conservation	2020	WUG Reducing Demand: Cypress Creek WSC	Recommended Demand Reduction Strategy Without WMS Project	29637	No
I	Dean WSC - Municipal Conservation	2020	WUG Reducing Demand: Dean WSC	Recommended Demand Reduction Strategy Without WMS Project	29642	No
I	Elkhart - Municipal Conservation	2020	WUG Reducing Demand: Elkhart	Recommended Demand Reduction Strategy Without WMS Project	28781	No
I	Frankston - Municipal Conservation	2020	WUG Reducing Demand: Frankston	Recommended Demand Reduction Strategy Without WMS Project	28786	Yes
I	Garrison - Municipal Conservation	2020	WUG Reducing Demand: Garrison	Recommended Demand Reduction Strategy Without WMS Project	29647	No
I	HDSN-ATN-Advanced Conservation	2020	Project Sponsor(s): Athens	Recommended WMS Project	4410	Yes
I	HDSN-CHN-New Wells in Carrizo-Wilcox Aquifer	2070	Project Sponsor(s): Chandler	Recommended WMS Project	3932	No
I	HDSN-MIN-New Wells in Carrizo-Wilcox Aquifer	2030	Project Sponsor(s): Mining (Henderson)	Recommended WMS Project	3931	No
I	HDSN-MSW-New Wells in Carrizo-Wilcox Aquifer	2060	Project Sponsor(s): Moore Station WSC	Recommended WMS Project	3930	No
I	Hemphill - Municipal Conservation	2020	WUG Reducing Demand: Hemphill	Recommended Demand Reduction Strategy Without WMS Project	29652	No
I	HOUS-LTK-New Wells in Yegua-Jackson	2070	Project Sponsor(s): Livestock (Houston)	Recommended WMS Project	1916	No
I	JACK-COL-Supply from Lake Columbia	2030	Project Sponsor(s): Jacksonville	Recommended WMS Project	2099	No

Planning Region	WMS or WMS Project Name	What is the status of the WMS project or WMS recommended in the 2022 SWP?	If the project has not been started or no longer is being pursued, please explain why by adding information in this column.	Please select one or more project impediments. If an impediment is not listed, select "Other" and provide information in Column K.	If you selected "Other" in Column J, please provide information about project impediments not shown in the impediment list provided.
I	County-Other, Jefferson - Municipal Conservation	Project/WMS not started	No specific sponsor to confirm whether project(s) have started or not. However, individual County-Other water systems may be implementing conservation BMPs	Other	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity
I	Crockett - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	Cypress Creek WSC - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	Dean WSC - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	Elkhart - Municipal Conservation	Project/WMS not started	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity
I	Frankston - Municipal Conservation	Project/WMS started		Other	No impediments
I	Garrison - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	HDSN-ATN-Advanced Conservation	Project/WMS started		Other	No impediments
I	HDSN-CHN-New Wells in Carrizo-Wilcox Aquifer	Project/WMS not started	No need identified for sponsor until 2070 in the 2021 RWP. This is the same case as the 2026 RWP	Shift in timeline	
I	HDSN-MIN-New Wells in Carrizo-Wilcox Aquifer	Project/WMS not started	No specific sponsor to confirm whether project has started or not.	Project sponsor not identified	
I	HDSN-MSW-New Wells in Carrizo-Wilcox Aquifer	Project/WMS not started	No need identified for sponsor until 2060 in the 2021 RWP. No need identified for sponsor in 2026 RWP	Shift in timeline	
I	Hemphill - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	HOUS-LTK-New Wells in Yegua-Jackson	Project/WMS not started	No need identified for sponsor until 2070 in the 2021 RWP. This is the same case as the 2026 RWP	Other; Project sponsor not identified	No impediments
I	JACK-COL-Supply from Lake Columbia	Project/WMS not started	No need identified for City of Jacksonville. They decided to shift the project timeline.	Shift in timeline	No impediments

Planning Region	WMS or WMS Project Name	What funding type(s) are being used for the project? (Select all that apply)	Optional Comments
I	County-Other, Jefferson - Municipal Conservation	Unknown	
I	Crockett - Municipal Conservation	Unknown	
I	Cypress Creek WSC - Municipal Conservation	Unknown	
I	Dean WSC - Municipal Conservation	Unknown	
I	Elkhart - Municipal Conservation	Unknown	
I	Frankston - Municipal Conservation	Unknown	Sponsor has a Water Conservation Plan summarizing various water conservation BMPs being implemented
I	Garrison - Municipal Conservation	Unknown	
I	HDSN-ATN-Advanced Conservation	Unknown	Sponsor has a Water Conservation Plan summarizing various water conservation BMPs being implemented
I	HDSN-CHN-New Wells in Carrizo-Wilcox Aquifer	Unknown	
I	HDSN-MIN-New Wells in Carrizo-Wilcox Aquifer	Unknown	
I	HDSN-MSW-New Wells in Carrizo-Wilcox Aquifer	Unknown	
I	Hemphill - Municipal Conservation	Unknown	
I	HOUS-LTK-New Wells in Yegua-Jackson	Unknown	No specific sponsors identified for projects
I	JACK-COL-Supply from Lake Columbia	Unknown	No projected needs. Project will be shifted by one decade.

Planning Region	WMS or WMS Project Name	Database Online Decade	Related Sponsor Entity and/or Benefitting WUGs	Implementation Survey Record Type	Database ID	Has the sponsor taken affirmative vote or actions? (TWC 16.053(h)(10))
I	Jacksonville - Municipal Conservation	2020	WUG Reducing Demand: Jacksonville	Recommended Demand Reduction Strategy Without WMS Project	29664	No
I	JASP-LTK-Purchase from Lower Neches Valley Authority (Sam Rayburn)	2020	WMS Seller: Lower Neches Valley Authority; WMS Supply Recipient: Livestock, Jasper	Recommended WMS Supply Without WMS Project	98681	Yes
I	JEFF-BEA-Advanced Conservation	2020	Project Sponsor(s): Beaumont	Recommended WMS Project	4411	Yes
I	JEFF-CTR-Purchase from Lower Neches Valley Authority (Sam Rayburn)	2060	Project Sponsor(s): Municipal county-other (Jefferson)	Recommended WMS Project	1931	No
I	JEFF-MFG-Purchase from Lower Neches Valley Authority (Sam Rayburn)	2030	Project Sponsor(s): Manufacturing (Jefferson)	Recommended WMS Project	1932	Yes
I	JEFF-SEP-Purchase from Lower Neches Valley Authority (Sam Rayburn)	2030	Project Sponsor(s): Steam-electric power (Jefferson)	Recommended WMS Project	1933	No
I	Kirbyville - Municipal Conservation	2020	WUG Reducing Demand: Kirbyville	Recommended Demand Reduction Strategy Without WMS Project	29681	No
I	LNVA-SRA-Purchase from Sabine River Authority (Toledo Bend)	2040	Project Sponsor(s): Lower Neches Valley Authority	Recommended WMS Project	1943	Yes
I	LNVA-WRR-Beaumont West Regional Reservoir	2020	Project Sponsor(s): Lower Neches Valley Authority	Recommended WMS Project	2009	Yes
I	Lovelady - Municipal Conservation	2020	WUG Reducing Demand: Lovelady	Recommended Demand Reduction Strategy Without WMS Project	29693	No
I	LUFK-RAY-Conveyance from Sam Rayburn to Kurth Lake - Phase 1	2030	Project Sponsor(s): Lufkin	Recommended WMS Project	2010	No
I	LUFK-RAY-Conveyance from Sam Rayburn to Kurth Lake - Phase 2	2040	Project Sponsor(s): Lufkin	Recommended WMS Project	2011	No
I	LUFK-RAY-Conveyance from Sam Rayburn to Kurth Lake - Phase 3	2050	Project Sponsor(s): Lufkin	Recommended WMS Project	2012	No
I	Lufkin - Municipal Conservation	2020	WUG Reducing Demand: Lufkin	Recommended Demand Reduction Strategy Without WMS Project	29698	No
I	Mt Enterprise WSC - Municipal Conservation	2020	WUG Reducing Demand: Mt Enterprise WSC	Recommended Demand Reduction Strategy Without WMS Project	29703	No

Planning Region	WMS or WMS Project Name	What is the status of the WMS project or WMS recommended in the 2022 SWP?	If the project has not been started or no longer is being pursued, please explain why by adding information in this column.	Please select one or more project impediments. If an impediment is not listed, select "Other" and provide information in Column K.	If you selected "Other" in Column J, please provide information about project impediments not shown in the impediment list provided.
I	Jacksonville - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	JASP-LTK-Purchase from Lower Neches Valley Authority (Sam Rayburn)	Project/WMS started		Other	No impediments
I	JEFF-BEA-Advanced Conservation	Project/WMS started		Other	No impediments
I	JEFF-CTR-Purchase from Lower Neches Valley Authority (Sam Rayburn)	Project/WMS not started	No need identified for sponsor until 2060 in the 2021 RWP. No need identified for sponsor in 2026 RWP. No specific sponsor to confirm whether project has started or not.	Project sponsor not identified	
I	JEFF-MFG-Purchase from Lower Neches Valley Authority (Sam Rayburn)	Project/WMS started		Other	No impediments
I	JEFF-SEP-Purchase from Lower Neches Valley Authority (Sam Rayburn)	Project/WMS no longer being pursued	2021 RWP demand was associated with a facility (Port Arthur Steam Energy) that was retired in 2018 according to TWDB supporting data for steam electric power facilities (2021)		
I	Kirbyville - Municipal Conservation	Project/WMS not started	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity
I	LNVA-SRA-Purchase from Sabine River Authority (Toledo Bend)	Project/WMS not started	Project is still being pursued and sponsor(s) have taken affirmative actions. The online date is being shifted to a later decade (2050) in the 2026 RWP.	Shift in timeline	
I	LNVA-WRR-Beaumont West Regional Reservoir	Project/WMS started		Other	No impediments
I	Lovelady - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	LUFK-RAY-Conveyance from Sam Rayburn to Kurth Lake - Phase 1	Project/WMS not started	No need identified for this entity. They decided to shift the project timeline.	Shift in timeline	No impediments
I	LUFK-RAY-Conveyance from Sam Rayburn to Kurth Lake - Phase 2	Project/WMS not started	No need identified for this entity. They decided to shift the project timeline.	Shift in timeline	No impediments
I	LUFK-RAY-Conveyance from Sam Rayburn to Kurth Lake - Phase 3	Project/WMS not started	No need identified for this entity. They decided to shift the project timeline.	Shift in timeline	No impediments
I	Lufkin - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	Mt Enterprise WSC - Municipal Conservation	Project/WMS not started	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity

Planning Region	WMS or WMS Project Name	What funding type(s) are being used for the project? (Select all that apply)	Optional Comments
I	Jacksonville - Municipal Conservation	Unknown	
I	JASP-LTK-Purchase from Lower Neches Valley Authority (Sam Rayburn)	Private	No specific sponsors identified for projects; however, livestock water users in Jasper County have contracts with LNVA.
I	JEFF-BEA-Advanced Conservation	Unknown	Sponsor has a Water Conservation Plan summarizing various water conservation BMPs being implemented
I	JEFF-CTR-Purchase from Lower Neches Valley Authority (Sam Rayburn)	Unknown	
I	JEFF-MFG-Purchase from Lower Neches Valley Authority (Sam Rayburn)	Private	No specific sponsors identified for projects; however, manufacturing water users in Jefferson County have contracts with LNVA.
I	JEFF-SEP-Purchase from Lower Neches Valley Authority (Sam Rayburn)	Private	
I	Kirbyville - Municipal Conservation	Unknown	
I	LNVA-SRA-Purchase from Sabine River Authority (Toledo Bend)	Unknown	
I	LNVA-WRR-Beaumont West Regional Reservoir	Unknown	
I	Lovelady - Municipal Conservation	Unknown	
I	LUFK-RAY-Conveyance from Sam Rayburn to Kurth Lake - Phase 1	Unknown	No projected needs. Project will be shifted by one decade.
I	LUFK-RAY-Conveyance from Sam Rayburn to Kurth Lake - Phase 2	Unknown	No projected needs. Project will be shifted by one decade.
I	LUFK-RAY-Conveyance from Sam Rayburn to Kurth Lake - Phase 3	Unknown	No projected needs. Project will be shifted by one decade.
I	Lufkin - Municipal Conservation	Unknown	
I	Mt Enterprise WSC - Municipal Conservation	Unknown	

Planning Region	WMS or WMS Project Name	Database Online Decade	Related Sponsor Entity and/or Benefitting WUGs	Implementation Survey Record Type	Database ID	Has the sponsor taken affirmative vote or actions? (TWC 16.053(h)(10))
I	NACN-LK - Lake Naconiche Infrastructure	2030	Project Sponsor(s): Municipal county-other (Nacogdoches)	Recommended WMS Project	2125	Yes
I	NACP-COL-Lake Columbia to Nacogdoches Raw Water Transmission System	2040	Project Sponsor(s): Nacogdoches	Recommended WMS Project	2101	No
I	NACW-DMW-New Wells in Carrizo-Wilcox Aquifer	2040	Project Sponsor(s): D and M WSC	Recommended WMS Project	2088	No
I	NACW-LTK-New Wells in Carrizo-Wilcox Aquifer	2030	Project Sponsor(s): Livestock (Nacogdoches)	Recommended WMS Project	2084	No
I	NACW-MIN-Purchase from Angelina Neches River Authority (Angelina River)	2030	Project Sponsor(s): Mining (Nacogdoches)	Recommended WMS Project	2054	No
I	New London - Municipal Conservation	2020	WUG Reducing Demand: New London	Recommended Demand Reduction Strategy Without WMS Project	29713	Yes
I	Newton - Municipal Conservation	2020	WUG Reducing Demand: Newton	Recommended Demand Reduction Strategy Without WMS Project	29720	No
I	Newton Mining - Transfer from SRA	2020	WMS Seller: Sabine River Authority; WMS Supply Recipient: Mining, Newton	Recommended WMS Supply Without WMS Project	90231	No
I	Norwood WSC - Municipal Conservation	2020	WUG Reducing Demand: Norwood WSC	Recommended Demand Reduction Strategy Without WMS Project	29725	No
I	ORAN-IRR-Purchase from Sabine River Authority (Sabine River)	2030	Project Sponsor(s): Irrigation (Orange)	Recommended WMS Project	3965	Yes
I	Overton - Municipal Conservation	2020	WUG Reducing Demand: Overton	Recommended Demand Reduction Strategy Without WMS Project	29732	No
I	Palestine - Municipal Conservation	2020	WUG Reducing Demand: Palestine	Recommended Demand Reduction Strategy Without WMS Project	29743	Yes
I	PANL-LTK-New Wells in Carrizo-Wilcox Aquifer	2030	Project Sponsor(s): Livestock (Panola)	Recommended WMS Project	3945	No
I	Pleasant Springs WSC - Municipal Conservation	2020	WUG Reducing Demand: Pleasant Springs WSC	Recommended Demand Reduction Strategy Without WMS Project	29759	No
I	PORT-CONS-City of Port Arthur - Advanced Conservation	2020	Project Sponsor(s): Port Arthur	Recommended WMS Project	3959	Yes
I	Rusk - Municipal Conservation	2020	WUG Reducing Demand: Rusk	Recommended Demand Reduction Strategy Without WMS Project	29773	No

Planning Region	WMS or WMS Project Name	What is the status of the WMS project or WMS recommended in the 2022 SWP?	If the project has not been started or no longer is being pursued, please explain why by adding information in this column.	Please select one or more project impediments. If an impediment is not listed, select "Other" and provide information in Column K.	If you selected "Other" in Column J, please provide information about project impediments not shown in the impediment list provided.
I	NACN-LK - Lake Naconiche Infrastructure	Project/WMS not started	Project is still being pursued and sponsor(s) have taken affirmative actions. The online date is being shifted to a later decade (2050) in the 2026 RWP.	Shift in timeline	
I	NACP-COL-Lake Columbia to Nacogdoches Raw Water Transmission System	Project/WMS not started	No projected needs and therefore has not taken action on this project yet.	Other	No impediments
I	NACW-DMW-New Wells in Carrizo-Wilcox Aquifer	Project/WMS not started	No need identified for sponsor until 2040 in the 2021 RWP. This is the same case as the 2026 RWP.	Other; Project sponsor not identified	No impediments
I	NACW-LTK-New Wells in Carrizo-Wilcox Aquifer	Project/WMS not started	No specific sponsor to confirm whether project has started or not.	Project sponsor not identified	
I	NACW-MIN-Purchase from Angelina Neches River Authority (Angelina River)	Project/WMS not started	No specific sponsor to confirm whether project has started or not.	Project sponsor not identified	
I	New London - Municipal Conservation	Project/WMS started		Other	No impediments
I	Newton - Municipal Conservation	Project/WMS not started	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity
I	Newton Mining - Transfer from SRA	Project/WMS not started	No specific sponsor to confirm whether project has started or not.	Project sponsor not identified	
I	Norwood WSC - Municipal Conservation	Project/WMS not started	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity
I	ORAN-IRR-Purchase from Sabine River Authority (Sabine River)	Project/WMS started		Other	No impediments
I	Overton - Municipal Conservation	Project/WMS not started	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity
I	Palestine - Municipal Conservation	Project/WMS started		Other	No impediments
I	PANL-LTK-New Wells in Carrizo-Wilcox Aquifer	Project/WMS not started	No specific sponsor to confirm whether project has started or not.	Project sponsor not identified	
I	Pleasant Springs WSC - Municipal Conservation	Project/WMS not started	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity
I	PORT-CONS-City of Port Arthur - Advanced Conservation	Project/WMS started		Other	No impediments
I	Rusk - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information

Planning Region	WMS or WMS Project Name	What funding type(s) are being used for the project? (Select all that apply)	Optional Comments
I	NACN-LK - Lake Naconiche Infrastructure	Unknown	
I	NACP-COL-Lake Columbia to Nacogdoches Raw Water Transmission System	Unknown	No projected needs.
I	NACW-DMW-New Wells in Carrizo-Wilcox Aquifer	Unknown	No projected needs until 2040, no action has taken yet. Impediment should be "other", but changes are not enable.
I	NACW-LTK-New Wells in Carrizo-Wilcox Aquifer	Unknown	No specific sponsors identified for projects; however, current supplies are sufficient to meet projected demand.
I	NACW-MIN-Purchase from Angelina Neches River Authority (Angelina River)	Unknown	No specific sponsors identified for projects; however, current supplies are sufficient to meet projected demand.
I	New London - Municipal Conservation	Unknown	Sponsor has a Water Conservation Plan summarizing various water conservation BMPs being implemented
I	Newton - Municipal Conservation	Unknown	
I	Newton Mining - Transfer from SRA	Unknown	
I	Norwood WSC - Municipal Conservation	Unknown	
I	ORAN-IRR-Purchase from Sabine River Authority (Sabine River)	Private	No specific sponsors identified for projects; however, irrigation water users in Orange County have contracts with SRA.
I	Overton - Municipal Conservation	Unknown	
I	Palestine - Municipal Conservation	Unknown	Sponsor has a Water Conservation Plan summarizing various water conservation BMPs being implemented
I	PANL-LTK-New Wells in Carrizo-Wilcox Aquifer	Unknown	
I	Pleasant Springs WSC - Municipal Conservation	Unknown	
I	PORT-CONS-City of Port Arthur - Advanced Conservation	Unknown	Sponsor has a Water Conservation Plan summarizing various water conservation BMPs being implemented
I	Rusk - Municipal Conservation	Unknown	

Planning Region	WMS or WMS Project Name	Database Online Decade	Related Sponsor Entity and/or Benefitting WUGs	Implementation Survey Record Type	Database ID	Has the sponsor taken affirmative vote or actions? (TWC 16.053(h)(10))
I	RUSK-JAW-New Wells in Carrizo-Wilcox Aquifer	2070	Project Sponsor(s): Jacobs WSC	Recommended WMS Project	3946	No
I	RUSK-LTK-New Wells in Carrizo-Wilcox Aquifer	2040	Project Sponsor(s): Livestock (Rusk)	Recommended WMS Project	3947	No
I	RUSK-MIN-Purchase from Angelina Neches River Authority (Angelina River)	2020	Project Sponsor(s): Mining (Rusk)	Recommended WMS Project	2056	No
I	RUSK-SEP-Purchase from Sabine River Authority (Toledo Bend)	2030	Project Sponsor(s): Steam-electric power (Rusk)	Recommended WMS Project	1936	No
I	Sand Hills WSC - Municipal Conservation	2020	WUG Reducing Demand: Sand Hills WSC	Recommended Demand Reduction Strategy Without WMS Project	29783	No
I	SAUG-LTK-Purchase from SRA (Toledo Bend)	2030	Project Sponsor(s): Livestock (San Augustine)	Recommended WMS Project	3964	No
I	SAUG-MIN-Purchase from Angelina Neches River Authority	2030	Project Sponsor(s): Mining (San Augustine)	Recommended WMS Project	2055	No
I	SAUG-SAG-New Wells in Carrizo-Wilcox Aquifer	2030	Project Sponsor(s): San Augustine	Recommended WMS Project	3958	No
I	SHEL-LTK-Purchase from Sabine River Authority (Toledo Bend)	2020	Project Sponsor(s): Livestock (Shelby)	Recommended WMS Project	2050	No
I	SHEL-SHW-Purchase from Center	2020	Project Sponsor(s): Sand Hills WSC	Recommended WMS Project	3962	Yes
I	SMTH-BLD-Purchase from City of Tyler	2030	Project Sponsor(s): Bullard	Recommended WMS Project	2046	No
I	SMTH-CYS-New Wells in Carrizo-Wilcox Aquifer	2020	Project Sponsor(s): Crystal Systems Texas	Recommended WMS Project	2045	No
I	SMTH-LDL-Infrastructure	2020	Project Sponsor(s): Lindale	Recommended WMS Project	2047	No
I	SMTH-MFG-Purchase from City of Tyler	2020	Project Sponsor(s): Manufacturing (Smith)	Recommended WMS Project	2048	No
I	SMTH-OVN-New Wells in Carrizo-Wilcox Aquifer	2030	Project Sponsor(s): Overton	Recommended WMS Project	3948	No
I	SMTH-WTH-Purchase from City of Tyler (Lake Palestine/Lake Tyler/Carrizo-Wilcox)	2060	Project Sponsor(s): Whitehouse	Recommended WMS Project	3961	No
I	Tatum - Municipal Conservation	2020	WUG Reducing Demand: Tatum	Recommended Demand Reduction Strategy Without WMS Project	29843	No
I	TDCJ Beto Gurney & Powledge Units - Municipal Conservation	2020	WUG Reducing Demand: TDCJ Beto Gurney & Powledge Units	Recommended Demand Reduction Strategy Without WMS Project	29790	No
I	TDCJ Coffield Michael - Municipal Conservation	2020	WUG Reducing Demand: TDCJ Coffield Michael	Recommended Demand Reduction Strategy Without WMS Project	29795	No

Planning Region	WMS or WMS Project Name	What is the status of the WMS project or WMS recommended in the 2022 SWP?	If the project has not been started or no longer is being pursued, please explain why by adding information in this column.	Please select one or more project impediments. If an impediment is not listed, select "Other" and provide information in Column K.	If you selected "Other" in Column J, please provide information about project impediments not shown in the impediment list provided.
I	RUSK-JAW-New Wells in Carrizo-Wilcox Aquifer	Project/WMS not started	No need identified for sponsor until 2070 in the 2021 RWP. No need identified for sponsor in 2026 RWP	Shift in timeline	
I	RUSK-LTK-New Wells in Carrizo-Wilcox Aquifer	Project/WMS not started	No specific sponsor to confirm whether project has started or not.	Project sponsor not identified	
I	RUSK-MIN-Purchase from Angelina Neches River Authority (Angelina River)	Project/WMS not started	No specific sponsor to confirm whether project has started or not.	Project sponsor not identified	
I	RUSK-SEP-Purchase from Sabine River Authority (Toledo Bend)	Project/WMS not started	No specific sponsor to confirm whether project has started or not.	Project sponsor not identified	
I	Sand Hills WSC - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	SAUG-LTK-Purchase from SRA (Toledo Bend)	Project/WMS not started	No specific sponsor to confirm whether project has started or not.	Project sponsor not identified	
I	SAUG-MIN-Purchase from Angelina Neches River Authority	Project/WMS not started	No specific sponsor to confirm whether project has started or not.	Project sponsor not identified	
I	SAUG-SAG-New Wells in Carrizo-Wilcox Aquifer	Project/WMS not started	No need identified for sponsor in 2026 RWP	Shift in timeline	
I	SHEL-LTK-Purchase from Sabine River Authority (Toledo Bend)	Project/WMS not started	No specific sponsor to confirm whether project has started or not.	Project sponsor not identified	
I	SHEL-SHW-Purchase from Center	Project/WMS completed		Other	No impediments
I	SMTH-BLD-Purchase from City of Tyler	Project/WMS not started	No longer shows projected need	Other	No impediments
I	SMTH-CYS-New Wells in Carrizo-Wilcox Aquifer	Project/WMS not started	No longer shows projected need	Other	No impediments
I	SMTH-LDL-Infrastructure	Project/WMS not started	No longer shows projected need	Other	No impediments
I	SMTH-MFG-Purchase from City of Tyler	Project/WMS not started		Project sponsor not identified	
I	SMTH-OVN-New Wells in Carrizo-Wilcox Aquifer	Project/WMS not started	No longer shows projected need	Other; Project sponsor not identified	No impediments
I	SMTH-WTH-Purchase from City of Tyler (Lake Palestine/Lake Tyler/Carrizo-Wilcox)	Project/WMS not started	No longer shows projected need	Other; Project sponsor not identified	No impediments
I	Tatum - Municipal Conservation	Project/WMS not started	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity
I	TDCJ Beto Gurney & Powledge Units - Municipal Conservation	Project/WMS not started	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity
I	TDCJ Coffield Michael - Municipal Conservation	Project/WMS not started	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity

Planning Region	WMS or WMS Project Name	What funding type(s) are being used for the project? (Select all that apply)	Optional Comments
I	RUSK-JAW-New Wells in Carrizo-Wilcox Aquifer	Unknown	
I	RUSK-LTK-New Wells in Carrizo-Wilcox Aquifer	Unknown	
I	RUSK-MIN-Purchase from Angelina Neches River Authority (Angelina River)	Unknown	
I	RUSK-SEP-Purchase from Sabine River Authority (Toledo Bend)	Unknown	
I	Sand Hills WSC - Municipal Conservation	Unknown	
I	SAUG-LTK-Purchase from SRA (Toledo Bend)	Unknown	
I	SAUG-MIN-Purchase from Angelina Neches River Authority	Unknown	
I	SAUG-SAG-New Wells in Carrizo-Wilcox Aquifer	Unknown	
I	SHEL-LTK-Purchase from Sabine River Authority (Toledo Bend)	Unknown	
I	SHEL-SHW-Purchase from Center	Unknown	Contract is in place already.
I	SMTH-BLD-Purchase from City of Tyler	Unknown	This entity has sufficient current supplies to meet its projected demand without purchasing water from Tyler. It is currently purchasing water from Jacksonville.
I	SMTH-CYS-New Wells in Carrizo-Wilcox Aquifer	Unknown	This entity has sufficient current supplies to meet its projected demand.
I	SMTH-LDL-Infrastructure	Unknown	This entity has sufficient current supplies to meet its projected demand.
I	SMTH-MFG-Purchase from City of Tyler	Unknown	City of Tyler is currently serving some manufacturing customers in Smith County.
I	SMTH-OVN-New Wells in Carrizo-Wilcox Aquifer	Unknown	This entity has sufficient current supplies to meet its projected demand. Impediment should show "Other" but changes are not enable.
I	SMTH-WTH-Purchase from City of Tyler (Lake Palestine/Lake Tyler/Carrizo-Wilcox)	Unknown	This entity has sufficient current supplies to meet its projected demand. It is also currently contracted with the City of Tyler. Impediment should show "Other" but changes are not enable.
I	Tatum - Municipal Conservation	Unknown	
I	TDCJ Beto Gurney & Powledge Units - Municipal Conservation	Unknown	
I	TDCJ Coffield Michael - Municipal Conservation	Unknown	

Planning Region	WMS or WMS Project Name	Database Online Decade	Related Sponsor Entity and/or Benefitting WUGs	Implementation Survey Record Type	Database ID	Has the sponsor taken affirmative vote or actions? (TWC 16.053(h)(10))
I	TDCJ Eastham Unit - Municipal Conservation	2020	WUG Reducing Demand: TDCJ Eastham Unit	Recommended Demand Reduction Strategy Without WMS Project	29800	No
I	Tenaha - Municipal Conservation	2020	WUG Reducing Demand: Tenaha	Recommended Demand Reduction Strategy Without WMS Project	29805	No
I	Troup - Municipal Conservation	2020	WUG Reducing Demand: Troup	Recommended Demand Reduction Strategy Without WMS Project	29836	No
I	TRWD - Unallocated Supply Utilization	2040	WMS Seller: Tarrant Regional WD; WMS Supply Recipient: County-Other, Henderson	Recommended WMS Supply Without WMS Project	105768	Yes
I	TYLR-PAL-City of Tyler - Lake Palestine Expansion	2030	Project Sponsor(s): Tyler	Recommended WMS Project	2123	No
I	UNM-LP-Run of River, Neches with Lake Palestine	2020	Project Sponsor(s): Upper Neches River Municipal Water Authority	Recommended WMS Project	2149	Yes
I	Wells - Municipal Conservation	2020	WUG Reducing Demand: Wells	Recommended Demand Reduction Strategy Without WMS Project	29819	No
I	Wildwood POA - Municipal Conservation	2020	WUG Reducing Demand: Wildwood POA	Recommended Demand Reduction Strategy Without WMS Project	29829	No
I	Woodville - Municipal Conservation	2020	WUG Reducing Demand: Woodville	Recommended Demand Reduction Strategy Without WMS Project	29824	No
I	WUG-CONS-Municipal Conservation- Crystal Systems Texas	2020	Project Sponsor(s): Crystal Systems Texas	Recommended WMS Project	3950	No
I	WUG-CONS-Municipal Conservation- Henderson	2020	Project Sponsor(s): Henderson	Recommended WMS Project	3952	Yes
I	WUG-CONS-Municipal Conservation- Nacogdoches	2020	Project Sponsor(s): Nacogdoches	Recommended WMS Project	3954	Yes
I	WUG-CONS-Municipal Conservation-Cushing	2020	Project Sponsor(s): Cushing	Recommended WMS Project	3951	No
I	WUG-CONS-Municipal Conservation-Jasper	2020	Project Sponsor(s): Jasper	Recommended WMS Project	3953	Yes
I	WUG-CONS-Municipal Conservation-San Augustine	2020	Project Sponsor(s): San Augustine	Recommended WMS Project	3955	Yes

Planning Region	WMS or WMS Project Name	What is the status of the WMS project or WMS recommended in the 2022 SWP?	If the project has not been started or no longer is being pursued, please explain why by adding information in this column.	Please select one or more project impediments. If an impediment is not listed, select "Other" and provide information in Column K.	If you selected "Other" in Column J, please provide information about project impediments not shown in the impediment list provided.
I	TDCJ Eastham Unit - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	Tenaha - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	Troup - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	TRWD - Unallocated Supply Utilization	Project/WMS not started	Do not see a need yet. Timeline has been push to 2050.	Other	No impediments identified to date
I	TYLR-PAL-City of Tyler - Lake Palestine Expansion	Project/WMS not started		Shift in timeline	No impediments
I	UNM-LP-Run of River, Neches with Lake Palestine	Project/WMS not started	Project is still being pursued and sponsor(s) have taken affirmative actions. The online date is being shifted to a later decade (2050) in the 2026 RWP.	Shift in timeline	
I	Wells - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	Wildwood POA - Municipal Conservation	Project/WMS not started	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	Sponsor is not required to develop a WCP based on TWDB criteria. RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity
I	Woodville - Municipal Conservation	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	WUG-CONS-Municipal Conservation- Crystal Systems Texas	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	WUG-CONS-Municipal Conservation- Henderson	Project/WMS started		Other	No impediments
I	WUG-CONS-Municipal Conservation- Nacogdoches	Project/WMS started		Other	Sponsor has prepared a 2024 WCP
I	WUG-CONS-Municipal Conservation-Cushing	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	WUG-CONS-Municipal Conservation-Jasper	Project/WMS started		Other	No impediments
I	WUG-CONS-Municipal Conservation-San Augustine	Project/WMS started		Other	No impediments

Planning Region	WMS or WMS Project Name	What funding type(s) are being used for the project? (Select all that apply)	Optional Comments
I	TDCJ Eastham Unit - Municipal Conservation	Unknown	
I	Tenaha - Municipal Conservation	Unknown	
I	Troup - Municipal Conservation	Unknown	
I	TRWD - Unallocated Supply Utilization	Unknown	
I	TYLR-PAL-City of Tyler - Lake Palestine Expansion	Unknown	Do not show a projected need. Project is shifted by one decade.
I	UNM-LP-Run of River, Neches with Lake Palestine	Unknown	
I	Wells - Municipal Conservation	Unknown	
I	Wildwood POA - Municipal Conservation	Unknown	
I	Woodville - Municipal Conservation	Unknown	
I	WUG-CONS-Municipal Conservation- Crystal Systems Texas	Unknown	
I	WUG-CONS-Municipal Conservation- Henderson	Unknown	Sponsor has a Water Conservation Plan summarizing various water conservation BMPs being implemented
I	WUG-CONS-Municipal Conservation- Nacogdoches	Unknown	Sponsor has a Water Conservation Plan summarizing various water conservation BMPs being implemented
I	WUG-CONS-Municipal Conservation-Cushing	Unknown	
I	WUG-CONS-Municipal Conservation-Jasper	Unknown	Sponsor has a Water Conservation Plan summarizing various water conservation BMPs being implemented
I	WUG-CONS-Municipal Conservation-San Augustine	Unknown	Sponsor has a Water Conservation Plan summarizing various water conservation BMPs being implemented

Planning Region	WMS or WMS Project Name	Database Online Decade	Related Sponsor Entity and/or Benefitting WUGs	Implementation Survey Record Type	Database ID	Has the sponsor taken affirmative vote or actions? (TWC 16.053(h)(10))
I	WUG-CONS-Municipal Conservation-Southern Utilities	2020	Project Sponsor(s): Southern Utilities	Recommended WMS Project	3956	No
I	WUG-CONS-Municipal Conservation-Tyler	2020	Project Sponsor(s): Tyler	Recommended WMS Project	3957	Yes

Planning Region	WMS or WMS Project Name	What is the status of the WMS project or WMS recommended in the 2022 SWP?	If the project has not been started or no longer is being pursued, please explain why by adding information in this column.	Please select one or more project impediments. If an impediment is not listed, select "Other" and provide information in Column K.	If you selected "Other" in Column J, please provide information about project impediments not shown in the impediment list provided.
I	WUG-CONS-Municipal Conservation-Southern Utilities	Project/WMS not started	RWPG and consultants did not receive a survey reponse from sponsor regarding active water conservation BMPs, but sponsor may be implementing water conservation in some capacity	Other	unknown due to lack of information
I	WUG-CONS-Municipal Conservation-Tyler	Project/WMS started		Other	Sponsor has prepared a 2024 WCP.

Planning Region	WMS or WMS Project Name	What funding type(s) are being used for the project? (Select all that apply)	Optional Comments
I	WUG-CONS-Municipal Conservation-Southern Utilities	Unknown	
I	WUG-CONS-Municipal Conservation-Tyler	Unknown	Sponsor has a Water Conservation Plan summarizing various water conservation BMPs being implemented

Appendix 10-A
Media and Public Outreach

The ETRWPG has posted the following agenda to inform the public about the Regional Water Planning Process. These meetings were held on the following dates:

- March 17, 2021
- August 18, 2021
- April 7, 2022
- October 19,2022
- February 23, 2023
- April 19, 2023
- June 21, 2023
- October 4, 2023
- January 10, 2024
- February 15, 2024
- September 18, 2024
- January 7, 2025
- February 6, 2025

Appendix 10-A
Media and Public Outreach

The ETRWPG has posted the following agenda to inform the public about the Regional Water Planning Process. These meetings were held on the following dates:

- March 17, 2021
- August 18, 2021
- April 7, 2022
- October 19,2022
- February 23, 2023
- April 19, 2023
- June 21, 2023
- October 4, 2023
- January 10, 2024
- February 15, 2024
- September 18, 2024
- January 7, 2025

Region I
East Texas Regional Water Planning Group

WEDNESDAY, March 17, 2021 10:00 AM
Remote Virtual Meeting

Meeting Details and Documents can be found at https://www.etexwaterplan.org/meetings/

1. **(Preferred) Join Meeting from Computer or Smart Device: Click Here** or copy and paste the following hyperlink into your browser:
   https://teams.microsoft.com/l/meetup-join/19%3ameeting_MzI2NmRmZTktMTI2Ny00NDM3LWFlZmItZTVlZWYxMTliZmQz%40thread.v2/0?context=%7b%22Tid%22%3a%22da2f0fe6-adff-4f18-a87c-96fcb04a4dfa%22%2c%22Oid%22%3a%2278785146-6b6c-4a6c-95c2-f17d7e59840b%22%7d

2. **Join Meeting from Phone:** Dial **682-207-4336**, Conference ID: **262 308 144#** (Press *6 to unmute)

MEETING AGENDA

1. Call to Order – Chairman Kelley Holcomb
2. Invocation – Chairman Kelley Holcomb
3. Welcome and Introductions – Chairman Kelley Holcomb
4. Roll Call/Determination of Quorum – Stacy Corley (Nacogdoches)
5. Public Comments. (limited to 3 minutes) – Chairman Kelley Holcomb
6. Consideration and approval of the minutes of the September 16, 2020 meeting – Chairman Kelley Holcomb
7. Reports from other state agencies, as necessary:
   a. Texas Water Development Board – Lann Bookout
   b. Texas Department of Parks & Wildlife – Stephen Lange
   c. Texas Department of Agriculture – Manual Martinez
   d. Texas Soil and Water Conservation Board – Rusty Ray

9. Report from consultant team – Rex Hunt, Cynthia Syvarth
   a. Review of 5th Cycle Water Planning Schedule
   b. Final 2021 Plan and Prioritization
   c. Review of 6th Cycle Water Planning schedule

10. Consideration and Approval of the selection of a consultant team for the 6th round of regional water planning – Chairman Kelley Holcomb

11. Consideration and Approval Authorize the Region I Political Subdivision to provide public notice and hold a pre-planning public meeting to obtain public input on development of the 2026 Regional Water Plan and 2027 State Water Plan – Chairman Kelley Holcomb

12. Consideration and Approval of Items related to East Texas Regional Water Planning Group Membership:
    a. Resignation of Voting Members
    b. Appointment of New Voting Members
13. Consideration and Approval of Executive Committee and Standing Committee Appointments – Monty Shank
14. General Discussion
15. Set Next Meeting Date
16. Adjourn

Region I
East Texas Regional Water Planning Group

WEDNESDAY, August 18, 2021 10:00 AM

Meeting Details and Documents can be found at https://www.etexwaterplan.org/meetings/

Location: Virtual Remote Meeting

Remote Meeting Connection Information:

1. **Join Meeting from Computer or Smart Device:** https://teams.microsoft.com/l/meetup-join/19%3ameeting_YjBkZDc2ZmYtNGM4Zi00YTMwLThlYzQtMjYzZGYwMmYwMjc4%40thread.v2/0?context=%7b%22Tid%22%3a%22da2f0fe6-adff-4f18-a87c-96fcb04a4dfa%22%2c%22Oid%22%3a%2278785146-6b6c-4a6c-95c2-f17d7e59840b%22%7d

2. **Join Meeting from Phone:** 682-207-4336, Conference ID 475 533 937#, Press *6 to Unmute

MEETING AGENDA

1. Call to Order – Chairman Kelley Holcomb
2. Invocation – Chairman Holcomb
3. Welcome and Introductions – Chairman Holcomb
4. Roll Call/Determination of Quorum – Stacy Corley (Nacogdoches)
5. Pre-Planning Public Input Meeting on the Development of the 2026 Regional Water Plan
   a. Receive public input and comments on issues that should be addressed or provisions that should be included in the 2026 Regional Water Plan and the 2027 State Water Plan
6. Consideration and Approval of the minutes of the March 17, 2021 meeting – Chairman Holcomb
7. Reports from other state agencies, as necessary:
   a. Texas Water Development Board – Lann Bookout
   b. Texas Department of Parks & Wildlife – Stephen Lange
   c. Texas Department of Agriculture – Manual Martinez
   d. Texas Soil and Water Conservation Board – Rusty Ray
8. Report from consultant team – Rex Hunt, Cynthia Syvarth, Dexter May
   a. Review of 6th Cycle Water Planning Schedule
   b. Educational Presentation – Water Demand
9. Consideration and Approval of the FY 2022 Annual Budget – Mark Dunn, Finance Committee
10. Consideration and Possible Approval of Actions to Promote Interregional Coordination – Chairman Holcomb
    a. Processes for conducting interregional coordination regarding water management strategies during development of the 2026 Regional Water Plans.
    b. Identification of water management strategies which may create opportunities for collaboration and cooperation with other planning regions.
    c. Potential course of action for interregional coordination with other RWPGs.

11. Consideration and Approval of Items related to East Texas Regional Water Planning Group Membership – Monty Shank, Chair – Nominations Committee
    a. Resignation of Voting Members
    b. Appointment of New Voting Members

12. Consideration and Approval of Executive Committee and Standing Committee Appointments – Monty Shank

13. General Discussion

14. Set Next Meeting Date (March 2022)

15. Adjourn

Region I
East Texas Regional Water Planning Group

Thursday, April 7, 2022 • 10:00 AM
Nacogdoches Recreation Center
1112 North Street
Nacogdoches, Texas 75961
AGENDA

Click on link below to join meeing.

https://meet.google.com/pfz-zqkx-syo?hs=224

1. Call to Order
2. Invocation & Pledge of Allegiance
3. Roll Call/Determination of Quorum
4. Consideration and Approval of the minutes of the August 18, 2021 meeting
5. Consideration and Approval of Items related to East Texas Regional Water Planning Group Membership:
   a. Resignation of Voting Members
   b. Appointment of New Voting Members
6. Report from City of Nacogdoches – Stacy Corley
7. Reports of adjoining regions activity:
   a. Region C – Vacant
   b. Region D – John McFarland
   c. Region H – Scott Hall
8. Reports from Standing Committees:
   a. Executive Committee – Kelley Holcomb
   b. Finance Committee – Mark Dunn
   c. Bylaws Committee – David Alders
   d. Technical Committee – Scott Hall
   e. Nominations Committee – Monty Shank
9. Report from consultant team
   a. Review of 6th Cycle Water Planning schedule – Cynthia Syvarth
   b. Review of available Draft Projections & Methodology – Cynthia Syvarth
10. Reports from other state agencies, as necessary:
    a. Texas Water Development Board – Lann Bookout
    b. Texas Department of Parks & Wildlife – Stephen Lange
    c. Texas Department of Agriculture – Manual Martinez
    d. Texas Soil and Water Conservation Board –Trey Watson
11. Consideration and Approval of nominations of planning group members to serve as a member and alternate to the Interregional Planning Council; and formally appoint liaisons for adjoining regions.
12. Consideration and Approval of blanket certification of administrative expenses for the 6th planning cycle contract No. 2148302561; and approve submission to the Texas Water Development Board for reimbursement.

13. Consideration and Approval to authorize the City of Nacogdoches to negotiate and execute an amendment to the TWDB contract to incorporate the full scope of work and total project cost for the 2026 Regional Water Plans.
14. Consideration and Approval of Executive Committee appointments – Monty Shank
15. Public Comments (limited to 3 minutes)
16. General Discussion
17. Set Next Meeting Date –
18. Adjourn

Region I
East Texas Regional
Water Planning Group

Standing Committees
Thursday, April 7, 2022 • 9:30 AM
AGENDA

The Region I East Texas Regional Water Planning Group has four standing committees. These committees function under the direction of the Region I East Texas Regional Water Planning Group as defined in the approved By-Laws. Committee meetings are held on an as needed basis. These Committees are:

Executive Committee (no meeting)

Nominations Committee

1) Discussion regarding Executive Committee appointments
2) Discussion regarding voting member vacancies
3) Discussion regarding adjoining region liaison appointments

By-Laws Committee (no meeting)

Finance Committee (no meeting)

Technical Committee (no meeting)

Region I
East Texas Regional Water Planning Group

Wednesday, October 19, 2022 – 10:00 AM
Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

Meeting Details and Documents can be found at: https://www.etexwaterplan.org/meetings/
Remote Meeting Connection Information: https://meet.google.com/wxj-bpwb-cfk?hs=224

1. Call to Order
2. Invocation & Pledge of Allegiance
3. Roll Call/Determination of Quorum
4. Consideration and Approval of the minutes of the April 7, 2022 meeting
5. Consideration and Approval of items related to East Texas Regional Water Planning Group Membership:
   a. Resignation of Voting Members
   b. Appointment of New Voting Members
6. Reports from City of Nacogdoches – Cheryl Bartlett
7. Reports of adjoining regions' activity:
   a. Region C – John Martin
   b. Region D – John McFarland
   c. Region H – Scott Hall
8. Reports from Standing Committees:
   a. Executive Committee – John Martin
   b. Finance Committee – Mark Dunn
   c. Bylaws Committee – David Alders
   d. Technical Committee – Scott Hall
   e. Nominations Committee – Monty Shank
9. Report from consultant team:
   a. Review of 6th Cycle Water Planning schedule – Cynthia Syvarth
   b. Review of available Draft Projections & Methodology – Cynthia Syvarth
10. Reports from other state agencies, as necessary:
    a. Texas Water Development Board – Lann Bookout
    b. Texas Department of Parks & Wildlife – Stephen Lange
    c. Texas Department of Agriculture – Manual Martinez
    d. Texas Soil and Water Conservation Board – Trey Watson
11. Consideration and Approval of nominations of planning group members to serve as a member and alternate to the Inter-Regional Water Planning Group Committee

Region I
East Texas Regional
Water Planning Group

12. Consideration and Approval of Committee appointments
13. Discussion of Budget preparation for FY 22-23
14. Public Comments (limited to 3 minutes)
15. General Discussion
16. Set Next Meeting Date – January 18, 2023
17. Adjourn

Comments from members and the public will be accepted by the Planning Group as listed in the agenda items above. For questions, requests, or additional information outside of the general meeting, please visit the Planning Group website or contact the Planning Group Administrative Contact:

Website: https://www.etexwaterplan.org/

c/o City of Nacogdoches
PO Box 635030
Nacogdoches, Texas 75963-3030
Attn: Cheryl Bartlett
Region I Administrative Contact

936-559-2525
regioniwater@gmail.com

Region I
East Texas Regional
Water Planning Group

Wednesday, October 19, 2022
Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

The Region I East Texas Regional Water Planning Group has an Executive Committee and four additional standing committees. These committees function under the direction of the Region I East Texas Regional Water Planning Group as defined in the approved By-Laws. Committee meetings are held on an as needed basis. These Committees and their meeting times and agenda items are as follows:

Executive Committee – No Meeting

Nominations Committee – 9:30 AM

1. Discussion regarding Executive Committee appointments
2. Discussion regarding voting member vacancies

By-Laws Committee - No Meeting

Finance Committee - No Meeting

Technical Committee - No Meeting

Region I
East Texas Regional Water Planning Group

Thursday, February 23, 2023 – 10:00 am
Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

Meeting Details and Documents can be found at: https://www.etexwaterplan.org/meetings/
Remote Meeting Connection Information: Click here to join the meeting.
Join via Web Browser:
https://www.microsoft.com/microsoft-teams/join-a-meeting
Meeting ID – **256 130 037 811**
Passcode - nMickZ

1. Call to Order
2. Invocation & Pledge of Allegiance
3. Roll Call/Determination of Quorum
4. Consideration and Approval of the minutes of the October 19, 2022 meeting
5. Reports from City of Nacogdoches – Cheryl Bartlett
6. Consideration and Approval of changing the Region C liaison
7. Reports of adjoining regions' activity:
   a. Region C – John Martin
   b. Region D – John McFarland
   c. Region H – Scott Hall
   d. Interregional Liaison – Kelley Holcomb/David Alders
8. Reports from Standing Committees:
   a. Executive Committee – John Martin
   b. Finance Committee – Kelley Holcomb
   c. Bylaws Committee – David Alders
   d. Technical Committee – Scott Hall
   e. Nominations Committee – Monty Shank
9. Consideration and approval of FY 2023 annual budget
10. Consideration and approval of items related to East Texas Regional Water Planning Group Membership:
    a. Resignation of Voting Members
    b. Appointment of New Voting Members
11. Consideration and Approval of adding a Texas Commission on Environmental Quality (TCEQ) non-voting member to the planning group members
12. Consideration and Approval of Committee appointments

13. Report from consultant team:

    a. Review of 6th Cycle Water Planning schedule – Cynthia Syvarth
    b. Review of Draft Population and Municipal Demand Projections – Cynthia Syvarth

14. Reports from other state agencies, as necessary:

    a. Texas Water Development Board – Lann Bookout
    b. Texas Department of Parks & Wildlife – Stephen Lange
    c. Texas Department of Agriculture – Manual Martinez
    d. Texas Soil and Water Conservation Board – Trey Watson
    e. Groundwater Management Areas – John Martin (GMA 14) /John McFarland (GMA 11)

15. Public Comments

16. General Discussion

17. Set Next Meeting Date – April 19, 2023

18. Adjourn

Comments from members and the public will be accepted by the Planning Group as listed in the agenda items above. For questions, requests, or additional information outside of the general meeting, please visit the Planning Group website or contact the Planning Group Administrative Contact:

Website: https://www.etexwaterplan.org/

c/o City of Nacogdoches
PO Box 635030
Nacogdoches, Texas 75963-3030
Attn: Cheryl Bartlett
Region I Administrative Contact

936-559-2525
regioniwater@gmail.com

Thursday, February 23, 2023
Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

The Region I East Texas Regional Water Planning Group has an Executive Committee and four additional standing committees. These committees function under the direction of the Region I East Texas Regional Water Planning Group as defined in the approved By-Laws. Committee meetings are held on an as needed basis. These Committees and their meeting times and agenda items are as follows:

Executive Committee – 9:00 AM

1. Discuss on general RWPG meeting procedures
2. Discussion of Bylaws to develop recommendations for the Bylaws Committee

Nominations Committee – 9:30 AM

1. Discussion regarding Executive Committee appointments
2. Discussion regarding voting member vacancies

By-Laws Committee – 9:30

1. Discussion on overall Bylaws review and update

Finance Committee – 9:30

1. Discussion on proposed FY 2023 budget

Technical Committee - 9:15 AM

1. Discussion on Draft Texas Water Development Board Water Demand Projections

New Member Orientation – immediately following the regular meeting (approximately 11:30 AM)

This is a 20 minute informational orientation for new ETRWG members and might be a good refresher course for all members. Anyone interested is invited to attend. No ETRWPG business will be transacted.

Region I
East Texas Regional Water Planning Group

Wednesday, April 19th, 2023 – 10:00 AM
Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

Meeting Details and Documents can be found at: https://www.etexwaterplan.org/meetings/
Remote Meeting Connection Information: Click here to join the meeting

Join via Web Browser:
https://www.microsoft.com/microsoft-teams/join-a-meeting
Meeting ID – 287 426 743 866
Passcode - BM2pVX

1. Call to Order
2. Invocation & Pledge of Allegiance
3. Notice of Meeting
4. Roll Call/Determination of Quorum
5. Consideration and Approval of the minutes of the February 23, 2023 meeting
6. Consideration and Approval of items related to East Texas Regional Water Planning Group Membership:
    a. Resignation of Voting Members
    b. Appointment of New Voting Members
7. Reports from City of Nacogdoches – Cheryl Bartlett
8. Reports of Adjoining Regions' Activity:
    a. Region C – David Montagne
    b. Region D – John McFarland
    c. Region H – Scott Hall
    d. Interregional Liaison – Kelley Holcomb
9. Reports from Standing Committees:
    a. Executive Committee – John Martin
    b. Finance Committee – Kelley Holcomb
    c. Bylaws Committee – David Alders
    d. Technical Committee – Scott Hall
    e. Nominations Committee – Monty Shank
10. Report from Consultant Team with Discussion and Possible Action by Regional Water Planning Group:
    a. Review of 6th Cycle Water Planning schedule – Brigit Buff
    b. Review, Discussion, and Possible Action on Draft Non-Municipal Demands – Brigit Buff & Jordan Skipwith

c. Update and Discussion on Municipal Water Demands – Brigit Buff & Jordan Skipwith

11. Reports from other state agencies, as necessary:
    a. Texas Water Development Board – Lann Bookout
    b. Texas Department of Parks & Wildlife – Stephen Lange
    c. Texas Department of Agriculture – Manual Martinez
    d. Texas Soil and Water Conservation Board – Trey Watson
    e. Groundwater Management Areas – John Martin/John McFarland
12. Public Comments (limited to 3 minutes)
13. General Discussion
14. Set Next Meeting Date – June 21, 2023
15. Adjourn

Comments from members and the public will be accepted by the Planning Group as listed in the agenda items above. For questions, requests, or additional information outside of the general meeting, please visit the Planning Group website or contact the Planning Group Administrative Contact:

Website: https://www.etexwaterplan.org/

c/o City of Nacogdoches
PO Box 635030
Nacogdoches, Texas 75963-3030
Attn: Cheryl Bartlett
Region I Administrative Contact

936-559-2528
regioniwater@gmail.com

Region I
East Texas Regional
Water Planning Group

Wednesday, April 19, 2023
Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

The Region I East Texas Regional Water Planning Group has an Executive Committee and four additional standing committees. These committees function under the direction of the Region I East Texas Regional Water Planning Group as defined in the approved By-Laws. Committee meetings are held on an as needed basis. These Committees and their meeting times and agenda items are as follows:

Executive Committee – No Meeting

Nominations Committee – 9:30 AM

1. Discussion regarding Executive Committee appointments
2. Discussion regarding voting member vacancies

By-Laws Committee - No Meeting

Finance Committee - No Meeting

Technical Committee - No Meeting

Region I
East Texas Regional Water Planning Group

Wednesday, June 21st, 2023 – 10:00 AM
Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

Meeting Details and Documents can be found at: https://www.etexwaterplan.org/meetings/
Remote Meeting Connection Information: Click here to join the meeting

Join via Web Browser:
https://www.microsoft.com/microsoft-teams/join-a-meeting
Meeting ID – 210 515 453 98
Passcode - z9BnvW

1. Call to Order
2. Invocation & Pledge of Allegiance
3. Notice of Meeting
4. Roll Call/Determination of Quorum
5. Public Comments
6. Consideration and Approval of the minutes of the April 19, 2023 meeting
7. Reports from City of Nacogdoches – Cheryl Bartlett
8. Reports of Adjoining Regions' Activity:
    a. Region C – David Montagne
    b. Region D – John McFarland
    c. Region H – Scott Hall
    d. Interregional Liaison – Kelley Holcomb
9. Reports from Standing Committees:
    a. Executive Committee – John Martin
    b. Finance Committee – Kelley Holcomb
    c. Bylaws Committee – David Alders
    d. Technical Committee – Scott Hall
    e. Nominations Committee – Monty Shank
10. Action for consideration and adoption of updates to the Bylaws
11. Report from Consultant Team with Discussion and Possible Action by Regional Water Planning Group:
    a. Review of 6th Cycle Water Planning schedule – Brigit Buff
    b. Review and Action on Recommended Non-Municipal Demands – Brigit Buff
    c. Update, Discussion, and Possible Action on Population Projections, GPCDs, and Municipal Water Demands – Brigit Buff & Jordan Skipwith
    d. Discussion on new required Infeasible Strategy assessment of 2021 water management strategies – Brigit Buff

12. Reports from other state agencies, as necessary:
    a. Texas Water Development Board – Lann Bookout
    b. Texas Department of Parks & Wildlife – Stephen Lange
    c. Texas Department of Agriculture – Manual Martinez
    d. Texas Soil and Water Conservation Board – Trey Watson
    e. Groundwater Management Areas – John Martin/John McFarland
13. General Discussion
14. Set Next Meeting Date – Thursday, July 27, 2023
15. Adjourn

Comments from members and the public will be accepted by the Planning Group as listed in the agenda items above. For questions, requests, or additional information outside of the general meeting, please visit the Planning Group website or contact the Planning Group Administrative Contact:

Website: https://www.etexwaterplan.org/

c/o City of Nacogdoches
PO Box 635030
Nacogdoches, Texas 75963-3030
Attn: Cheryl Bartlett
Region I Administrative Contact

936-559-2528
regioniwater@gmail.com

Region I
East Texas Regional
Water Planning Group

Wednesday, June 21st, 2023
Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

The Region I East Texas Regional Water Planning Group has an Executive Committee and four additional standing committees. These committees function under the direction of the Region I East Texas Regional Water Planning Group as defined in the approved By-Laws. Committee meetings are held on an as needed basis. These Committees and their meeting times and agenda items are as follows:

Executive Committee – No Meeting

Nominations Committee – No Meeting

By-Laws Committee – 9:30 AM

1. Discussion on recommendations for updates to Bylaws

Finance Committee - No Meeting

Technical Committee – Meeting held June 2, 2023

1. Discussed recommended non-municipal demands for the 2026 Region I Water Plan

Wednesday, October 4, 2023 • 10:00 AM
Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

Meeting Details and Documents can be found at: https://www.etexwaterplan.org/meetings/
Remote Meeting Connection Information: Click here to join the meeting

Join via Web Browser: https://www.microsoft.com/microsoft-teams/join-a-meeting
Meeting ID – 296 890 258 159
Passcode - BBy6LG

1. Call to Order
2. Invocation & Pledge of Allegiance
3. Notice of Meeting
4. Roll Call/Determination of Quorum
5. Public Comments
6. Consideration and Approval of the minutes of the June 21, 2023 meeting
7. Reports from City of Nacogdoches – Cheryl Bartlett
8. Reports of Adjoining Regions' Activity:
   a. Region C – David Montagne
   b. Region D – John McFarland
   c. Region H – Scott Hall
   d. Interregional Liaison – Kelley Holcomb
9. Reports from Standing Committees:
   a. Executive Committee – John Martin
   b. Finance Committee – Kelley Holcomb
   c. Bylaws Committee – David Alders
   d. Technical Committee – Scott Hall
   e. Nominations Committee – Monty Shank
10. Consideration and Approval of Contract Amendments
    a. Authorize the City of Nacogdoches to Negotiate and Execute Amendment #2 to Technical Consultant Team (Plummer) Contract for $483,361.00 to Match Current Total Project Costs and Committed Funds for the 2026 Region I Regional Water Plan
    b. Authorize the City of Nacogdoches to Negotiate and Execute an Amendment #2 to the TWDB Contract for $227,480.00 to Increase the Total Project Cost and Committed Funds for the 2026 Region I Regional Water Plan

c. Authorize the City of Nacogdoches to Negotiate and Execute Amendment #3 to Technical Consultant Team (Plummer) Contract for $167,480.00 to Increase the Total Project Cost and Committed Funds for the 2026 Region I Regional Water Plan
d. Discussion and possible action regarding a budget amendment providing for the City of Nacogdoches/Political Subdivision to be reimbursed for salary and wage expenses.

11. Consideration and Approval of updates to the Bylaws
12. Report from Consultant Team with Discussion and Possible Action by Regional Water Planning Group:
    a. Overview of Project Schedule – Brigit Buff
    b. Discussion and Approval of the Definition and List of Major Water Providers – Brigit Buff
    c. Discussion and Possible Action on Infeasible Water Strategy Methodologies, Results, and Recommendations and Receive Public Comment – Brigit Buff and Jordan Skipwith
    d. Discussion and Approval of the Hydrological Variance Request for Surface Water Supplies to the TWDB – Jordan Skipwith
    e. Discussion and Approval Process to Identify and Evaluate Water Management Strategies and Receive Public Comment – Jordan Skipwith
    f. Discussion and Approval of Notice to Proceed on Task 5B – Brigit Buff & Lann Bookout
    g. Overview of the contents of the Technical Memorandum, due March 2024 – Brigit Buff
    h. Overview of proposed agenda for February 2024 RWPG Meeting Date for Technical Memorandum approval – Brigit Buff
13. Reports from other state agencies, as necessary:
    a. Texas Water Development Board – Lann Bookout
    b. Texas Department of Parks & Wildlife – Stephen Lange
    c. Texas Department of Agriculture – Manual Martinez
    d. Texas Soil and Water Conservation Board – Trey Watson
    e. Groundwater Management Areas – John Martin/John McFarland
14. General Discussion
15. Set Next Meeting Date – February 2024 (Date TBD)
16. Adjourn

Comments from members and the public will be accepted by the Planning Group as listed in the agenda items above. For questions, requests, or additional information outside of the general meeting, please visit the Planning Group website, https://www.etexwaterplan.org/, or contact the Planning Group Administrative Contact:

c/o City of Nacogdoches
PO Box 635030
Nacogdoches, Texas 75963-3030
Attn: Cheryl Bartlett
Region I Administrative Contact
936-559-2528
regioniwater@gmail.com

Region I
East Texas Regional
Water Planning Group

Wednesday, October 4, 2023
Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

The Region I East Texas Regional Water Planning Group has an Executive Committee and four additional standing committees. These committees function under the direction of the Region I East Texas Regional Water Planning Group as defined in the approved By-Laws. Committee meetings are held on an as needed basis. These Committees and their meeting times and agenda items are as follows:

Executive Committee – 9:00 AM

1. Discussion on nominations/appointees for Nominating Committee

Nominations Committee – No Meeting

By-Laws Committee – 9:15 AM

1. Discussion regarding Bylaws review and proposed changes/amendments

Finance Committee – 9:15 AM

1. Discussion on proposed budget amendment #2 between TWDB and City of Nacogdoches
2. Discussion on proposed budget amendments #2 & #3 between City of Nacogdoches and Technical Consultant

Technical Committee – Held on July 27, 2023

10 January 2024 • 10:00 AM
Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

Meeting Details and Documents can be found at: https://www.etexwaterplan.org/meetings/
Remote Meeting Connection Information:

Join via Web Browser: https://www.microsoft.com/microsoft-teams/join-a-meeting
Meeting ID – 280 491 431 676
Passcode - AQdZHD

1. Call to Order
2. Invocation & Pledge of Allegiance
3. Notice of Meeting
4. Roll Call/Determination of Quorum
5. Public Comments
6. Consideration and Approval of the minutes of the October 04, 2023 meeting
7. Reports from City of Nacogdoches – Cheryl Bartlett
8. Reports of Adjoining Regions' Activity:
    a. Region C – David Montagne
    b. Region D – John McFarland
    c. Region H – Scott Hall
    d. Interregional Liaison – Kelley Holcomb
9. Reports from Standing Committees:
    a. Executive Committee – John Martin
    b. Finance Committee – Kelley Holcomb
    c. Bylaws Committee – David Alders
    d. Technical Committee – Scott Hall
    e. Nominations Committee – Monty Shank
10. Discussion and possible action to approve recommendations from the Nominations Committee for the appointment of voting members the East Texas Regional Water Planning Group
11. Report from Consultant Team:
    a. Update on the Texas Water Development Board (TWDB) Adopted Revisions to the Population and Demand Projection in the 2026 Regional Water Plan (2026 RWP) – Brigit Buff
    b. Discussion of Updates on Surface Water Supply Projection – Jordan Skipwith
    c. Discussion of Updates on Groundwater Supply Projection – James Beach
    d. Discussion of Draft Water Needs and Updates on Demand Allocations – Brigit Buff and Jordan Skipwith

e. Discussion of Conservation and Reuse Methodology – Brigit Buff
f. Status Update on Infeasible Water Strategies – Brigit Buff
g. Status Update on the Hydrological Variance Requests for Surface Water Supplies – Brigit Buff

12. Reports from other state agencies and Groundwater Management Areas, as necessary:

a. Texas Water Development Board – Lann Bookout
b. Texas Department of Parks & Wildlife – Stephen Lange
c. Texas Department of Agriculture – Manual Martinez
d. Texas Soil and Water Conservation Board – Trey Watson
e. Groundwater Management Areas 11 and 14 –John McFarland/John Martin

13. General Discussion

14. Next Meeting Date – February 15, 2024

15. Adjourn

Comments from members and the public will be accepted by the Planning Group as listed in the agenda items above. For questions, requests, or additional information outside of the general meeting, please visit the Planning Group website, https://www.etexwaterplan.org/, or contact the Planning Group Administrative Contact:

c/o City of Nacogdoches
PO Box 635030
Nacogdoches, Texas 75963-3030
Attn: Cheryl Bartlett
Region I Administrative Contact
936-559-2528
regioniwater@gmail.com

10 January 2024 • 10:00 AM

Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

The Region I East Texas Regional Water Planning Group has an Executive Committee and four additional standing committees. These committees function under the direction of the Region I East Texas Regional Water Planning Group as defined in the approved By-Laws. Committee meetings are held on an as needed basis. These Committees and their meeting times and agenda items are as follows:

Executive Committee – No Meeting

Nominations Committee – Meeting, 9:30 AM

1. Consider list of nomination recommendations for open positions

By-Laws Committee – No Meeting

Finance Committee – Meeting 9:15 AM

1. Updates on status of TWDB funding & consultant expenditures
2. P & L on status of funding from the counties in the Region

Technical Committee – No Meeting

Region I
East Texas Regional Water Planning Group

15 February 2024 • 10:00 AM
Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

Meeting Details and Documents can be found at: https://www.etexwaterplan.org/meetings/
Remote Meeting Connection Information:

Join via Web Browser: https://www.microsoft.com/microsoft-teams/join-a-meeting
Meeting ID – 214 859 915 057
Passcode - DfHxb7
Click here to join the meeting

1. Call to Order
2. Invocation & Pledge of Allegiance
3. Notice of Meeting
4. Roll Call/Determination of Quorum
5. Public Comments
6. Consideration and Approval of the minutes of the January 10, 2024 meeting
7. Reports from City of Nacogdoches – Cheryl Bartlett
8. Reports of Adjoining Regions' Activity:
   a. Region C – David Montagne
   b. Region D – John McFarland
   c. Region H – Scott Hall
   d. Interregional Liaison – Kelley Holcomb
9. Reports from Standing Committees:
   a. Executive Committee – John Martin
   b. Finance Committee – Kelley Holcomb
   c. Bylaws Committee – David Alders
   d. Technical Committee – Scott Hall
   e. Nominations Committee – Monty Shank
10. Discussion and possible action to approve recommendations from the Nominations Committee for the appointment of voting members to the East Texas Regional Water Planning Group.
11. Report from Consultant Team with Discussion and Possible Action by Regional Water Planning Group:
    a. Overview of the Technical Memorandum Results and Authorization to Submit – Brigit Buff
       i. Discussion of Results of Demand Allocations and Water Needs – Brigit Buff and Jordan Skipwith
       ii. Discussion, Receive Comment, and Consider Action on the results of the Infeasible Water Management Strategies Analysis – Brigit Buff

iii. Discussion and Consider Action on Proposed List of Potentially Feasible Water Management Strategies – Brigit Buff
iv. Overview of Technical Memorandum Components – Brigit Buff
v. Discussion, Receive Comment, and Consider Action on Draft Technical Memorandum to Authorize Technical Consultants to Address Any Updates and Submit to the TWDB by March 4, 2024 – Brigit Buff

b. Discussion, Receive Comments, and Consider Action on the Region-Specific Task 5B Scope of Work Notice to Proceed – Brigit Buff

12. Reports from other state agencies, as necessary:
    a. Texas Water Development Board – Lann Bookout
    b. Texas Department of Parks & Wildlife – Stephen Lange
    c. Texas Department of Agriculture – Manuel Martinez
    d. Texas Soil and Water Conservation Board – Trey Watson
    e. Groundwater Management Areas – John Martin/John McFarland
13. General Discussion
14. Set Next Meeting Date – Date TBD
15. Adjourn

Comments from members and the public will be accepted by the Planning Group as listed in the agenda items above. For questions, requests, or additional information outside of the general meeting, please visit the Planning Group website, https://www.etexwaterplan.org/, or contact the Planning Group Administrative Contact:

c/o City of Nacogdoches
PO Box 635030
Nacogdoches, Texas 75963-3030
Attn: Cheryl Bartlett
Region I Administrative Contact
936-559-2528
regioniwater@gmail.com

15 February 2024 • 10:00 AM

Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

The Region I East Texas Regional Water Planning Group has an Executive Committee and four additional standing committees. These committees function under the direction of the Region I East Texas Regional Water Planning Group as defined in the approved By-Laws. Committee meetings are held on an as needed basis. These Committees and their meeting times and agenda items are as follows:

Executive Committee – No Meeting

Nominations Committee – Meeting, 9:15 AM

1. Consider list of nomination recommendations for open positions

By-Laws Committee – No Meeting

Finance Committee – Meeting, 9:15 AM

1. Discuss status of TWDB funding, consultant expenditures, funding from the counties

Technical Committee – No Meeting

Region I
East Texas Regional Water Planning Group

18 September 2024 • 10:00 AM
Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

Meeting Details and Documents can be found at: https://www.etexwaterplan.org/meetings/
Remote Meeting Connection Information:

Join via Web Browser: https://www.microsoft.com/microsoft-teams/join-a-meeting
Meeting ID: 252 312 887 206
Passcode: cZsXLj

Join the meeting now

1. Call to Order
2. Invocation & Pledge of Allegiance
3. Notice of Meeting
4. Roll Call/Determination of Quorum
5. Public Comments
6. Consideration and Approval of the minutes of the February 15, 2024 meeting
7. Report from City of Nacogdoches – Cheryl Bartlett
8. Reports of Adjoining Regions' Activity:
   a. Region C – David Montagne
   b. Region D – John McFarland
   c. Region H – Scott Hall
   d. Interregional Liaison – Kelley Holcomb
9. Reports from Standing Committees:
   a. Executive Committee – John Martin
   b. Finance Committee – Kelley Holcomb
   c. Bylaws Committee – David Alders
   d. Technical Committee – Scott Hall
   e. Nominations Committee – Monty Shank
10. Discussion and possible action to approve recommendations from the Nominations Committee for the appointment of voting members to the East Texas Regional Water Planning Group.
11. Discussion and possible action to approve Financial Statement and Budget.
12. Discussion and possible action to solicit additional members for the Bylaws Committee.
13. Discussion and consideration for approval of updates/amendments to the East Texas Regional WPG Bylaws.

14. Discussion and potential approval of the additional Task 5B scope of work and Notice To Proceed for Plummer.
15. Report from Consultant Team with Discussion and Possible Action by Regional Water Planning Group:
    a. Review of 6th Cycle Water Planning Schedule
    b. Review of Draft Initially Prepared Plan Chapters:
        i. Chapter 1: Description of the Regional Water Planning Area
        ii. Chapter 2: Projected Population and Water Demands
        iii. Chapter 3: Evaluation of Current Water Supplies in the Region
    c. Updates on Water Needs (Task 4)
    d. Updates on Water Management Strategies (Task 5B)
    e. Updates on Water Conservation, Drought Management, and Reuse in Region I (Task 5C and 7)
    f. Updates on Unique Stream Segments, Unique Reservoir Sites, and Legislative Recommendations (Task 8)
16. Reports from other state agencies, as necessary:
    a. Texas Water Development Board – Lann Bookout
    b. Texas Department of Parks & Wildlife – Stephen Lange
    c. Texas Department of Agriculture – Manuel Martinez
    d. Texas Soil and Water Conservation Board – Trey Watson
    e. Groundwater Management Areas – John Martin/John McFarland
17. General Discussion
18. Set Next Meeting Date – Date TBD
19. Adjourn

Comments from members and the public will be accepted by the Planning Group as listed in the agenda items above. For questions, requests, or additional information outside of the general meeting, please visit the Planning Group website, https://www.etexwaterplan.org/, or contact the Planning Group Administrative Contact:

c/o City of Nacogdoches
PO Box 635030
Nacogdoches, Texas 75963-3030
Attn: Cheryl Bartlett
Region I Administrative Contact
936-559-2528
regioniwater@gmail.com

Region I
East Texas Regional Water Planning Group

18 September 2024 • 10:00 AM

Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

The Region I East Texas Regional Water Planning Group has an Executive Committee and four additional standing committees. These committees function under the direction of the Region I East Texas Regional Water Planning Group as defined in the approved By-Laws. Committee meetings are held as needed. These Committees and their meeting times and agenda items are as follows:

Executive Committee – No Meeting

Nominations Committee – Meeting, 9:15 AM

1. Consider list of nomination recommendations for open positions.

By-Laws Committee – Meeting, 9:15 AM

1. Review proposed updates to By-Laws to be voted on by Members.

Finance Committee – Meeting, 9:15 AM

1. Discuss status of TWDB funding, consultant expenditures, funding from the counties.

Technical Committee – No Meeting

REGION I WATER PLANNING GROUP

07 January 2025 • 10:00 AM
Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

Meeting Details and Documents can be found at: https://www.etexwaterplan.org/meetings/
Remote Meeting Connection Information:

Join via Web Browser: https://www.microsoft.com/microsoft-teams/join-a-meeting
Meeting ID: 292 193 892 336
Passcode: GYXxWd

Join the meeting now

1. Call to Order
2. Invocation & Pledge of Allegiance
3. Notice of Meeting
4. Roll Call/Determination of Quorum
5. Public Comments (limited to 3 minutes per speaker)
6. Consideration and Approval of the minutes of the September 18, 2024 meeting
7. Report from City of Nacogdoches – Cheryl Bartlett
8. Reports of Adjoining Regions' Activity:
    a. Region C – David Montagne
    b. Region D – John McFarland
    c. Region H – Scott Hall
    d. Interregional Liaison – Kelley Holcomb
9. Reports from Standing Committees:
    a. Executive Committee – John Martin
    b. Finance Committee – Kelley Holcomb
    c. Bylaws Committee – David Alders
    d. Technical Committee – Scott Hall
    e. Nominations Committee – Monty Shank
10. Report from Consultant Team with Discussion by Regional Water Planning Group:
    a. Review of 6th Cycle Water Planning Schedule
    b. Updates on and Review of Posted Draft Initially Prepared Plan Chapters:
        i. Chapter 1: Description of the Regional Water Planning Area
        ii. Chapter 2: Projected Population and Water Demands

iii. Chapter 3: Evaluation of Current Water Supplies in the Region
iv. Chapter 4: Water Needs

c. Updates on and Overview of Draft Initially Prepared Plan Chapters:
    i. Chapter 5A: Potentially Feasible WMSs
    ii. Chapter 5C: Water Conservation
    iii. Chapter 7: Drought Response
    iv. Chapter 8: Unique Stream Segments, Unique Reservoir Sites, and Legislative Recommendations
        1. Discussion of and Potential Action on Lake Fastrill
d. Updates on Water Management Strategies (Task 5B)
e. Updates on Additional Initially Prepared Plan Tasks and Chapters:
    i. Chapter 5B: Water Management Strategies
    ii. Chapter 6: Impacts of Plan and Consistency with Protection of Resources
    iii. Chapter 9: Implementation and Comparison to Previous Plan

11. Reports from other state agencies, as necessary:
    a. Texas Water Development Board – Lann Bookout
    b. Texas Department of Parks & Wildlife – Stephen Lange
    c. Texas Department of Agriculture – Manuel Martinez
    d. Texas Soil and Water Conservation Board – Trey Watson
    e. Groundwater Management Areas – John Martin/John McFarland
12. General Discussion
13. Next Meeting Date – February 6, 2025 (IPP ADOPTION); Backup date: February 25, 2025
14. Adjourn

Comments from members and the public will be accepted by the Planning Group as listed in the agenda items above. For questions, requests, or additional information outside of the general meeting, please visit the Planning Group website, https://www.etexwaterplan.org/, or contact the Planning Group Administrative Contact:

c/o City of Nacogdoches
PO Box 635030
Nacogdoches, Texas 75963-3030
Attn: Cheryl Bartlett
Region I Administrative Contact
936-559-2528
regioniwater@gmail.com

07 January 2025 • 10:00 AM

Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

The Region I East Texas Regional Water Planning Group has an Executive Committee and four additional standing committees. These committees function under the direction of the Region I East Texas Regional Water Planning Group as defined in the approved By-Laws. Committee meetings are held as needed. These Committees and their meeting times and agenda items are as follows:

Executive Committee – No Meeting

Nominations Committee – No Meeting

By-Laws Committee – No Meeting

Finance Committee – Meeting 9:15 AM

Discuss status of TWDB funding, consultant invoices, budgets

Technical Committee – No Meeting

REGION I WATER PLANNING GROUP

06 February 2025 • 10:00 AM
Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

Meeting Details and Documents can be found at: https://www.etexwaterplan.org/meetings/
Remote Meeting Connection Information:

Join via Web Browser: https://www.microsoft.com/microsoft-teams/join-a-meeting
Meeting ID: 279 773 847 286
Passcode: 93GnxJ
Join the meeting now

1. Call to Order
2. Invocation & Pledge of Allegiance
3. Notice of Meeting
4. Roll Call/Determination of Quorum
5. Public Comments (limited to 3 minutes per speaker)
6. Consideration and Approval of the Minutes of the January 7, 2025 Meeting
7. Report from City of Nacogdoches – Cheryl Bartlett
8. Reports of Adjoining Regions' Activity:
   a. Region C – David Montagne
   b. Region D – John McFarland
   c. Region H – Scott Hall
   d. Interregional Liaison – Kelley Holcomb
9. Reports from Standing Committees:
   a. Executive Committee – John Martin
   b. Finance Committee – Kelley Holcomb
   c. Bylaws Committee – David Alders
   d. Technical Committee – Scott Hall
   e. Nominations Committee – Monty Shank
10. Report from Consultant Team with Discussion by Regional Water Planning Group:
    a. Review of 6th Cycle Water Planning Schedule & IPP Adoption Process – Brigit Buff
    b. Review of chapters and appendices in the draft 2026 Region I East Texas Regional Water Planning Area Initially Prepared Plan – Brigit Buff and Jordan Skipwith
11. Consideration and Adoption of the 2026 Region I East Texas Regional Water Planning Area Initially Prepared Plan
    a. Consideration and Approval for the Adopted Initially Prepared Plan to be Submitted to the Texas Water Development Board

b. Consideration and Approval for the Political Subdivision to Prepare and Send Appropriate Notice(s) for Public Hearings Related to the Initially Prepared Plan

12. Reports from other state agencies, as necessary:
    a. Texas Water Development Board – Lann Bookout
    b. Texas Department of Parks & Wildlife – Stephen Lange
    c. Texas Department of Agriculture – Manuel Martinez
    d. Texas Soil and Water Conservation Board – Trey Watson
    e. Groundwater Management Areas – John Martin/John McFarland
13. General Discussion
14. Next Meeting Date(s) – IPP Public Hearing (May 2025), Regular RWPG Meeting (Summer 2025)
15. Adjourn

Comments from members and the public will be accepted by the Planning Group as listed in the agenda items above. For questions, requests, or additional information outside of the general meeting, please visit the Planning Group website, https://www.etexwaterplan.org/, or contact the Planning Group Administrative Contact:

c/o City of Nacogdoches
PO Box 635030
Nacogdoches, Texas 75963-3030
Attn: Cheryl Bartlett
Region I Administrative Contact
936-559-2528
regioniwater@gmail.com

Region I
East Texas Regional Water Planning Group

06 February 2025 • 10:00 AM

Nacogdoches Recreation Center
1112 North Street
Nacogdoches, TX 75961
AGENDA

The Region I East Texas Regional Water Planning Group has an Executive Committee and four additional standing committees. These committees function under the direction of the Region I East Texas Regional Water Planning Group as defined in the approved By-Laws. Committee meetings are held as needed. These Committees and their meeting times and agenda items are as follows:

Executive Committee – No Meeting

Nominations Committee – No Meeting

By-Laws Committee – No Meeting

Finance Committee – No Meeting

Technical Committee – No Meeting

Appendix 10-B

Transcripts, Presentations, and Minutes from Public Hearings

[Pending]

This appendix will not be ready until the final RWP.

Appendix 10-C

Initially Prepared Plan Public Comments

[Pending]

This appendix will not be ready until the final RWP.

Appendix 10-D
Submittal Letters for the 2026 IPP and 2026 Plan

The Submittal Letter for the 2026 IPP is provided below, while the Submittal Letter for the 2026 RWP will be provided after the IPP.

Region I
East Texas Regional
Water Planning Group

John Martin, Chair
P.O. Box 1407
Jasper TX 75951
409-383-1577

March 3, 2025

Mr. Bryan McMath
Executive Administrator
Texas Water Development Board
1700 North Congress Avenue
Austin, TX 78701

Re: Submission of the Region I, East Texas Regional Water Planning Group, 2026 Initially Prepared Plan of the Regional Water Plan

Dear Mr. McMath:

The Region I, East Texas Regional Water Planning Group (ETRWPG) met on February 6, 2025, and formally adopted the Region I 2026 Initially Prepared Plan (IPP) and approved its submission to the Texas Water Development Board (TWDB) commensurate with the March 3, 2025 deadline. The IPP is complete, as reflected in the IPP submittal. The submittal shall be delivered by a member of our consulting team with Plummer Associates, Inc. and meets the following requirements:

1. The submission of the IPP includes **two (2) bound double-sided copies** and **two electronic copies**, one (1) in searchable Portable Document Format (PDF) and one (1) in Microsoft Word (MSWord) Format.
2. **Certification**, in the form of this cover letter, that the IPP is complete and was adopted by the RWPG. I hereby certify that the Region I 2026 IPP is complete and was adopted by the RWPG.
3. The planning group met all requirements under the **Texas Open Meetings Act** and **Public Information Act** in accordance with **31 TAC § 357.12 and 357.21**.
4. The **executive summary** documenting key findings and recommendations does not exceed **30 pages**.
    - The executive summary incorporates the standard TWDB DB27 reports, by reference, as part of the regional water plan by including links to the TWDB Database Reports application and informing the reader that the report may be accessed via that application.
    - Additional specifications as provided in Section 2.13.2.
    - Supplemental information, such as county-specific summaries, are included as an executive summary appendix.
5. The IPP is a **technical report** containing all of the plan chapters in accordance with **31 TAC § 357.22(b)**, presenting the work and results of each planning task summarized in this document, the scope of work, and according to regional water planning rules.
6. The IPP (Chapter 10) includes **documentation of the RWPG's interregional coordination efforts.**
7. An **electronic appendix** containing all electronic model input/output or other model files used to date in determining surface water or groundwater availability.

Cheryl Bartlett, Administrative Contact | P.O. Box 635030 | Nacogdoches, Texas 75963-5030
Phone: 936-559-2525 | Fax: 936-559-2909 | regioniwater@gmail.com

8. The IPP includes a **table** providing the details of any hydrologic models used, including: model name, version date, model input/output files used, date model used, and any relevant comments.
9. The electronic copies of the IPP include a **set of ArcGIS-compatible data** constituting a SINGLE file geodatabase of feature classes or a SINGLE folder containing shapefiles marking the locations of every recommended and alternative WMS/WMSP that has a capital cost (e.g., with representative map latitude/longitude coordinates for the locations of both intake and delivery points of proposed pipelines).

If you have any questions regarding this matter, please contact me at (409) 383-1577. I appreciate the opportunity to work with the TWDB and your staff on this matter.

Sincerely,

John Martin

John Martin, Chair
East Texas Regional Water Planning Group

Region I

East Texas Regional
Water Planning Group

Contact:

John Martin
Southeast Texas Groundwater Conservation District
271 East Lamar
Jasper, Texas 75951
409-383-0799

etexwaterplan.org

PLUMMER

AGS
Advanced Groundwater Solutions, LLC

FREESE AND NICHOLS