REGION H
Water Planning Group

MEETING MATERIALS

August 6, 2025

Common Region H Terms and Conversion Factors

List of Abbreviations

CRU	Collective Reporting Unit
DCP	Drought Contingency Plan
DFC	Desired Future Condition
DOR	Drought of Record
EA	Executive Administrator
EPA	Environmental Protection Agency
FWSD	Fresh Water Supply District
GAM	Groundwater Availability Model
GCD	Groundwater Conservation District
GMA	Groundwater Management Area
GPCD	Gallons Per Capita Per Day
GRP	Groundwater Reduction Plan
IFR	Infrastructure Finance Report
IPP	Initially Prepared Plan
MAG	Modeled Available Groundwater
MPC	Master Planned Community
MUD	Municipal Utility District
MWP	Major Water Provider
PDSI	Palmer Drought Severity Index
PWS	Public Water Supply
RFPG	Regional Flood Planning Group
RHWPG	Region H Water Planning Group
ROR	Run-of-River
RWP	Regional Water Plan
RWPA	Regional Water Planning Area
RWPG	Regional Water Planning Group
SWIFT	State Water Implementation Fund for Texas
SWP	State Water Plan
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TPWD	Texas Parks and Wildlife Department
TWC	Texas Water Code
TWDB	Texas Water Development Board
UCM	Unified Costing Model
URS	Unique Reservoir Site
USS	Unique Stream Segment
WAM	Water Availability Model
WCID	Water Control and Improvement District
WCP	Water Conservation Plan
WMS	Water Management Strategy
WRAP	Water Rights Analysis Package
WUD	Water Utility Database
WUG	Water User Group
WWP	Wholesale Water Provider

Water Measurements

1 acre-foot (AF) = 43,560 cubic feet = 325,851 gallons

1 acre-foot per year (ac-ft/yr) = 325,851 gallons per year = 893 gallons per day

1 gallon per minute (gpm) = 1,440 gallons per day = 1.6 ac-ft/yr

1 million gallons per day (mgd) = 1,000,000 gallons per day = 1,120 ac-ft/yr

Region H Water Planning Group
10:00 AM Wednesday
August 6, 2025
San Jacinto River Authority (SJRA) Office
1577 Dam Site Rd, Conroe, Texas 77304

AGENDA

1. Call to order.
2. Introductions.
3. Review and approve minutes of the May 7, 2025 meeting.
4. **Receive public comments on specific issues related to agenda items 5 through 6**. (Public comments limited to 3 minutes per speaker)
5. Plan Development and Administration
    a. Receive presentation from the Consultant Team regarding TWDB analysis of socioeconomic impacts of unmet water needs in the Region H Water Planning Area.
    b. Receive update from Consultant Team regarding the Initially Prepared Plan (IPP) public and agency comment process and discuss responses.
    c. Receive presentation from Consultant Team regarding proposed revisions to the IPP in preparation of the draft Final 2026 Region H Regional Water Plan (RWP) to be approved at a subsequent meeting.
    d. Receive update from Legislative Committee and Consultant Team regarding the 89th Texas Legislative Session.
6. General Updates and Outreach
    a. Receive update regarding schedule and milestones for the development of the 2026 Region H RWP.
    b. Receive update from liaisons to other planning groups.
    c. Receive report regarding recent and upcoming activities related to communications and outreach efforts on behalf of the Region H Water Planning Group.
    d. Receive update from TWDB.
    e. Other agency communications and general information.
7. **Receive public comments**. (Public comments limited to 3 minutes per speaker)
8. Next Meeting: October 1, 2025.
9. Adjourn.

Persons with disabilities who plan to attend this meeting and would like to request auxiliary aids or services are requested to contact Sonia Zamudio at (936) 588-3111 at least three business days prior to the meeting so that appropriate arrangements can be made.

Agenda Item 3

Review and approve minutes of the May 7, 2025 meeting.

REGION H
Water Planning Group

[Minutes to be Inserted Here]

REGION H
Water Planning Group

Agenda Item 5a

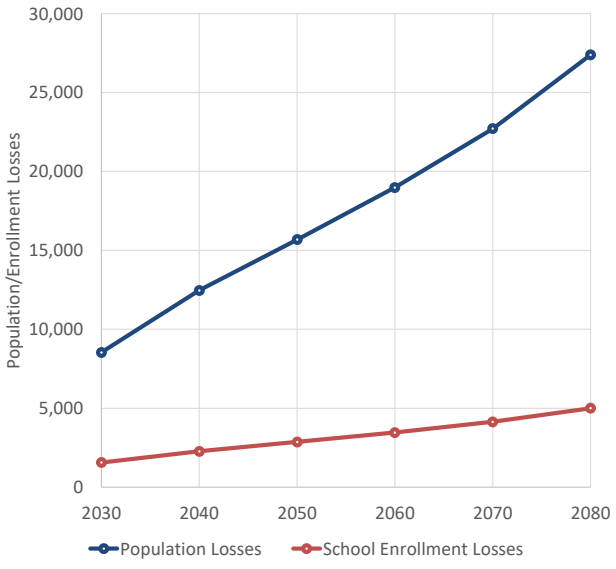
Receive presentation from the Consultant Team regarding TWDB analysis of socioeconomic impacts of unmet water needs in the Region H Water Planning Area.

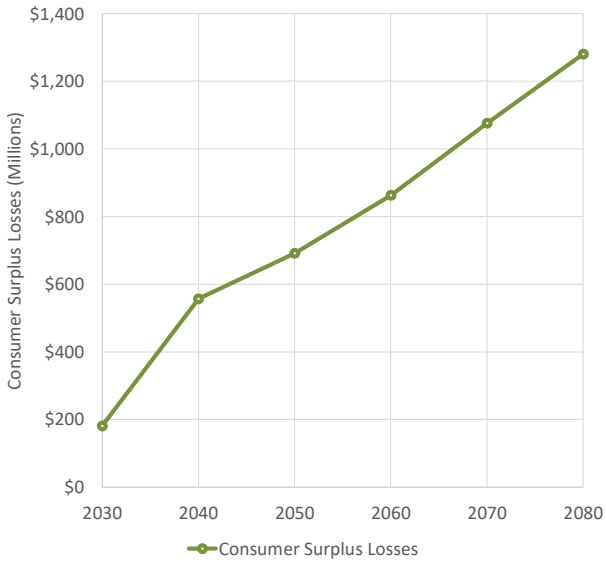
REGION H
Water Planning Group

Agenda Item 5a
Socioeconomic Impacts

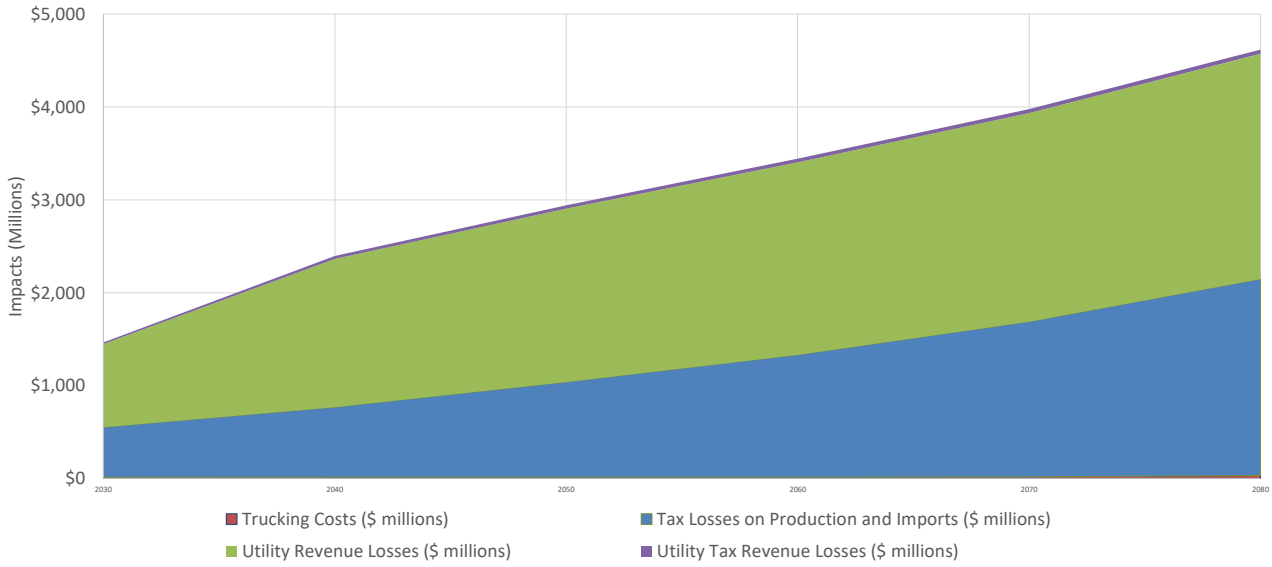
- Impacts of not meeting needs
  - Social
  - Economic
  - Financial Transfers
- TWDB study by request
- Impact for Planning Analysis (IMPLAN)
- Snapshot of first year of drought

Agenda Item 5a
Socioeconomic Impacts - Social

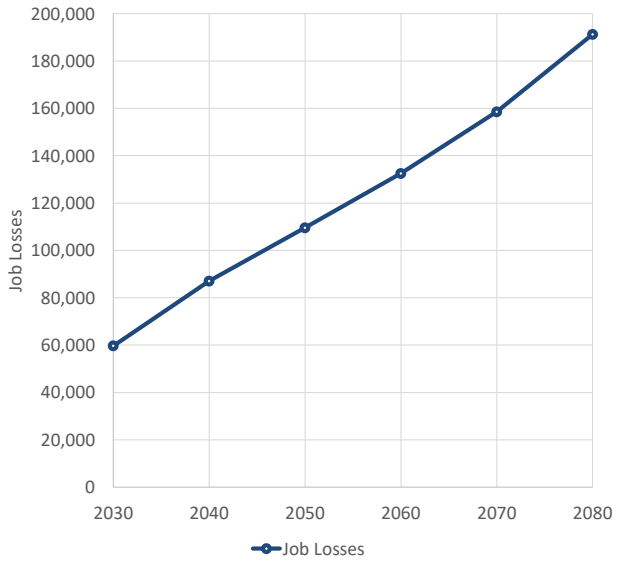


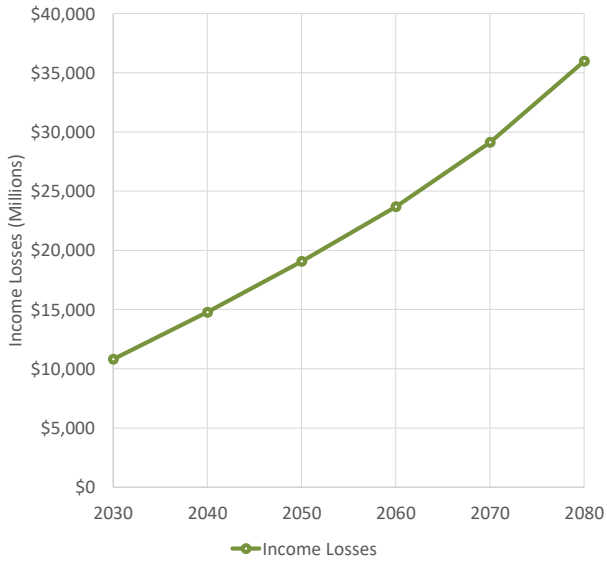


Agenda Item 5a
Socioeconomic Impacts – Financial Transfer

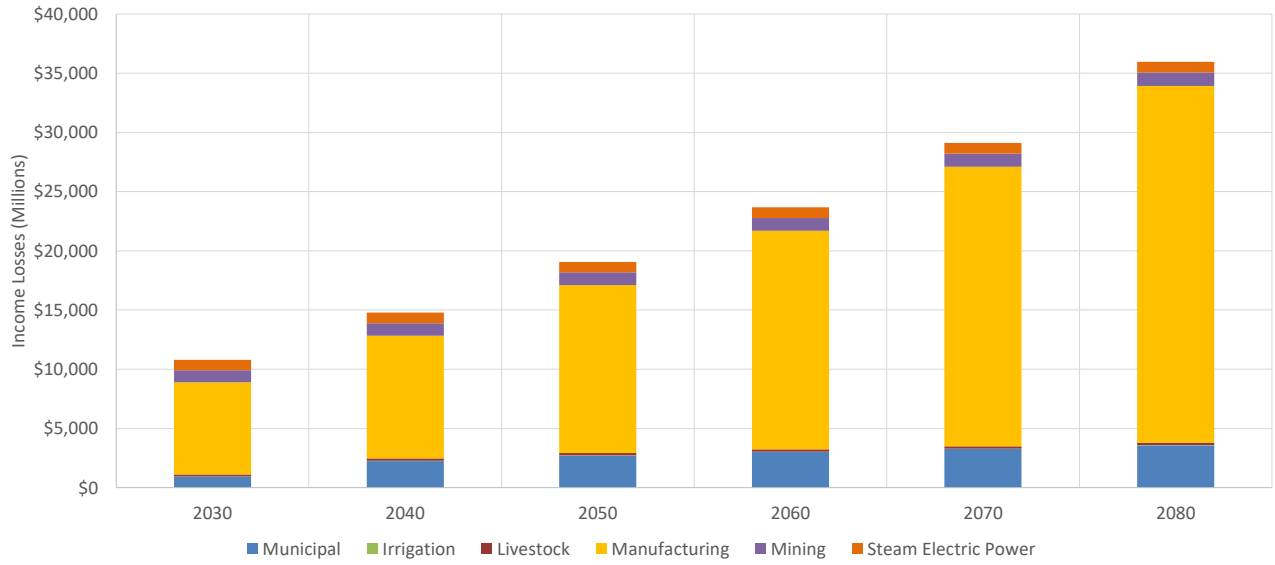


Agenda Item 5a
Socioeconomic Impacts – Regional Economic

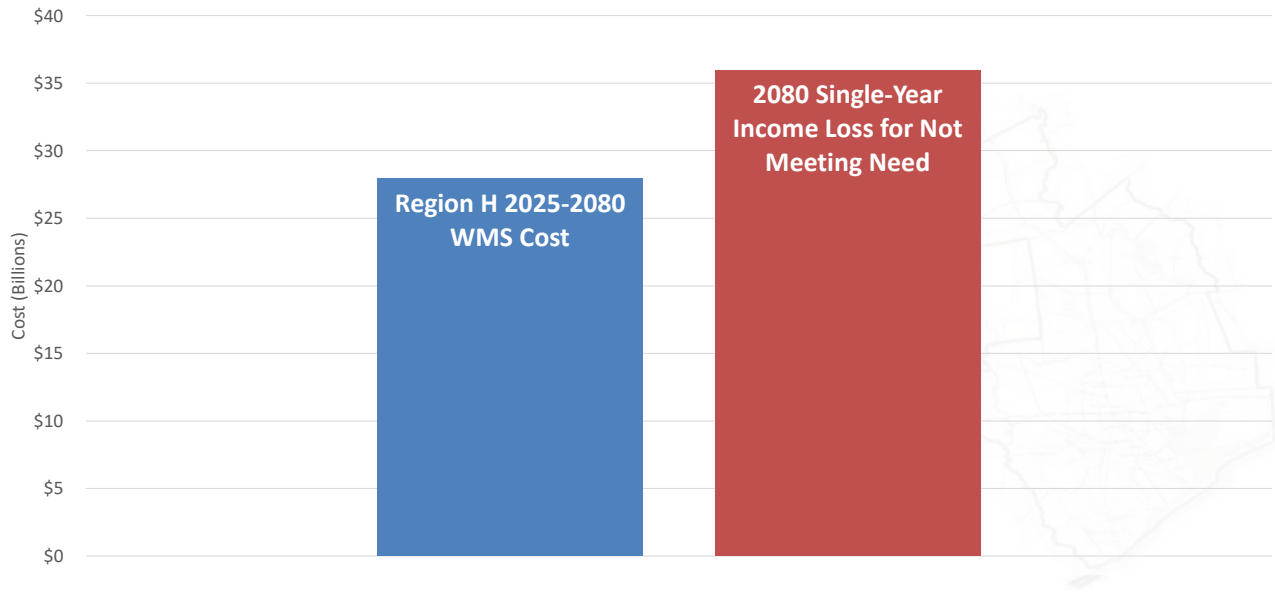




Agenda Item 5a
Socioeconomic Impacts – Regional Economic



Agenda Item 5a
Socioeconomic Impacts – Additional Context



Socioeconomic Impacts of Projected Water Shortages for the Region H Regional Water Planning Area

Prepared in Support of the 2026 Region H Regional Water Plan

Dr. John R. Ellis

Projections & Socioeconomic Analysis,
Water Supply Planning
Texas Water Development Board

June 2025

Table of Contents

Executive Summary

Evaluating the social and economic impacts of not meeting identified water needs is a required analysis in the regional water planning process. The Texas Water Development Board (TWDB) estimates these impacts for regional water planning groups (RWPGs) and summarizes the impacts in the state water plan. The analysis presented is for the Region H Regional Water Planning Group (Region H).

Based on projected water demands and existing water supplies, Region H identified water needs (potential shortages) that could occur within its region under a repeat of the drought of record for six water use categories (irrigation, livestock, manufacturing, mining, municipal and steam-electric power). The TWDB then estimated the annual socioeconomic impacts of those needs—if they are not met—for each water use category and as an aggregate for the region.

This analysis was performed using an economic impact modeling software package, IMPLAN (Impact for Planning Analysis), as well as other economic analysis techniques, and represents a snapshot of socioeconomic impacts that may occur during a single year repeat of the drought of record with the further caveat that no mitigation strategies are implemented. Decade-specific impact estimates assume that growth occurs, and future shocks are imposed on an economy at 10-year intervals. The estimates presented are not cumulative (i.e., summing up expected impacts from today up to the decade noted), but are simply snapshots of the estimated annual socioeconomic impacts should a drought of record occur in each particular decade based on anticipated water supplies and demands for that same decade.

For regional economic impacts, income losses and jobs potentially at risk are estimated within each planning decade (2030 through 2080). The income losses represent an approximation of gross domestic product (GDP) that would be foregone if water needs are not met.

The analysis also provides estimates of financial transfer impacts, which include tax losses (state, local, and utility tax collections); water trucking costs; and utility revenue losses. In addition, social impacts are estimated, encompassing lost consumer surplus (a welfare economics measure of consumer wellbeing); as well as population and school enrollment losses.

IMPLAN data reported that Region H generated more than $555.6 billion in gross domestic product (GDP) (2023 dollars) and supported more than 3.86 million jobs in 2021. The Region H estimated total population was approximately 7.4 million in 2021.

It is estimated that not meeting the identified water needs in Region H would result in an annually combined lost income impact of approximately $10.8 billion in 2030, increasing to almost $36 billion in 2080 (Table ES-1). In 2030, the region could lose approximately 59,600 jobs, and by 2080 at risk job losses would increase to approximately 191,000 if anticipated needs are not mitigated.

All impact estimates are in year 2023 dollars and were calculated using a variety of data sources and tools including the use of a region-specific IMPLAN model, data from TWDB annual water use

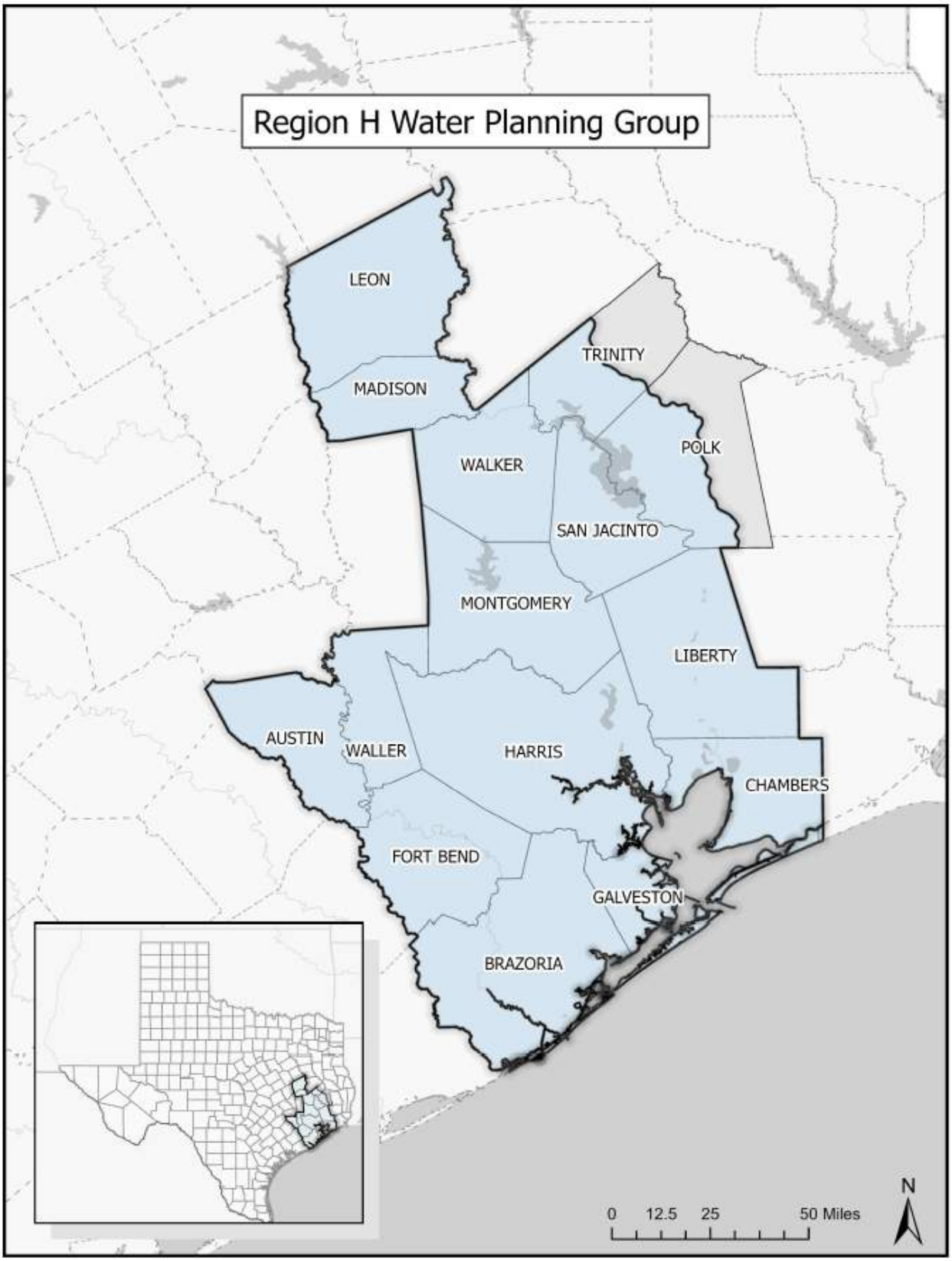
estimates, the U.S. Census Bureau, Texas Agricultural Statistics Service, and the Texas Municipal League.

Table ES-1 Region H socioeconomic impact summary

Regional Economic Impacts	2030	2040	2050	2060	2070	2080
Income losses ($ millions)*	$10,802	$14,782	$19,074	$23,676	$29,117	$35,971
At risk job losses	59,628	87,035	109,536	132,529	158,576	191,244
Financial Transfer Impacts	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**
Tax losses on production and imports ($ millions)*	$540	$755	$1,024	$1,317	$1,670	$2,116
Water trucking costs ($ millions)*	$12	$13	$14	$14	$19	$32
Utility revenue losses ($ millions)*	$894	$1,596	$1,869	$2,071	$2,244	$2,423
Utility tax revenue losses ($ millions)*	$17	$31	$36	$39	$43	$46
Social Impacts	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**
Consumer surplus losses ($ millions)*	$181	$557	$691	$863	$1,075	$1,280
At risk population out-migration	8,539	12,463	15,686	18,978	22,708	27,386
At risk school enrollment losses	1,558	2,275	2,863	3,464	4,144	4,998

* Year 2023 dollars, rounded**.** Entries denoted by a dash (-) indicate no estimated economic impact. Entries denoted by a zero ($0) indicate estimated income losses less than $500,000.

Figure ES-1 Region H Planning Area Map



1 Introduction

Water shortages during a repeat of the drought of record would likely curtail or eliminate certain economic activity in businesses and industries that rely heavily on water. Insufficient water supplies could not only have an immediate and real impact on the regional economy in the short term, but they could also adversely and chronically affect economic development in Texas. From a social perspective, water supply reliability is critical as well. Shortages could disrupt activity in homes, schools and government, and could adversely affect public health and safety. For these reasons, it is important to evaluate and understand how water supply shortages during drought could impact communities throughout the state.

As part of the regional water planning process, RWPGs must evaluate the social and economic impacts of not meeting water needs (31 Texas Administrative Code §357.33 (c)). Due to the complexity of the analysis and limited resources of the planning groups, the TWDB has historically performed this analysis for the RWPGs upon their request. Staff of the TWDB's Projections & Socioeconomic Analysis department designed and conducted this analysis in support of Region H, and those efforts for this Region as well as the other 15 regions allow consistency and a degree of comparability in the approach.

This document summarizes the results of the analysis and discusses the methodology used to generate the results. Section 1 provides a snapshot of the region's economy and summarizes the identified water needs in each water use category, which were calculated based on the RWPG's water supply and demand established during the regional water planning process. Section 2 defines each of ten impact assessment measures used in this analysis. Section 3 describes the methodology for the impact assessment and the approaches and assumptions specific to each water use category (i.e., irrigation, livestock, manufacturing, mining, municipal, and steam-electric power). Section 4 presents the impact estimates for each water use category with results summarized for the Region as a whole. Appendix A presents a further breakdown of the socioeconomic impacts by county.

1.1 Regional Economic Summary

The Region H Regional Water Planning Area generated more than $555 billion in gross domestic product (2023 dollars) and supported more than 3,800,000 jobs in the year 2021, according to the IMPLAN dataset utilized in this socioeconomic analysis. This activity accounted for approximately 28 percent of the state's total gross domestic product of 1.9 trillion dollars for the year 2021 based on IMPLAN. Table 1-1 lists all economic sectors ranked by the total value-added to the economy in Region H. The manufacturing and mining, quarrying, and oil and gas extraction sectors generated 28 percent of the region's total value-added and were also significant sources of tax revenue. The top employers in the region were in the health care and social assistance, professional, scientific, and technical services, retail trade, and accommodation and food services sectors. Region H's estimated total population was roughly 7,400,000, which comprises approximately 25 percent of the state's total population in 2021.

To gain deeper insights into Region H's economy, it is helpful to examine Region H's industry types. Region H consists of 225 4-digit NAICS (North American Industry Classification System) industries in the year 2021 with an employment share of 25 percent of total jobs in Texas and 28 percent of the state's total tax revenue. Trade played a pivotal role in the Region's economy, indicating connections with external markets. Major export commodities included refined petroleum products, natural gas & crude petroleum, and petrochemicals. Major import commodities included natural gas & crude petroleum, insurance, and basic organic chemicals.

This represents a snapshot of the regional economy as a whole, and it is important to note that not all economic sectors were included in the TWDB socioeconomic impact analysis. Data considerations prompted use of only the more water-intensive sectors within the economy because damage estimates could only be calculated for those economic sectors which had both reliable income and water use estimates.

Table 1-1 Region H regional economy by economic sector*

Economic sector	Value-added ($ millions)	Tax ($ millions)	Jobs
Manufacturing	$79,228.10	$1,514.54	234,033
Mining, Quarrying, and Oil and Gas Extraction	$78,790.96	$7,071.87	81,835
Professional, Scientific, and Technical Services	$58,442.30	$160.46	390,597
Wholesale Trade	$50,407.22	$10,219.98	167,297
Real Estate and Rental and Leasing	$38,471.21	$3,706.32	205,157
Health Care and Social Assistance	$34,164.45	($977.84)	409,428
Finance and Insurance	$33,537.03	$1,007.51	230,326
Construction	$25,536.11	($668.66)	264,359
Retail Trade	$24,393.81	$5,101.70	342,237
Administrative and Support and Waste Management and Remediation Services	$23,474.57	$410.00	330,840
Transportation and Warehousing	$22,651.18	$943.97	255,835
Other Services (except Public Administration)	$18,413.15	$1,284.32	328,603
Accommodation and Food Services	$18,003.12	$62.17	347,131
Utilities	$15,627.81	$2,281.29	19,661
Management of Companies and Enterprises	$13,711.36	$182.85	58,068
Information	$11,855.98	$3,150.76	42,070
Educational Services	$4,624.16	$35.00	70,336
Arts, Entertainment, and Recreation	$3,590.43	$146.63	56,148
Agriculture, Forestry, Fishing and Hunting	$739.19	($22.61)	27,211
Grand Total	**$555,662.14**	**$35,610.26**	**3,861,171**

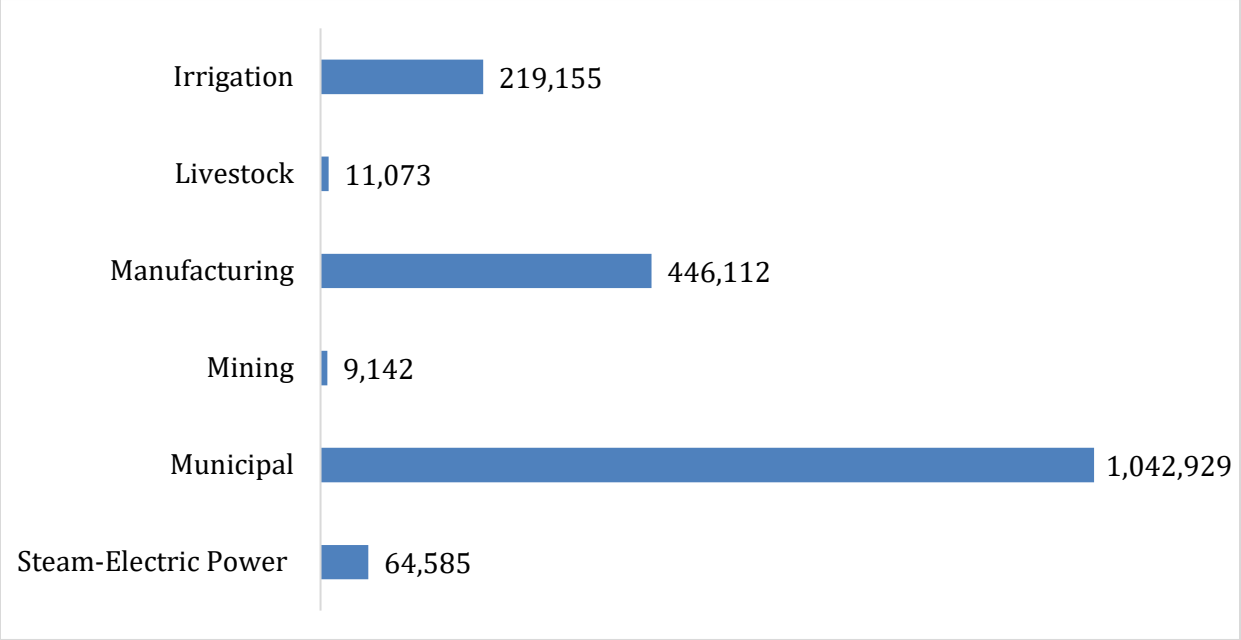
*Source: 2021 IMPLAN for 546 sectors aggregated by 2-digit NAICS

Note that for some sectors, taxes may be negative. This is due to federal subsidies in the sector and the subsequent net value in taxes collected and subsidies paid results in a negative tax payment (i.e., the subsidies paid were larger than the taxes collected for the year). Due to the Covid-19 pandemic, many sectors received more subsidies in the year 2021 than previous years, and the resulting net value for taxes is negative.

1.2 Regional Water Use Summary

While the manufacturing and mining sectors led the region in economic output, the majority (58 percent) of water use occurred in the municipal water use category in 2021. In fact, almost 23 percent of the state's municipal water use and 47 percent of the state's manufacturing water use occurred within Region H. Figure 1-1 illustrates Region H's breakdown of the 2021 water use estimates by TWDB water use category.

Figure 1-1 Region H 2021 water use estimates by water use category (in acre-feet)



Source: TWDB Annual Water Use Estimates (all values in acre-feet)

1.3 Identified Regional Water Needs (Potential Shortages)

As part of the regional water planning process, the TWDB adopted water demand projections for water user groups (WUG) in Region H with input from the planning group. WUG-level demand projections were established for utilities that provide more than 100 acre-feet of annual water supply, combined rural areas (designated as county-other), and county-wide water demand projections for five non-municipal categories (irrigation, livestock, manufacturing, mining and steam-electric power) per (31 TAC § 357.10(43)). The RWPG then compared demands to the existing water supplies of each WUG to determine potential shortages, or needs, by decade.

Table 1-2 summarizes the region's identified water needs in the event of a repeat of the drought of record (needs identified in the Initially Prepared Plans). Demand management, such as conservation, or the development of new infrastructure to increase supplies, are water management strategies that may be recommended by the planning group to address those needs. This analysis assumes that no strategies are implemented, and that the identified needs correspond to future water shortages. Note that projected water needs generally increase over time, primarily due to anticipated population growth, economic growth, or declining supplies. To provide a general sense of proportion, total projected needs as an overall percentage of total demand by water use category are also presented in aggregate in Table 1-2. Projected needs for individual water user groups within the aggregate can vary greatly and may reach 100% for a given WUG and water use category. A detailed summary of water needs appears in Chapter 4 of the 2026 Region H Regional Water Plan.

Table 1-2 Regional water needs summary by water use category*

Water Use Category		2030	2040	2050	2060	2070	2080
Irrigation	water needs (acre-feet per year)	89,160	90,468	91,331	91,886	92,250	92,447
	% of the category's total water demand	26%	26%	26%	27%	27%	27%
Livestock	water needs (acre-feet per year)	2,691	2,989	3,073	3,128	3,162	3,181
	% of the category's total water demand	21%	23%	24%	24%	24%	25%
Manufacturing	water needs (acre-feet per year)	57,797	72,118	90,291	106,299	123,260	141,927
	% of the category's total water demand	8%	10%	12%	13%	15%	17%
Mining	water needs (acre-feet per year)	3,920	4,045	4,168	4,297	4,427	4,565
	% of the category's total water demand	72%	73%	73%	74%	74%	74%
Municipal**	water needs (acre-feet per year)	200,385	354,786	413,388	456,767	494,457	533,417
	% of the category's total water demand	14%	24%	26%	28%	29%	30%
Steam-Electric Power	water needs (acre-feet per year)	16,038	16,224	16,354	16,434	16,481	16,524

	% of the category's total water demand	16%	17%	17%	17%	17%	17%
Total water needs (acre-feet per year)		**369,991**	**540,630**	**618,605**	**678,811**	**734,037**	**792,061**

*Entries denoted by a dash (-) indicate no identified water need for a given water use category.

** Municipal category consists of residential and non-residential (commercial and institutional) subcategories.

2 Impact Assessment Measures

A required component of the regional and state water plans is to estimate the potential economic and social impacts of potential water shortages during a repeat of the drought of record. Consistent with previous water plans, ten impact measures were estimated and are described in Table 2-1.

Table 2-1 Socioeconomic impact analysis measures

Regional economic impacts	Description
Income losses - value-added	The value of output less the value of intermediate consumption; it is a measure of the contribution to gross domestic product (GDP) made by an individual producer, industry, sector, or group of sectors within a year. Value-added measures used in this report have been adjusted to include the direct, indirect, and induced monetary impacts on the region.
Income losses - electrical power purchase costs	Proxy for income loss in the form of additional costs of power as a result of impacts of water shortages.
At risk job losses	Number of part-time and full-time jobs at risk of being lost due to the shortage. These values have been adjusted to include the direct, indirect, and induced employment impacts on the region.
Financial transfer impacts	**Description**
Tax losses on production and imports	Sales and excise taxes not collected due to the shortage, in addition to customs duties, property taxes, motor vehicle licenses, severance taxes, other taxes, and special assessments less subsidies. These values have been adjusted to include the direct, indirect and induced tax impacts on the region.
Water trucking costs	Estimated cost of shipping potable water.
Utility revenue losses	Foregone utility income due to not selling as much water.

Utility tax revenue losses	Foregone miscellaneous gross receipts tax collections.
Social impacts	**Description**
Consumer surplus losses	A welfare measure of the lost value to consumers accompanying restricted water use.
At risk population out-migration	Potential population losses accompanying potential job losses.
At risk school enrollment losses	Potential school enrollment losses (K-12) accompanying potential job losses.

2.1 Regional Economic Impacts

The two key measures used to assess regional economic impacts are income losses and at risk job losses. The income losses presented consist of the sum of value-added losses and the additional purchase costs of electrical power.

Income Losses - Value-added Losses

Value-added is the value of total output less the value of the intermediate inputs also used in the production of the final product. Value-added is similar to GDP, a familiar measure of the productivity of an economy. The loss of value-added due to water shortages is estimated by input-output analysis using the IMPLAN software package, and includes the direct, indirect, and induced monetary impacts on the region. The indirect and induced effects are measures of reduced income as well as reduced employee spending for those input sectors which provide resources to the water shortage impacted production sectors.

Income Losses - Electric Power Purchase Costs

The electrical power grid and market within the state is a complex interconnected system. The industry response to water shortages, and the resulting impact on the region, are not easily modeled using traditional input/output impact analysis and the IMPLAN model. Adverse impacts on the region will occur and are represented in this analysis by estimated additional costs associated with power purchases from other generating plants within the region or state. Consequently, the analysis employs additional power purchase costs as a proxy for the value-added impacts for the steam-electric power water use category, and these are included as a portion of the overall income impact for completeness.

For the purpose of this analysis, it is assumed that power companies with insufficient water will be forced to purchase power on the electrical market at a projected higher rate of 5.60 cents per kilowatt hour. This rate is based upon the average day-ahead market purchase price of electricity in Texas that occurred during the recent drought period in 2011. This price is assumed to be comparable to those prices which would prevail in the event of another drought of record.

At Risk Job Losses

The number of jobs at risk of being lost due to the economic impact is estimated using IMPLAN output associated with each TWDB water use category. Because of the difficulty in predicting outcomes and a lack of relevant data, at risk job loss estimates are not calculated for the steam-electric power category. Furthermore, the estimates of such job losses for the remaining water use sectors do not consider conversion to hybrid or remote employment, as IMPLAN employment estimates are based on the establishment locations.

2.2 Financial Transfer Impacts

Several impact measures evaluated in this analysis are presented to provide additional detail concerning potential impacts on a portion of the economy or government. These financial transfer impact measures include lost tax collections (on production and imports), trucking costs for imported water, declines in utility revenues, and declines in utility tax revenue collected by the state. These measures are not solely adverse, with some having both positive and negative impacts. For example, cities and residents would suffer if forced to pay large costs for trucking in potable water. Trucking firms, conversely, would benefit from the transaction. Additional detail for each of these measures follows.

Tax Losses on Production and Imports

Reduced production of goods and services accompanying water shortages adversely impacts the collection of taxes by state and local government. The regional IMPLAN model is used to estimate reduced tax collections associated with the reduced output in the economy. Impact estimates for this measure include the direct, indirect, and induced impacts for the affected sectors.

Water Trucking Costs

In instances where water shortages for a municipal water user group are estimated by RWPGs to exceed 80 percent of water demands, it is assumed that water would need to be trucked in to support basic consumption and sanitation needs. For water shortages of 80 percent or greater, a fixed, maximum of $45,500[1] per acre-foot of water applied as an economic cost. This water trucking cost was utilized for both the residential and non-residential portions of municipal water needs.

Utility Revenue Losses

Lost utility income is calculated as the price of water service multiplied by the quantity of water not sold during a drought shortage. Such estimates are obtained from utility-specific pricing data provided by the Texas Municipal League, where available, for both water and wastewater. These

[1] Based on a TWDB staff survey of year 2023 water trucking costs in the state. There are many factors and variables that would determine actual water trucking costs including distance, cost of water, and length of drought.

water rates are applied to the potential water shortage to estimate forgone utility revenue as water providers sold less water during the drought due to restricted supplies.

Utility Tax Losses

Foregone utility tax losses include estimates of forgone miscellaneous gross receipts taxes[2]. Reduced water sales reduce the amount of utility tax that would be collected by the State of Texas for water and wastewater service sales.

2.3 Social Impacts

Consumer Surplus Losses for Municipal Water Users

Consumer surplus loss is a measure of impact to the wellbeing of municipal water users when their water use is restricted. Consumer surplus is the difference between how much a consumer is willing and able to pay for a commodity (i.e., water) and how much they actually have to pay. The difference is a benefit to the consumer's wellbeing since they do not have to pay as much for the commodity as they would be willing to pay. Consumer surplus may also be viewed as an estimate of how much consumers would be willing to pay to keep the original quantity of water which they used prior to the drought. Lost consumer surplus estimates within this analysis only apply to the residential portion of municipal demand, with estimates being made for reduced outdoor and indoor residential use. Lost consumer surplus estimates varied widely by location and degree of water shortage.

At Risk Population and School Enrollment Losses

Population at risk of out-migration due to water shortages, as well as the associated decline in school enrollment, are based upon the at risk job loss estimates discussed in Section 2.1. A simplified ratio of at risk job and population out-migration are calculated for the state as a whole based on a recent study of how job layoffs impact the labor market population.[3] For every 100 jobs lost, 14 people were assumed to move out of the area. This ratio does not consider conversion to hybrid or remote employment and subsequent impacts to the labor market population. School enrollment losses are estimated as a proportion of the population at risk of out-migration based upon public school enrollment data from the Texas Education Agency concerning the age K-12 population within the state (approximately 18%).

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[2] https://comptroller.texas.gov/taxes/misc-gross-receipts

[3] Foote, Andrew, Grosz, Michel, Stevens, Ann. "Locate Your Nearest Exit: Mass Layoffs and Local Labor Market Response." University of California, Davis. April 2015, http://paa2015.princeton.edu/papers/150194. The study utilized Bureau of Labor Statistics data regarding layoffs between 1996 and 2013, as well as Internal Revenue Service data regarding migration, to model the change in the population as the result of a job layoff event. The study found that layoffs impact both out-migration and in-migration into a region, and that a majority of those who did move following a layoff moved to another labor market rather than an adjacent county.

3 Socioeconomic Impact Assessment Methodology

This portion of the report provides a summary of the methodology used to estimate the potential economic impacts of future water shortages. The general approach employed in the analysis was to obtain estimates for at risk income and job losses on the smallest geographic level that the available data would support, tie those values to their accompanying historic water use estimate, and thereby determine a maximum impact per acre-foot of water shortage for each of the socioeconomic measures. The calculations of economic impacts are based on the overall composition of the economy divided into many underlying economic sectors. Sectors in this analysis refer to one or more of the 546 specific production sectors of the economy designated within IMPLAN, the economic impact modeling software used for this assessment. Economic impacts within this report are estimated for approximately 330 of these economic sectors, with the focus on the more water-intensive production sectors. The economic impacts for a single water use category consist of an aggregation of impacts to multiple, related IMPLAN economic sectors.

3.1 Analysis Context

The context of this socioeconomic impact analysis involves situations where there are physical shortages of groundwater or surface water due to a recurrence of drought of record conditions. Anticipated shortages for specific water users may be nonexistent in earlier decades of the planning horizon, yet population growth or greater industrial, agricultural or other sector demands in later decades may result in greater overall demand, exceeding the existing supplies. Estimated socioeconomic impacts measure what would happen if water user groups experience water shortages for a period of one year. Actual socioeconomic impacts would likely become larger as drought of record conditions persist for periods greater than a single year.

3.2 IMPLAN Model and Data

The Input-Output (I-O) model provides a framework to analyze an event like a water shortage during a one-year repeat of the drought of record that impacts interdependent economic sectors. IMPLAN cloud is used as the primary software for estimating the value-added, jobs, and tax related impact measures. IMPLAN is a widely-accepted software model that combines data and analytics to empower a greater understanding of different economic impacts utilizing the foundations of I-O modeling techniques. This analysis employed regional level models, developed utilizing Regional Water Planning Area counties, to determine key economic impacts. IMPLAN was originally developed by the U.S. Forestry Service in the 1970's to model economic activity at varying geographic levels. The model is currently maintained by the the IMPLAN Group LLC (implan.com) which collects and sells county and state specific data and software.

IMPLAN currently combines information for 546 IMPLAN industry sectors. For the purpose of this socioeconomic impact analysis, all water-intensive industries are consolidated into six water user categories (irrigation, livestock, manufacturing, mining, municipal, and steam-electric power). Estimates of value-added for a water use category is obtained by summing value-added estimates across the relevant IMPLAN sectors associated with that water use category, for which there is

estimated water use in Texas. A similar approach was followed to estimate the number of at risk jobs as well as tax losses on production and imports.

IMPLAN categorizes the impact of water shortage events on value-added, jobs, and tax estimates into three components:

- ***Direct effects*** representing the initial change in the industry analyzed;
- ***Indirect effects*** that are changes in inter-industry transactions as supplying industries respond to reduced demands from the directly affected industries; and,
- ***Induced effects*** that reflect changes in local spending that result from reduced household income among employees in the directly and indirectly affected industry sectors.

3.3 Elasticity of Economic Impacts

The economic impact of a water need is based on the size of the water need relative to the total water demand for each water user group. Smaller water shortages, for example, less than 5 percent, are generally anticipated to result in no initial negative economic impact because water users are assumed to have a certain amount of flexibility in dealing with small shortages. As a water shortage intensifies, however, such flexibility lessens and results in actual and increasing economic losses, eventually reaching a representative maximum impact estimate per unit volume of water. To account for these characteristics, an elasticity adjustment function is used to estimate impacts for the income, tax and job loss measures. Figure 3-1 illustrates this general relationship for the adjustment functions. Negative impacts are assumed to begin accruing when the shortage reaches the lower bound 'b1' (5 percent in Figure 3-1), with impacts then increasing linearly up to the 100 percent impact level (per unit volume) once the upper bound reaches the 'b2' level shortage (40 percent in Figure 3-1).

To illustrate this, if the total annual value-added for manufacturing in the region was $2 million and the reported annual volume of water used in that industry is 10,000 acre-feet, the estimated economic measure of the water shortage would be $200 per acre-foot. The economic impact of the shortage would then be estimated using this value-added amount as the maximum impact estimate ($200 per acre-foot) applied to the anticipated shortage volume and then adjusted by the elasticity function. Using the sample elasticity function shown in Figure 3-1, an approximately 22 percent shortage in the manufacturing category would indicate an economic impact estimate of 50% of the original $200 per acre-foot impact value (i.e., $100 per acre-foot).

Such adjustments are not required in estimating lost consumer surplus, utility revenue losses, or utility tax losses. Estimates of lost consumer surplus rely on utility-specific demand curves with the lost consumer surplus estimate calculated based on the relative percentage of the utility's water shortage. Estimated changes in population and school enrollment are indirectly related to the elasticity of job losses.

Assumed values for the lower and upper bounds 'b1' and 'b2' vary by water use category and are presented in Table 3-1.

Figure 3-1 Example economic impact elasticity function (as applied to a single water user's shortage)

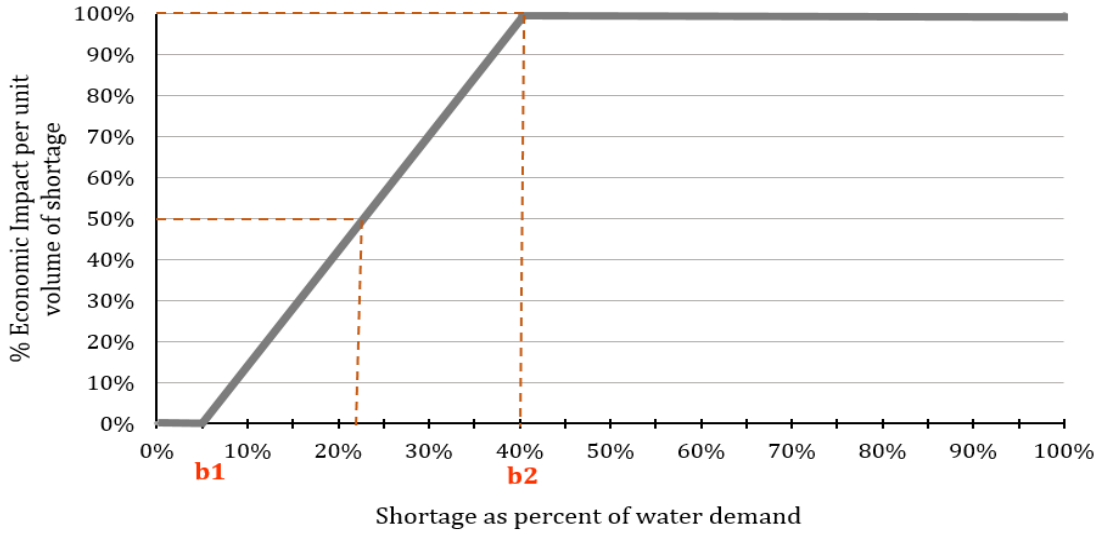


Table 3-1 Economic impact elasticity function lower and upper bounds

Water use category	Lower bound (b1)	Upper bound (b2)
Irrigation	**5%**	**40%**
Livestock	**5%**	**10%**
Manufacturing	**5%**	**40%**
Mining	**5%**	**40%**
Municipal (non-residential water intensive subcategory)	**5%**	**40%**
Steam-electric power	**N/A**	**N/A**

3.4 Analysis Assumptions and Limitations

The modeling of complex systems requires making many assumptions and acknowledging the model's uncertainty and limitations. This is particularly true when attempting to estimate a wide range of socioeconomic impacts over a large geographic area and into future decades. Some of the key assumptions and limitations of this methodology include:

1. The foundation for estimating the socioeconomic impacts of water shortages resulting from a drought are the water needs (potential shortages) that were identified by RWPGs as part of the

regional water planning process. These needs have some uncertainty associated with them but serve as a reasonable basis for evaluating the potential impacts of a drought of record event.

2. All estimated socioeconomic impacts are snapshots for years in which water needs were identified (i.e., 2030, 2040, 2050, 2060, 2070, and 2080). The estimates are independent and distinct "what if" scenarios for each particular year, and water shortages are assumed to be temporary events resulting from a single year recurrence of drought of record conditions. The evaluation assumed that no recommended water management strategies are implemented. Note that the estimates presented are not cumulative (i.e., summing up expected impacts from today up to the decade noted), but are simply snapshots of the estimated annual socioeconomic impacts should a drought of record occur in each particular decade based on anticipated water supplies and demands for that same decade.

3. Because the overarching context of this analysis is a one-year repeat drought of record, it is assumed that water-related utilities and companies would not implement mitigation measures or shock absorbers within such a short timeframe. Therefore, estimated impacts to the economy in this report may appear higher than if mitigation strategies were implemented in the short-term. If faced with drought over a longer timeframe, individual utilities and companies might alter their behavior to induce more efficient use of the limited water supplies available to them.

4. Input-output models such as IMPLAN rely on a static profile of the structure of the economy as it appears today. IMPLAN Input-output analysis is a backward-looking model, as it only reflects effects of input industries. This presumes that the relative contributions of all sectors of the economy would remain the same, regardless of changes in technology, availability of limited resources, and other structural changes to the economy that may occur in the future. Changes in water use efficiency will undoubtedly take place in the future as supplies become more stressed. Use of the static IMPLAN structure was a significant assumption and simplification considering the 50-year time period examined in this analysis. To presume an alternative future economic makeup, however, would entail positing many other major assumptions that would very likely generate as much or more error.

5. This is not a form of cost-benefit analysis. That approach to evaluating the economic feasibility of a specific policy or project employs discounting future benefits and costs to their present value dollars using some assumed discount rate. The methodology employed in this effort to estimate the economic impacts of future water shortages did not use any discounting methods to weigh future costs differently through time.

6. All monetary values originally based upon year 2021 IMPLAN and other sources are reported in constant year 2023 dollars to be consistent with the water management strategy requirements in the State Water Plan.

7. IMPLAN based loss estimates (income-value-added, jobs, and taxes on production and imports) are calculated only for those IMPLAN sectors for which the TWDB's Water Use Survey (WUS) data was available and deemed reliable. Every effort is made in the annual WUS effort to capture all relevant firms who are significant water users. Lack of response to the WUS, or omission of relevant firms, impacts the loss estimates.

8. Impacts are annual estimates. The socioeconomic analysis does not reflect the full extent of impacts that might occur as a result of persistent water shortages occurring over an extended duration. The drought of record in most regions of Texas lasted several years.

9. Loss in value-added estimates are the primary estimate of the economic impacts within this report. One may be tempted to add consumer surplus impacts to obtain an estimate of total adverse economic impacts to the region, but the consumer surplus measure represents the change to the wellbeing of households (and other water users), not an actual change in the flow of dollars through the economy. The two measures (value-added and consumer surplus) are both valid impacts but ideally should not be summed.

10. The value-added, jobs, and taxes on production and import impacts include the direct, indirect and induced effects to capture backward linkages in the economy described in Section 2.1. Population and school enrollment at risk of out-migration also indirectly include such effects as they are based on the associated losses in employment. The remaining measures (consumer surplus, utility revenue, utility taxes, additional electrical power purchase costs, and potable water trucking costs), however, do not include any induced or indirect effects.

11. The majority of impacts estimated in this analysis may be more conservative (i.e., smaller) than those that might actually occur under drought of record conditions due to not including impacts in the forward linkages in the economy. Input-output models such as IMPLAN only capture backward linkages on suppliers (including households that supply labor to directly affected industries). While this is a common limitation in this type of economic modeling effort, it is important to note that forward linkages on the industries that use the outputs of the directly affected industries can also be very important. A good example is impacts on livestock operators. Livestock producers tend to suffer substantially during droughts, not because there is not enough water for their stock, but because reductions in available pasture and higher prices for purchased hay have significant economic effects on their operations. Food processors could be in a similar situation if they cannot get the grains or other inputs that they need. These effects are not captured in IMPLAN, resulting in conservative impact estimates.

12. The model does not reflect dynamic economic responses to water shortages as they might occur, nor does the model reflect economic impacts associated with a recovery from a drought of record including:
    a. The likely significant economic rebound to some industries immediately following a drought, such as landscaping;

b. The cost and time to rebuild liquidated livestock herds (a major capital investment in that industry);
c. Direct impacts on recreational sectors (i.e., stranded docks and reduced tourism); or,
d. Impacts of negative publicity on Texas' ability to attract population and business in the event that it was not able to provide adequate water supplies for the existing economy.

13. Estimates for at risk losses and the associated population and school enrollment changes may exceed what would actually occur. In practice, firms may be hesitant to lay off employees, even in difficult economic times. Estimates of potential population and school enrollment changes are based on regional evaluations and therefore do not necessarily reflect what might occur on a statewide basis.

14. **The results must be interpreted carefully. It is the general and relative magnitudes of impacts as well as the changes of these impacts over time that should be the focus rather than the absolute numbers.** Analyses of this type are much better at predicting relative percent differences brought about by a shock to a complex system (i.e., a water shortage) than the precise size of an impact. To illustrate, assuming that the estimated economic impacts of a drought of record on the manufacturing and mining water user categories are $2 and $1 million, respectively, one should be more confident that the economic impacts on manufacturing are twice as large as those on mining and that these impacts will likely be in the millions of dollars. But one should have less confidence that the actual total economic impact experienced would be $3 million.

15. The methodology does not capture "spillover" effects between regions – or the secondary impacts that occur outside of the region where the water shortage is projected to occur.

16. The methodology that the TWDB has developed for estimating the economic impacts of unmet water needs, and the assumptions and models used in the analysis, are specifically designed to estimate potential economic effects at the regional and county levels. Although it may be tempting to add the regional impacts together in an effort to produce a statewide result, the TWDB cautions against that approach for a number of reasons. The IMPLAN modeling (and corresponding economic multipliers) are all derived from regional models – a statewide model of Texas would produce somewhat different multipliers. As noted in point 14 within this section, the regional modeling used by TWDB does not capture spillover losses that could result in other regions from unmet needs in the Region analyzed, or potential spillover gains if decreased production in one region leads to increases in production elsewhere. The assumed drought of record may also not occur in every region of Texas at the same time, or to the same degree.

4 Analysis Results

This section presents estimates of potential economic impacts that could reasonably be expected in the event of water shortages associated with a drought of record and if no recommended water management strategies were implemented. Projected economic impacts for the six water use categories (irrigation, livestock, manufacturing, mining, municipal, and steam-electric power) are reported by decade.

4.1 Impacts for Irrigation Water Shortages

Seven of the 15 counties in the Region are projected to experience water shortages in the irrigated agriculture water use category for one or more decades within the planning horizon. Estimated impacts to this water use category appear in Table 4-1. Note that tax collection impacts were not estimated for this water use category. IMPLAN data indicates a negative tax impact (i.e., increased tax collections) for the associated production sectors, primarily due to past subsidies from the federal government. However, it was not considered realistic to report increasing tax revenues during a drought of record.

Table 4-1 Impacts of water shortages on irrigation

Impact measure	2030	2040	2050	2060	2070	2080
Income losses ($ millions)*	$24	$25	$26	$27	$28	$29
At risk job losses	1,009	1,071	1,176	1,268	1,332	1,394

* Year 2023 dollars, rounded. Entries denoted by a dash (-) indicate no estimated economic impact. Entries denoted by a zero ($0) indicate estimated income losses less than $500,000.

4.2 Impacts for Livestock Water Shortages

Seven of the 15 counties in the Region are projected to experience water shortages in the livestock water use category. Estimated impacts to this water use category appear in Table 4-2.

Table 4-2 Impacts of water shortages on livestock

Impact measure	2030	2040	2050	2060	2070	2080
Income losses ($ millions)*	$163	$187	$192	$196	$198	$199
At risk job losses	3,600	4,087	4,208	4,287	4,336	4,364
Tax losses on production and imports ($ millions)*	$7	$8	$8	$8	$8	$8

* Year 2023 dollars, rounded. Entries denoted by a dash (-) indicate no estimated economic impact. Entries denoted by a zero ($0) indicate estimated income losses less than $500,000.

4.3 Impacts of Manufacturing Water Shortages

Manufacturing water shortages in the Region are projected to occur in six of the 15 counties for at least one decade of the planning horizon. Estimated impacts to this water use category appear in Table 4-3.

Table 4-3 Impacts of water shortages on manufacturing

Impacts measure	2030	2040	2050	2060	2070	2080
Income losses ($ millions)*	$7,790	$10,380	$14,198	$18,443	$23,615	$30,140
At risk job losses	39,970	52,086	69,429	88,568	111,743	140,895
Tax losses on production and Imports ($ millions)*	$381	$542	$792	$1,070	$1,411	$1,844

* Year 2023 dollars, rounded. Entries denoted by a dash (-) indicate no estimated economic impact. Entries denoted by a zero ($0) indicate estimated income losses less than $500,000.

4.4 Impacts of Mining Water Shortages

Eight of the 15 counties in the Region are projected to experience water shortages in the mining water use category. Estimated impacts to this water use type appear in Table 4-4.

Table 4-4 Impacts of water shortages on mining

Impacts measure	2030	2040	2050	2060	2070	2080
Income losses ($ millions)*	$1,025	$1,045	$1,066	$1,089	$1,111	$1,135
At risk job losses	4,994	5,099	5,210	5,337	5,454	5,578
Tax losses on production and Imports ($ millions)*	$117	$119	$120	$122	$124	$126

* Year 2023 dollars, rounded. Entries denoted by a dash (-) indicate no estimated economic impact. Entries denoted by a zero ($0) indicate estimated income losses less than $500,000.

4.5 Impacts for Municipal Water Shortages

Thirteen of the 15 counties in the Region are projected to experience water shortages in the municipal water use category for one or more decades within the planning horizon.

Impact estimates were made for two sub-categories within municipal water use: residential and non-residential. Non-residential municipal water use includes commercial and institutional users, which are further divided into non-water-intensive and water-intensive subsectors including car wash, laundry, hospitality, health care, recreation, and education. Lost consumer surplus estimates were made only for needs in the residential portion of municipal water use. Available IMPLAN and TWDB Water Use Survey data for the non-residential, water-intensive portion of municipal demand allowed these sectors to be included in income, jobs, and tax loss impact estimate.

Trucking cost estimates, calculated for shortages exceeding 80 percent, assumed a fixed, maximum cost of $45,500 per acre-foot to transport water for municipal use. The estimated impacts to this water use category appear in Table 4-5.

Table 4-5 Impacts of water shortages on municipal water users

Impacts measure	2030	2040	2050	2060	2070	2080
Income losses[1] ($ millions)*	$917	$2,253	$2,693	$3,017	$3,258	$3,559
At risk job losses[1]	10,056	24,693	29,512	33,069	35,712	39,012
Tax losses on production and imports[1] ($ millions)*	$35	$87	$104	$116	$126	$137
Trucking costs ($ millions)*	$12	$13	$14	$14	$19	$32
Utility revenue losses ($ millions)*	$894	$1,596	$1,869	$2,071	$2,244	$2,423
Utility tax revenue losses ($ millions)*	$17	$31	$36	$39	$43	$46

[1] Estimates apply to the water-intensive portion of non-residential municipal water use.
* Year 2023 dollars, rounded. Entries denoted by a dash (-) indicate no estimated economic impact. Entries denoted by a zero ($0) indicate estimated income losses less than $500,000.

4.6 Impacts of Steam-Electric Power Water Shortages

Three of the 15 counties in the Region are projected to experience water shortages in the steam-electric water category. Estimated impacts to this water use category appear in Table 4-6.

Note that estimated economic impacts to steam-electric power water users:

- Are reflected as an income loss proxy in the form of estimated additional purchasing costs for power from the electrical grid to replace power that could not be generated due to a shortage;
- Do not include estimates of impacts on jobs. Because of the unique conditions of power generators during drought conditions and lack of relevant data, it was assumed that the

industry would retain, perhaps relocating or repurposing, their existing staff in order to manage their ongoing operations through a severe drought.

- Do not presume a decline in tax collections. Associated tax collections, in fact, would likely increase under drought conditions since, historically, the demand for electricity increases during times of drought, thereby increasing taxes collected on the additional sales of power.

Table 4-6 Impacts of water shortages on steam-electric power

Impacts measure	2030	2040	2050	2060	2070	2080
Income Losses ($ millions)*	$882	$892	$899	$904	$906	$909

* Year 2023 dollars, rounded. Entries denoted by a dash (-) indicate no estimated economic impact. Entries denoted by a zero ($0) indicate estimated income losses less than $500,000.

4.7 Regional Social Impacts

Projected changes in population, based upon several factors (household size, population, and job loss estimates), as well as the accompanying change in school enrollment, were also estimated and are summarized in Table 4-7.

Table 4-7 Region-wide social impacts of water shortages

Impacts measure	2030	2040	2050	2060	2070	2080
Consumer surplus losses ($ millions)*	$181	$557	$691	$863	$1,075	$1,280
At risk population out-migration	8,539	12,463	15,686	18,978	22,708	27,386
At risk school enrollment losses	1,558	2,275	2,863	3,464	4,144	4,998

* Year 2023 dollars, rounded. Entries denoted by a dash (-) indicate no estimated economic impact. Entries denoted by a zero ($0) indicate estimated income losses less than $500,000.

Appendix A - County Level Summary of Regional Estimated Economic Impacts

County level summary of estimated regional economic impacts of not meeting identified water needs by water use category and decade (in 2023 dollars, rounded). Values are presented only for counties with projected economic impacts for at least one decade.

(* Entries denoted by a dash (-) indicate no estimated economic impact)

		Income losses ($ millions)						At risk job losses					
County	**Water Use Category**	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**
Austin	Mining	$ 3.99	$ 4.83	$ 5.88	$ 7.04	$ 8.19	$ 9.56	20	24	29	35	41	48
Austin	Steam Electric Power	$ 48.82	$ 48.82	$ 48.82	$ 48.82	$ 48.82	$ 48.82	-	-	-	-	-	-
Austin Total		$ 52.82	$ 53.66	$ 54.71	$ 55.86	$ 57.02	$ 58.38	20	24	29	35	41	48
Brazoria	Irrigation	$ 20.17	$ 20.35	$ 20.46	$ 20.53	$ 20.59	$ 20.59	827	834	839	842	844	844
Brazoria	Livestock	$ 11.88	$ 14.68	$ 16.22	$ 17.33	$ 18.06	$ 18.12	299	369	408	436	454	456
Brazoria	Manufacturing	$ 1,089.07	$ 2,288.41	$ 4,339.32	$ 6,984.44	$ 10,415.24	$ 15,029.65	4,839	10,167	19,279	31,030	46,272	66,773
Brazoria	Mining	$ 53.47	$ 63.77	$ 73.92	$ 84.71	$ 96.31	$ 108.71	285	339	393	451	513	579
Brazoria	Municipal	$ 8.69	$ 17.80	$ 26.07	$ 30.04	$ 32.91	$ 35.30	95	195	286	329	361	387
Brazoria Total		$ 1,183.28	$ 2,405.02	$ 4,475.98	$ 7,137.05	$ 10,583.11	$ 15,212.36	6,344	11,905	21,204	33,088	48,444	69,038
Chambers	Irrigation	$ 0.53	$ 0.53	$ 0.53	$ 0.53	$ 0.53	$ 0.53	24	24	24	24	24	24
Chambers	Manufacturing	$ 2,053.37	$ 2,350.55	$ 2,668.26	$ 3,007.28	$ 3,368.44	$ 3,752.67	7,303	8,359	9,489	10,695	11,979	13,346
Chambers	Municipal	$ 6.36	$ 23.97	$ 30.54	$ 57.35	$ 82.51	$ 110.96	70	263	335	629	904	1,216
Chambers Total		$ 2,060.27	$ 2,375.05	$ 2,699.34	$ 3,065.17	$ 3,451.49	$ 3,864.16	7,397	8,647	9,848	11,348	12,908	14,586
Fort Bend	Manufacturing	$ 2,894.18	$ 3,069.38	$ 3,249.60	$ 3,433.93	$ 3,635.27	$ 3,839.90	17,854	18,935	20,047	21,184	22,426	23,688
Fort Bend	Municipal	$ 187.82	$ 276.03	$ 354.93	$ 418.02	$ 474.27	$ 530.59	2,059	3,025	3,890	4,582	5,198	5,815
Fort Bend Total		$ 3,082.00	$ 3,345.41	$ 3,604.53	$ 3,851.95	$ 4,109.54	$ 4,370.49	19,913	21,960	23,937	25,766	27,624	29,504
Galveston	Irrigation	$ 2.30	$ 2.30	$ 2.30	$ 2.30	$ 2.30	$ 2.30	111	111	111	111	111	111
Galveston	Livestock	$ 11.70	$ 11.70	$ 11.70	$ 11.70	$ 11.70	$ 11.70	273	273	273	273	273	273
Galveston	Municipal	$ 9.93	$ 10.53	$ 11.11	$ 11.69	$ 12.12	$ 13.07	109	115	122	128	133	143
Galveston Total		$ 23.92	$ 24.52	$ 25.10	$ 25.68	$ 26.12	$ 27.07	493	500	506	512	517	527
Harris	Livestock	$ 57.40	$ 71.35	$ 71.35	$ 71.35	$ 71.35	$ 71.35	1,124	1,397	1,397	1,397	1,397	1,397
Harris	Manufacturing	$ 708.09	$ 1,315.06	$ 2,333.14	$ 3,211.09	$ 4,220.69	$ 5,370.53	3,005	5,581	9,902	13,628	17,912	22,792
Harris	Mining	$ 450.00	$ 454.65	$ 458.97	$ 463.29	$ 467.61	$ 471.93	2,404	2,429	2,452	2,475	2,498	2,521

		Income losses ($ millions)						At risk job losses					
County	**Water Use Category**	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**
Harris	Municipal	$ 671.07	$ 1,815.25	$ 2,040.32	$ 2,146.80	$ 2,180.78	$ 2,239.87	7,355	19,896	22,362	23,529	23,902	24,550
Harris	Steam Electric Power	$ 815.67	$ 815.67	$ 815.67	$ 815.67	$ 815.67	$ 815.67	-	-	-	-	-	-
Harris Total		$ 2,702.23	$ 4,471.99	$ 5,719.45	$ 6,708.22	$ 7,756.11	$ 8,969.36	13,888	29,302	36,113	41,029	45,709	51,260
Leon	Manufacturing	$ -	$ -	$ 2.75	$ 10.97	$ 23.99	$ 41.52	-	-	17	68	149	259
Leon	Municipal	$ 0.04	$ 0.02	$ 0.02	$ 0.02	$ 0.03	$ 0.04	0	0	0	0	0	0
Leon Total		$ 0.04	$ 0.02	$ 2.77	$ 10.99	$ 24.02	$ 41.55	0	0	17	69	150	259
Liberty	Irrigation	$ 1.34	$ 1.34	$ 1.34	$ 1.34	$ 1.34	$ 1.34	43	43	43	43	43	43
Liberty	Livestock	$ 25.60	$ 25.60	$ 25.60	$ 25.60	$ 25.60	$ 25.60	680	680	680	680	680	680
Liberty	Mining	$ 8.30	$ 10.19	$ 12.08	$ 13.97	$ 15.65	$ 17.33	41	51	60	70	78	86
Liberty	Municipal	$ 0.04	$ 0.37	$ 0.75	$ 1.18	$ 2.14	$ 3.58	0	4	8	13	23	39
Liberty Total		$ 35.28	$ 37.50	$ 39.77	$ 42.09	$ 44.73	$ 47.85	765	779	792	806	825	849
Madison	Irrigation	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	3	3	3	3	3	3
Madison	Livestock	$ 56.86	$ 56.86	$ 56.86	$ 56.86	$ 56.86	$ 56.86	1,224	1,224	1,224	1,224	1,224	1,224
Madison	Mining	$ 482.63	$ 482.63	$ 482.63	$ 482.63	$ 482.63	$ 482.63	2,142	2,142	2,142	2,142	2,142	2,142
Madison	Municipal	$ 5.12	$ 0.14	$ 0.02	$ 0.02	$ 0.03	$ 0.03	56	2	0	0	0	0
Madison Total		$ 544.65	$ 539.67	$ 539.55	$ 539.56	$ 539.56	$ 539.57	3,425	3,371	3,369	3,369	3,369	3,369
Montgomery	Irrigation	$ -	$ 0.57	$ 1.63	$ 2.56	$ 3.21	$ 3.86	-	54	156	244	306	368
Montgomery	Livestock	$ -	$ 6.82	$ 10.73	$ 13.14	$ 14.56	$ 15.84	-	144	226	277	307	334
Montgomery	Manufacturing	$ 1,045.72	$ 1,356.94	$ 1,604.79	$ 1,794.92	$ 1,951.10	$ 2,106.15	6,969	9,043	10,695	11,962	13,003	14,037
Montgomery	Mining	$ -	$ 1.72	$ 4.95	$ 10.20	$ 13.10	$ 16.67	-	10	28	59	75	96
Montgomery	Municipal	$ 27.55	$ 104.81	$ 219.22	$ 336.11	$ 439.69	$ 541.30	302	1,149	2,403	3,684	4,819	5,933
Montgomery	Steam Electric Power	$ 17.32	$ 27.55	$ 34.69	$ 39.09	$ 41.68	$ 44.04	-	-	-	-	-	-
Montgomery Total		$ 1,090.59	$ 1,498.41	$ 1,876.02	$ 2,196.02	$ 2,463.34	$ 2,727.86	7,271	10,400	13,509	16,226	18,511	20,767
Polk	Mining	$ 9.53	$ 9.90	$ 10.26	$ 10.63	$ 11.00	$ 11.00	28	29	30	31	32	32
Polk Total		$ 9.53	$ 9.90	$ 10.26	$ 10.63	$ 11.00	$ 11.00	28	29	30	31	32	32
San Jacinto	Mining	$ 16.99	$ 16.99	$ 16.99	$ 16.99	$ 16.99	$ 16.99	75	75	75	75	75	75
San Jacinto Total		$ 16.99	$ 16.99	$ 16.99	$ 16.99	$ 16.99	$ 16.99	75	75	75	75	75	75
Walker	Municipal	$ 0.02	$ 0.00	$ 0.00	$ 0.08	$ 11.41	$ 55.21	0	0	0	1	125	605
Walker Total		$ 0.02	$ 0.00	$ 0.00	$ 0.08	$ 11.41	$ 55.21	0	0	0	1	125	605

		Income losses ($ millions)						At risk job losses					
County	**Water Use Category**	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**
Waller	Municipal	$ 0.82	$ 4.01	$ 9.67	$ 15.85	$ 22.43	$ 29.50	9	44	106	174	246	323
Waller Total		$ 0.82	$ 4.01	$ 9.67	$ 15.85	$ 22.43	$ 29.50	9	44	106	174	246	323
Region H Total		**$ 10,802.44**	**$ 14,782.18**	**$ 19,074.15**	**$ 23,676.13**	**$ 29,116.86**	**$ 35,971.36**	**59,628**	**87,035**	**109,536**	**132,529**	**158,576**	**191,244**

Agenda Item 5b

Receive update from Consultant Team regarding the Initially Prepared Plan (IPP) public and agency comment process and discuss responses.

REGION H
Water Planning Group

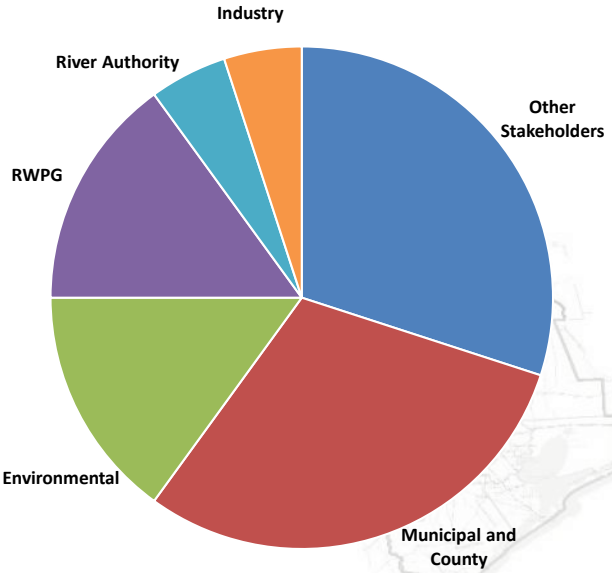
Agenda Item 5b
IPP Comments

Thank You!

Agenda Item 5b
IPP Comments

Agenda Item 5b
IPP Comments

- Three IPP hearings
  - All in-person
  - Good turnout - 20+ attendees
- Written comments through July 18th
- Agency comment



Agenda Item 5b
IPP Comments - TWDB

- TWDB
  - Level 1 Comments: 30
  - Level 2 Comments: 4
- Topics
  - WMS Details
  - Impacts and Implementation
  - Other Minor Adjustments

Agenda Item 5b
IPP Comments and Revisions - TWDB

- WMS Details

Comment	Preliminary Response
Clarify supply increases for infrastructure expansion projects and remove replacement or retail elements	Add additional information to corresponding technical memoranda
Clarify or reassess strategies with zero supply volume in DB27	Note conservation methodology reasoning and MAG peak factor adjustments
Clarify cost components and component contributions for select cost estimates	Additional detail in estimates for final RWP
Show separate mitigation and acquisition costs for reservoirs	Additional detail in final RWP

Agenda Item 5b
IPP Comments and Revisions - TWDB

- WMS Details

Comment	Preliminary Response
Confirm reasonableness of certain post-conservation demands	Clarify loss reduction impact and magnitudes of differences
Add needs summary for IBT	Add to final RWP
Clarify phase online date for BAWA East SWTP	Additional detail in final RWP

Agenda Item 5b
IPP Comments and Revisions - TWDB

- Impacts and Implementation

Comment	Preliminary Response
Include quantitative USS analysis in Chapter 8	Clarify methodology and analyses
Note previous URS designation of Allens Creek Reservoir	Additional detail in final RWP
Clarify implemented strategy counts	Additional data and clarification on WMS grouping

Agenda Item 5b
IPP Comments and Revisions - TWDB

- Other Minor Adjustments

Comment	Preliminary Response
Address differences between RWP and DB27	Update summary tables to address minor updates
Add additional summary tables for select parameters	New ES appendix to supplement existing content
Update non-MAG groundwater references	Update of TWDB study citations
Add Emerging Technologies Evaluation	Letter response only – note location of appendix
Address file accessibility and metadata issues	Enhanced structure tagging and references in final
Minor (Level 2) comments	Additional detail in final RWP

Agenda Item 5b
IPP Comments - TPWD

- Natural Resources and Environmental Impacts
  - Additional measures to reduce impacts from reservoirs
- Impacts on Threatened, Endangered, and/or SGCN Species
  - Early coordination
  - Project specific habitat assessments
  - Set-asides and other measures as appropriate
- Invasive Species Management
  - Regional framework for invasive detection or prevention
- Other / Future Cycles
  - Earlier coordination with agencies
  - Stronger environmental screening
  - More detailed assessments of cumulative and downstream impacts

Agenda Item 5b
IPP Comments

- Public Comments
  - Matt Barrett
  - Paul Cote
  - Claude Humbert
  - Ken Kramer
  - Usman Mahmood
  - Jerry Rueschhoff
  - Darryl Russell
  - Benjamin Slotnick

4	Groundwater Impacts
1	Conservation
1	Drought Management
2	Loss Reduction
1	WMS and Project Details
1	Environmental Flows and Impacts
1	OneWater and Resilience
1	Legislative Recommendation
1	General and Process

Agenda Item 5b
IPP Comments

- Groundwater Impacts
  - Recommendations to update science
  - Declining water levels and impacts
  - Need for regulation and alternative supply
- Conservation
  - Addressing system repair and optimization before large scale supply projects
  - Consideration of proven measures in determining needs

Agenda Item 5b
IPP Comments

- Drought Contingency
  - Note greater potential than initial WMS
  - Recommend DCPs include meteorological factors
- Highlight success stories and examples

Agenda Item 5b
IPP Comments

- Environmental Flows / Impacts
  - Environmental safeguards
  - Evaluation of less impactful alternatives
  - Additional analyses for coastal desalination
  - Comprehensive assessment of IBT
- WMS and Project Details
  - Capacities and costs
  - References and terminology
- Loss Reduction
  - Need for specific targets
  - Enhanced funding
  - Issues with high losses
  - Challenges with CCN jurisdiction
  - Challenges in addressing non-compliance

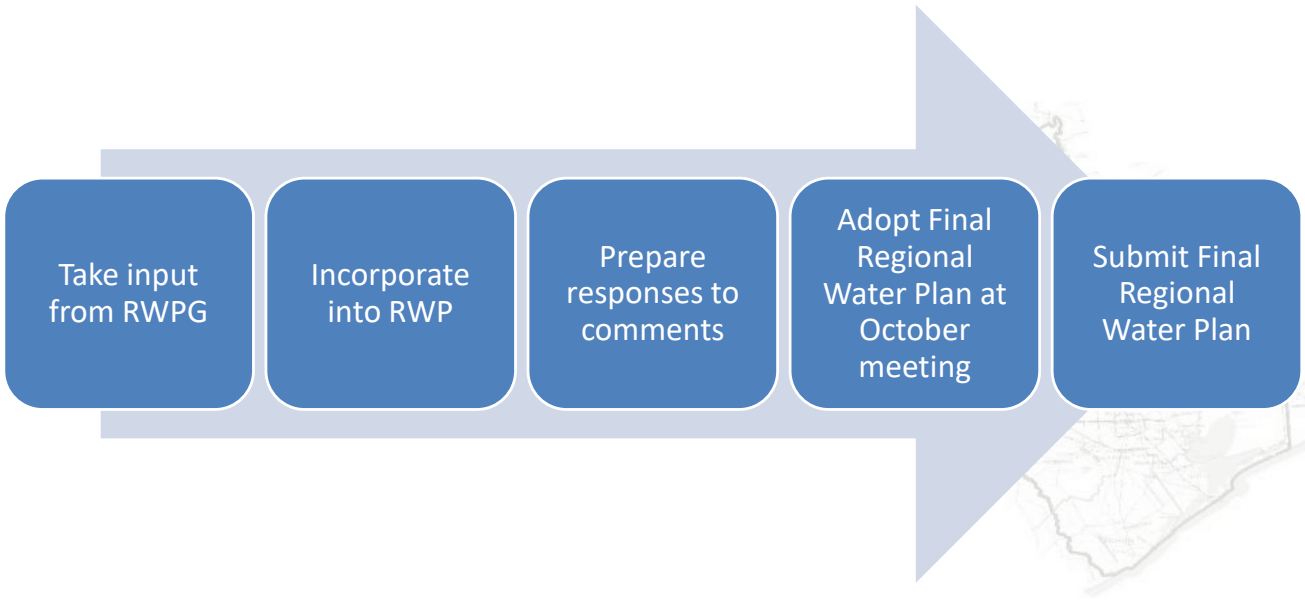
Agenda Item 5b
IPP Comments

- OneWater and Resilience
  - Need for OneWater approach and nature-based solutions
  - Stronger wastewater and stormwater infrastructure focus
- Legislative Recommendations
  - Climate impact assessment as part of process
  - Increased grants and assistance to disadvantaged communities
  - Bay and estuary program funding
- General and Process
  - Enhanced opportunities for input and information access
  - Need for worst-first assessments

Agenda Item 5b
IPP Comments - Opportunities

- Continue coordination with agencies, advocacy groups, and stakeholders
- Build on drought management recommendations
- Consider opportunities for enhanced messaging
- Examine Chapter 8 recommendation language
- Begin planning for next cycle

Agenda Item 5b
IPP Comments – Next Steps



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June 23, 2025

Mark Evans
Region H Chair
c/o North Harris County Regional Water Authority
3648 Cypress Creek Pkwy, Suite 110
Houston, TX 77068

Aubrey Spear
General Manager
San Jacinto River Authority
P.O. Box 329
Conroe, TX 77305

Re: Texas Water Development Board Comments for the Region H Regional Water Planning Group Initially Prepared Plan, Contract No. 2148302560

Dear Mr. Evans and Mr. Spear:

Texas Water Development Board (TWDB) staff have completed their review of the Initially Prepared Plan (IPP) submitted by March 3, 2025 on behalf of the Region H Regional Water Planning Group (RWPG). The attached comments follow this format:

- **Level 1:** Comments, questions, and data revisions that must be satisfactorily addressed in order to meet statutory, agency rule, and/or contract requirements; and,
- **Level 2:** Comments and suggestions for consideration that may improve the readability and overall understanding of the regional water plan.

Please note that 31 Texas Administrative Code (TAC) § 357.50(f) requires the RWPG to consider timely agency and public comment. Section 357.50(g)(1)(D) requires the final adopted plan include summaries of all timely written and oral comments received, along with a response explaining any resulting revisions or why changes are not warranted. Copies of TWDB's Level 1 and 2 written comments and the region's responses to each comment must be included in the final, adopted regional water plan (Contract Exhibit C, Section 2.12.2).

Standard to all planning groups is the necessity to include certain content in the final regional water plans that was not yet available at the time that IPPs were prepared and submitted. Accordingly, the final regional water plans must incorporate the following:

1. An analysis of socioeconomic impacts of not meeting the region's identified needs (31 TAC § 357.40(a)). TWDB will provide a socioeconomic impact analysis report for

each region by July 2025 for inclusion in the final regional water plan. Relevant sections in the plan must be updated accordingly.
2. Completed results from the 2021 Regional Water Plan implementation survey must be presented in the plan, as well as submitting an electronic version of the survey spreadsheet (31 TAC § 357.45(a)).
3. Documentation that comments received on the IPP, including but not limited to TWDB's, were considered in the development of the final plan (31 TAC § 357.50(f)).
4. Certification, in the form of a cover letter from the planning group Chair or Sponsor to the TWDB, that the final, regional water plan is complete and adopted by the RWPG (31 TAC § 357.50(h)(1)).

The following provisions apply to finalizing regional water planning data:

1. If the IPP included PDF copies of the State Water Planning Database (DB27) reports, a final, updated version of all these reports, as appropriate, must be included in the final plan. TWDB *anticipates* final versions of the reports will be available in the Secure Agency Reporting Application by **September 24, 2025**.
2. Continued review of DB27 data is still being performed. If issues arise during staff's ongoing data review, they will be communicated promptly to the planning group to resolve. Please anticipate the need to respond to additional comments regarding data integrity, including any source overallocations, prior to the adoption of the final regional water plans.
3. Please ensure that all numerical values presented in region developed tables throughout the final, adopted regional water plan are consistent with the data reported in DB27.
4. For the purpose of development and adoption of the 2027 State Water Plan, water management strategy and other data entered by the RWPG in DB27 will take precedence over any data discrepancies presented in the final regional water plan (Contract Exhibit C, Section 2.13.1).
5. Any remaining data revisions to DB27 must be communicated to rwpdataentry@twdb.texas.gov no later than **September 22, 2025**.

Additionally, the following final electronic files must be submitted alongside the final regional plan deliverable, including any remaining files that may not have been provided at the time of the submission of the IPP but that were used in developing the final plan (31 TAC § 357.50(g)(2)(C), Contract Exhibit C, Section 2.12.2):

1. All hydrologic model input/output or other model files used in determining water availability.
2. Geographic Information System data deliverables in accordance with Contract Exhibit D, Section 2.5.
3. All other files on which the plan is based (e.g. spreadsheets, maps, etc).

The following standard requirements that apply to recommended water management strategies must also be adhered to in all final regional water plans:

1. Regional water plans may include:
    a. the development of additional water supply sources and supply volumes,

   b. the conveyance and delivery of additional supply volumes to a point intake at a water user group,
   c. the treatment of additional supply volumes at the front end of a water user group's retail system,
   d. additional treatment and related eligible components that are directly related to additional supplies provided through direct reuse, and
   e. infrastructure costs that are associated with development of additional water supplies from new water sources or additional supplies from more efficient use of existing supplies, or volumetric increases to existing water supplies beyond the existing capacity of current facilities.
2. Regional water plan may not include:
   a. any recommended strategies, projects, or costs that are associated with replacing, rehabilitating, or maintaining water supply infrastructure that already exists, or
   b. the costs of any retail distribution lines or other distribution network infrastructure costs with the narrow exception for those strategies directly associated with replacement costs that are for the primary purpose of achieving conservation savings via water loss reduction (§ 357.34(e)(3)(A), Contract Exhibit C, Sections 2.5.2.14 and 2.5.2.15).

As a reminder, the deadline to submit the final, adopted regional water plan and associated material to the TWDB is **October 20, 2025**. It is imperative that you provide the TWDB with information on how you intend to address all TWDB comments well in advance of adoption of the final regional water plan to ensure that all the Level 1 responses are sufficiently responsive for the TWDB Executive Administrator to recommend that the TWDB Board consider approval of your plan in a timely and efficient manner. Your TWDB Regional Water Planner will review and provide feedback to ensure all IPP comments and associated plan revisions have been addressed adequately. Failure to adequately address any Level 1 comments may result in the delay of the TWDB Board approval of your final regional water plan.

Additionally, if the region includes new strategies, or makes significant revisions to its strategy evaluations based on the public comment period, please ensure those significant revisions are pointed out and provided to your TWDB Regional Water Planner to preview in advance of adopting the final regional water plan to ensure that those too will meet all requirements.

Note that the electronic copy of a final report(s) or other deliverable(s) must comply with the requirements and standards specified in 1 Texas Administrative Code (TAC) Chapters 206 and 213 (related to Accessibility and Usability of State Web Sites). Web Content Accessibility Guidelines (WCAG) 2.1 Level AA Standard – WCAG 2.1 Quick Reference can be found at: https://www.w3.org/WAI/WCAG21/quickref/.

If you have any questions regarding these comments or would like to discuss your approach to addressing any of these comments, please do not hesitate to contact Heather Rose of our Regional Water Planning staff at (512) 475-1558 or Heather.Rose@twdb.texas.gov.

TWDB staff will be available to assist you in any way possible to ensure successful completion of your final regional water plan.

Thank you for all the time and effort that the RWPG members, the Sponsor, and your consultants have put into developing your draft regional water plan and for the additional effort that will still be required to obtain TWDB Board approval. We look forward to celebrating another successful regional water planning cycle!

Sincerely,

Temple McKinnon
Temple McKinnon (Jun 23, 2025 15:11 CDT)

Matt Nelson
Deputy Executive Administrator of Planning

Attachment

c w/att.: Philip Taucer, Freese and Nichols, Inc.
Jordan Skipwith, Freese and Nichols, Inc.
Hailey Myers, Freese and Nichols, Inc.
Reem Zoun, TWDB Office of Planning
Temple McKinnon, TWDB Water Supply Planning
Sarah Lee, TWDB Water Supply Planning
Kevin Smith, TWDB Water Supply Planning
Heather Rose, TWDB Water Supply Planning

Texas Water Development Board (TWDB) comments on the Initially Prepared 2026 Region H Regional Water Plan

Level 1: Comments, questions, and data revisions that must be satisfactorily addressed to meet statutory, agency rule, and/or contract requirements.

1. Chapter 2 and the state water planning database (DB27). The plan does not present population and water demand projections by water user group (WUG). Per the contract Scope of Work (SOW), Task 2A (8) and 2B (10) require the plan to at minimum include a summary of TWDB Board-adopted population and demand projections at the WUG level. These may be included via a region-developed table or inclusion of a final copy of the applicable DB27 reports in pdf form. Please include projected population and water demands by WUG in the final, adopted regional water plan. [31 Texas Administrative Code (TAC) § 357.31(a); 31 TAC § 357.31(f); Contract SOW Task 2A and B]

2. Chapter 2. The plan does not appear to present a summary of plumbing code savings (Gallons Per Capita Per Day (GPCD) based or acre-feet of saved water) by WUG and county. Please include a summary of plumbing code savings for each municipal WUG in the region by county and each planning decade in the final, adopted regional water plan. This data is available in TWDB Secure Agency Reporting Application (SARA) Report IDs 95 or 102. [31 TAC § 357.31(d); Contract Exhibit C, Section 2.5.5]

3. Section 3.2.4.3. Table 3-3 lists references for non-modeled available groundwater (MAG) groundwater methodologies where no desired future condition exists, however, several references appear to be incorrect. Please correct the following references: San Bernard River Alluvium should be Aquifer Assessment (AA) 10-32 MAG, San Jacinto River Alluvium should be AA 10-33 MAG, Trinity River Alluvium should be AA 10-34 MAG. In addition, the groundwater availability for the Queen City Aquifer in GMA 11 for Trinity Basin and Trinity County is a MAG and should not be listed in Table 3-3. Please revise Table 3-3 as appropriate in the final, adopted regional water plan. [Contract Exhibit C, Section 2.3.4.2]

4. Chapter 3. The plan does not present existing supplies by WUG. Per the contract SOW Task 3(A)(13), (B)(15), (C)(13) the plan must at minimum include a summary of existing supplies at the WUG level. These may be included via a region developed table or inclusion of a final copy of the applicable DB27 report in pdf form. Please include existing supplies by WUG in the final, adopted regional water plan. [31 TAC § 357.32(f); Contract SOW Task 3]

5. Chapter 4. The plan does not present municipal needs by WUG. Per the contract SOW Task 4A(3) the plan must at minimum include a summary of needs at the WUG level. These may be included via a region developed table or inclusion of a final copy of the applicable DB27 report in pdf form. Please include municipal needs by WUG in the final, adopted regional water plan. [31 TAC § 357.33(c); Contract SOW Task 4]

6. Appendix 5-B. The evaluation for the Lower Neches Valley Authority – Devers Pump Station Relocation strategy (OTHR-004) appears to increase pump station capacity, however it is unclear from the evaluation how much existing supply is already being delivered to the users and what additional increase in supply volume the strategy would provide to water users that isn't already being delivered from the same, existing source. Please provide additional details and clarification documenting how this strategy would increase the volume of supply in the final, adopted regional water plan. [Contract Exhibit C, Section 2.5.2.15]

7. Appendix 5-B and DB27. The following WUGs show zero acre-feet of demand savings for the municipal conservation-water use reduction strategy in Table 5B-B1 in Appendix 5-B: County-Other Trinity, Fort Bend County FWSD 1, G&W WSC, Harris County UD 14., Lake Livingston WSC, Montgomery County MUD 127, and Woodcreek Water of Liberty. Since these WUGs do not appear to include a municipal conservation-water use reduction strategy in DB27—and zero yield strategies are prohibited from being included as recommended—please clarify that conservation savings presented as zero acre-feet/year In Table 5B-B1 are not included as recommended strategies in the final, adopted regional water plan. [31 TAC § 357.34(d)]

8. Appendix 5-B and DB27. DB27 reports the following recommended strategies assigned as zero acre-feet of firm supply in all decades for the related WUGs: Gulf Coast Water Authority (GCWA) Groundwater Well Development (WMSId 4601)—Manufacturing, Brazoria and New / Expanded Contract with BWA - Brackish Groundwater (WMSId 4581)—County-Other, Brazoria. All recommended strategies and projects that are entered into DB27 must 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. Please either reassess the firm yield for these strategies or remove these strategies as a recommended in the final, adopted regional water plan. [31 TAC § 357.34(d)]

9. Appendix 5-B and DB27. The plan does not appear to have included a summary of needs related to the East Texas Transfer strategy, which would require an interbasin transfer (IBT) of surface water and to which Texas Water Code § 11.085(k)(1) applies. In the final, adopted regional water plan, please update the evaluation for this strategy to include a summary of water needs in the basin of origin and in the receiving basin. DB27 water needs data by basin is available by utilizing TWDB SARA Report ID 96. [31 TAC § 357.34(e)(6)]

10. Appendix 5-B. The evaluations presented in Appendix 5-B for the following strategies and projects appear to describe infrastructure components that are not included in the associated costing tables: 1) Westwood Shores MUD Reuse (REUS-011) —conveyance and pump stations), and 2) Pearland Surface Water Treatment Plant (TRET-006) —transmission lines. Please include these infrastructure costs in the costing tables for these projects in the final, adopted regional water plan. [31 TAC § 357.34(f); Contract Exhibit C, Section 2.5.2.13]

11. Appendix 5-B. The project capital costs for the following projects) are not broken down in the costing tables in the technical memorandums and it is unclear what project components are included in the capital cost estimates: 1) League City Effluent Reuse (REUS-003), and 2) Texas City Industrial Complex Reuse (REUS-008). Please review the costing information for these projects and include a detailed cost breakdown for capital costs for the major capital components in the final, adopted regional water plan. [31 TAC § 357.34(f); Contract Exhibit C, Section 2.5.2.13]

12. Appendix 5B and DB27. For the following municipal WUGs, the whole WUG's GPCD adjusted for conservation is less than 60 GPCD in at least one planning decade:: Fort Bend County FWSD 1, Galena Park, Greenwood UD, Harris County MUD 5, Harris County UD 14, Jacinto City, Lake Livingston WSC, Patton Village, Providence WSC, Southwest Harris County MUD 1, and Tempe WSC 1. Please confirm the reasonableness of these anticipated low GPCDs in the final, adopted regional water plan. [31 TAC § 357.34(j)(2)(B)]

13. Appendix 5-B. The evaluations for Allen's Creek Reservoir (SWDV-001) and Brazosport Water Supply Corporation (BWSC) Reservoir and Pump Station Expansion (SWDV-002) strategies do not appear to separately present the estimated mitigation land area and associated estimate of acquisition cost. Please provide an estimated separate acreage and cost related to land acquisition (or range) for both the reservoir footprint and mitigation within the appropriate section of the plan or costing sheet, in the final, adopted regional water plan. [Contract Exhibit C, Section 2.5.2.12]

14. Chapter 5, Appendix 5-B. The evaluation for the City of Houston East Water Purification Plant Enhancement strategy (TRET-003) appears to include a water treatment plant (WTP) expansion that includes replacement of existing capacity. Any portion of strategies or costs that are associated with replacing portions of existing supply, including WTP capacity, are prohibited from being included in the regional water plans. The types of facilities and associated capital or other costs that may be included in a regional water plan must be directly associated with development of additional supplies from new water sources or additional supplies from more efficient use of existing supplies, or volumetric increases to existing water supplies. Please revise and limit this strategy, and costs, to that only the portion of WTP facilities (and costs) required to increase treated water supply volume (not to replace existing capacity) are included in the final, adopted regional water plan. [Contract Exhibit C, Section 2.5.2.15]

15. Appendix 5B. The evaluation for the City of Houston Transmission Expansion strategy (CONV-004) appears to include infrastructure that increases the total conveyance capacity but doesn’t clearly indicate if additional water supply volumes are being conveyed to a water user group or that the indicated smaller-scale projects aren’t simply replacing existing water mains or expanding distribution system capacity. The types of facilities and associated capital or other costs that may be included in a regional water plan must be directly associated with development of additional water supplies from new water sources or additional supplies from more efficient use of existing supplies, or volumetric increases to existing water supplies

delivered to a WUG and cannot be part of a WUG's retail distribution network. Please provide additional clarification documenting specifically how this strategy is increasing the volume of supply in the final, adopted regional water plan and/or modify or remove the strategy, as appropriate. [Contract Exhibit C, Section 2.5.2.15]

16. Appendix 5B. It is unclear from the evaluation for the Brazosport Water Authority (BWA) Transmission and Storage Expansion strategy (CONV-001), whether this strategy is increasing the volume of supply for BWA. The types of facilities and associated capital or other costs that may be included in a regional water plan must be directly associated with development of additional water supplies from new water sources or additional supplies from more efficient use of existing supplies, or volumetric increases to existing water supplies. Please provide additional clarification documenting specifically how this strategy is increasing the volume of supply in the final, adopted regional water plan and/or modify or remove the strategy, as appropriate. [Contract Exhibit C, Section 2.5.2.15]

17. Appendix 5B and DB27. The plan includes several additional WTP expansion and other strategy types that include a WTP expansion as a stated project component. Any portion of strategies or costs that are associated with replacing portions of existing supply, including WTP capacity, are prohibited from being included in the regional water plans. The types of facilities and associated capital or other costs that may be included in a regional water plan must be directly associated with development of additional supplies from new water sources or additional supplies from more efficient use of existing supplies, or volumetric increases to existing water supplies. Please confirm that only the portion of WTP facilities (and costs) that will increase the total treated water supply volume (not to replace lost capacity) are included in the final, adopted regional water plan. [Contract Exhibit C, Section 2.5.2.15]

18. Appendix 5B. The evaluation for the Fairchilds Supply Infrastructure strategy (GWDV-007) indicates that the strategy will "develop regional water treatment and distribution infrastructure to address future development within its existing boundary as well as other adjacent areas of what are currently unincorporated Fort Bend County." Per Exhibit C, Section 2.5.2.15, item 4 on page 69, regional water plans are prohibited from including strategies or costs associated with expanding the distribution network to reach existing or new retail areas. Please remove this water management strategy as recommend from the final, adopted regional water plan, or update the evaluation to ensure that it is clear that no retail distribution costs are included. [Contract Exhibit C, Section 2.5.2.15]

19. Appendix 5-B and DB27. The project capital costs associated with the North Harris County Regional Water Authority (NHCRWA) Transmission Lines project (WMSProjectId 3640) appear to be inconsistently reported between the plan and DB27. For example, DB27 reports a total capital cost of $453,864,685 for this project, whereas Appendix 5-B (CONV-011) presents a total capital cost of $593,071,956. Please review the costing data for this project and revise as necessary to ensure that project capital costs in DB27 are consistent with those presented in the final, adopted regional water plan. [31 TAC § 357.35(g)(1)]

20. Appendix 5B-B, Table 5B-B1 and DB27. Water demand savings presented in the plan for the following municipal conservation strategies and related projects appear to be inconsistent with DB27: WMSProjectId: 99, 2980, 184, 185, 186, 187, 243, 189, 2989, 199, 2991, 2998, 207, 3014, 209, 211, 212, 194, 159, 447, 210, 240, 3044, 31, 34, 36, 38, 3061, 3063, 244, 3066, 3075, 128, 27, 28, 71, 72, 3092, 3093, 80, 91, 176, 106, 3109, 111, 113, 245, 118, and 131. Please review the demand savings presented in Table 5B-B1 and revise as necessary to ensure that strategy supplies in DB27 are consistent with those presented in the final, adopted regional water plan. [31 TAC § 357.35(g)(1)]

21. Appendix 5-B and DB27. The online decade for Phase 2 of the BAWA East Surface WTP Expansion project (WMSProject Id 4426) is unclear. For example, DB27 reports an online decade of 2040 with the related strategy supply online in decade 2030. However, the Technical Memorandum for this project on page 5-B-TRET-001-1 does not specify an online decade for Phase 2. Please review the online decade for this project and revise as necessary to ensure that the online decade in DB27 is consistent with those presented in the final, adopted regional water plan. Additionally, please present in the final plan, the associated volume for each project phase. [31 TAC § 357.35(g)(1); Contract Exhibit C, Section 2.5.2]

22. Chapter 5, Appendix 5-B, and DB27. Strategy supplies presented in the plan for the GCWA Groundwater Well Development strategy (WMSId 4601) appear to be inconsistent with DB27. For example, page 5-B-GWDV-008-1 presents strategy supplies of 35,840 ac-ft per year, whereas DB27 reports yields ranging from 1,839 to 1,905 ac-ft per year. Please review the water volumes for all strategies and revise as necessary to ensure that strategy supplies in DB27 are consistent with those presented in the final, adopted regional water plan. [31 TAC § 357.35(g)(1)]

23. Appendix 5-B and DB27. Water demand savings presented in the plan for the Industrial Conservation strategy in Montgomery County are inconsistent with the related strategy supplies for the project in DB27 (WMSProjectId 4617). For example, Table 2 on page 5-B-CNSV-002-3 shows no industrial conservation savings for Montgomery County, whereas DB27 reports demand savings ranging from 10 to 132 ac-ft per year for the same project. Please review the demand savings for this strategy and revise as necessary to ensure that strategy supplies in DB27 are consistent with those presented in the final, adopted regional water plan. [31 TAC § 357.35(g)(1)]

24. Appendix 5-B. The plan does not appear to include an evaluation for Emerging Technologies which was scoped under the SOW Task 5B. Please include an evaluation for all scoped strategies or include an explanation as to why these strategies were not evaluated, in the final, adopted regional water plan. [Contract Scope of Work, Task 5B]

25. Section 8.2.9. The plan appears to quantify impacts to unique stream segments (USS) from current conditions (Table 8-3), however the impact matrix for strategy impacts (Table 8-5) appears to be based on qualitative criteria. Please include a quantitative assessment of impacts of strategies on USSs in the final, adopted regional water plan. [31 TAC § 357.43(b)(2)]

26. Section 8.3.1. Figure 8-2 appears to imply that the region is recommending Allen's Creek Reservoir as a unique reservoir site (URS). Please clearly state in the final, adopted regional water plan, that Allen's Creek Reservoir was previously designated as a URS by the 76th Texas Legislature with the passage of Senate Bill 1593. [Contract Exhibit C, Section 2.8.2]

27. Section 9.4. The counts of water management strategies benefitting more than one WUG provided on page 9-16 is inconsistent with strategies reported in DB22 and DB27 as benefitting more than one WUG. Please review the data reported in TWDB SARA Report ID 125 and either reconcile the counts presented in Section 9.4 to align with the report or clarify the difference in counts reported in the final, adopted regional water plan. [31 TAC § 357.45(b)(1)]

28. Section 9.4. The plan does not appear to include the specific number of recommended water management strategies in the previous plan that serve multiple WUGs and have been implemented since that plan. Please include this information—or include a statement acknowledging if none have been implemented—in the final, adopted regional water plan. [31 TAC § 357.45(b)(2)]

29. The plan does not appear to meet minimum accessibility requirements. Please ensure that the final, adopted regional water plan has
    - a PDF with a good (i.e. descriptive) title set in document properties,
    - and a PDF set up as a tagged document.

    See items 1d and 2a in TWDB's accessibility checklist for more information. [Contract, Article III, Paragraph G]

30. The Geographic Information System (GIS) files submitted do not include adequate metadata. Please include at a minimum, metadata about the data's projection or datum, with the final GIS data submitted. [Contract Exhibit D, Section 2.4.1].

Level 2: Comments and suggestions for consideration that may improve the readability and overall understanding of the regional water plan.

1. Chapter 3 and Appendix 3. Please consider including the sedimentation rates for Lakes Conroe, Houston, and Livingston in the final plan.

2. Chapter 4. Figures 4-3 through 4-8 are missing map legends. Please consider adding map legends to better understand the significance of the circle radii on the maps.

3. Executive Summary. There appears to be a typo in Figure ES-7 on page ES-20. The legend has the grey line labeled as 2016 RWP WMS Supply, not 2021. Please consider correcting this as appropriate.

4. Chapter 10. Please consider providing a list of rural entities that were not responsive to regional water planning group outreach efforts in the final plan.

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Chairman-Emeritus
Houston

David Yoskowitz, Ph.D.
Executive Director

July 8, 2025

Mr. Mark Evans, Regional Planning Group Chairman
Region H Regional Water Planning Group
c/o North Harris County Regional Water Authority
3648 Cypress Creek Parkway, Suite 110
Houston, Texas 77068

Re: 2026 Region H Initially Prepared Regional Water Plan

Dear Mr. Evans:

The Texas Parks and Wildlife Department (TPWD) has reviewed the 2026 Initially Prepared Regional Water Plan for Region H (IPP/The Plan) and appreciates the opportunity to provide comments. Water impacts every aspect of TPWD's mission to manage and conserve the natural and cultural resources of Texas. TPWD is the agency charged with primary responsibility for protecting the state's fish and wildlife resources (Texas Parks and Wildlife Code (PWC) § 12.0011). To that end, TPWD offers these comments intended to help avoid or minimize impacts to state fish and wildlife resources.

TPWD understands that regional water planning groups are guided by 31 Texas Administrative Code (TAC) Chapter357 when preparing regional water plans. These water planning rules spell out requirements related to natural resources and environmental protection. Accordingly, TPWD staff reviewed the IPP with a focus on the following questions:

- Does the IPP include a quantitative reporting of environmental factors including the effects on environmental water needs and habitat?
- Does the IPP include a description of natural resources and threats to natural resources due to water quantity or quality problems?
- Does the IPP discuss how these threats will be addressed?
- Does the IPP describe how it is consistent with long-term protection of natural resources?
- Does the IPP include water conservation as a water management strategy?
- Does the IPP include Drought Contingency Plans?
- Does the IPP recommend any stream segments be nominated as ecologically unique?
- Does the IPP address concerns raised by TPWD in connection with the 2016 Water Plan?

4200 SMITH SCHOOL ROAD
AUSTIN, TEXAS 78744-3291
512.389.4800
www.tpwd.texas.gov

Population Growth and Water Needs

Region H is projected to see significant population growth, increasing from over 7 million residents in 2020 to more than 11 million by 2080. Total water demand is expected to rise from 4.9 million acre-feet per year in 2020 to 6.6 million acre-feet per year by 2080, with municipal use as the largest driver. The Plan recommends a diverse set of water management strategies (WMSs), including conservation, surface water development, groundwater development (including brackish and desalinated sources), and infrastructure expansion. Municipal conservation is projected to meet around 6% of future needs, while large infrastructure projects and new supplies meet over 70%. Notably, projects such as the San Jacinto River Authority (SJRA) Catahoula Aquifer supply, which uses the bed and banks of Lake Conroe to convey raw groundwater, may pose issues related to altered lake chemistry and water quality. Additionally, Brazosport Water Authority's (BWA) conventional treatment expansion may result in elevated total dissolved solids (TDS) in receiving streams, especially during low-flow conditions. To mitigate these potential water quality impacts, the Plan recommends real-time TDS monitoring, adaptive discharge timing, and blending controls at outfalls to reduce concentrations before they reach sensitive waterbodies.

Natural Resources and Environmental Impacts

Region H includes ecologically-rich river systems, forested wetlands, coastal marshes, and estuarine environments. The Plan describes these natural resources and includes general discussion of potential impacts, although it does not provide formal cumulative impact assessments or project-by-project ecological evaluations. As noted in the Plan, large-scale infrastructure projects, particularly Allens Creek Reservoir and the Brazosport Water Supply Corporation (BWSC) pump station and reservoir expansion, may alter sediment and nutrient transport in the Brazos River. These changes may improve water quality in areas with excessive turbidity but could also reduce essential inputs for downstream species reliant on sediment and nutrient delivery. To reduce remaining risks, mitigation could include operational measures like controlled sediment releases, downstream monitoring of turbidity and nutrient concentrations, and implementation of selective withdrawal structures to mimic sediment pulses of a natural flow regime—and are recommended as part of project development.

Instream Flow and Freshwater Inflows

The Plan uses Senate Bill (SB)3 environmental flow standards as a benchmark for evaluating potential changes to freshwater inflows and instream flows. While most WMSs are not expected to result in failure to meet flow standards, multiple projects may shift timing, magnitude, or quality of downstream flows. The Brazos saltwater barrier is highlighted for its potential to protect water quality in the lower Brazos Basin by limiting saltwater intrusion during periods of low flow, especially as climate variability increases. Conversely, brackish groundwater development and blending—as well as desalination projects like Gulf Coast Water Authority (GCWA) Coastal Desalinization—could alter salinity or TDS in discharge areas. Although the Plan notes that blending and dilution will occur before discharge,

salinity shifts may still affect local estuarine or nearshore habitats. Additionally, water supply strategies for flow-sensitive WMSs like Allens Creek may also reduce sedimentation and nutrient inflows to downstream habitats. The Plan encourages mitigation through use of diffuser outfalls, environmental flow operating rules, and return-flow offsets in water rights permitting to balance supply with ecological function.

Impacts on Threatened, Endangered, and/or SGCN Species
The Plan notes potential interactions with a suite of threatened and endangered species, as well as Species of Greatest Conservation Need (SGCNs), within the context of habitat modification and altered hydrology. While many strategies—including conservation and reuse—are low-risk, major projects like Allens Creek Reservoir and BWSC reservoir expansion are sited near or within wetland and riparian systems supporting sensitive aquatic life. Impacts may include divergence from a natural flow regime, nutrient availability shifts, and wetland hydrological disruption, which in turn may affect habitat quality for aquatic turtles, amphibians, and avian species. However, the Allens Creek project has already incorporated design modifications to avoid key areas such as Alligator Hole. The Plan encourages coordination with TPWD and USFWS but stops short of requiring species-specific mitigation strategies in the Plan. Continued implementation should include early coordination with TPWD and USFWS, along with project-specific habitat assessments, Section 7 consultations where appropriate, and restoration or conservation set-asides to offset unavoidable impacts.

Invasive Species Management
The Plan briefly touches on invasive species threats— especially the spread of zebra mussels through surface water transfers and interbasin conveyance. Infrastructure expansions that cross watersheds or tap new surface sources (e.g., GCWA, BWSC) could increase risk if proper best practices aren't enforced. Although the Plan recommends coordination with TPWD and use of species distribution maps, there is no regional strategy or framework specifically tailored to invasive species prevention or early detection. This represents a significant gap, particularly for regions with growing interconnectivity across river systems. The development of such a strategy would strengthen regional preparedness and could include requiring invasive species risk assessments for infrastructure projects, automated decontamination protocols, and monitoring stations at key transfer points to detect early spread.

Water Conservation Emphasis
Conservation is a foundational strategy in the Plan and is applied broadly across municipal, industrial, and irrigation sectors. Strategies include advanced metering infrastructure, low-flow fixtures, water loss control, and irrigation scheduling. Conservation measures are expected to yield more than 200,000 acre-feet (acre-feet) annually by 2070, offsetting the need for some new infrastructure. Because conservation strategies do not require significant land disturbance or new diversion

structures, their environmental impacts are minimal compared to structural WMSs. The Plan also supports conservation through rate design, performance tracking, and education, which can further enhance uptake and reduce overall system demand without compromising affordability or equity.

Response to TPWD Comments

The Region H Planning Group has responded meaningfully to several prior TPWD comments, particularly around documentation of potential impacts and alignment with environmental flow standards. The IPP integrates expanded narrative on flow-based ecological criteria and highlights avoidance efforts for sensitive habitats, such as Allens Creek—which provides an apt example of impact minimization through site selection and design changes. However, consistent and thorough documentation of environmental factors at the individual strategy level is still limited across many WMSs. Addressing this will require stronger environmental screening across all strategy types, earlier coordination with resource agencies, and development of tools or frameworks to better assess cumulative and downstream effects in future planning cycles.

Region H Water Planning Efforts

TPWD extends sincere appreciation to the Region H Water Planning Group for producing a detailed, thoughtful, and forward-looking Initially Prepared Plan for the 2026 planning cycle. The planning team's narrative on ecological considerations, its responsiveness to agency input, and efforts to reduce impacts through site selection and design modifications (e.g., Allens Creek Reservoir) show clear progress toward more holistic water planning. The plan's recognition of ecological tradeoffs such as sediment and nutrient transport changes, salinity shifts, and habitat connectivity demonstrates an evolving commitment to environmental integration. Continued refinement of environmental impact assessments—particularly at the strategy level—will make future plans even more effective. Thank you for your consideration of these comments. TPWD looks forward to continuing to work with the planning group to develop water supply strategies that not only meet the future water supply needs of the region but also preserve the ecological health of the region's aquatic resources. If you have any questions or comments, please contact me by email at Marty.Kelly@TPWD.Texas.gov or by phone at (512) 389-8214.

Sincerely,

Marty Kelly

Marty Kelly
Water Resources Program

MK:mk

cc: Lindsey Elkins, Coastal Fisheries

MONTGOMERY COUNTY MUNICIPAL UTILITY DISTRICT NO. 94
1300 POST OAK BOULEVARD, SUITE 2400
HOUSTON, TEXAS 77056

July 1, 2025

Mr. Mark Evans, Chair, RHWPG
c/o San Jacinto River Authority
P.O. Box 329
Conroe, Texas 77305-0329

Re: Request to Update Region H Initially Prepared Plan and Enhance Aquifer Oversight Based on USGS 2023 Data

To the Honorable Members of the Region H Water Planning Group:

On behalf of the Board of Directors of Montgomery County Municipal Utility District No. 94, we respectfully submit this letter to request a formal update to the 2024 Region H Initially Prepared Plan (IPP) using newly published data from the USGS - Status of Water-Level Altitudes and Long-Term and Short-Term Water-Level Changes in the Chicot and Evangeline (Undifferentiated) and Jasper Aquifers, Greater Houston Area, Texas, 2023, Scientific Investigations Report 2024-5003, authored by Jason K. Ramage. This report documents a significant deepening of the local aquifer system, affecting our service area, particularly in ZIP codes 77373 and 77386, which encompass parts of northern Harris County and south-central Montgomery County.

This trend poses a serious threat to the long-term viability of our water resources. Continued drawdown at current rates may accelerate subsidence, degrade infrastructure, and increase the risk of water supply shortages. Therefore, we strongly urge the TWDB to incorporate this updated aquifer data into the 2024 Region H IPP and to consider **Implementing heightened aquifer monitoring and oversight** in the affected ZIP code areas. This action is critical to preserving the long-term health and sustainability of the region's aquifers.

We also want to emphasize the essential role played by the **Lone Star Groundwater Conservation District (LSGCD)** in groundwater withdrawals. In 2019, LSGCD abandoned groundwater regulation, which may have contributed to the accelerated deepening of local aquifers. Groundwater reduction regulations established by LSGCD are vital in ensuring regional compliance with the San Jacinto River Authority's Groundwater Reduction Plan (SJRA-GRP). These coordinated efforts provide the financial support and foundation for our long-term transition to surface water supplies, establishing a strategic framework for balancing growth with sustainability.

Without robust enforcement of regulatory groundwater reduction measures, the investments made into the SJRA-GRP and the broader regional water infrastructure are at

risk. The success of these initiatives relies on maintaining regulatory reductions in groundwater use while supplementing demand with responsibly sourced surface water.

As the governing body responsible for ensuring reliable and sustainable water services to our constituents, we would appreciate your support in taking timely action to revise the 2024 Region HIPP in light of this critical new data and in strengthening protections for our aquifer system.

We appreciate the TWDB's ongoing leadership in guiding Texas toward a secure water future and stand ready to provide any additional information or collaboration needed to support these efforts.

Sincerely,

MONTGOMERY COUNTY MUNICIPAL UTILITY DISTRCT NO. 94

Jerry Rueschhoff
President, Board of Directors

cc: Ms. Heather Rose
Heather.Rose@twdb.tx.gov
info@regionhwater.org

Philip Taucer

From: Paul Cote
Sent: Wednesday, June 25, 2025 7:37 PM
To: gam@twbd.texas.gov; info@regionhwater.org
Subject: Clean Water Must Come Before Old Models and Empty Promises

Here are comments for the 2025 GMA 14 Model and the 2026 Region H Water Plan.

Clean Water Must Come Before Old Models and Empty Promises

In Texas, nothing is more foundational than water. It flows beneath our feet and through every vein of our community's growth. Yet in Montgomery County, where cities like Conroe face real-time water shortages and moratoriums on new development, the public is told that water policy is being guided by the "best available science," even as our water management authorities rely on models and data from before 2018.

The Lone Star Groundwater Conservation District (LSGCD) promotes "Managing Nature's Precious Resource While Protecting Property Rights, Balancing Conservation and Development, and Using the Best Available Science." That sounds good, noble, even. However, when the rubber meets the road, that statement raises a simple yet pointed question: **How can this be the "best available science" when the LSGCD data in the 2025 GMA 14 Model Documentation is dated 2018 or before?**

Since 2018, Montgomery County's water picture has undergone significant changes. Cities are issuing building moratoriums, and water utilities currently utilizing surface water are seeking more; moreover, an increasing number of groundwater-only utilities are prioritizing the need for surface water in addition to groundwater. Groundwater levels are in observable significant decline according to the **2023 USGS SIR**. And yet, the regional planning process's official documentation, as used in the **2026 Region H Water Plan Initial Planning Proposal** (IPP) under GMA 14, is still based on outdated hydrological models and assumptions that predate the explosive growth and aquifer stress of the last seven years.

This isn't just a bureaucratic oversight. It's a fundamental threat to clean, dependable, potable water in one of the fastest-growing regions in Texas. When science is outdated, decisions become misaligned with reality. And in a drought-prone state like ours, misalignment means real consequences for families, businesses, farms, and entire communities.

Property rights are sacred in Texas. But so is the right to drinkable, available water. When these rights are in tension, such as when over-pumping threatens shared aquifers or outdated models justify unsustainable permits, conservation cannot take a back seat. The water plan must be rooted in facts, not aspirations. And the science must reflect today, not yesterday.

It's time for the LSGCD and the regional planners of GMA 14 to stop defending old data and embrace new realities. The people of Montgomery County deserve a water plan grounded in current science, not political

slogans about the importance of property rights. We deserve real conservation. We deserve transparency. And most of all, we deserve water, not just today, but tomorrow.

Until that happens, one question must echo across every Montgomery County city council, township, commissioners court, special district, state legislator, and Regional Water Planner:

"How is this the best available science?"

If the answer isn't straightforward and current, then the policy isn't defensible, and the future isn't safe.

Additionally, please also note that the **2021 Region H Water Plan,** which incorporates the **GAM Run 17-030 MAG** model, includes data up to approximately 2016 or 2017. Today, the **2026 Region H Water Plan** only includes data up to 2018. Where is the 2019-2024 GAM data for the 2026 Region H Water Plan?

Additional Questions for LSGCD

1.

2.

3. How many acre-feet of groundwater

4. have been withdrawn each calendar year, per aquifer, within the boundaries of LSGCD, beginning in 2017 and continuing through 2024?

5.
6.

7.

8. Please provide a list of new property

9. developments or subdivisions for which the District has been collecting a fee since 2017.

10.
11.

12.

13. When will a more recent and

14. realistic data set (2019 to present), which is available, be used, as the population of Montgomery County has grown by over 40% in some areas since 2018? Using data from 2018 and earlier is inadequate and misleading to county decision-makers and taxpayers.

15.
16.

17.

18. Please post all the data collected

19. or produced for the New Caney coring study online.

20.

I'm looking forward to these responses and ask that the answers to questions 1 and 2 be included in the LSGCD District Annual Report in the future.

Paul Cote

July 18, 2025

Mark Evans, Chair, RHWPG
c/o San Jacinto River Authority
P.O. Box 329
Conroe, Texas 77305-0329

Via email at info@regionhwater.org
Cc: Philip.Taucer@freese.com

RE: Region H Water Planning Group - 2026 Initially Prepared Plan (IPP)

Dear Chair and Members of the Region H Water Planning Group,

Bayou City Waterkeeper (BCWK) appreciates the opportunity to provide comments on the 2026 Initially Prepared Plan (IPP) for Region H. As an organization advocating for water issues in the Lower Galveston Bay Watershed dedicated to safeguarding the quality of the waters, protecting the vital wetlands and coastal ecosystems, and advocating for equitable access to clean water and resilient infrastructure, we recognize the critical importance of this regional water plan.

I. Introduction

We commend the Region H Water Planning Group for their diligent efforts in developing a plan to address the many complex water challenges facing our region. Our comments aim to support and enhance the IPP by highlighting strategic shifts and targeted investment that will ensure the long-term water security and resilience for all of Region H, such as: prioritizing water conservation and infrastructure repairs, embracing multi-benefit nature-based solutions, and ensuring robust environmental protections for water quality and ecosystems. We aim to support and enhance

II. Foundational Principles for Water Planning in Region H

A. Embrace a holistic and integrated water management approach

The Region H plan must adopt a truly holistic approach to water management, recognizing the intrinsic links between different water systems, water supply, and environmental health. The IPP has a recommendation to work with utilities and planners on One Water management limitations, but it does not specify comprehensive assessment of the different water systems. To fully leverage this, we recommend that the TWDB develop standardized "One Water" assessment frameworks. These frameworks should integrate drinking water,

stormwater, and wastewater planning, to provide a comprehensive view of how water challenges can be addressed and managed across all sectors of Region H.

B. Prioritize Nature-Based Solutions (NBS) for efficient water management

The IPP should incorporate nature-based solutions to build long-term resilience, enhance water quality, support groundwater recharge, and protect vital ecosystems in Region H. These approaches offer holistic benefits that contribute to both water supply reliability and environmental health.

C. Adopt a worst-first prioritization assessment in infrastructure improvements

The plan should adopt a worst-first assessment when prioritizing infrastructure improvements in communities that have been disproportionately impacted by water quality issues and aging water and wastewater infrastructure. This can include criteria for prioritizing projects that demonstrably benefit environmentally-impacted communities, establishing requirements for robust community engagement and input in project design, and dedicated funding thresholds for projects in those areas.

D. Uphold transparency and robust public engagement

Transparency and public engagement are critical for the successful implementation and ongoing adaptation of the regional water plan. The planning group should ensure that all regional stakeholders, including community members, utilities, and local government entities, have meaningful opportunities to provide input and access information that will foster more effective outcomes for the plan.

III. Needs and Water Management Strategies

A. Needs

We recommend that the planning process consider whether the current 'needs' calculations fully reflect the water supply potential of implementing proven, cost-effective conservation strategies before determining demand deficit. When water loss is effectively managed, the overall demand for new water supplies for the entire region decreases, preserving resources and reducing pressure on existing water systems.

B. Conservation: maximizing sustainable and cost-effective water supply

BCWK firmly believes that maximizing all forms of water conservation, alongside water reuse, should be the top priority in the regional water plan. This is one of the most impactful paths to securing our water future without restoring to environmentally damaging and costly new sources. The IPP highlights conservation as “a prime project choice” due to its low cost, scalability, minimal environmental impacts, and ability to avoid much more expensive new infrastructure projects. The IPP itself provides evidence as Municipal Conservation (Water Loss Reduction) is identified as capable of yielding a significant 89,367 acre-feet annually at the cost-effective unit cost of $761 per acre-foot.

As a major industrial nexus, Region H exhibits substantial water demand from its manufacturing sectors, making their efficiency improvements vital. We are pleased to see industrial conservation included as a recommended strategy, a positive step from the previous plan. By aggressively pursuing water loss reduction, industrial efficiency, and other forms of conservation and reuse, the region can reduce the overall demand for new, often environmentally impactful water sources like large reservoirs, thereby protecting our natural waterways and ecosystems.

BCWK holds a firm belief that we must address comprehensive system repair and optimization before embarking on new, large-scale water supply projects. Addressing our aging infrastructure first ensures efficient use of our current resources, minimizes environmental impact, and provides a more sustainable and resilient base from which to meet the demands of a growing population.

C. Prioritizing water quality and ecosystem health

We commend the recognition of the IPP's focus on important water quality aspects and its reference to impaired waterways. The IPP correctly identifies wastewater discharges and stormwater runoff as significant contributions to waterway pollution. This provides a strong basis for prioritizing Nature-Based Solutions (NBS) and Green Stormwater Infrastructure (GSI) to reduce pollution at its source, and address aging wastewater and stormwater infrastructure. Furthermore, the plan acknowledges that sand mining has led to increased pollution and harmful algae blooms in the San Jacinto River; specific WMS or regulatory recommendations are needed to mitigate these impacts and prioritize the river's ecological health. Concerns also arise with interbasin transfer, which the IPP notes can alter water quality, impact habitats, and introduce invasive species like zebra mussels. We urge robust environmental safeguards and a thorough evaluation of less impactful alternatives.

D. Coastal desalination requires rigorous environmental review and prioritization of less impactful alternatives

While the IPP states that the inclusion of coastal desalination as a surface water development project "does not affect other WMSs and impacts only the salinity levels in the area of discharge" and that "the discharge water will be blended with and diluted by other water before discharge", BCWK has concerns about the potential for environmental harm, particularly to our coastal ecosystems. Coastal desalination plants draw in vast amounts of seawater, which can lead to the impingement and entrainment of marine organisms, trapping and killing fish larvae, eggs, and other aquatic life vital to the health of our bays and estuaries. The discharge of highly concentrated brine back into coastal waters can increase local salinity levels, deplete oxygen, and introduce harmful chemicals used in the treatment process. Significantly altering salinity levels or water circulation in the bays and through these passages could harm aquatic life and negatively impact Texas' coastal economy as a result.

Beyond these direct ecological threats, coastal desalination also carries concerns regarding high costs and intensive power demands. The IPP's own figures in Table 5-5 highlight that the GCWA Coastal Desalination project is projected to yield 22,400 acre-feet annually at a unit cost of approximately $2,207 per acre-foot. This is nearly three times the unit cost of water loss reduction for significantly less volume. We urge the planning group to:

- **Prioritize comprehensive, independent environmental impact assessments for any proposed desalination project,** fully evaluating intake impacts, brine discharge effects on sensitive habitats, and the overall ecological footprint.
- **Require the use of best available technologies f**or intakes to minimize harm to marine life, and for brine disposal methods that ensure maximum dispersion and minimal ecological impact, even if these options are more costly.
- **Compare the environmental and economic costs of coastal desalination against less impactful alternative water sources** such as expanded conservation, advanced water reuse, ensuring that desalination is only pursued as a last resort after all other economic and environmental sustainable options have been exhausted.

E. Infrastructure investment: wastewater and stormwater

We advocate for stronger commitments within the plan for wastewater and stormwater infrastructure improvements, recognizing the direct link between aging systems and water quality degradation. This includes leveraging wastewater reuse data for supply-side planning and ensuring broader system resilience. We also urge a shift towards comprehensive stormwater management strategies that focus on alternative solutions like GSI to reduce runoff volume and improve water quality at the source. The IPP should prioritize hybrid projects that can offer multiple benefits. We encourage the planning group to look to local successes, such as the conservation and surface water conversion efforts driven by subsidence planning in the Houston area, and to consider available data on local wastewater reuse projects or water loss mitigation efforts as models for regional replication.

IV. Legislative, Administrative and Funding Recommendations

A. Legislative recommendations

We commend RHWPG's legislative recommendation for expanded funding support for water loss mitigation programs, but should be strengthened further given that water loss represents a substantial cost-effective water management strategy. The plan should also recommend specific legislative targets for water loss reduction. Current data shows statewide losses averaging 51 gallons per connection per day; addressing this could yield supply equivalent to multiple reservoir/"new water" projects.

RHWPG's recommendation on interbasin transfers suggesting Legislature to "remove unnecessary and counterproductive barriers" lacks environmental protection language. Any

legislative changes should maintain robust environmental flow protections and comprehensive ecological/environmental impact assessments for proposed transfers.

We strongly support the recommendation for additional bay and estuary program funding. This should be enhanced to specifically prioritize nature-based solutions that provide multiple benefits and are cost-effective compared to traditional gray infrastructure.

The legislative recommendations do not address climate resilience, which might serve as a critical gap given increasing extreme weather events in Texas, including the most recent Texas Hill Country floods, last year's San Jacinto River floods, and the high incidence of flooding across Region H. The plan should recommend legislation requiring climate impact assessments for all water infrastructure investments and prioritizing projects that increase system resilience to extreme weather events.

B. Funding recommendations

We strongly support RHWPG's recommendation to increase SRF program funding and expand coverage for capacity increases. BCWK's analysis and discussions with Region H entities such as the City of Houston have shown current SRF programs often fail to reach disadvantaged communities due to certain eligibility, financing, and/or application requirements. We recommend that SRF expansion incorporates increased grant opportunities for disadvantaged communities and technical assistance for pre- and post-application processes.

The recommendation to provide TA grants for desalination advancements should include environmental impact assessments and protections.

V. BCWK's Key Recommendations for Plan Revisions and Additions

Bayou City Waterkeeper urges the Region H Water Planning Group to incorporate the following key revisions and additions into the 2026 IPP:

- Add specific language that requires the consideration of environmental benefits and negative impacts for all proposed projects and water management strategies.
- Add a dedicated section that details how the plan will address and prioritize projects on a worst-first assessment.
- Add language that outlines how SB7's wastewater planning directives will be integrated into the plan and reshape management planning.
- Develop a robust framework for the evaluation of water loss mitigation and reuse projects as viable and prioritized water management strategies.

V. Conclusion

Bayou City Waterkeeper believes that by adopting a more holistic and environmentally responsible approach through these recommendations, the 2026 Region H Water Plan can secure a sustainable and resilient water future for all its residents and invaluable ecosystems. We look forward to collaborating with the Region H Water Planning Group to achieve the shared vision of ensuring healthy and abundant water systems for many generations.

Thank you for your consideration. Please do not hesitate to contact Guadalupe Fernandez at guadalupe@bayoucitywaterkeeper.org or Usman Mahmood at usman@bayoucitywaterkeeper.org with any questions or concerns.

Guadalupe Fernandez
Policy & Partnerships Manager

Usman Mahmood
Policy Analyst

Bayou City Waterkeeper
4900 Travis St. #209
Houston, TX 77002
(713) 364-6323

www.bayoucitywaterkeeper.org

Philip Taucer

From: Matt Barrett
Sent: Friday, July 18, 2025 11:38 AM
To: info@regionhwater.org
Cc: Philip Taucer; Ed Shackelford; Aubrey Spear
Subject: SJRA Comments on Region H IPP

Good morning,

Please see below comments from SJRA on the draft Region H IPP:

1. The IPP includes a Regional Return Flows Water Management Strategy linked to SJRA but does not appear to include a related project (at least according to the table of projects included in the Region H Major Water Provider Summary for SJRA ("SJRA Summary"). Should a project be included?
2. Related to Steam Electric Demands: SJRA's steam electric customer demands (Lake Conroe) have recently changed. Total demand (including reservation) as of 1/1/26 will be 9 MGD. SJRA can provide more data as needed. This is not treated water.
3. Related to the Montgomery County Supply Expansion Technical Memorandum:
    1. The magnitude of future Lake Conroe surface water treatment expansion phases is unknown at this time and will not necessarily be 25 MGD "modules" as indicated in the Montgomery County Supply Expansion tech memo.
    2. Existing major surface water transmission lines can handle up to 60 MGD. Expansions beyond 60 MGD would require major transmission system expansion. Some transmission system improvements (lateral lines, etc.) may be required in delivery scenarios less than 60 MGD.
    3. The memo (scoring table) indicates a development timeline of 5 years or less for individual phases. SJRA believes 5-10 years is a more appropriate estimate.
    4. Please ensure that all data and discussion related to this strategy is clearly explained and tabulated, including indication of which values are related to additional allocations of surface water and which are related to additional infrastructure.
    5. The memo states that SJRA holds an option contract with City of Houston (COH) for their portion of Lake Conroe yield. It would be more accurate to say that SJRA reserves COH's portion of Lake Conroe yield.
    6. Can "approximately" be added when discussing Lake Conroe volume, surface area, etc.?
    7. The memo says SJRA's GRP division serves 7 local water providers. GRP currently serves 6 providers. If MidSouth Electric Co-op is approved to receive water again, there will be 7. In SJRA's FY2027, an additional customer is anticipated to come online.
4. Please update references to SJRA's 2018 Raw Water Supply Master Plan (RWSMP) to its 2025 RWSMP and update any related, relevant data as appropriate.
5. Related to the SJRA Catahoula Aquifer Supplies Technical Memorandum:
    1. Please ensure that any impacts to this strategy based on updates to the Montgomery County Supply Expansion strategy are considered. For example, if estimated phasing timeline of the

latter project would not accommodate new supply from the Catahoula project, then the statement "…may be treated through existing infrastructure…" in the WUG Suitability table may need to be changed.
    2. Consider clarifying that this strategy assumes pipeline conveyance from wells directly to Lake Conroe (hence mitigating potential environmental issues in creeks and similar).
    3. The first line of the memo states that SJRA is a provider for municipal, industrial, and irrigation customers. SJRA also now has a mining customer. Please update any relevant language in the IPP accordingly. SJRA can provide data on its mining customer demand if needed.
6. Related to the San Jacinto Basin Regional Return Flows Technical Memorandum:
    1. SJRA's 10-year Project Plan includes costs for an SJRA-specific regional return flows strategy. Should these (non-infrastructure) costs, or similar, be included in the cost of the strategy? The costs may need to be expanded to cover other entities included in this strategy.
    2. The first line of the memo essentially says that Lake Houston receives flow from the West Fork, East Fork, and Spring Creek. This could be misleading as there are several streams that ultimately flow into Lake Houston.
    3. Is the 160,000 ac-ft of storage value (Lake Houston) referring to permit storage or physical? If the former, should it match the 168,000 in the water rights table? If the latter, does it account for storage loss due to sedimentation?
    4. The text and water rights table refer to a joint COH/SJRA permit (5807) with a yield of 32,500 ac-ft/year. The total permitted yield of 5807 is 28,200 ac-ft/year.
    5. The memo references a permit obtained by <u>both</u> SJRA and City of Conroe to use return flows generated by Conroe. Permit 13183 is just an SJRA permit, with Conroe having separate permit(s).
    6. The memo says that Table 2 shows return flow availability estimates by drainage sub-area, but Table 2 shows different information.
    7. Table 2 includes a footnote "b," but there is no associated footnote notation in the table.
    8. The memo specifically references EPA data related to discharges below Lake Conroe. Can you describe how discharges ABOVE Lake Conroe are incorporated in the strategy?
    9. Strategy Evaluation Table:
        i. The explanation on Environmental Land and Habitat is not clear. It and other explanations do not match those in Table 5-2 of the IPP. Was that intentional?
    1. The last paragraph on page 5-B-REUS-007-5 is missing a unit of measure after "100,445."
    2. The WUG Suitability table says the project potentially provides water to multiple Regional Water Authorities. Is that accurate?
    3. Should the References section included reference to permit 13183, since it is discussed in the text?
7. Please reclassify SJRA CLCND water rights (30,000 ac-ft/year; WR-4279A) from existing to future supply. A very rough infrastructure cost of $35M (2025 estimate; adjusted as needed in accordance with TWDB requirements) could be utilized for this future supply (assuming ~2028 for construction).

Please let me know if you have any questions.

Thank you!

Matt Barrett, PE
Water Resources and Flood Management Division Manager

Philip Taucer

From: Ken Kramer
Sent: Friday, July 18, 2025 4:47 PM
To: info@regionhwater.org
Cc: Mark Evans; Philip Taucer
Subject: Personal Comments on the Draft 2026 Region H IPP

Follow Up Flag: Flag for follow up
Flag Status: Flagged

July 18, 2025

Mark Evans, Chair
Region H Water Planning Group

Dear Mark and Fellow Members of the Regional H Water Planning Group:

Thank you for the opportunity to provide these comments for the public record. I have read the text of the main body of the Draft Region H Water Plan Initially Prepared Plan (IPP) and reviewed some of the appendices, and – as you know – I have provided input through the sixth round of Region H water planning in my role representing the "Public" as a member of the Water Planning Group.

Although I personally do not support some of the proposed water management strategies or associated projects in the IPP (especially the proposed East Texas Transfer), nor do I agree with all of the legislative recommendations in the document, overall I believe that the proposed update of the Region H Plan is a reasonable, consensus document that reflects the hard work and give-and-take deliberations of the Region's consultants, Working Group members, and Working Group Committees, especially the Water Management Strategies Committee.

I especially appreciate the legitimate compromise reached at the May 2025 meeting of the Region H Group which resulted in the decision to incorporate "drought management" (specifically the implementation of drought contingency plans) as a proposed water management strategy for the region. Because that decision was not reached until the May meeting, there was not sufficient time before the close of the public comment period to revise the IPP to identify drought management as a water management strategy (WMS).

However, I would like to provide a few comments on the topic of drought management, some of which stem from a review of the Draft "Chapter7 – Drought Response" and some of which are based on the discussion of drought management as a WMS at the May meeting:

- Since the Texas Water Development Board (TWDB) rules governing the preparation of regional water plans require that a proposed WMS be accompanied by a firm number of the volume of water to be provided by that WMS, the Region H consultants developed and the Working Group approved a volume of 2,000 acre-feet of water per year as the amount of water that could be firmly relied upon each year through the implementation of drought contingency plans by water suppliers in Region H during a drought as severe as the Drought of Record. In the spirit of compromise, I accepted that volume for inclusion in the 2026 Region H Water Plan. However, I truly believe that the 2,000 AF/Y number is a much lower volume of water than can be achieved through reasonable implementation of drought contingency plans in Region H. I hope that the final 2026 Plan will include language noting that this figure may be an underestimate of what it is possible to achieve in the Region through drought management. I further hope that the Region H consultants and Working Group will continue to research and refine this number in the next round of regional water planning.
- Although the preparation of drought contingency plans in the Region is the responsibility of individual retail or wholesale water suppliers, I believe that it would be prudent and reasonable for the Region H Water Planning Group to recommend to municipal WUGs required to adopt such plans that those WUGs consider incorporating meteorological factors into the triggers for different stages of their plans. The Draft IPP discusses the availability of the Palmer Drought Severity Index (PDSI) as a readily available drought indicator reflecting soil moisture conditions. A reasonable approach for municipal WUGs would be to use the PDSI category of "Moderate Drought" to trigger at least Stage 1 of their drought contingency plan (Stage 1 usually focuses on voluntary drought management actions). Many WUGs in the Region do not seem to implement even Stage 1 of their contingency plans until a drought has reached a "Severe" or higher level because those WUGs rely only on non-meteorological factors such as "storage" to trigger contingency plan stages, which may put them "behind the curve" in weathering droughts.
- Finally, the Region H chapter on "Drought Response" would benefit – at least in future plans – from more "success stories" and specific examples of how certain drought contingency plans and their implementation have resulted in reductions in water use during drought either in this Region or other water planning regions.

I look forward to the continuing refinement of the Region H Plan in the next round of regional water planning, and I continue to see the value of the consensus-building process provided through the diversity of interests represented in our Planning Group.

Sincerely,
Ken Kramer

Agenda Item 5c

Receive presentation from Consultant Team regarding proposed revisions to the IPP in preparation of the draft Final 2026 Region H Regional Water Plan (RWP) to be approved at a subsequent meeting.

REGION H
Water Planning Group

Agenda Item 5c
RWP Revisions

- Minor adjustments for TWDB comments
- Additional adjustments
  - Stakeholder request
  - RWPG member comments
  - Consultant team review
- Database tune-up through TWDB

Agenda Item 5c
RWP Revisions

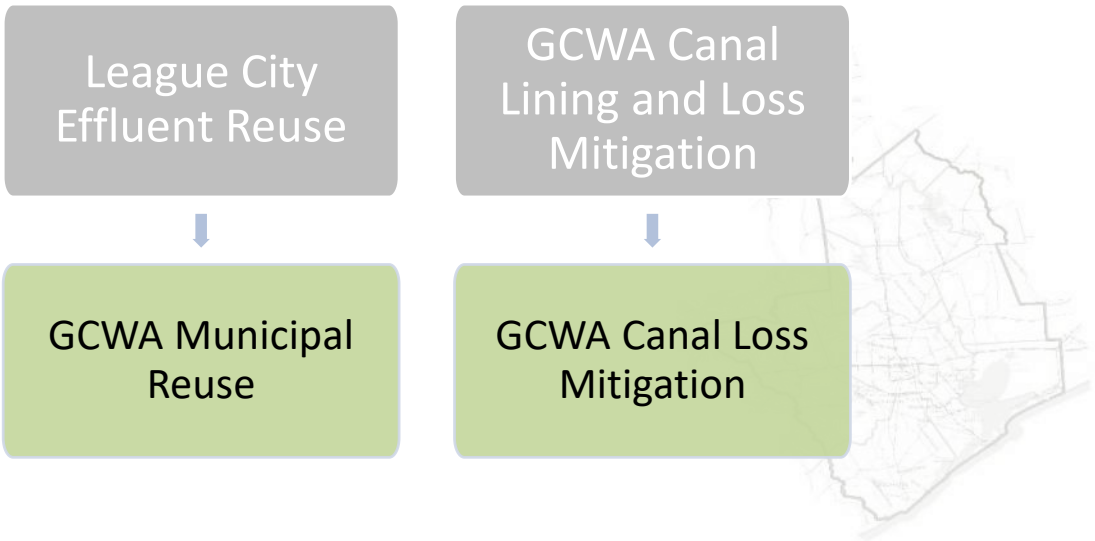
ADDITIONS

- City of Pasadena Infrastructure
- City of Waller GW Expansion
- CWA Pump Station Improvements
- Lake Whitney Reallocation
- Municipal Drought Management
- Highlands Inf. Enhancement
- West University Place Inf.

REMOVALS

- Brazoria County GW Reallocation

Agenda Item 5c
RWP Revisions



Agenda Item 5c
RWP Revisions

Treatment	Transmission		Reuse	Other
BWA Conventional Treatment Expansion	City of Houston Transmission Expansion	NHCRWA Distribution Expansion	City of Houston Reuse	San Jacinto Basin Regional Return Flows
City of Houston EWPP Enhancement	CWA Trinity River Conveyance System Improvements	NHCRWA Transmission Lines	GCWA Municipal Reuse	Montgomery County Supply Expansion
Northeast Water Purification Plant Expansion	East Texas Transfer	WHCRWA/NFBWA Transmission Line	NFBWA Member District Reuse	BWSC Reservoir and Pump Station Expansion

Agenda Item 5c
RWP Revisions

- Other Refinements
  - MAG Peak Factor incorporation
  - Socioeconomic impacts analysis
  - Chapter 10 documentation
  - Updates for new WCPs and DCPs
  - Enhanced drought management messaging
  - Other minor text polishing
- DB27 updates

Agenda Item 5c
RWP Revisions

- From here…
  - Take input from RWPG on proposed changes
  - Incorporate into RWP
  - Adopt Final Regional Water Plan at October 1st meeting
  - Submit Final Regional Water Plan

Agenda Item 5d

Receive update from Legislative Committee and Consultant Team regarding the 89th Texas Legislative Session.

REGION H
Water Planning Group

Agenda Item 5d
89th Legislative Session

- 89th Texas Legislature
- Began January 14, 2025
- Concluded June 2, 2025
- Water as major focus

Agenda Item 5d
89th Legislative Session

HJR 7 and SB7

- TWF funding
- Office of Water Supply Conveyance Coordination
- Interim study of feasibility of WW planning in SWP process
- Goes to voters in November

Agenda Item 5d
89th Legislative Session

SB1261

- Extends funding terms for certain large water projects

HB29

- Water loss validations for certain large cities

SB2885

- Authorizes use of reclaimed water for ASR projects

SB2662

- Strengthens PUC oversight of DCPs a

HB 2559

- Adds requirements to impose mortarium on new development

SB1883

- Related to impact fees

Agenda Item 5d
89th Legislative Session

- Messaging priorities
- Approach
- Resources

REGION H
Water Planning Group

Mission of the Region H Water Planning Group:

- Recognize the water supply needs of one of the largest economic and population centers in the nation
- Identify cost-effective and environmentally responsible strategies for meeting tomorrow's water needs
- Facilitate open discussion of water-related issues among key stakeholders
- Provide a platform for public input to our water supply future

Politically:

15	14	6	3	100s
Counties	River and Water Authorities	Groundwater-Regulating Bodies	Councils of Governments	Water Utilities

Economically:

2/3	1/3	#1	7.3
US Petrochemical Production	US Petroleum Industries	Port in the US by Tonnage	Million Population (2020)

Water Supply:

3
River Basins

2
Major Aquifers

3
Major Reservoirs

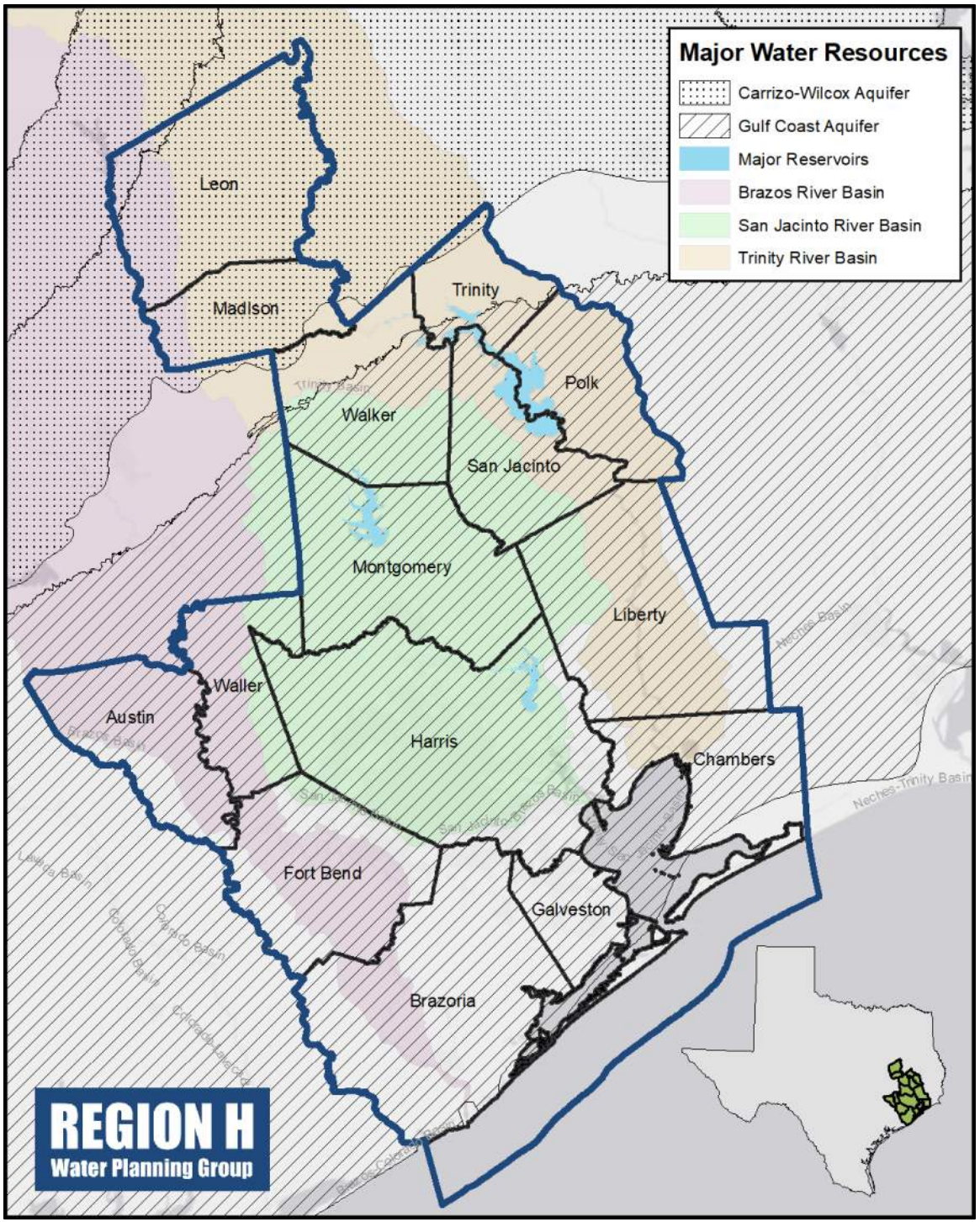
Planning Group:

26
Voting Members

12
Interest Groups

The 2021 Region H Water Plan:

Population of		Agriculture
11.7	60%	350+
Million (2070)	Population Growth	Thousand Acre-Feet per Year
Industry		
700+	818	$20.1
Thousand Acre-Feet per Year	Recommended Projects	Billion Planned for Infrastructure



WE'D LOVE TO HEAR FROM YOU!

Input from stakeholder groups and individual members of the public is the foundation of the Regional Water Planning Process.

The Region H Water Planning Group encourages interested parties to provide their thoughts and insights on the development of the Regional Water Plan. There are several ways to get involved:

- All Region H Water Planning Group meetings are open to the public and include opportunities to provide comments.
- Comments may be submitted by email to *info@regionhwater.org.*
- You can also reach us by mail at:
  Hon. Mark Evans, Chair, RHWPG
  c/o San Jacinto River Authority
  P. O. Box 329
  Conroe, Texas 77305

Where to go to learn more about Region H

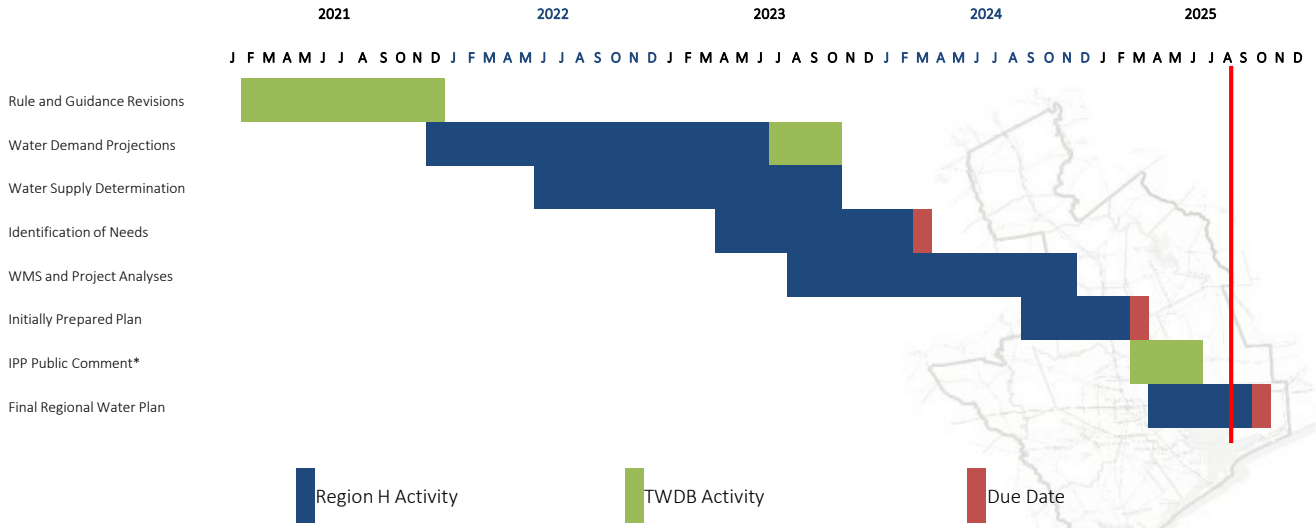
Please visit us at *www.regionhwater.org* for information on upcoming meetings and hearings, the Planning Group members, recent Regional Water Plan documents, and much more.

Agenda Item 6a

Receive update regarding the schedule and milestones for the development of the 2026 Region H RWP.

REGION H
Water Planning Group

Agenda Item 6a
2026 RWP Schedule



*Region H accepts public comment throughout the planning cycle and at each RWPG and committee meeting.

Agenda Item 6a
2026 RWP Schedule

Date	Scheduled Events/Tasks
08/2025	RWPG Meeting
09/2025	TWDB database closes
10/2025	RWPG Meeting
10/2025	RWP due to TWDB

Agenda Item 6a
2026 RWP Schedule

- Submittal Package
  - Final RWP document
  - Certification of plan adoption
  - Model and GIS files

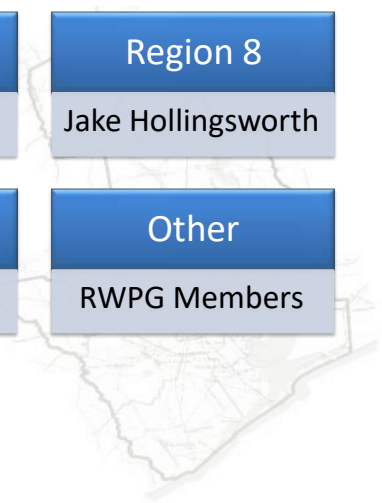
Agenda Item 6b

Receive update from liaisons to other planning groups.

REGION H
Water Planning Group

Agenda Item 6b
Liaison Updates

Region C	Brazos G	Region 6	Region 8
Kevin Ward	Zach Holland	Alisa Max	Jake Hollingsworth
IPC / Chairs	GMA 12	GMA 14	Other
Mark Evans	David Bailey	Sarah Kouba	RWPG Members



Agenda Item 6c

Receive report regarding recent and upcoming activities related to communications and outreach efforts on behalf of the RHWPG.

REGION H
Water Planning Group

Agenda Item 6c
Community Outreach

- ULI Blueprints (Marcell):
  ULI Panel Discussion

- West Houston Democrats (Bartos):
  The Regional and State Water Planning Process in Texas

- Ongoing / upcoming - Sponsor coordination and IPP comment responses

Agenda Item 6d

Receive update from TWDB.

REGION H
Water Planning Group

Philip Taucer

From: RegionalWaterPlanning <RegionalWaterPlanning@twdb.texas.gov>
Sent: Thursday, July 17, 2025 3:11 PM
To: RegionalWaterPlanning
Cc: OOP-WSP-RWP; EDA; Robert Bradley; Natalie Ballew; Sam.Marie Hermitte; John Dupnik; Sarah Lee; Emma Jones; Temple McKinnon; Reem Zoun; Matt Nelson
Subject: 2026 DFC timeline and irrigation projection timeline for the 2031 RWPs
Attachments: 2026 DFC timeline and irrigation projection timeline for the 2031 RWPs; RWP_GMA timeline -July 2025.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Good afternoon,

As part of our continued regional water planning coordination with Groundwater Management Areas (GMAs) and as a follow-up to the email sent to GMA coordinators in December 2024 (attached for reference), we are sending this information on the Desired Future Conditions (DFCs) and Regional Water Plan (RWP) timelines for your consideration.

- TWDB will begin the development of the draft water demand projections for the next planning cycle, (2031 RWPs) near the end of 2025, with a target date to release draft non-municipal projections by March 2027. These will include the irrigation demand projections, which contain a tie to the Modeled available Groundwater (MAGs) in groundwater-dependent areas of production.
- Acknowledging the mismatch in the DFC/RWP timelines, TWDB will use a rate of change approach based on the current irrigation demand projections (link below) in order to release draft projections to the Regional Water Planning Groups (RWPGs) by March 2027.
- RWPGs may request revisions to the draft projections, including the use of updated MAGs. However, to incorporate the updated MAGs into the final projections for the 2031 RWPs, MAGs would need to be available by August 2027. MAG development is dependent upon administratively complete explanatory reports and then subsequent capacity of TWDB groundwater staff. Please keep in mind, the due date to submit revision requests to draft projections for the 2031 RWPs is anticipated to be December 2027.

We see benefit in the RWPGs including agenda items to include GMA status updates by the GMA representatives on the DFC/MAG process and timeline. Below is a summary of the high-level regional water planning and groundwater planning timelines for reference during your planning process.

Timelines of 2026 Joint Groundwater Planning Process and 2031 Regional Water Planning Processes

- **End of 2025:** TWDB initiates the draft water demand projections process for the 2031 RWPs
- **May 1, 2026:** Deadline for DFC proposals
- **January 5, 2027:** Deadline for DFC adoption
- **March 5, 2027:** Deadline for explanatory report submittal, which must be reviewed by TWDB for administrative completeness
- **March 2027:** Targeted release of draft irrigation demand projections for the 2031 RWPs
- **Spring 2027-28:** Targeted development and release of MAGs

- **August 2027:** Timing that MAGs would be needed for inclusion in water demand projections for the 2031 RWPs
- **December 2027:** Anticipated deadline for RWPGs to submit revision requests to draft water demand projections for 2031 RWPs

Link to the current irrigation water demand projections for the 2026 RWP:
https://www.twdb.texas.gov/waterplanning/data/projections/2027/projections.asp

Link to the 2026 RWP irrigation water demand projections methodology:
https://www.twdb.texas.gov/waterplanning/data/projections/2027/doc/IrrigationProjMethod_2026RWP.pdf

Please contact our Projections and Economic Analysis staff for any questions regarding the water demand projections methodologies or process at EDA@twdb.texas.gov.

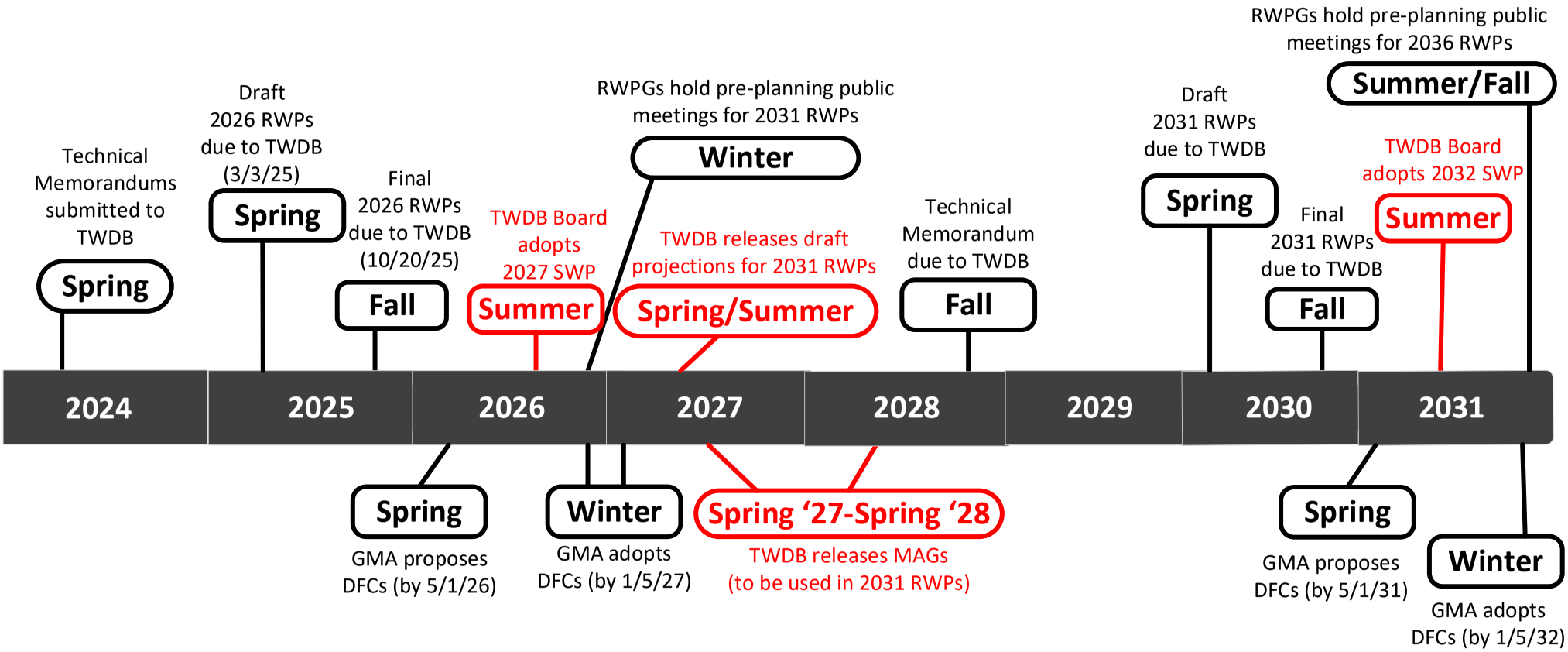
The following stakeholders are Bcc'd on this email: RWPG Chairs, RWPG Sponsors, RWPG consultants, GMA coordinators, GMA consultants, and GMA RWPG members.

Best,

Sarah N. Lee
Senior Advisor, Water Supply Planning
Interim Manager, Regional Water Planning
Texas Water Development Board
1700 N. Congress Ave., Austin, Texas 78701
(512) 936-2387
sarah.lee@twdb.texas.gov
www.twdb.texas.gov

Anticipated Regional Water Planning and Groundwater Joint Planning Timelines

Regional Water Planning Timeline



Groundwater Joint Planning Timeline

Updated 7/16/25

Acronyms
DFC – desired future condition
GMA – groundwater management area
MAG – modeled available groundwater
RWP – regional water plan
RWPG – regional water planning group
SWP – state water plan
TWDB – Texas Water Development Board