

## **Agenda**

### **Interregional Planning Council**

May 30, 2023, 1:00 p.m.

The 2027 State Water Plan Interregional Planning Council (Council) will meet virtually via Microsoft Teams and in person in Room 540E of the Stephen F. Austin Bldg., 1700 North Congress Avenue, Austin, TX. The meeting will be open to the public. Use the following access information to attend the meeting virtually: [Click here to join the meeting](#). Meeting ID: 294 894 654 705; Passcode: XMjtjG. Audio access only: 512-298-6360; phone conference ID: 742 013 756#

*Per Texas Water Code §16.052(c), the purposes of the Council are to:*

- (1) improve coordination among the regional water planning groups, and between each regional water planning group and the board, in meeting the goals of the state water planning process and the water needs of the state as a whole;*
- (2) facilitate dialogue regarding water management strategies that could affect multiple regional water planning areas; and*
- (3) share best practices regarding operation of the regional water planning process.*

The Council will discuss the following items with action as appropriate:

- 1) **Welcome**
- 2) **Public comment**
- 3) **Consider minutes from March 9, 2023 meeting**  
[http://www.twdb.texas.gov/waterplanning/rwp/ipc/docs/2023\\_03\\_09\\_mtg/DRAFT%20IPC\\_MeetingMinutes\\_030923.pdf](http://www.twdb.texas.gov/waterplanning/rwp/ipc/docs/2023_03_09_mtg/DRAFT%20IPC_MeetingMinutes_030923.pdf)
- 4) **Overview of background information on**
  - a) Interregional conflict
  - b) Population and water demand methodologies
  - c) Rural population projections and water use estimation
  - d) Gallons per capita per day
  - e) Water loss
- 5) **Process for report preparation**
  - a) Review report outline
  - b) Discuss next steps
- 6) **Review implementation status of previous Council recommendations**
- 7) **Discussion and potential action on recommendations**
- 8) **Schedule and potential agenda items for next meeting**
  - a) Identify background materials needed for future meetings

- b) Discuss items needed to be accomplished before future meetings
- c) Discuss potential agenda items
- d) Next meeting date

9) **Public comment**

10) **Adjourn**

Persons with disabilities who plan to attend this meeting and who may need auxiliary aids or services such as interpreters for persons who are deaf or hearing impaired, readers, large print or Braille, are requested to contact Brittany Condry at [brittany.condry@twdb.texas.gov](mailto:brittany.condry@twdb.texas.gov) or at (512) 463-6478 two (2) work days prior to the meeting so that appropriate arrangements can be made.

**Direct links to this information can be found on our website at**  
<https://www.twdb.texas.gov/waterplanning/rwp/ipc/2027IPC.asp>

Additional Information may be obtained from: Temple McKinnon, Director of Water Supply Planning, Texas Water Development Board, (512) 475-2057 [temple.mckinnon@twdb.texas.gov](mailto:temple.mckinnon@twdb.texas.gov)

Emergency Mtg: No

Agenda item 3. Consider minutes from March 9, 2023 meeting

**DRAFT**

**Interregional Planning Council Meeting Minutes**

March 9, 2023, 1:00 p.m. to 2:30 p.m.

Held in person in the Stephen F. Austin Building, Austin TX and virtually via Microsoft Teams  
*Council decisions bolded and italicized in document*

**Participation: Number of Interregional Planning Council members present 13 of 16**

A	Ben Weinheimer	E	Scott Reinert – absent	I	Kelley Holcomb	M	Jim Darling – absent
B	Randy Whiteman	F	Scott McWilliams	J	Jonathan Letz	N	Carl Crull
C	Dan Buhman (alternate)	G	Gail Peek	K	David Van Dresar – absent	O	Melanie Barnes
D	Jim Thompson	H	Mark Evans	L	Tim Andruss	P	Patrick Brzozowski

**Presiding Officer:** Council Chair Mark Evans

**Senators/Representatives/Other VIPs in Attendance:** None

**Texas Water Development Board (TWDB) Board Members and Staff:** Temple McKinnon, Elizabeth McCoy, Heather Rose, Sarah Lee, Ron Ellis, Brittany Condry, Michelle Foss, Jean Devlin, and Kevin Smith

**Council alternates present in addition to participating members:** Fred Milton (D), David Alders (I), and Jonathan Stinson (L)

**MEETING GENERAL**

Temple McKinnon (TWDB) called roll and determined that a quorum was present. Council Chair Mark Evans (Region H) called the meeting to order.

**AGENDA ITEMS**

**1. Welcome and Orientation**

Ms. McKinnon noted that the TWDB Board appointed the following new members to the Council to fill vacant positions: Scott McWilliams (Region F member), Tommy Ervin (Region F alternate), and Tara Bushnoe (Region J alternate). Mr. Evans reviewed the meeting agenda.

**2. Public Comment**

Mr. Evans asked if there were any comments from members of the public. No comments were provided.

**3. Minutes from November 9, 2022 Meeting**

The Council considered the minutes of the November 9, 2022 meeting. Jim Thompson (Region D) made a motion to approve the minutes as presented. Patrick Brzozowski (Region P) seconded the motion. ***The minutes were unanimously approved.***

#### **4. TWDB Overview of Supporting Materials**

Ms. McKinnon provided an overview of materials that TWDB prepared to support the Council. New supporting materials are available under the General Resources section of the Council's webpage: <http://www.twdb.texas.gov/waterplanning/rwp/ipc/2027IPC.asp>.

Ms. McKinnon reviewed the following materials:

- *Operational Procedures and TWDB Support Summary Document* is a reference document for Council members that outlines how the Council has agreed to operate.
- *2027 SWP Council Board Appointment March - 2023* is the TWDB board item to appoint new members to the Council to fill vacant positions.
- *Policy Recommendations in the 2021 Regional Water Plans* is a compilation of the policy recommendations from the 2021 regional water plans that provides the status of each recommendation as of December 2022. The previous Council recommended TWDB prepare this document and distribute it to the regional water planning groups (RWPG). Ms. McKinnon asked that members review the document and provide feedback by the end of March 2023. The TWDB will then distribute the document to the RWPGs.
- *Active RWPG Committees* is a list of active committees for each RWPG, as of January 2023, that was created in response to a recommendation from the previous Council and is intended to support interregional coordination.
- *Supporting Information on TCEQ Non-Voting Membership* is a resource document for RWPGs interested in adding a TCEQ non-voting member as recommended by the previous Council. The document includes information on which RWPGs have a TCEQ non-voting member and contact information for the central and regional TCEQ offices.
- *RWPG Voting Membership Costs* summarizes RWPG membership costs.
- *RWPG Liaison Materials* is a best practice resource for RWPG liaisons. Ms. McKinnon encouraged the Council to review the document with their regional liaisons and provide feedback to TWDB.

Mr. Evans asked Council members if they had any comments about the supporting materials. There were no comments.

#### **5. Prioritized Recommendations from Previous Council**

Ms. McKinnon presented results from the IPC Recommendation Prioritization Survey and RWPG IPC Recommendation Status Survey. Each survey received nine responses. Survey results are summarized in the meeting materials and available on the Council's webpage.

Mr. Brzozowski asked about the Original Order column in the survey results. Ms. McKinnon explained that the Original Order column orders survey results from highest to lowest priority based on the number of High/Medium/Low votes received.

Kelly Holcomb (Region I) asked if the legislature has taken up any of the previous Council's legislative recommendations. Ms. McKinnon stated that legislation has been filed related to the Council

recommendation to authorize the use of remote conferencing or webinars (House Bill 390). Several bills have been filed related to the Open Meeting Act, including Senate Bill 42, House Bill 3225, and House Bill 3440. Mr. Evans proposed that the next Council meeting be held after the close of the legislative session so members can consider any legislative action.

#### **6. Process for Report Preparation**

Mr. Evans suggested that the Council operate without committees to develop its report. The Council's report is due to the TWDB on March 4, 2024. Mr. Evans proposed that the Council meet quarterly in 2023 to complete its work. Johnathan Letz (Region J), Carl Crull (Region N), Gail Peek (Region G), and Melanie Barnes (Region O) agreed with the proposed approach.

Mr. Evans requested that TWDB staff poll Council members for their availability to meet again in June. Ms. McKinnon stated that she will poll members for their availability soon.

Mr. Evans proposed starting with an outline to develop the Council's report and suggested including a new report section on the implementation of previous Council recommendations. Mr. Holcomb asked if this Council is working under the same legislative mandates as the last Council. Mr. Evans responded that he was not aware of any new legislative directives and the Council should focus on its existing statutory requirements.

Ms. Peek suggested that getting feedback from the regions on the prioritized recommendations may identify other areas of focus for the Council's report, including additional resources needed and best practices. Ms. Barnes asked for clarification on feedback needed from RWPGs. Ms. McKinnon clarified that the RWPGs were surveyed on how they have or plan to implement the previous Council's recommendations to RWPGs. Ms. McKinnon noted that the survey is closed but could be reopened if needed. Mr. Evans added that Attachment 4 from the Council's November 9, 2022 meeting is a helpful resource to review in conjunction with the survey results. Attachment 4 from the previous meeting is available on the Council's website.

Ms. Peek noted that Region G has a committee that is looking at several projects. One of the projects is in Region K. Region G wondered if this is a point of conflict. Ms. Peek stated that situations like these might come up when the members speak with their RWPGs. These situations are helpful for the Council to discern where it can be a resource for the planning groups to avoid conflict and work better together.

Mr. Holcomb suggested that the Council report include a section that reviews the implementation status of recommendations from the previous Council. Mr. Evans agreed.

Ms. McKinnon asked if the Council would like the TWDB to develop an outline in line with the previous Council's report. Mr. Evans requested that TWDB develop an outline with an added section as Mr. Holcomb suggested.

#### **7. Discuss Schedule and Possible Agenda Items for Next Meeting**

Mr. Evans asked if the Council had any suggested materials for the next meeting. Carl Crull suggested looking at the regions and seeing if the Council could help facilitate interregional coordination. Mr. Evans mentioned that some regions might not have interregional conflict and that they might just need interregional coordination. Ms. Peek requested background information on what constitutes an interregional conflict along with the steps to take if one ensues. Ms. McKinnon responded that TWDB can provide that information.

Mr. Holcomb asked if the TWDB could provide the legislation or statute that outlines Council's purpose and requirements. Ms. McKinnon will send members the requested information. It is also available on the Council's webpage.

Mr. Holcomb asked if significant population changes are considered interregional conflict. Ms. McKinnon stated that population changes are not considered an interregional conflict, as defined by the TWDB. Mr. Holcomb noted that Region I's population is projected to significantly decrease.

Mr. Evans requested that Council members review the 2020 Council Report before the next meeting. A report outline, with headers and bullet points, will be developed before the next meeting.

Mr. Thompson requested that the next meeting include an agenda item for the Council to discuss recommendations to address water loss and an agenda item to discuss gallons per capita per day (GPCD) values used in planning. Ms. Barnes noted that some smaller communities in Region O did not know that TWDB has a program to assist them with addressing water loss. The Council may consider making observations or recommendations on water loss.

Mr. Holcomb asked if discussion of water loss and planning GPCD is part of the Council's statutory function. If so, his population question from earlier is relevant. Ms. Barnes asked if water loss might fall under the Council's review of best practices. Mr. Holcomb suggested that this discussion may be more appropriate for the RWPGs. Ms. Barnes asked if one RWPG starts a benefiting practice, is it the Council's duty to inform the other RWPGs? Mr. Holcomb noted that the situation must be of high importance for the Council to intervene. Mr. Evans proposed that the Council could include an observations section to the report. Ms. Barnes and Mr. Holcomb agreed.

Ms. Barnes proposed that the Council discuss rural population at the next meeting. Mr. Letz agreed and noted that Region J is projected to decrease in population and water demands. Mr. Letz stated that he believes that the water use methodology is not very accurate and needs to be addressed. Ms. McKinnon verified that agenda items to discuss both population and water demands should be included on the next meeting agenda. Mr. Letz added that he is primarily concerned with water use in rural communities. Ms. McKinnon noted that rural water use is estimated. TWDB will share relevant population and demand methodology documents and water use, loss, and conservation materials in advance of the next meeting.

Mr. Evans emphasized that the Council should stay focused on addressing its statutory requirements. However, it may be appropriate for the Council to make observations on various topics that come up in

the course of the Council's work. Ms. Peek agreed and suggested that addressing rural population issues may fall under the Council's work to share best practices.

Members discussed potential dates for the next meeting. The meeting will be held sometime in late May or early June after the legislative session ends. Members will be polled for their availability.

**8. Public Comment**

Mr. Evans asked if there were any comments from members of the public. No comments were provided.

**9. Adjourn**

Mr. Brzozowski motioned to adjourn the meeting. Ms. Barnes seconded the motion. The meeting adjourned at 2:10 p.m.



#### Agenda item 4. Overview of background information on

- Interregional conflict
- Population and water demand methodologies
- Rural population projections and water use estimation
- Gallons per capita per day
- Water loss

Agenda item 4. Overview of background information on interregional conflict

## Regional Water Planning in Texas: Interregional Conflict

### What is an interregional conflict?

An interregional conflict exists when

- more than one regional water plan (RWP) includes the same source of water supply for identified and quantified recommended water management strategies (WMS) and there is insufficient water available to implement such WMSs; or
- in the instance of a recommended WMS proposed to be supplied from a different regional water planning area, the regional water planning group (RWPG) with the location of the strategy has studied the impacts of the recommended WMS on its economic, agricultural, and natural resources and demonstrated to the Texas Water Development Board (TWDB) Board members (Board) that there is a potential for a substantial adverse effect on the region as a result of those impacts.

### What coordination should be undertaken prior to identification of a potential interregional conflict?

During the development of their Initially Prepared Plan (IPP)—draft plan—all RWPGs are encouraged by the TWDB to coordinate with neighboring regions and to proactively identify and work cooperatively to avoid potential interregional conflicts.

The TWDB's state water planning database, which contains data from the RWPs, will be a key tool in identifying potential conflicts associated with over-allocations of sources. The TWDB may use this database and information submitted by RWPGs on their methodologies to analyze water availability to identify areas that may warrant additional interregional coordination. If such areas are identified by the TWDB, certain RWPGs may specifically be asked by the TWDB to share information on technical approaches and data development with neighboring regions prior to submitting their IPP to the TWDB.

This sharing of information may be in the form of formal or informal coordination between the RWPG technical consultants, joint RWPG subcommittee meetings, or joint RWPG meetings, for example.

TWDB staff will conduct final water source over-allocation analyses as part of the agency's review of IPPs and final RWPs and notify RWPGs.

Additionally, RWPGs are encouraged to include tabulated quantified information associated with evaluations of feasible (including recommended) WMSs in one place within the RWP to aid RWPG members, other RWPGs, the public, and TWDB staff in understanding and reviewing RWPs.

### How does an RWPG identify a potential interregional conflict?

Within 60 days of the submission of IPPs to the TWDB's Executive Administrator (EA), the RWPGs shall submit in writing to the EA and the other affected RWPG the identification of potential interregional conflicts. The RWPG identifying the potential conflict must provide the following information:

- Identification of the specific recommended WMS from another RWPG's IPP.
- A statement of why the RWPG considers there to be an interregional conflict.
- Any other information available to the RWPG that is relevant to the Board's decision.

The RWPGs shall seek to resolve conflicts with other RWPGs and shall promptly and actively participate in any TWDB sponsored efforts to resolve interregional conflicts.

### What process does the TWDB follow when a potential interregional conflict has been identified?

Upon receiving an assertion of an interregional conflict, the EA will review the materials submitted

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by the RWPG and take a recommendation on the potential conflict to the Board.

If the Board determines that an interregional conflict exists, the EA may use the following process to commence resolution of the conflict:

- Notify the affected RWPGs of the nature of the interregional conflict.
- Request affected RWPGs to appoint a representative or representatives authorized to negotiate on behalf of the RWPG and notify the EA in writing of the appointment.
- Request affected RWPGs' assistance in resolving the conflict.
- Negotiate resolutions of conflicts with RWPGs as determined by the EA.

If negotiated resolutions are successful and confirmed by the RWPG Chairs or designated representatives, the interregional conflict will be considered resolved.

In the event the negotiation is unsuccessful, the EA may take the following steps:

- Determine a proposed recommendation for resolution of the conflict.
- Provide notice of intent to hold a public hearing on proposed recommendations for resolution of the conflict.
- Hold a public hearing on the proposed recommendation for resolution of the conflict.
- Make a recommendation to the Board for resolution of the conflict.

The Board shall consider the EA's recommendation and any written statements by a designated representative for each affected RWPG and determine the resolution of the conflict. The Board's decision is final and not appealable. The EA shall notify affected RWPGs of the Board's decision and shall direct changes to the affected RWPGs.

**What steps must an RWPG take following a Board decision on conflict resolution?**

In accordance with Texas Water Code § 16.053(h)(6) and direction from the TWDB, each RWPG involved will be required to prepare revisions to their respective plans and hold, after notice, at least one public hearing at a central location readily accessible to the public within their respective regional water planning areas.

The RWPGs shall consider all public and Board comments; prepare, revise, and adopt their respective plans; and submit their plans to the Board for approval and inclusion in the state water plan.

**What if an interregional conflict cannot be resolved before regional water plans are finalized?**

In the event that the Board has not resolved an interregional conflict early enough to allow an involved RWPG to modify and adopt its final RWP by the statutory deadline, all RWPGs involved in the conflict shall proceed with adoption of their RWP by excluding the relevant recommended WMS and all language relevant to the conflict.

Each RWPG involved must also add language to the RWP explaining the unresolved interregional conflict and acknowledging that the RWPG may be required to revise or amend its RWP in accordance with a negotiated or Board resolution of an interregional conflict.

#### **Additional Resources**

*31 Texas Administrative Code, Regional Water Planning Rules, §357.10 (16), §357.50 (d), (e), and (f) (5), and §357.62:*

[https://texreg.sos.state.tx.us/public/readtac\\$ext.VIEWTAC?tac\\_view=4&ti=31&pt=10&ch=357&rl=Y](https://texreg.sos.state.tx.us/public/readtac$ext.VIEWTAC?tac_view=4&ti=31&pt=10&ch=357&rl=Y)

*Texas Water Code, §16.053 (h) (5), (6), and (7) (A):*  
<https://statutes.capitol.texas.gov/Docs/WA/htm/WA.16.htm#16.053>

For additional information, please call 512-936-2387 or visit

[www.twdb.texas.gov/waterplanning/rwp/index.asp](http://www.twdb.texas.gov/waterplanning/rwp/index.asp).

Agenda item 4. Overview of background information on population and water demand methodologies

# Population and Municipal Water Demand Draft Projections for the 2026 Regional and 2027 State Water Plans

## 1. Population and municipal water demand projections overview

Municipal water demand projections are a function of population projections, baseline Gallons per Capita per Day (GPCD<sub>base</sub>), and projected plumbing code savings. The following steps are involved in developing municipal water demand projections for Water User Groups (WUGs):

- a) develop population projections,
- b) determine GPCD<sub>base</sub> by WUG,
- c) develop plumbing code savings projections by WUG, and
- d) calculate municipal water demand projections.

Population projections and municipal water demand projections are aggregated by counties and Regional Water Planning Areas. The high-level steps are outlined here, while Sections 2 and 3 of this document go into more detail.

### 1.1 Foundational data and major assumptions

- Population projections are based on county-level projections from the Texas Demographic Center (TDC), which used migration rates between the 2010 and 2020 decennial Census to project future growth ([Section 2.1](#)).
- The Texas Water Development Board (TWDB) drafted WUG-level projections using the TDC's 1.0 migration scenario projections and provided 0.5 migration scenario projections for the planning groups' consideration.
- GPCD<sub>base</sub> values were drafted for each WUG ([Section 3.1](#)) and minimum GPCD values were imposed ([Section 3.2](#)).
- Projected plumbing code savings for each WUG assume passive water efficiency savings due to plumbing code laws related to residential toilets, showerheads, clothes washers, and commercial toilets and urinals. ([Section 3.3](#)). WUGs with high employment relative to the permanent residential population may have high projected plumbing code savings due the replacement of commercial fixtures.

### 1.2 Key changes from previous planning cycle's projection methodology

- The TWDB population projections for the regional and state water plans have always relied, initially, on county-level population projections from the TDC. In the past, the TWDB had altered the resulting regional plan population projections in certain counties – by holding them flat in future periods – to avoid projecting declining populations. For the 2026 Regional Water Plans (RWPs), the draft county population projections followed the trends projected by the TDC, including declines.
- Future savings from additional faucet and dishwasher replacements were not considered necessary for inclusion in the draft plumbing code savings projections for this current planning cycle. Based on the effective year of the relevant plumbing code standards and the useful life of

these items, the expected water efficiency savings by replacement and new growth would reasonably be fully realized by the first projected decade (2030).

## 2. Population

The population projection methodology is performed in two steps: first, projections at the county-level, and then, projections at the WUG-level.

### 2.1 County population projections

Draft county population projections are based on the TDC's 2022 county-level population projections.<sup>1</sup> Such projections are based on recent and projected demographic trends, including the birth rates, mortality rates, and net migration rates of population groups and defined by age, gender, and race/ethnicity. Population projections represent permanent residents, and not seasonal or transient populations. This method for developing population projections is known as the cohort component method and is performed by the TDC using a model.

The TDC generally develops county-level population projections under three migration scenarios:

- zero migration: no net migration (natural growth only),
- 1.0 migration: net migration rates of 2010 to 2020 ("full-migration scenario"), and
- 0.5 migration: 2010 to 2020 migration rates halved ("half-migration scenario").

While the TDC's projections extend to 2060, the 2027 State Water Plan requires projections to 2080. Therefore, the TWDB staff used the 1.0 migration scenario to extend the TDC's projections through 2080 and to develop WUG-level projections. Although, the TDC strongly recommends use of the half-migration scenario for long-term planning, the TWDB drafted population projections for all planning regions using one consistent scenario. For each county, the draft projection is based on the 1.0 migration scenario as the default, but the 0.5 migration scenario was provided through 2080 for Regional Water Planning Groups (RWPGs) to consider during the review process. The TWDB staff extended each region's projections to 2070 and 2080 using the region-level compounded annual growth rates (CAGR) from the 2050 to 2060 projections (see Table 1) and then sub-allocated to counties within the regions using the county's share of the region's decadal growth.

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<sup>1</sup> Texas Demographic Center, 2022, Population Projections, <https://demographics.texas.gov/Data/TPEPP/Projections/#2022pri>

Table 1. Extending the TDC's thirty-year population projections through 2080

Region	Sum of TDC 1.0 Migration Scenario Projections				Extend two decades using Region-specific CAGR				
	2030	2040	2050	2060	2050 to 2060 CAGR	2070	2080	2060 to 2070 CAGR	2070 to 2080 CAGR
A	397,160	405,244	408,658	409,696	0.03%	410,735	411,779	0.03%	0.03%
B	189,639	182,637	172,769	162,203	-0.63%	152,283	142,971	-0.63%	-0.63%
C	8,866,884	10,093,722	11,297,108	12,440,777	0.97%	13,700,226	15,087,176	0.97%	0.97%
D	824,990	847,410	859,530	868,815	0.11%	878,201	887,689	0.11%	0.11%
E	931,194	960,699	969,203	963,018	-0.06%	956,873	950,768	-0.06%	-0.06%
F	778,553	879,271	982,649	1,071,087	0.87%	1,167,487	1,272,561	0.87%	0.87%
G	2,703,905	3,074,453	3,481,252	3,913,803	1.18%	4,400,096	4,946,811	1.18%	1.18%
H	8,369,431	9,477,092	10,583,689	11,611,062	0.93%	12,738,163	13,974,676	0.93%	0.93%
I	1,100,376	1,103,143	1,093,467	1,077,850	-0.14%	1,062,457	1,047,284	-0.14%	-0.14%
J	129,683	130,134	130,196	131,285	0.08%	132,384	133,493	0.08%	0.08%
K	2,125,830	2,481,504	2,827,373	3,204,245	1.26%	3,631,353	4,115,392	1.26%	1.26%
L	3,525,104	4,110,775	4,738,184	5,424,749	1.36%	6,210,796	7,110,741	1.36%	1.36%
M	1,778,329	1,831,384	1,842,992	1,818,702	-0.13%	1,794,734	1,771,082	-0.13%	-0.13%
N	585,222	586,642	580,190	569,474	-0.19%	558,956	548,631	-0.19%	-0.19%
O	553,026	587,260	620,752	665,214	0.69%	712,862	763,921	0.69%	0.69%
P	53,556	55,843	57,772	59,678	0.33%	61,648	63,682	0.33%	0.33%

## 2.2 Water user groups

The regional and state water plans require population projections and municipal water demand projections for individual WUGs ([31 TAC § 357.31\(a\)](#)). Before projections can be developed, a list of municipal WUGs with associated data must first be created.

### 2.2.1 WUG criteria

Defined in the Texas Administrative Code ([31 TAC § 357.10\(43 A-E\)](#)), municipal WUGs are composites of public water systems, grouped by utilities, developed at the beginning of each regional water planning cycle. Per [First Amended General Guidelines for Development of the 2026 Regional Water Plans \(Exhibit C\)](#), RWPGs reviewed and provided input on the draft WUG list for the 2026 RWP. Municipal WUGs generally include:

- utilities providing more than 100 acre-feet of municipal water per year;
- collections of utilities with a common water supplier or water supplies (Collective Reporting Units or 'CRU'); and
- remaining public water systems and self-supplied population summarized as "County-Other".

For the 2026 RWPs, the draft municipal WUG list was developed by carrying over all municipal WUGs from the 2021 RWPs with active, community public water systems. Additional new WUGs were evaluated based on the utility water use meeting the criteria listed in [31 TAC § 357.10\(43 A-E\)](#).

### 2.2.2 Historical WUG populations

The historical WUG populations are a critical step in developing WUG population projections. Following the development of the WUG list, the 2010 and 2020 population estimates were developed based on the



decennial Census.<sup>2</sup> Public water system boundaries were gathered from the TWDB's [Texas Water Service Boundary Viewer application](#) and grouped by WUG. Using ESRI Geographic Information Systems, WUG boundaries were then overlaid with the Census Blocks and population was counted. Because some boundaries contain inaccuracies (e.g., water lines shown as boundaries instead of the actual service area of the water provider) self-reported population estimates from the TWDB Water Use Survey were cross-referenced to determine the final WUG population estimates. The sum of the WUG populations were reconciled to the decennial Census population count. The number of households per WUG were estimated using the 2020 decennial Census data by county and persons per household were then estimated using the previously calculated population.

### 2.3 Projection methodology

Projections for individual WUGs are developed by sub-allocating the population from the region-county projections to the WUGs. The methods of allocating future populations from the county total to the sub-county areas include:

- share of growth: applying the WUG's historical (2010 to 2020) share of the region-county's growth to future growth,
- share of population: applying the WUG's 2020 share of the region-county's 2020 population to the region-county's projected population each decade, and
- constant population: applied to military bases, universities, and other WUGs that are primarily group quarter population. Also, any WUGs that indicated buildout in the 2021 RWPs were held constant at or near their buildout population from the previous planning cycle.

Over a fifty-year planning period, it can be expected that WUGs may grow at different rates within counties, therefore, the share of growth method was prioritized; however, an extensive review was completed by the TWDB staff to ensure that the projected growth rate was in line with the historical growth. If the projected growth rate was not similar to either the WUG's historical growth rate or the region-county growth rate, then the share of population method may have been used. The share of population method maintains the WUG's 2020 proportion of the region-county population throughout the planning horizon. The sum of all WUG population projections within a region-county was reconciled to the total region-county projection prior to the finalization of draft projections.

## 3. Municipal water demands

Draft municipal water demand projections utilize the permanent residential population projections and a decade-specific per person water use volume for each WUG, including County-Other WUGs. GPCD represents the entire utility's water use (including residential, commercial, and institutional water use). For each municipal WUG, the initial baseline GPCD (GPCD<sub>base</sub>) value minus the incremental anticipated plumbing code savings for each future decade was multiplied by the projected population to develop the municipal water demand projections (see [Section 3.4](#) for the formula).

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<sup>2</sup> U.S. Census Bureau, 2020, Decennial Census, P.L. 94-171 Redistricting Data, <https://www.census.gov/programs-surveys/decennial-census/about/rdo/summary-files.html>

### 3.1 Baseline Gallons per Capita per Day

For the 2026 RWPs, the baseline GPCDs represent historical ‘dry-year’ water use minus accumulated plumbing code savings (GPCD<sub>base</sub>). The GPCD was drafted for WUGs by carrying over the GPCD from the 2021 RWPs minus estimated accumulated plumbing code savings. The GPCDs in the 2021 RWPs were carried over from the 2016 RWP and mostly represented the historically dry year 2011, although some WUG GPCDs in the 2021 RWPs were revised by the planning groups to use more recent ‘dry-year’ utility-based water use (2010 to 2015). Accumulated plumbing code savings were calculated using the annualized projected plumbing code savings from the 2021 RWPs for each WUG and subtracting from the carried over GPCDs (see Table 2). All new WUGs in the 2026 RWPs baseline GPCD were drafted using 2018 net water use from the TWDB Water Use Survey and estimated population from the U.S. Census Bureau.

Table 2. Calculating Baseline GPCDs for existing WUGs

2027 Entity Name	RWP21 GPCD <sub>base</sub>	RWP21 GPCD Approx. Year	RWP21 PC Savings 2020	2010-2020 Per Year PC Savings	Number of years between GPCD <sub>base</sub> & 2020	GPCD minus Savings Accrued	New GPCD <sub>base</sub> (draft)
AMARILLO	211	2011	9.62	0.96	9	8.7	202
AUSTIN	162	2011	6.00	0.60	9	5.4	157
CORSICANA	214	2011	10.22	1.02	9	9.2	205
DALLAS	207	2015	9.14	0.91	5	4.6	202
LOWER VALLEY WATER DISTRICT	107	2010	10.86	1.09	10	10.9	96
SEGUIN	147	2012	10.04	1.00	8	8.0	139
SPRINGS HILL WSC	88	2011	9.49	0.95	9	8.5	79
ALBANY	258	2013	10.15	1.02	7	7.1	251
NORTH HUNT WSC	60	2011	0	0	9	0	60
RIVERSIDE SUD	64	2011	4	0.4	9	3.6	60

Historical GPCDs were provided for RWPGs consideration to revise the baseline GPCD. The historical GPCDs were developed annually and gathered for the 2026 RWP revision process. Each year, GPCD is estimated for each WUG through the Water Use Survey by:

- a) calculating the net water use of each water system surveyed annually by the TWDB as total system intake volume minus sales reported by the water system to large industrial facilities and other public water systems plus volumes purchased by other surveyed entities,
- b) summarizing the net use by WUG,
- c) estimating population for the WUG using the U.S. Census Bureau’s population estimates for the county, and
- d) dividing the net use by the WUG’s population and then dividing by 365 (number of days in a year).

### 3.2 Minimum GPCD values

When calculating the GPCD<sub>base</sub> or the projected per person water use values, the TWDB staff applied a minimum of 60 GPCD for each WUG. The minimum value of 60 GPCD is based on two studies: *Analysis of*

*Water Use in New Single-Family Homes*<sup>3</sup> and an internal TWDB report, *The Grass Is Always Greener...Outdoor Residential Water Use in Texas*, analyzing the percentage of Texas residential water used outside of the home.<sup>4</sup> The single-family home study researched the average indoor per person water use for:

- pre-1995 Homes (62.18 GPCD),
- standard new homes built after 2001 (44.15 GPCD),
- standard new homes retrofitted with high-water-efficient fixtures and appliances (39.0 GPCD), and
- new WaterSense homes built with the best available technology for water conservation (35.6 GPCD).

With the assumed replacement of fixtures and appliances over the next 50 years, the indoor per person water use of the standard new home retrofitted (39.0 GPCD) can be expected under existing standards. However, this is only indoor use and the single-family home study found that there was no statistical difference in outdoor water use between types of housing. The TWDB study of outdoor water use in Texas estimated that on average 31 percent of total residential water use is outdoor water use. Utilizing this average outdoor water use percentage (31 percent) and the indoor water use (69 percent) of 39 GPCD for retrofitted new homes produced a total residential GPCD of 56.5. While some municipal WUGs may remain primarily residential, any water use by commercial, institutional, and light industrial water users will contribute to the overall WUG's average GPCD. For this reason, the minimum baseline GPCD, as well as decade-specific projected GPCD (baseline GPCD minus projected plumbing code savings) was rounded to a value of 60 GPCD.

### 3.3 Plumbing code savings

Plumbing code savings may be referred to as water efficiency savings and are required to be considered in municipal demand projections per [31 TAC § 357.31\(d\)](#). Plumbing codes are federal and state laws that mandate the efficiency of all new appliances and fixtures sold in retail stores. Plumbing codes result in passive water efficiency savings, as households naturally replace older appliances and fixtures without having to 'actively' seek more water efficient appliances and fixtures. The TWDB staff project plumbing code savings for each WUG for each decade in the planning horizon for the following fixtures and appliances: residential toilets, clothes washers, showerheads, and commercial toilets and urinals.

#### 3.3.1 Plumbing code standards and parameters

Historical legislation (both state and federal) impacts the volume of water used within homes and businesses. Such legislation generally provided a maximum water use standard (per flush, per cycle, or per minute), as well as an effective date for when appliances and fixtures sold locally must meet that standard. Tables 3 and 4 summarize the effective years and the standards for each fixture and appliance included in the plumbing code savings projections. The assumed effective date for the first State of Texas

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<sup>3</sup> *Analysis of Water Use in New Single-Family Homes*, 2011, Prepared by William B. De Oreo of Aquacraft Water Engineering & Management for The Salt Lake City Corporation and the U.S. Environmental Protection Agency.

<sup>4</sup> *The Grass Is Always Greener...Outdoor Residential Water Use in Texas*, 2012, Sam Marie Hermitte and Robert E. Mace, Texas Water Development Board Technical Note 12-01.

standards is 1995, which varies slightly from the effective date within the legislation, as allowances were included within the legislation for the sale of inventory stocks. For the purposes of calculating future plumbing code savings, the assumed effective date for the first standards is 1995. Whereas the other standards listed in Tables 3 and 4 correspond with the effective dates listed in each of the pertinent pieces of legislation or actual designation by EPA rule. Based on new research, the useful life of fixtures/appliances may be updated between planning cycles. Standards are measured in gallons per minute (gpm), gallons per flush (gpf), or gallons per cycle (gpc).

*Table 3. State of Texas Plumbing Code Standards*

Standards	Effective Year of New Standard		Useful Life	Included in 2026 RWP?	Included in 2021 RWP?
	1995 <sup>5</sup>	2014 <sup>6</sup>			
<b>Faucets</b>	2.2 gpm		15 years	No, benefits fully realized	Yes
<b>Toilets</b>	1.6 gpf	1.28 gpf	25 years	Yes	Yes
<b>Showerheads</b>	2.75 gpm	2.5 gpm	15 years	Yes	Yes
<b>Urinals</b>	1 gpf	0.5 gpf	25 years	Yes	No

*Table 4. Federal Plumbing Code Standards*

Standards	Effective Year of New Standard					2026 RWP Useful Life	Included in 2026 RWP?	Included in 2021 RWP?
	2010 <sup>7</sup>	2011 <sup>8</sup>	2012 <sup>9</sup>	2015 <sup>10</sup>	2018 <sup>10</sup>			
<b>Dishwashers</b>	6.5 gpc		5 gpc			10 years	No, benefits fully realized	Yes
<b>Front-load Clothes Washers (4.0 cubic feet)</b>		38.0 gpc		18.8 gpc		12 years	Yes	Yes
<b>Top-load Clothes Washers (4.5 cubic feet)</b>		42.75 gpc		37.8 gpc	29.25 gpc	12 years	Yes	Yes

Two possible fixtures/appliances, originally included in the legislative efforts concerning plumbing codes,

<sup>5</sup> State of Texas Legislature, SB 587, 1991, 72(R) legislative session, <https://capitol.texas.gov/MnuLegislation.aspx>

<sup>6</sup> State of Texas Legislature, HB 2667, 2009, 81(R) legislative session, <https://capitol.texas.gov/MnuLegislation.aspx>

<sup>7</sup> EPA Water Sense, National Efficiency Standards and Specifications for Residential and Commercial Water-Using Fixtures and Appliances, Sept. 29, 2008.

<sup>8</sup> U.S. Congress, Public Law 110-140, Energy Independence and Security Act of 2007, Dec. 19th, 2007.

<sup>9</sup> Federal Register, Energy Conservation Program: Energy Conservation Standards for Dishwashers, Vol. 77, No. 190 October 1, 2012.

<sup>10</sup> Office of Energy Efficiency and Renewable Energy, Department of Energy. Energy Conservation Program: Energy Conservation Standards for Residential Clothes Washers, May 31, 2012.

were not included in the 2026 RWP draft calculations. Kitchen and bathroom faucets as well as residential dishwashers were excluded as the timing of the latest effective plumbing code standards and the useful life combined to render little or no additional savings via replacement or new construction installations during the 2030 to 2080 planning horizon.

Draft 2026 RWP water efficiency savings projections also include savings within the commercial sector, a first for the regional water planning effort. Improvements in data availability and analysis methods allowed this first-time estimation for potential water savings due to replacement of commercial toilets and urinals at the WUG-level.

Water savings estimates that accompanied the water demand projections represent an estimation of the amount of water (average per person) that will be saved by the conversion to more water-efficient fixtures. Housing units built before the various standards came into effect will, over time, replace their old fixtures with the new water-efficient fixtures. In addition, construction of new homes or businesses with the more efficient fixtures/appliances will also contribute to the passive savings estimate, lowering the average GPCD as the proportion of more water-efficient fixtures/appliances within the WUG increases over time.

Prior to determining the WUG-level expected savings, the TWDB staff assembled additional data concerning the useful life of each possible fixture/appliance (assumed values in Tables 3 and 4) and updated all calculations concerning the impacts on GPCD when replacing one fixture/appliance with a given level of efficiency with an updated fixture/appliance that has a higher efficiency standard. After reviewing the water efficiency standards, the TWDB staff converted the water use per fixture and appliance into per person water use and estimated GPCD savings (Tables 5 and 6) before projecting utility-wide savings. Because there are multiple standards for each fixture and appliance, the TWDB staff developed GPCD savings for each standard and tracked replacement rates since 1995 (when the first plumbing code laws were enacted). Commercial toilets and urinals were combined and GPCD savings were calculated using the gender percentages from the Bureau of Labor Statistics<sup>11</sup> and average number of flushes per day times the number of days at work.

Table 5. GPCD Savings Parameters - Fixtures

Fixture	GPCD Savings		
	Pre-1995 Average Use to 1995 Standard	Pre-1995 Average Use to 2014 Standard	1995 Average Use to 2014 Standard
Showerheads*	13.0	NA	1.86
Toilets - residential	10.5	12.1	1.6
Toilets & urinals – commercial**	7.06	8.41	1.35
* Savings values shown assume 8 minutes per shower and 6.5 showers per person per week			
** Savings values shown assume state-level gender employee proportions and 6 days/week use for commercial toilet and urinal use			

<sup>11</sup> Bureau of Labor Statistics, 2020, Geographic Profile of Employment and Unemployment, <https://www.bls.gov/opub/geographic-profile/home.htm>

Table 6. GPCD Savings Parameters - Appliances

Appliance	Key Assumptions	GPCD Savings					
		Pre-2011 Average Use to 2011 Standard	Pre-2011 Average Use to 2015 Standard	Pre-2011 Average Use to 2018 Standard	2011 Standard to 2015 Standard	2011 Standard to 2018 Standard	2015 Standard to 2018 Standard
Clothes Washers	Composite top and front loader, 75/25 percent split. <sup>12</sup> 300 cycles/year <sup>13</sup> and statewide average household size of 2.77 people per household. <sup>2</sup>	0.22	2.35	4.25	2.52	4.41	1.90
Savings shown here are an example. Average persons per household varies by WUG and thus actual savings will vary by WUG.							

### 3.3.2 Plumbing code savings projections methodology – residential

Individual models were developed for each of the fixture/appliance types to project the plumbing code savings for each WUG for 2030 to 2080. The TWDB compiles population data rather than housing data, so in calculating the estimates of the number of houses and less-efficient fixtures, population was used as a proxy for the number of houses at the time the law took effect and the projection of future houses. The 1995 population was estimated for each WUG in the 2026 RWP and used as a benchmark to determine the potential average per capita water savings. The 1995 population (as a proxy for housing and fixtures) is assumed to have less-efficient fixtures, which will be replaced over time, lowering the WUG’s average GPCD. The TWDB staff tracked which standards were likely to be adopted from 1995 to 2080 using the respective efficiency standard and useful life of the fixture/appliance. Because some WUGs’ projected populations decline over time, the planned replacement of fixtures and appliances based on useful life could exceed the number of people (proxy for households) in a WUG, therefore, the TWDB staff scaled the replacement rates based on the number of people within a WUG in each decade. These measures corrected the possible adverse impacts on the projected plumbing code savings and were deemed reasonable to align fixtures and appliances with occupied houses.

### 3.3.3 Plumbing code savings projections methodology – commercial

Employment estimates were used as a proxy to project the replacement of commercial toilets and urinals and to project average water efficiency savings gained for the WUG. Historical data for county-level population and employment for 2000 through 2020<sup>14</sup> was used to document the relationship between county-level population and employment. A two-way lookup table was derived with the percent change in

<sup>12</sup> U.S. Energy Information Administration, Appliances in U.S. homes in the South and West regions, 2020, <https://www.eia.gov/consumption/residential/data/2020/hc/pdf/HC%203.8.pdf>

<sup>13</sup> EnergyStar, Clothes Washers, [https://www.energystar.gov/products/clothes\\_washers](https://www.energystar.gov/products/clothes_washers)

<sup>14</sup> U.S. Census Bureau, 2000, 2001, 2010, 2011, 2019, and 2020, County Business Patterns.

employment based upon size classes for population for the WUG and the percent change in population for the WUG. Once the employment projections by decade were determined, similar GPCD savings calculations as residential were implemented. A set of planned replacements was determined based upon the pattern of employment growth, which was then adjusted if the planned replacement exceeded the projected employment. The projected savings by the replacement of more efficient toilets and urinals in commercial businesses, while a function of employment within the utility, was calculated on a WUG-level per person basis. Therefore, WUGs with high projected employment relative to the number of permanent residents may have high projected commercial savings.

### 3.3.4 Plumbing code savings projections by WUG

Spreadsheets were used to project the plumbing code savings for the specific fixture or appliance, based upon the historical WUG population estimates and projected population or employment. The four types of fixtures or appliance GPCD savings projections were reviewed for accuracy, and then aggregated to determine the total expected plumbing code savings for each WUG. These projections were used to reduce the baseline GPCD ( $GPCD_{base}$ ) (Section 3.1) over the planning horizon to ensure WUG-level passive water efficiency savings, as shown in the formula in Section 3.4 and Table 7 below. Figure 1 below demonstrates how the projected impacts of plumbing code savings will decline over time due to the adoption of more efficient appliances and fixtures occurring in the first part of the planning horizon rather than the latter.

Figure 1. Projected Impacts of Plumbing Code Savings

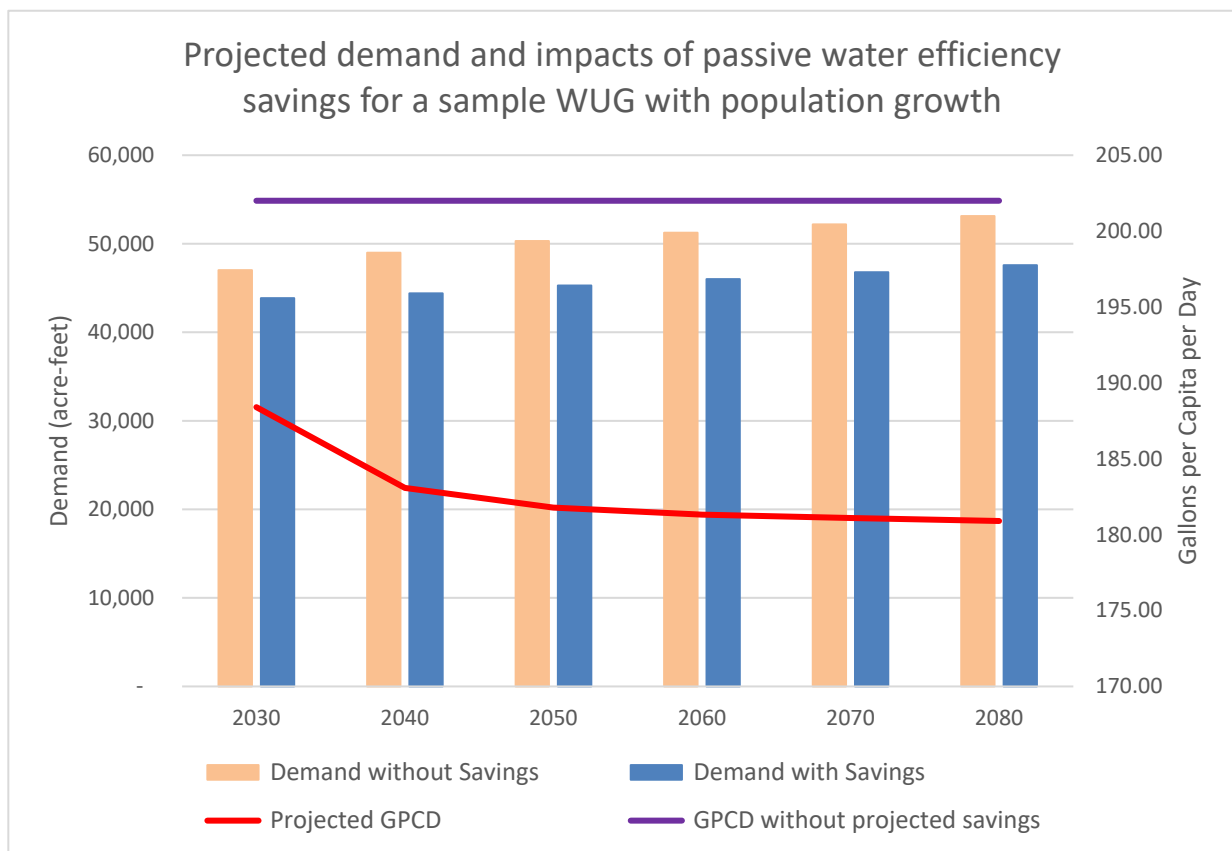


Table 7. Examples of Plumbing Code Savings by WUG

Entity Name	Baseline GPCD	Projected Plumbing Code Savings						Projected GPCD (rounded)					
		2030	2040	2050	2060	2070	2080	2030	2040	2050	2060	2070	2080
Abilene	163	13.43	18.85	20.36	21.18	21.80	22.42	150	144	143	142	141	141
Amarillo	202	13.60	18.92	20.22	20.68	20.90	21.10	188	183	182	181	181	181
Austin	157	12.57	17.71	19.69	21.10	22.38	23.62	144	139	137	136	135	133
Spring Hill WSC	79	10.93	15.45	17.48	18.96	19.00	19.00	68	64	62	60	60	60
Carthage	214	13.62	18.84	19.77	19.98	19.98	19.98	200	195	194	194	194	194
Cash SUD	103	11.05	15.30	16.92	17.91	18.71	19.44	92	88	86	85	84	84
Los Fresnos	60	0	0	0	0	0	0	60	60	60	60	60	60
Corpus Christi	173	13.85	19.23	20.40	20.66	20.66	20.66	159	154	153	152	152	152
Corsicana	205	12.83	18.04	19.42	20.08	20.53	20.97	192	187	186	185	184	184
Dallas	202	13.78	19.46	20.83	21.41	21.72	22.04	188	183	181	181	180	180

### 3.4 Municipal water demand projections

Municipal water demand projections are a function of population, baseline GPCD (GPCD<sub>base</sub>), and projected plumbing code savings. Municipal water demand projections were developed for each WUG for each decade from 2030 through 2080 and then summarized by county and Regional Water Planning Area. The following formula was used to calculate municipal demands for each decade in acre-feet for each WUG:

$$\text{Projected Demand} = (\text{Population} * (\text{GPCD}_{\text{base}} - \text{PC Savings}) * 365) / 325,851$$

RWPGs may review and revise the WUG-level population projections, baseline GPCD, and projected plumbing code savings per criteria in [First Amended General Guidelines for Development of the 2026 Regional Water Plans \(Exhibit C\)](#), thus revising the municipal water demand projections.



# Irrigation Water Demand Projections Methodology for the 2026 Regional and 2027 State Water Plans

## **Methodology summary**

The draft irrigation water demand projections are based upon the average of the most recent five-years of water use estimates (2015 through 2019) for each region-county and either:

- held constant between 2030 and 2080 or
- in counties where the total groundwater availability over the planning period is projected to be less than the groundwater-portion of the baseline water demand projections, the irrigation water demand projections are held constant for 10 years (roughly equivalent to the mortgage period of farm equipment) beyond the point that the groundwater availability falls below the baseline demand, in most cases 2030 to 2040, after projected demands will begin to decline, depending on and commensurate with the groundwater availability.

After draft projections (decades 2030 through 2080) for each region-county are provided to the Regional Water Planning Groups (RWPGs), the RWPGs may request alterations to the draft projections, subject to adequate justification, documentation, and EA approval per guidance in *Exhibit C: General Guidelines for Development of the 2026 Regional Water Plans*.

**Key changes from the previous planning cycle's projection methodology:** None

## **Major Assumptions/Updates**

- Baseline use calculated as average of five years of TWDB annual region-county level estimates (2015 - 2019).
- Irrigation water demands will be held constant unless constrained by modeled available groundwater (MAG), then, after a single decade delay, the demands will decline at the same rate as the groundwater availability. This is to both acknowledge the decline in availability and yet allow for a need to be reflected that can be addressed with strategies such as conservation. This is the same method used to develop irrigation projections for the 2021 Regional Water Plans.

## **Baseline default projection methodology**

Data Sources:

- TWDB historical water use estimates by region and county (2015-2019), including reuse.
- Projected total groundwater availability volumes including the most recent MAG volumes from the 2021 Joint Groundwater Planning process (some MAG data is under review and is subject to change). At the time these draft irrigation projections were developed, updated MAG data was not available from Groundwater Management Areas 1, 8, 9, 10 and 12.

Each year, the TWDB Agricultural Conservation department develops annual irrigation water use estimates at the county level by applying a calculated evapotranspiration-based "crop water need"

estimate to reported irrigated acreage from the Farm Service Agency. These estimates are then adjusted based on surface water release data from the Texas Commission on Environmental Quality and comments from groundwater conservation districts, irrigation districts, and river authorities.

As part of the regional and state water plans, the TWDB Projections and Socioeconomic Analysis department develops irrigation projections. Future water demands for irrigation purposes are significantly impacted by commodity prices, production costs, federal agricultural policies, and federal energy policies. Any attempt to forecast such factors and their impact on water use over a 50-year period would be impractical. A more credible methodology is to focus on recent historical irrigation water use data as an indicator of future use. Therefore, the baseline dry-year irrigation demand projection for most areas will be the average of the annual irrigation water use estimates over the most recent five years of water use data and that average volume will then be held constant over the planning period.

However, much of the projected irrigation demands of the state are supplied by groundwater sources that are projected to decline significantly over 50 years. If the baseline irrigation water demand projections associated with groundwater and summed over 50 years, exceeds the projected groundwater resource (modeled available groundwater volume) summed over 50 years, then the water demand projections will reflect groundwater availability constraints as described below.

#### **Constrained water demand projections**

Starting at the year 2030 baseline projection, the demand volume will be held constant for at least one decade. If the annual groundwater availability is lower than the baseline projection at the beginning of the planning period (2030), then beginning in 2040, the subsequent demands will parallel the trend of the groundwater availability (MAG). See Figure 1. If the annual groundwater availability equals or exceeds the default baseline annual groundwater projection at the beginning of the planning period (2030) but then falls below the baseline projection at a later point, then the irrigation water demand projections will not begin to parallel the groundwater availability until the following decade, after the point at which groundwater availability has fallen below the baseline demand projections. See Figure 2.

Figure 1- Potential Draft Irrigation Water Demand Projections: Declining Groundwater Example

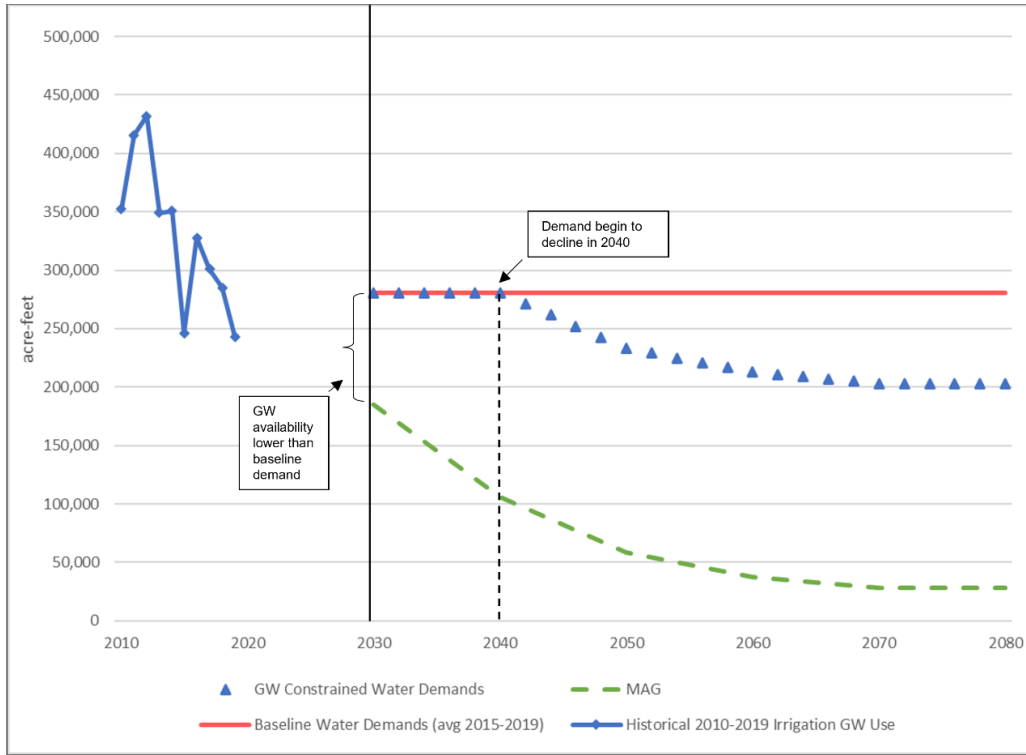
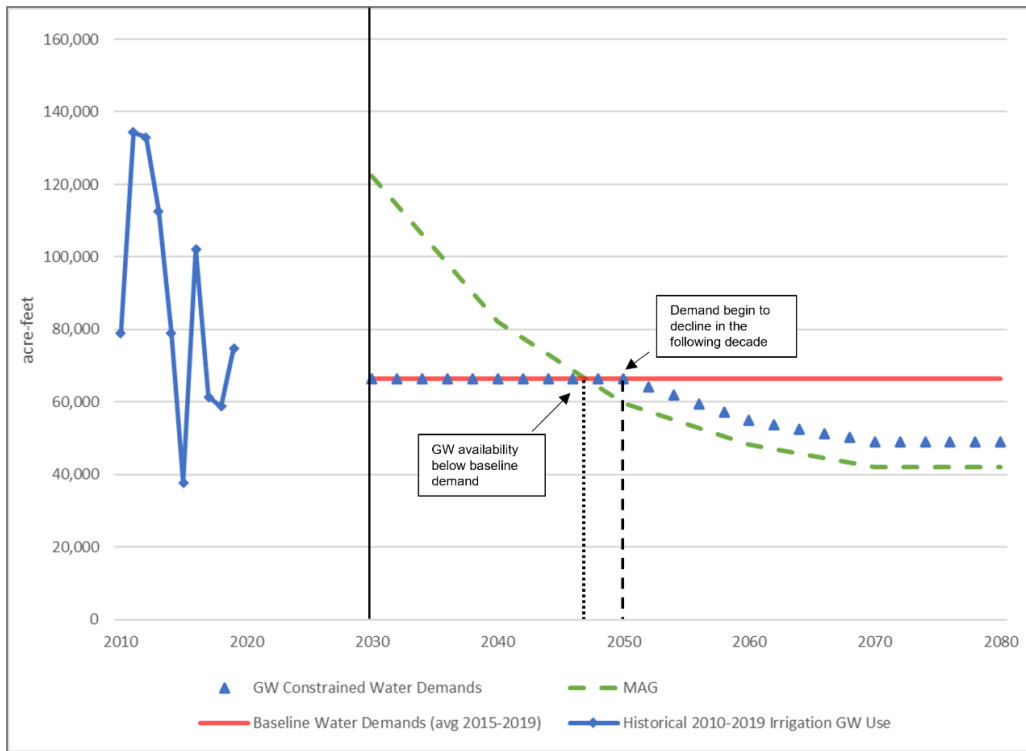


Figure 2- Potential Draft Irrigation Water Demand Projections: Declining Groundwater Example



While constraining water demand projections based on water resource availability would most likely occur in areas primarily utilizing groundwater, such constraints could also occur in areas with limitations of surface water rights or contracts. At this stage however, TWDB does not have sufficient information to attempt to constrain surface water demands and will defer to RWPGs to identify such instances, if appropriate. The portion of the baseline irrigation water demand projection anticipated to be supplied by surface water and reuse, based on recent water use data, will be added to the constrained groundwater demand.

### **Key Data Sources**

Links to the key data sources in developing the projections:

1. Historical water use (county):

[https://www3.twdb.texas.gov/apps/reports/WU\\_REP/SumFinal\\_CountyReportWithReuse](https://www3.twdb.texas.gov/apps/reports/WU_REP/SumFinal_CountyReportWithReuse)

2. 2021 RWP Projections (county):

[https://www3.twdb.texas.gov/apps/reports/Projections/2022%20Reports/demand\\_county](https://www3.twdb.texas.gov/apps/reports/Projections/2022%20Reports/demand_county)

# Livestock Water Demand Projections Methodology for the 2026 Regional and 2027 State Water Plans

## **Methodology Summary**

The draft livestock water demand projections for the 2026 Regional Water Plans (RWP) were based upon the region-county five-year average annual water use estimates (2015 through 2019) developed by the TWDB. Decade-specific water use trends from the previous water planning cycle were applied to the five-year estimate average baseline. For example, if the 2021 RWP data reflects a five percent increase in projected demand for Travis County from 2020 to 2030, then the projected change in demands for the year 2030 in the new plan are also a five percent increase from the baseline (which is the five-year average value). Subsequent decade-specific projections were obtained using the same procedures for decades 2040 through 2070. Thus, the new draft projections use the existing TWDB-approved water use projection decadal growth rates from the 2021 RWPs. Year 2070 projections were held constant through the draft year 2080 projections.

Draft projections (decades 2030 through 2080) for each region-county are provided to the Regional Water Planning Groups (RWPGs), and the RWPGs may request alterations to the draft projections, subject to adequate documentation, justification, and EA approval per guidance in *Exhibit C: General Guidelines for Development of the 2026 Regional Water Plans*.

**Key changes from the previous planning cycle's projection methodology:** None

## **Major Assumptions**

- Baseline use calculated as average of five years of TWDB annual region-county-level estimates (2015 - 2019).
- Historical TWDB annual water use estimates consist of species-specific water use per head values, multiplied by annual inventory estimates, plus surveyed water use for non-standard livestock production such as fish hatcheries.
- Trend factors for projecting demands through the planning horizon use the percent changes from the most recently approved 2021 RWPs.
- Draft year 2080 projections are held constant from the year 2070 projections.

## **Primary Data Changes Reflected in the 2026 RWP Projections**

Several changes in the baseline data were incorporated into the 2026 RWP draft projections. These include the following:

- Update of the region-county splits. In 2019, TWDB staff performed a state-wide geographic analysis of likely grazing lands for the various species as well as the locations of permitted Concentrated Animal Feeding Operations (CAFOs). This resulted in updates to the water use geographic splits (region/county/ basin), which were applied retroactively to annual water use estimates from 2015 forward.

- Additional review of the published literature and expert opinion concerning livestock water use (gallons/head/day) resulted in changes in the assumed water use parameters for five types of livestock (Table 1 below, changes highlighted in grey). Updates were incorporated to better reflect changes in the values statewide. The water use estimates were updated for years 2015 through 2019 based on the new water use per head coefficients (see Key Data Sources No. 3 listed below).
- Changes in broiler chicken inventory estimates were also considered and updated from 2015 through 2019.

Table 1. Water use parameter comparison, 2021 and 2026 RWPs.

TWDB category	Subcategory	2021 RWP water use (gal/head/day)	2026 RWP water use (gal/head/day)
Cattle	Milk	75	55
	Fed & other cattle	15	15
Chickens	Non-broilers	0.086	0.09
	Broilers	0.077	0.09
Turkeys	Turkeys	0.2	0.2
Equine	Horses, ponies, mules, burros, & donkeys	12	12
Hogs	Hogs	11	5
Sheep	Sheep	2	2
Goats	Milk	0.5	2
	Meat		
	Angora		

In order to address changes in the livestock industry and any changes in water use patterns, the draft livestock water demands are re-estimated as part of each 5-year planning cycle. As with any methodology applied statewide, there may be specific cases for which modifications to this general methodology are warranted. In such cases, TWDB staff may adjust the methodology as necessary while being consistent with the original intent.

### **Key Data Sources**

Links to the key data sources in developing the projections:

1. Historical water use (county):  
[https://www3.twdb.texas.gov/apps/reports/WU\\_REP/SumFinal\\_CountyReportWithReuse](https://www3.twdb.texas.gov/apps/reports/WU_REP/SumFinal_CountyReportWithReuse)
2. 2021 RWP Projections (county):  
[https://www3.twdb.texas.gov/apps/reports/Projections/2022%20Reports/demand\\_county](https://www3.twdb.texas.gov/apps/reports/Projections/2022%20Reports/demand_county)
3. Non-Surveyed Annual Livestock Inventory and Water Use Estimates Methodology Summary:  
[https://www.twdb.texas.gov/waterplanning/data/dashboard/Sources/LivestockSummary\\_Final.PDF](https://www.twdb.texas.gov/waterplanning/data/dashboard/Sources/LivestockSummary_Final.PDF)

# Manufacturing Water Demand Projections Methodology for the 2026 Regional and 2027 State Water Plans

## **Methodology Summary**

The draft manufacturing water demand projections were based upon the highest region-county manufacturing water use in the most recent five years of aggregated data (2015 through 2019) for manufacturing water users from the annual water use survey (WUS). Values from the WUS used in the max year calculation consist of gross intake (withdrawals and purchases) minus any sales to other entities. Within this context, such values are referred to as net use. Similar to the demand projections for the 2021 Regional Water Plans and the 2022 State Water Plan, fresh surface water and groundwater were included in net use. Additionally, volumes of reuse water, such as treated effluent, and brackish groundwater used by manufacturing facilities were included in the historical water use estimates and the water demand projections. However, saline surface water was not included in draft projections. The full intake was included in the baseline (minus sales), not consumptive use. The planning horizon for the sixth planning cycle is 2030 – 2080 and the projected demands apply the 2010-2019 U.S. Census Bureau’s County Business Patterns (CBP)<sup>1</sup> statewide rate of change to project future water demands, as described below.

After draft projections (decades 2030 through 2080) for each region-county are provided to the Regional Water Planning Groups (RWPGs), the RWPGs may request alterations to the draft projections, subject to adequate justification, documentation, and EA approval per guidance in *Exhibit C: General Guidelines for Development of the 2026 Regional Water Plans*.

## **Key changes from the previous projection methodology:**

Demands were projected linearly using County Business Patterns historical number of manufacturing establishments, rather than holding projected demands constant for the long-term planning horizon.

## **Baseline Manufacturing Water Demand Projections**

Using the highest water use year (2015 – 2019), the reported facility water use volumes were subtotaled by region and county. This max year amount, plus the calculated unaccounted water use as described below, is the baseline for the projections. Because the WUS focuses on the major water users within the manufacturing category, it may not capture all firms with significant water use. Given this, the baseline water demand was adjusted to add potential non-surveyed water use, i.e. unaccounted water use. This latter value was determined using a combination of the CBP and WUS data. The CBP provides the number of firms within various number of employee categories for nine manufacturing sectors statewide. This data was used to determine the potential number and size of missing firms from the WUS. Once the number of firms for possible addition was determined, an average water use per firm value, which is based on the 2019 WUS, was assigned for each manufacturing sector and firm size. The average water use value was multiplied by the potential number of missing firms in each NAICS sector to determine the statewide unaccounted water use. The unaccounted water use by NAICS was then

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<sup>1</sup> <https://www.census.gov/programs-surveys/cbp/data/datasets.html>

distributed to each county based on percentage of number of employees estimated from the 2019 CBP data.

As an example, the historical manufacturing water use (intake minus sales) plus the calculated unaccounted water use in Hays County, is displayed as Baseline Water Demand in Table 1.

*Table 1. Historical manufacturing water use for Hays County, TWDB water use survey*

		Net Use Summary from Water Use Survey (acre-feet per year)							
Region	County	2015	2016	2017	2018	2019	Highest County Use (2015)	Unaccounted water use	Baseline Water Demand
K	Hays	134	106	119	119	131	134	+31	165
L	Hays	45	36	32	35	31	45	+7	52
	<b>Total</b>	<b>179</b>	<b>142</b>	<b>151</b>	<b>154</b>	<b>162</b>	<b>179</b>		<b>217</b>

### **Near-term (2030) Draft Projection Methodology**

Once the baseline volume was established, the draft projections were developed using a statewide production growth proxy representing consistent incremental change to ensure the accommodation of potential near-term economic and manufacturing sector production growth. Since the first projected decade (2030) of the full planning horizon (2030 – 2080) is more than ten years from the baseline water use data, the statewide annual historical water use rate of change from 2010 - 2019 was chosen as the proxy to adjust the baseline value to the initial year of projections value (2030). This is to account for potential changes in production and water use that may occur between the baseline water use value and the first projected decade. Examples of how the near-term water use proxy (associated with manufacturing production growth) for annual rate of water use change is applied to baseline water use are in Table 2.

*Table 2. Baseline water use and 2030 projections*

Region	County	Baseline (acft)	WUS Average Annual Rate of Change (production growth proxy delta)	2030 (acft)
H	BRAZORIA	217,737	0.96%	238,640
D	CASS	32,985	0.96%	36,152
C	DALLAS	18,420	0.96%	20,188
K	HAYS	165	0.96%	181
L	HAYS	52	0.96%	57
G	MCLENNAN	4,166	0.96%	4,566
A	POTTER	8,272	0.96%	9,066

### **Long-term (2040 - 2080) Draft Projection Methodology**

For each planning decade after 2030, a statewide manufacturing growth proxy was applied annually to project increases in manufacturing water demands. For the 2026 Regional Water Plans and the 2027 State Water Plan, the growth proxy was based on the CBP historical number of establishments in the manufacturing sector from 2010-2019 (Table 3). The statewide rate of change was applied to all region-county projections for each decade following 2030 (Table 4).



Table 3. Region-County 2030 projections multiplied by the CBP annual growth rate to project 2040 demands

Region	County	2030 (acft)	CBP Historical Average Annual Rate of Change (economic proxy delta)	2040 (acft)
H	BRAZORIA	238,640	0.37%	247,470
D	CASS	36,152	0.37%	37,490
C	DALLAS	20,188	0.37%	20,935
K	HAYS	181	0.37%	188
L	HAYS	57	0.37%	59
G	MCLENNAN	4,566	0.37%	4,735
A	POTTER	9,066	0.37%	9,401

Table 4. Region-County manufacturing water demand projections (acft)

Region	County	2030	2040	2050	2060	2070	2080
H	BRAZORIA	238,640	247,470	256,626	266,121	275,967	286,178
D	CASS	36,152	37,490	38,877	40,315	41,807	43,354
C	DALLAS	20,188	20,935	21,710	22,513	23,346	24,210
K	HAYS	181	188	195	202	209	217
L	HAYS	57	59	61	63	65	67
G	MCLENNAN	4,566	4,735	4,910	5,092	5,280	5,475
A	POTTER	9,066	9,401	9,749	10,110	10,484	10,872

In order to address changes in the manufacturing industry and any changes in water use patterns, the draft manufacturing water demands are re-estimated as part of each 5-year planning cycle. As with any methodology applied statewide, there may be specific cases for which modifications to this general methodology are warranted. In such cases, TWDB staff may modify the methodology as necessary while being consistent with the original intent.

### **Major Assumptions**

- Baseline considered to be the highest single-year region-county manufacturing water use in the most recent five years of aggregated data (2015 through 2019).
- Historical TWDB annual water use estimates do not capture all manufacturing facilities in Texas, therefore, estimated water use is adjusted using CBP establishment and employee data, and added to the baseline.
- A statewide manufacturing water use growth proxy, including 2010-2019 historical water use estimates and 2010-2019 CBP number of manufacturing establishments, are used to project manufacturing water demands to ensure the accommodation of potential economic and manufacturing sector production growth.

### **Key Data Sources**

Links to the key data sources in developing the projections:

1. Historical water use (county):

[https://www3.twdb.texas.gov/apps/reports/WU\\_REP/SumFinal\\_CountyReportWithReuse](https://www3.twdb.texas.gov/apps/reports/WU_REP/SumFinal_CountyReportWithReuse)

2. 2021 RWP Projections (county):

[https://www3.twdb.texas.gov/apps/reports/Projections/2022%20Reports/demand\\_county](https://www3.twdb.texas.gov/apps/reports/Projections/2022%20Reports/demand_county)

3. U.S. Census Bureau's County Business Pattern Data:

<https://www.census.gov/programs-surveys/cbp.html>

# Steam-Electric Water Demand Projections Methodology for the 2026 Regional and 2027 State Water Plans

## **Methodology Summary**

The draft steam-electric power water demand projections for each region-county were developed based upon:

- 1) The highest single-year county water use from within the most recent five years of data for steam-electric power water users from the annual water use survey (WUS),
- 2) Near-term additions and retirements of generating facilities, and
- 3) Holding the projected water demand volume constant through 2080.

Draft projections (decades 2030 through 2080) for each region-county are provided to the Regional Water Planning Groups (RWPGs), and the RWPGs may request alterations to the draft projections, subject to adequate documentation, justification, and EA approval per guidance in *Exhibit C: General Guidelines for Development of the 2026 Regional Water Plans*.

**Key changes from the previous planning cycle's projection methodology:** None

## **Historical Steam-Electric Power Water Use**

The TWDB conducts an annual WUS of power-generating facilities throughout the state to estimate the volume of water *consumed* for generating steam-electric power. The water use volumes in the water planning process include volumes consumed by operable power generation facilities that sell power on the open market and also exclude facilities which the RWPGs have requested to be included with manufacturing estimates. The water use estimates are composed of the reported intake volume of self-supplied groundwater, water purchased from a provider, and/or water withdrawn from a surface water source and not returned to the source. The volume of water withdrawn from a surface water source and not returned is referred to as consumptive use. Additionally, reuse volumes, such as treated effluent, were included in the historical water use intake estimates and water demand projections. Any water sales from the surveyed facility to other entities are subtracted from the intake volume.

If any known power generation facility was not surveyed in the TWDB's annual WUS, then that facility's water use was obtained from the operator or estimated using average water use per kilowatt-hour output for the associated fuel-type and added to the historical highest water use for that county.

## **Facility Review**

The U.S. Energy Information Administration (EIA) releases an annual database called EIA-860, which includes data about power generating facilities and infrastructure across the nation. Each year, TWDB staff review data from the EIA-860 tables for new operational facilities meeting the specifications for a WUS.

In preparation for the water demand projections for the 2027 State Water Plan (SWP), staff thoroughly reviewed attribute data for steam-electric facilities, including location and NAICS classification, developed a list of active facilities to be included in the projections, and identified any facilities scheduled to come online within the planning horizon. Staff also acquired a list of facilities included in the 2022 SWP steam-electric power water demand projections, along with revision comments from the RWPGs. All facilities from the 2019 EIA-860 database, 2022 SWP projections, and any additional power generating facilities reporting use to the WUS between 2015-2019, were compiled and reviewed for inclusion in the draft water use baseline.

Some facilities were removed from the baseline estimates based on the following criteria:

- Facilities with confirmed retirement: any facility which was listed as retired in the 2019 EIA-860 database **and** reporting 0 use to the WUS by 2019.
- Manufacturing power facilities: facilities which were confirmed to have water use in a manufacturing survey or which the RWPG requested to be removed from 2022 SWP projections.

**Near-term (2030) Draft Projection Methodology**

Region-county baseline estimates were established using water use data from the final facility list created. Historical water use for 2015-2019 from the WUS for each facility was then aggregated by county and region. The highest year for each region-county was considered as the baseline water use. If a facility within the county retired between 2015-2019, then the baseline was re-estimated as the highest year for non-retired facilities.

For the near-term projected decade (2030), proposed or existing, *non-surveyed* facilities identified in the EIA-860 reports or from other sources, staff estimated the anticipated annual water use based upon their fuel type, generation capacity, average water use per fuel type, and average operational time. For proposed facilities, the estimated water use was added to the corresponding online decade. The average water use per kilowatt hour assumed for those soon to be online facilities was based on water demand factors presented in the TWDB contracted study “Evaluation of Water Projection Methodologies & Options for Agency Consideration” (Table 1).<sup>1</sup> The average percentage of operation time for near-term future facilities is based upon the historical equivalent forced outage rates (Table 2), noted in a year 2016 study funded by the TWDB.<sup>2</sup> Data within that study was based upon historical reports from the Electric Reliability Council of Texas (ERCOT).

*Table 1 Water use factors by fuel type in Texas, 2010*

Fuel Type <sup>a</sup>	Facility Count	Net Generation (TWh <sup>b</sup> )	Volume Consumed (kaf <sup>c</sup> )	Gallons per KWh <sup>d</sup>
Coal	38	150.7	248.4	0.53
Natural Gas	65	109.3	94.7	0.28
Nuclear	4	41.3	59	0.46

<sup>1</sup> “Evaluation of Water Projection Methodologies & Options for Agency Consideration”, CDM Smith, TWDB Contract 1600011921, Table 4-7, page 4-20

<sup>2</sup> Evaluation of Water Demand Projection Methodologies & Options for Agency Consideration, CDM Smith in conjunction with the University of Texas, Bureau of Economic Geology, 2016, page 4-20, Table 4-7.

<sup>a</sup>Includes steam turbine and combined cycle generator technology and once-through and tower cooling systems. Cogeneration is not included in this analysis.

<sup>b</sup>Terawatt hour

<sup>c</sup>Thousand acre-feet of water

<sup>d</sup>Kilowatt hour

*Table 2 Average percentage of operation time for near-term future facilities*

<b>Fuel and Generation Types</b>	<b>Average Percentage of Operation Time</b>
Coal Steam Turbine	70%
Natural Gas Combined Cycle	59%
Natural Gas Steam Turbine	14%
Natural Gas Turbine	7%
Nuclear	85%

### **Long-term (2040 - 2080) Draft Projection Methodology**

The baseline steam-electric power water demand projections include the highest region-county water use in the most recent five years of data plus the anticipated water use of new facilities as described above. Projections for the 2030-decade account for expected new facility construction for facilities proposed to come online between 2020 and 2030. For decades 2040 and beyond, the draft water demand projections are held constant at their year 2030 levels through 2080.

### **Major Assumptions**

Such constant projections for planning purposes are considered reasonable for the following reasons:

- 1) Basing projections on the highest power generation water use of the most recent five years of data ensures that we are planning for water use that has already occurred in the recent past.
- 2) To model a projection of steam-electric power water use would require the inclusion of a multitude of potential water-use drivers – each with an individual probability of occurring and level of impact – including, but not limited to the following: the facility replacement schedule, anticipation of generation efficiency and cooling systems, carbon capture activities, cost of various fuels and federal environmental/regulatory policies. Such an effort is resource prohibitive and, due to many assumptions regarding uncertain future outcomes and events that would be required, would not guarantee results in water use estimates that are demonstrably more probable than those generated by the methodology used.
- 3) The projected general increase in wind and solar generation capacity off-sets the necessity to run water-consuming power facilities and may thereby not increase the overall amount of water required to meet future power demands.
- 4) While water-consuming coal, oil, and natural gas facilities will still be required in the future, any such facilities replacing an older facility are expected to be more water efficient, either using less

water or producing more power with a similar volume of water that had already been required at the same facility site.

- 5) Any assumed increase in water demand from fossil fuel facilities between 2040 and 2080 would require a distribution of additional water use to the county level. Based on discussions with power generating company contacts, distributing to the county-level is a difficult exercise, as the locations of new facilities not listed in governmental reports cannot be identified or otherwise predicted. To distribute anticipated additional water use to counties with existing facilities will result in over-projections in most counties and under-projection in others.
- 6) The steam-electric power water demand projections will be updated with each planning cycle with the most recent data.

In order to address changes in the power generation industry and any changes in water use patterns, the draft steam-electric power water demands are re-estimated as part of each 5-year planning cycle. As with any methodology applied statewide, there may be specific cases for which for which modifications to this general methodology are warranted. In such cases, TWDB staff may adjust the methodology as necessary while being consistent with the original intent.

### **Key Data Sources**

Links to the key data sources in developing the projections:

1. Historical water use (county):

[https://www3.twdb.texas.gov/apps/reports/WU\\_REP/SumFinal\\_CountyReportWithReuse](https://www3.twdb.texas.gov/apps/reports/WU_REP/SumFinal_CountyReportWithReuse)

2. 2021 RWP Projections (county):

[https://www3.twdb.texas.gov/apps/reports/Projections/2022%20Reports/demand\\_county](https://www3.twdb.texas.gov/apps/reports/Projections/2022%20Reports/demand_county)

3. U.S. Energy Information Administration Form EIA-860:

<https://www.eia.gov/electricity/data/eia860/>

## Mining water demand projections

Mining water demand includes water used for oil and gas development, as well as extraction of coal and lignite, sand aggregate, and other resources. Projections do not include water use required for the transportation or refining of materials. Projections were developed in the mining water use study that TWDB conducted in partnership with the University of Texas Bureau of Economic Geology and U.S. Geological Survey. More information regarding the mining water use study and report is available online at: <https://www.twdb.texas.gov/waterplanning/data/projections/MiningStudy/index.asp>.

Agenda item 4. Overview of background information on rural population projections and water use estimation



## **Approaches to estimating transient and rural population and water use**

At the March 9, 2023 meeting of the Interregional Planning Council, questions and concerns were raised around the topics of transient populations in rural areas and their associated water use. This document was developed to provide background information on the processes the Texas Water Development Board (TWDB) uses to assess population and water use, including transient populations in rural areas. It also includes related issues that have been noted previously in regional water plan policy recommendations.

### **TWDB processes to assess population and water use for water systems and water user groups**

In order to assess water use and demand, the TWDB annually estimates population of water user groups based upon the permanent (e.g., non-transient) residents within utility service boundaries and those outside of utility service boundaries. Unlike the U.S. Census estimates for cities, there is no one data source that can be solely relied upon for estimating the permanent population served by water utilities because each data source has its limitations. Data sources (and associated data limitations) used to estimate permanent population include:

1. TWDB Water Use Survey (WUS) population and connection data reported by Public Water Systems (PWS)
  - a. Limitations: 1) Population reported in the residential WUS often includes transient population including tourists, seasonal workers, or students. 2) Connections reported in the WUS may include commercial or institutional service. 3) Multi-family housing connections is an imprecise proxy for estimating the number of people since one connection may stand for an entire apartment building, for example.
2. GIS analyses using years 2010 and 2020 Census block data within known utility boundaries
  - a. Limitation: Available service area boundaries sometimes do not coincide with the actual service area.
3. U.S. Census Bureau's annual population estimates by county
4. 2020 Census Household Size
5. Texas Commission on Environmental Quality (TCEQ) PWS population and connection data
  - a. Limitation: Populations are often estimated based on 3-person per connection, which is higher than the Census household size and could overestimate population.

*Note: Due to the nature of the self-reported WUS data and small systems, historical estimates can fluctuate considerably for some PWSs even though considerable efforts are made to correct any inconsistencies in reported population and net use data.*

### **TWDB processes to assess population and water use for transient populations and rural areas not served by a water system**

This section outlines how water use for the following populations is accounted for:

1. **Transient population** (e.g., tourism, commerce / commuting populations, etc.)
  2. **Rural area permanent population** (e.g., primary residence not serviced by a water system / on private exempt well)
  3. **Rural area transient population** (e.g., second home or Airbnb properties on exempt wells)
1. **Transient populations in areas served by PWS and associated water use** (e.g., tourism, commerce / commuting populations, etc.)

- a. **Population estimation** – TWDB does not estimate transient populations in any part of the state due to data limitations. TWDB annually estimates population of permanent (e.g., non-transient) residents based upon utility service boundaries. These estimates are developed using a combination of sources, including WUS reported population and residential connections, Census county growth, Census Place, and historical PWS growth.
  - b. **Water use estimation**
    - i. Transient population water use is considered captured in the self-reported water use from community PWSs that TWDB collects in the annual WUS (e.g., hotels and other commercial facilities served by PWSs).
    - ii. For systems that do not respond to the annual WUS, TWDB estimates the system water use by carrying forward historical WUS data or using relevant data from other sources, such as groundwater conservation districts or water right use data reported to the TCEQ.
- 2. Rural area permanent populations in areas NOT served by a community PWS and associated water use** (e.g., primary residence not serviced by a water system / on private exempt well)
- a. **Population estimation** – No WUS or other data is available for rural domestic-use areas of the state. TWDB estimates rural area permanent population using PWS population and Census county total population estimates. The annual rural area permanent population outside of PWS service boundaries is calculated by subtracting the sum of all PWS populations by county from the Census county total population of each county. County-Other population estimates include this rural area population.
  - b. **Water use estimation** – Estimated county-level rural population is multiplied by the statewide average rural gallons per capita per day (GPCD) to estimate county-level rural water use. The statewide average per-person water use for rural households and rural transient populations has historically been between 95-105 GPCD<sup>1</sup>.
- 3. Rural area transient populations in areas NOT served by a community PWS and associated water use** (e.g., second home or Airbnb properties on exempt wells)
- a. **Population estimation** – Transient populations are not estimated by the TWDB. To estimate transient populations that are relying on non-system / private wells only is difficult due to the lack of data to support the estimations, as no WUS or other data is available for rural domestic-use areas of the state. The methodologies described above rely on permanent population data reported by water systems and the Census.
  - b. **Water use estimation** – It is difficult to estimate the per capita water use of rural transient populations because the number of people coming and going is unknown and the total water use is not metered and reported. Water use for transient population is captured through a statewide GPCD estimation described above in 2b. TWDB County-Other water use estimates include both water use for small system served populations and rural domestic areas, including assumed rural area transient population use. It is possible that a groundwater conservation district could have pumping data of each subdivision (with

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<sup>1</sup> The historic statewide average of 95-105 GPCD was determined from the TWDB WUS and includes average per-person water use (as available) for Water Supply Corporations, mobile home parks, and investor-owned utilities to represent what rural households and rural transient populations might use, including RV parks or other commercial water use activities. This statewide average is higher than the 77 GPCD suggested by USGS for national rural domestic use estimation. The USGS figure may only include rural domestic wells for residential populations but no other types of commercial uses for transient population. It is assumed that the higher state average rural GPCD includes commercial activities for transient population even though transient populations are not included in the population estimates.

private wells) and rural water user, but the TWDB is not aware of any data collected by a district at that level of detail.

**Relevant 2021 RWP policy recommendations from Region J and TWDB's best available information as of December 2022:**

1. ***Transient Population Impact on Water Demand.*** Municipal water use reports capture the total amount of water produced and distributed by the city. In concept, this volume includes water consumed by both permanent and transient populations within the community. However, the counties of the Plateau Region have a high transient influx of vacationers and hunters that frequent the more remote areas and are not likely included in the water demand estimates. Likewise, there are a high percentage of second-home owners in the rural counties that is also not accounted. Officials in the most rural counties in the Region estimate that as much as 70 percent of landowners are not permanent residents. This transient water demand likely has a significant impact on water demand estimates used by the planning group. The PWPG encourages the TWDB to consider this water-use category and develop a method for estimating its impact.

**Status:** If the transient residents are part of a utility, the water use is captured in the system's annual water use reported and the water use would be captured in municipal demand projections through the baseline gpcc. If the transient residents are on their own wells, then water use is captured in the demand projections through the 'County-Other' water user group gpccs.

2. ***County-Other Demand Distribution.*** In the regional water planning process, water supply demand is determined on a county and river basin basis and is then evenly distributed over the designated area. In some cases, this results in a misrepresentation of the actual rural density within segments of the county-river basin area. The primary disadvantage of this is that a high-density rural area may have a legitimate need of water supply management even though the county-river basin statistical numbers do not indicate a supply shortage. A recommended water management strategy in an area such as this does not register as high of a priority as it realistically should. The PWPG therefore recommends that the TWDB develop a planning process that will justifiably recognize the high-priority needs of such County-Other areas.

**Status:** The TWDB drafts projections by water user group using statewide methodologies and every water user group is split by region, county, and river basin. The projections as well as the region, county, basin split percentages are reviewed and potentially revised by the RWPG. RWPGs may develop projects and strategies for County-Other water user groups even if no water supply need is identified as a result of the current demand projection methodologies.

3. ***Impact of Transient Water Demand in Rural Counties.*** The concern pertaining to transient population water demand in rural counties was expressed in Section 8.1.8. A study is needed to quantify this impact that is not based solely on the resident population but rather considers the total count of individuals within the respective area.

**Status:** No TWDB-funded research on this topic as of December 2022.

## **Population projections that show declines**

### **County-level population draft projections process**

Projecting population for the regional water planning process has always relied upon decennial Census data and subsequent county-level projections developed by the Texas Demographic Center (TDC). The TDC relies on US Census data and uses a cohort component method which assesses birth rates, death rates, and migration rates by age/sex/race/ethnicity from 2010 and 2020 and develops future projections by cohort. In the most recent population projections dataset used for the draft 2026 Regional Water Plan projections, the TDC developed two migration scenarios: the full migration rate between the 2010 and 2020 decennial Census and the half migration rate.

In past planning cycles (2002 – 2022 State Water Plans), the TWDB simplified the TDC population projections in certain counties (that showed declines) by holding projections flat in future periods, thus avoiding projecting declining populations. Those future declines were generally relatively smaller than the more recent projections indicate. In many counties, the TDC has projected declining populations for many years, but those trends were not included in the regional or state water plans. We do not consider artificially holding projections constant in areas of known declines to be best practice. For the 2026 Regional Water Plans, the draft county population projections followed the trends projected by the TDC, including declines. This change in methodology ensures that:

1. the regional and state water plans utilize, as their basis, credible and best available county-level demographic data from a reliable source (as refined via the regional water planning group reviews and revision requests),
2. that the foundation for developing the regional water plans is defensible while still allowing for flexibility in the planning process to address risks and uncertainty, including that the projections will not reflect the actual population, especially at the highest geographic resolution.

TWDB no longer holds declining population projections as ‘flat’ in its population projection methodology and thereby better reflects the recognized fact that some areas of Texas are continuing to decline in population as clearly reflected in the recent US Census trends. In some areas of Texas, these declines are anticipated to increase, as populations age, birth rates decline, and variable in-migration rates may not offset declines attributed to other demographic factors. The regional water planning process has allowed, and continues to allow for, identifying water supply projects and strategies that would provide additional water supply beyond the volume of identified needs to address uncertainty related to any planning factors, including projected populations and resulting municipal demands.

### **RWPG review of draft population projections for the 2026 Regional Water Plans**

TWDB has provided two county-level population projection scenarios, split by region, using the TDC’s full migration (1.0) and half migration (0.5) rate. Planning regions have the flexibility to choose the county-level migration scenario that they believe best fits their planning region. Planning groups should assess each scenario as part of their review of the draft projections and may:

## IPC handout

1. Choose the population projection for each region-county by selecting either the 1.0 or 0.5 migration scenario for all planning decades. It is not required that counties split across regions, or water user groups split across counties or regions, use the same migration scenario.
2. Provide a justification for any proposed mixing of migration rates within the same Regional Water Planning Area based on local knowledge and data, as in previous planning cycles.
3. After selecting the scenario that best fits the planning region's counties, revise water user groups to fit within county totals.

## Note that

1. Selecting migration scenarios that best fit at the county-level may result in amalgamated populations for water user groups with a service area split over multiple counties with differing appropriate migration scenarios.
2. It is possible for some water user groups within counties with declining population projections to have water user group populations increase over all or part of the planning horizon. These increases will be off-set by other water user groups, such as County-Other. It is also possible that in some counties, due to aging population, low birth rates, and high out-migration, there may not be enough population in future decades to offset desired growth, thus water user group populations will decline.

Agenda item 4. Overview of background information on gallons per capita per day

## Gallons Per Capita per Day (GPCD) Descriptions

The intent of this document is to provide a description of the per-person water use (Gallons Per Capita per Day or GPCD) calculated for Regional Water Planning Water User Group (WUG) Utilities, the Water Loss Audit, and the Annual Conservation Report. These definitions may assist with the understanding by your planning group members as you consider multiple information sources while establishing conservation goals. These terms come from the [Guidance and Methodology for Reporting on Water Conservation and Water Use](#), as developed by TWDB and the TCEQ, in consultation with the Water Conservation Advisory Council. The four standardized types of GPCD include Regional Water Planning GPCD, Total GPCD, Residential GPCD, and Water Loss GPCD.

**Regional Water Planning GPCD - This is the value reported in the regional water planning process.** It is the annual volume of water pumped, diverted, or purchased minus the volume exported (sold) to other water systems or large industrial facilities divided by 365 and divided by the permanent population of the Municipal WUG. Coastal saline and reused/recycled water are not included in this volume. This data is primarily collected through the TWDB's annual survey of water use and is stored in the TWDB's water use database. The population values include only permanent population and are estimated using 1) the population-served reported in returned water use surveys, 2) utility service area population estimated based on the U.S. Census block group data and utility service area boundaries, or 3) number of connections times the average household size from the most recent census, depending on the data availability and quality. Then the population estimates are calibrated with county or state level annual population totals provided by the Texas Demographic Center.

**Total GPCD – This is a value reported in the conservation annual reports.** This is the total amount of water treated for potable use divided by the total permanent population divided by 365. This volume includes water produced plus wholesale water imported minus wholesale water exported, all adjusted by self-reported meter accuracy estimates. Retail volumes sold to large industrial facilities are included in Total GPCD. Permanent population may reside in single-family or multi-family dwellings or in group quarters (nursing homes, prisons, group homes, etc.). It should include only those served directly by the system. It does not include wholesale customer populations.

**Residential GPCD – This is a value reported in the conservation annual reports.** Residential GPCD is calculated as the volume of water metered to residential and multi-family connections, divided by the total residential population served divided by 365. The residential water use is reported through the water use survey. The residential population is the total residential population of the service area including only the residential population housed in single family and multi-family housing.

**Water Loss GPCD -** Calculated as the sum of (Real Losses plus Apparent Losses), divided by the retail population, divided by 365.

## **Gallons Per Capita per Day (GPCD)**

The intent of this document is to provide a description of the per-person water use (Gallons Per Capita per Day or GPCD) calculated for Regional Water Planning Water User Group (WUG) Utility, the Water Loss Audit, and the Annual Conservation Report.

### **Regional Water Planning Water User Group (WUG) Utility GPCD**

The data is primarily collected through the Texas Water Development Board's annual survey of water use by an active community public water system and is stored in the Texas Water Development Board's water use database. A utility may be comprised of one or more public water systems.

Regional Water Planning Water User Group (WUG) Utility GPCD – Calculated by dividing the WUG Total Net Use (gallons) by the Population and divided by 365.

- Total Net Use - Intake total minus Sales total
- Intake – Volumes pumped, diverted or purchased from each water source
- Sales
  - Seller Volume – The water sales volume reported in an annual water use survey by the system selling the water. If the system did not return a water use survey, then the previous-year's reported sales are used as estimates.
  - Buyer Volume – The water purchase volume reported in an annual water use survey by the system/facility buying the water. If the system did not return a water use survey, then the previous-year's reported sales are used as estimates.
  - Sales Volume Used – If both the seller and the buyer returned the annual survey, then the buyer volume is used in the calculations. If the seller or buyer did not return an annual survey, then the volume reported by the other is used.
- Population - The annual population values include only permanent population and are estimated using 1) the population-served reported in returned water use surveys, 2) utility service area population estimated based on the U.S. Census block group data and utility service area boundaries, or 3) number of connections x average household size, depending on the data availability and quality. Then the population estimates are calibrated with county or state level annual population totals provided by the Texas Demographic Center.

### **Conservation and Water Loss Audit GPCD**

Total GPCD (GPCD Input) - Calculated as the Total System Input Volume divided by the retail population served, divided by 365.

- The total system input volume is calculated as the corrected input volume plus corrected treated water purchased volume minus corrected treated wholesale water volumes. The treated purchased water and treated wholesale water sales volumes are pre-populated in the water loss audit and annual conservation report using values entered in the water use survey. The system enters a meter accuracy associated with each of these volumes to produce the corrected volumes. The input volume is entered by the utility and then corrected according to the meter accuracy value entered.



- Retail population served is the permanent population served by the water system. The population may reside in single-family or multi-family dwellings or in group quarters (nursing homes, prisons, group homes, etc.). It should include only those served directly by the system. It does not include wholesale customer populations. This value is pre-populated using the value entered in the water use survey.

Residential GPCD - Calculated as the volume of water metered to residential and multi-family connections, divided by the total residential population served divided by 365.

- The residential population is the total residential population of the service area; this population includes only single family and multi-family populations and uses the value entered in the water use survey. It should not include institutional populations, such as nursing homes, prisons, group homes, nursing homes, or on-campus college dormitories.

Water Loss GPCD - Calculated as the sum of Real Losses plus Apparent Losses, divided by the retail population, divided by 365.

- Real Loss is water lost through distribution system leakage and excessive pressure.
- Apparent Loss is water that was not read accurately by a meter; either as unauthorized consumption, including theft, or data analysis errors.

	<b>Water Planning GPCD</b>	<b>Water Loss Audit (WLA) GPCD<sup>1</sup> Input and Water Loss GPCD<sup>2</sup></b>	<b>Conservation Annual Report Total GPCD<sup>3</sup>, Residential GPCD<sup>4</sup> and Water Loss GPCD<sup>5</sup></b>
<b>Responsible Program Area</b>	Water Supply & Infrastructure – Water Supply Planning	Water Science & Conservation – Conservation & Innovative Water Technologies – Municipal Water Conservation	Water Science & Conservation – Conservation & Innovative Water Technologies – Municipal Water Conservation
<b>Water Data Collection</b>	Public Water Systems self-reported use through the annual Water Use Survey (WUS)	<sup>1</sup> Treated purchased and treated wholesale sales volumes from WUS. Input (produced) volume from the Public Water System  <sup>2</sup> Using calculated values based on PWS entries into the WLA	Public Water System data pushed through WLA. If no WLA, pushed directly from WUS
<b>Population Data Collection</b>	Board-adopted population projections based upon: Public Water System self-reported connection data through annual WUS, service area estimates based upon census, or estimated connections and avg household size	Pushed from WUS	<sup>3</sup> Pushed from WUS through WLA. If no WLA, pushed directly from WUS  <sup>4</sup> Self-entered by Public Water System  <sup>5</sup> Pushed from WUS through WLA. If no WLA, pushed directly from WUS (same value as <sup>3</sup> )
<b>Reporting Period for TWDB-Generated Estimates/Reports</b>	1/1/20xx-12/31/20xx	1/1/20xx-12/31/20xx	1/1/20xx-12/31/20xx
<b>Reporting Unit</b>	Regional Water Planning Water User Group (Utilities >100 acre-feet per year, which may be composed of multiple Public Water Systems)	Public Water System	Public Water System

<b>Requirement/Authority for Reporting</b>	TWC§16.012, 31TAC§357.10(42). No statutory prohibition to report at PWS level; defined as utility in rule due to resource limitations	TWC §16.0121 31TAC §358.6(b)	TWC §15.106(b) 31TAC §363.15(g) (TWDB financial obligations)  31TAC §288.30(10)(D) (>3,300 connections or having certain surface water rights)
<b>Water Use Included:</b>	Municipal water use (single/multi family, commercial and institutional water use) + light industry	Total of Retail volumes metered, pushed from WUS, including Industrial, but excluding Reuse	Individual Retail volumes metered, pushed from WUS, including Industrial, but excluding Reuse
<b>Website</b>	<a href="http://www.twdb.texas.gov/waterplanning/waterusesurvey/index.asp">http://www.twdb.texas.gov/waterplanning/waterusesurvey/index.asp</a>	<a href="http://www.twdb.texas.gov/conservation/municipal/waterloss/index.asp">http://www.twdb.texas.gov/conservation/municipal/waterloss/index.asp</a>	<a href="http://www.twdb.texas.gov/conservation/municipal/plans/Ars.asp">http://www.twdb.texas.gov/conservation/municipal/plans/Ars.asp</a>

Agenda item 4. Overview of background information on water loss

### Select TWDB Water Loss Information

All retail public water systems with more than 3,300 connections or a financial obligation to the TWDB are required to complete and submit a Water Loss Audit annually. All other retail public water suppliers are required to submit a Water Loss Audit to the TWDB every five years. TWDB posts assistance resources on their website, including water loss auditor training and workshops here:

[www.twdb.texas.gov/conservation/municipal/waterloss/index.asp](http://www.twdb.texas.gov/conservation/municipal/waterloss/index.asp)

TWDB can also loan leak-detection equipment and provide onsite water loss audit assistance. More information for these services: [www.twdb.texas.gov/publications/shells/WaterLoss\\_Leak.pdf](http://www.twdb.texas.gov/publications/shells/WaterLoss_Leak.pdf)

Results from reported water loss audits are required to be considered by Regional Water Planning Groups during the development of their plans. This data is provided to planning groups during each planning cycle and can also be found on TWDB's website here:

[www.twdb.texas.gov/conservation/municipal/waterloss/historical-annual-report.asp](http://www.twdb.texas.gov/conservation/municipal/waterloss/historical-annual-report.asp)

Upon considering this information, eight planning groups determined thresholds for recommending water loss mitigation strategies and three planning groups established targets for voluntary action. This information as presented in Section 8.4.1 of the 2022 State Water Plan is below.

#### 8.4.1 Municipal conservation

...

Municipal conservation strategies also include activities to detect, measure, and reduce water loss. Planning groups are required to present water loss audit data in Chapter 1 of their plans and to consider this data when developing their plans. Upon considering the information, eight planning groups (Regions A, C, E, F, H, I, J, and N) determined thresholds for recommending water loss audits and leak repair strategies in their plans for entities with significant water loss, and three planning groups established targets for voluntary action (Table 8-3). Regions with thresholds for water loss audit and leak repair strategies primarily considered total water loss in their evaluations. Total water loss is the sum of real and apparent water loss<sup>1</sup>. Region H specifically considered real water loss in its evaluation. Region N differentiated thresholds for both real and apparent water loss, recommending pipeline replacement for entities above the real water loss threshold and meter replacement for entities above the apparent water loss threshold. Planning groups that did not establish such thresholds or targets still recommended water loss reduction strategies. Examples of projects specifically recommended to address water loss that involve capital expenditures include replacing leaking lines and installing advanced metering infrastructure. About 74,000 acre-feet per year in savings associated specifically with water loss projects is recommended in 2020, and 320,000 acre-feet per year in savings is recommended in 2070. The total capital cost associated with these projects is \$3.8 billion.

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<sup>1</sup> More information on TWDB's water loss programs can be found at [www.twdb.texas.gov/conservation/municipal/index.asp](http://www.twdb.texas.gov/conservation/municipal/index.asp)

**Table 8-3. Planning group determined thresholds for water loss audit and leak repair strategies and targets for voluntary action**

Region	Threshold for water management strategy <sup>a</sup>	Target for voluntary action
A	Cities: ≥15% total loss WSCs: ≥25% total loss	na
C	Urban/suburban systems: >12% total loss Rural systems: >18% total loss	na
D	na	>15% loss
E	>10% loss	>200 gpcd
F	Cities: ≥15% total loss WSCs: ≥25% total loss	na
H	>10% real loss	na
I	Less than 32 connections per mile: >18% total loss More than 32 connections per mile: >12% total loss	na
J	>10% loss	>200 gpcd
N	>15% real loss (pipeline replacement) >5% apparent loss (meter replacement)	na

<sup>a</sup> Whereas the thresholds used to develop water management strategies by the planning groups include the use of GPCD as well as the use of water loss expressed as a percentage, the water industry does not recognize percentage as a metric or performance indicator for water loss, and the TWDB does not use percentage of water loss in its review and analysis of water loss audits. Type of water loss is specified where known.

> = greater than

≥ = greater than or equal to

% = percent

gpcd = gallons per capita per day

na = not applicable

WSC = water supply corporation

Agenda item 5. Process for report preparation

- Draft IPC Report Outline – Microsoft Word version available online at [https://www.twdb.texas.gov/waterplanning/rwp/ipc/docs/2023\\_05\\_30\\_mtg/Draft\\_IPC\\_ReportOutline\\_053023.docx](https://www.twdb.texas.gov/waterplanning/rwp/ipc/docs/2023_05_30_mtg/Draft_IPC_ReportOutline_053023.docx)

# **Draft Interregional Planning Council Report Outline**



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# Executive Summary

In 2019, the 86<sup>th</sup> Texas Legislature created the Interregional Planning Council (Council), composed of one member from each regional water planning group (RWPG), and charged the Council to

- 1. improve coordination among the regional water planning groups, and between each regional water planning group and the Board, in meeting the goals of the state water planning process and the water needs of the state as a whole;
- 2. facilitate dialogue regarding water management strategies that could affect multiple regional water planning areas; and
- 3. share best practices regarding operation of the regional water planning process.<sup>1</sup>

This second report to the Texas Water Development Board, summarizes the activities of the 2027 State Water Plan (SWP) Council’s activities in relation to their three statutory charges. The Council has put forward X recommendations, summarized below in no particular order. These recommendations represent the majority opinion of Council members, but do not necessarily reflect the views of each entity or interest group.

## 1. *Recommendation 1*

As relates to Legislative Charge X, the Council recommends that.....

## 2. *Recommendation 2*

As relates to Legislative Charge X, the Council recommends that.....

## 3. *Recommendation 3*

As relates to Legislative Charge X, the Council recommends that.....

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<sup>1</sup> Texas Water Code Section 16.052(c)

# Introduction

Texas Water Code Section 16.052 requires the Texas Water Development Board (TWDB) to appoint an Interregional Planning Council during each five-year state water planning cycle. This 2027 SWP Interregional Planning Council was appointed by the TWDB Board on July 7, 2022, with terms to expire upon adoption of the 2027 SWP. The Council, composed of one member from each RWPG (Appendix A), is charged by statute to

- (1) improve coordination among the regional water planning groups, and between each regional water planning group and the Board, in meeting the goals of the state water planning process and the water needs of the state as a whole;
- (2) facilitate dialogue regarding water management strategies that could affect multiple regional water planning areas; and
- (3) share best practices regarding operation of the regional water planning process.<sup>2</sup>

The Council shall (1) hold at least one public meeting; and (2) prepare a report to the Board on the Council’s work.<sup>3</sup> TWDB rules require that the Council’s report, at a minimum, include a summary of the dates the Council convened, the actions taken, minutes of the meetings, and any recommendations for the Board’s consideration, based on the Council’s work.<sup>4</sup>

The Council’s report shall be delivered to the TWDB no later than one year prior to the draft regional water plan due date for the corresponding SWP cycle, as set in regional water planning contracts.<sup>5</sup> For this cycle of regional water planning, that date is March 4, 2024.

## *Council Meetings and Deliberations*

The Council met **five** times between July 7, 2022, and **March 4, 2024**. All meetings were conducted in a hybrid format with options to attend in person at the Stephen F. Austin Building in Austin, TX, and virtually via Microsoft Teams. Meeting minutes are included in Appendix B, and specific policy recommendations are presented by statutory charge in

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<sup>2</sup> Texas Water Code Section 16.052(c)

<sup>3</sup> Texas Water Code Section 16.052(d)

<sup>4</sup> 31 Texas Administrative Code §357.11(k)(4)

<sup>5</sup> 31 Texas Administrative Code §357.11(k)(5)

subsequent sections of this report. A summary of actions taken by the Council is also provided below. Additional materials from Council meetings are available on the Council's webpage at <http://www.twdb.texas.gov/waterplanning/rwp/ipc/2027IPC.asp>.

**November 9, 2022:** At its first meeting, the Council reviewed its responsibilities, agreed on operational procedures, reviewed the status of recommendations made by the previous Council, and appointed Mark Evans (Region H) as Council Chair and Gail Peek (Region G) as Council Vice-Chair.

The Council decided to prioritize recommendations made by the previous Council as a starting point for their work effort. The Council requested that the TWDB survey RWPGs to assess how they have implemented or plan to implement recommendations from the previous Council.

The Council agreed to the following operational provisions:

1. Quorum – A simple quorum (nine members) will be required to conduct business.
2. Regional representation - During the roll call at the start of each Council meeting, each region will designate the member or alternate who will represent that region during the meeting. Only one representative of each region will be allowed to speak for a region during the meeting.
3. Decision making – Decisions will be accomplished by a simple majority vote of at least nine members. Regions may have one vote by either the member or designated alternate.
4. Chair and Vice-Chair – Members elected that the Council have a chair and vice-chair position.
5. Use of committees – Members felt that committees were not necessary at this time, but the Council may establish committees later if needed.

**March 9, 2023:** The Council reviewed supporting materials prepared by the TWDB, the Council's prioritization of the previous Council's recommendations, and the results of the survey to assess how RWPGs have implemented or plan to implement recommendations from the previous Council. The Council discussed logistics for report preparation.

**May 30, 2023:**

**September 2023:**

**December 2023:**

## *Status of Previous Council Recommendations*

The 2022 SWP Council's [Interregional Planning Council Report to TWDB \(2020\)](#) provides recommendations for future actions by the TWDB, legislature, RWPGs, and future Councils. As part of its work, the 2027 SWP Council reviewed recommendations made by the previous Council and assessed the implementation status of these recommendations.

To support the Council's work, TWDB compiled the status of recommendations made to the TWDB and legislature into a summary document. At the Council's request, TWDB conducted a survey of RWPG chairs, sponsors, and technical consultants to assess how the RWPGs had or planned to implement the recommendations made to RWPGs. RWPG survey results were added to the summary document for the Council's consideration. A summary of the status of the 2022 SWP Council's recommendations is included in Appendix C.

# Charge 1. Improve coordination among the regional water planning groups, and between each regional water planning group and the Board, in meeting the goals of the state water planning process and the water needs of the state as a whole

## *Review of Existing Practices and Conditions*

The Council focused on the following items:

- TWDB will summarize/bulletize here whatever the 2027 Council decides to focus on from discussion / action at 5/30/23 meeting. More thorough descriptions will then be spelled out like the below paragraphs from the 2022 SWP Council report, which are included as an example.

**Identifying Issues and Opportunities:** The planning process currently does not have explicit requirements regarding when and how RWPGs may identify project development issues (including strategies that propose to develop or use a water resource in another region) and regionalization opportunities. The only specific requirement to notify other RWPGs regarding strategies that propose to develop or use a water resource in another region occurs too late by notice of the Initially Prepared Plan (31 TAC §357.50(b)). By this stage of the planning process, it is too late to adequately coordinate and resolve any potential water planning conflicts between regions.

**Defining Roles for Planning Process Participants:** Consultants, sponsors, and stakeholders may have knowledge or other avenues for early identification of potential opportunities for collaboration and coordination on water resources or potential conflicts between or among regions. Sharing knowledge of when and how consultants, sponsors, and stakeholders are integrated into the water planning cycle in each RWPG may help identify and tailor ways to responsibly develop the state's water resources through early identification of potential opportunities for collaboration and coordination or to mitigate or eliminate conflicts between regions.

**Documenting Coordination Between Planning Groups:** Because the planning process does not currently provide explicit requirements for coordination, RWPGs typically utilize varying approaches to achieve compliance with current TWDB rules.

## *Recommendations*

### **1.1 Recommendation 1 (copy format for additional recommendations)**

Identification of, and coordination around, project development, including strategies that are proposed to develop or use water resources in another region and that would impact the region of origin, should occur **at the beginning** of the planning cycle. Implementing this recommendation will help expedite the identification of opportunities for coordination and collaboration, as well as potential interregional conflict concerns. It will help ensure that there are deliberate actions taken by the RWPGs at the beginning of the planning process to identify **and coordinate on interregional project issues and opportunities**.

#### **a. Texas Water Development Board**

The Council recommends that the TWDB revise planning requirements (contract and rules, as appropriate) so that

1. RWPGs identify, in their final adopted regional water plans, a list of strategies that were recommended, alternative, or considered, or other projects based upon local knowledge, that present issues or opportunities for other regions and that merit further direct interregional coordination. For the sixth planning cycle, beginning in 2021, development of this list would be an immediate first task for the RWPG as the 2021 Regional Water Plans are being finalized prior to this Council's recommendations. This list will become the basis for RWPGs to identify issues that encourage further coordination among and between planning regions during the first year(s) of future planning cycles;
2. RWPGs consider strategy information provided by the TWDB during the first year(s) of the following planning cycle regarding recommended strategies in all Regional Water Planning Areas (RWPAs), including specifically identifying those strategies sourced in other RWPAs and/or those strategies that, if implemented, could potentially impact the region of origin;

#### **b. Legislature**

The Council recommends that the legislature appropriate additional funds to the planning process specifically to support a required task of the RWPG to identify and facilitate interregional coordination, to allow for the additional RWPG work recommended by this Council.

**c. Regional Water Planning Groups**

The Council recommends that the RWPGs, at a minimum, enhance their coordination efforts in accordance with the TWDB process revisions recommended above. RWPGs should include standing agenda items for reports from interregional liaisons to promote a formal exchange of information between RWPGs.

**d. Future Interregional Planning Councils**

Future Interregional Planning Councils should monitor the effectiveness of enhanced efforts to promote interregional coordination and review how best to utilize interregional liaisons in the development or use of shared water resources.



## Charge 2. Facilitate dialogue regarding water management strategies that could affect multiple regional water planning areas

### *Review of Existing Practices and Conditions*

The Council focused on the following items:

- TWDB will summarize/bulletize here whatever the 2027 Council decides to focus on from discussion / action at 5/30/23 mtg.

More thorough descriptions would be included here following the bulleted list.

### *Recommendations*

#### **2.1 Recommendation 1**

The Council makes the following recommendation...

## Charge 3. Share best practices regarding operation of the regional water planning process

### *Review of Existing Practices and Conditions*

The Council focused on the following items:

- TWDB will summarize/bulletize here whatever the 2027 Council decides to focus on from discussion / action at 5/30/23 mtg.

More thorough descriptions would be included here following the bulleted list.

### *Recommendations*

#### **3.1 Recommendation 1**

The Council makes the following recommendation...

## Additional Observations

In the course of its work, the Council made the following observations on topics not directly related to its statutory charge but that it felt are important to acknowledge in this report.

- Water loss
- Rural water use
- Population projections

# Conclusions

The members of the Council dedicated a significant number of hours in Council meetings to deliberate, develop, and present this second report to the TWDB...

# Appendices

- A. List of Council Members and Designated Alternates**
- B.  Minutes from Council Meetings**
- C. Status of the 2022 State Water Plan Interregional Planning Council Report (2020) Recommendations**

Agenda item 6. Review implementation status of previous Council recommendations

**Status of the 2022 State Water Plan  
Interregional Planning Council Report (2020)<sup>1</sup> Recommendations**

**I. TWDB recommended actions**

<b>TWDB recommended actions</b>	<b>Status of recommendation</b>
<p>1. Revise planning requirements (contract and rules, as appropriate) so that</p> <ul style="list-style-type: none"> <li>a) RWPGs identify, in their final adopted regional water plans, a list of strategies to become the basis for RWPGs to further coordinate in the following planning cycle (2.1.a.1);</li> <li>b) RWPGs consider strategy information provided by the TWDB early in the planning cycle, including specifically identifying those strategies sourced in other RWPGAs (2.1.a.2);</li> <li>c) RWPGs document early consideration and coordination associated with the early identified projects and involve RWPG liaisons and project sponsors (2.1.a.3).</li> </ul>	<p><i>Planning rules (§357.12(a)(1)) and contracts have been revised to require that RWPGs discuss how they will conduct interregional coordination and collaboration regarding water management strategies (WMS) at their preplanning public meeting. In June 2021, the TWDB provided an initial list of regional WMSs to all planning groups to assist in this effort. Sixth cycle planning contracts also require RWPGs to document interregional coordination efforts in the Technical Memorandum, Initially Prepared Plan (IPP), and final adopted regional water plan (RWP).</i></p>
<p>2. Support and facilitate the RWPGs in identifying issues or opportunities for interregional coordination, including how to better assist liaisons. (2.1.a.4)</p>	<p><i>Sixth cycle planning contracts include several requirements related to RWPG interregional coordination throughout the planning cycle. RWP staff have developed a <a href="#">best practice resource for RWPG liaisons</a>, which was distributed to RWPGs on April 5, 2023. Staff will continue to assist RWPGs with identifying issues or opportunities for interregional coordination, including additional resources for liaisons.</i></p>
<p>3. Develop and maintain an aggregate listing of each RWPG’s active committees and share with all RWPGs for informational purposes. (2.2.a.1)</p>	<p><i>TWDB developed <a href="#">a list of active committees utilized by RWPGs</a>. This information was provided to RWPGs on April 5, 2023 and is available as a resource on the Council’s webpage.</i></p>
<p>4. Require that RWPGs initiate direct coordination discussions. (2.2.a.2)</p>	<p><i>Recommendation has been incorporated into sixth cycle planning contracts. Contracts require RWPGs to ensure necessary communication, coordination, and facilitation occurs with other RWPGs to develop WMS recommendations.</i></p>

<sup>1</sup>[https://www.twdb.texas.gov/waterplanning/rwp/ipc/docs/2020\\_09\\_30\\_mtg/IPC\\_FinalReport-Apps\\_091620.pdf](https://www.twdb.texas.gov/waterplanning/rwp/ipc/docs/2020_09_30_mtg/IPC_FinalReport-Apps_091620.pdf)

<b>TWDB recommended actions</b>	<b>Status of recommendation</b>
5. Require that the Technical Memorandum document interregional coordination efforts. (2.3.a.1)	<i>Recommendation has been incorporated into regional water planning rule (§357.12(c)(8)) and contract requirements. RWPGs are now required to include a summary of the region’s interregional coordination efforts to date in the Technical Memorandum.</i>
6. Require that the Technical Memorandum document the consideration of and coordination about interregional water management strategies. (2.3.a.2)	<i>The Technical Memorandum is required to include a list of potentially feasible water management strategies identified to date and documentation of interregional coordination efforts as of the date of the submittal.</i>
7. Support or facilitate RWPGs with technical or administrative resources during interregional coordination. (2.3.a.3)	<i>TWDB provided an initial list of regional WMSs to all planning groups to support early interregional coordination discussions. As able, TWDB will provide additional support to RWPGs as they collaborate on interregional strategies. RWP staff plan to further develop existing or create new educational or other materials to support interregional coordination.</i>
8. Require RWPGs to conduct work on a high-level view of planning, beyond the 50-year planning horizon and beyond drought-of-record conditions, and not necessarily focused on water management strategy evaluations. (3.1.a.1)	<i>Recommendation requires legislative direction and additional appropriations. However, in response to the Sunset Advisory Commission recommendation, TWDB has increased its coordination with the State Climatologist to explore the potential to project forward certain drought-impacting parameters (e.g., evaporation) that could worsen future drought conditions as potential information to be made available for consideration during the regional plan development process.</i>
9. Utilize RWPG Chairs conference calls to consider multi-regional projects. (3.1.a.2)	<i>To be considered, as appropriate, for future RWPG Chairs conference calls.</i>
10. Evaluate alternatives to the current simplified planning process that address timing and data concerns. (4.1.a)	<i>The simplified planning process was previously thoroughly evaluated and addressed through a rulemaking to the extent considered allowable and reasonable under statute. RWPGs are not required to pursue simplified planning, and none have chosen to. Allowing further reductions in planning effort would likely require revisions to statutory requirements.</i>
11. Provide Council recommendations to all RWPGs to inform their planning process. (4.2.a.1)	<i>Recommendation incorporated into regional water planning contract requirements. Exhibit A of the contract requires that RWPGs receive and consider recommendations from the Interregional Planning Council to the RWPGs. TWDB will provide the Council’s report to RWPGs for consideration.</i>

TWDB recommended actions	Status of recommendation
<p>12. Provide a distilled policy recommendations report from all adopted regional water plans, sorted by topic, to the RWPGs and the Council. (4.2.a.2)</p>	<p><a href="#">Policy Recommendations in the 2021 Regional Water Plans</a> is a compilation of the policy recommendations from the 2021 regional water plans that provides the status of each recommendation as of December 2022. This document was provided to the Council in March 2023 and RWPGs on April 5, 2023. The document is also available on the Council’s webpage and the 6th cycle planning webpage.</p>
<p>13. Provide the implementation status of policy recommendations to the RWPGs and the Council. (4.2.a.3)</p>	<p><a href="#">Policy Recommendations in the 2021 Regional Water Plans</a> is a compilation of the policy recommendations from the 2021 regional water plans that provides the status of each recommendation as of December 2022. This document was provided to the Council in March 2023 and RWPGs on April 5, 2023. The document is also available on the Council’s webpage and the 6th cycle planning webpage.</p>
<p>14. Develop standardized, easy to adopt practices and protocols that apply to all RWPGs. (4.2.a.4)</p>	<p>The <a href="#">Administrative Guidance for RWPG Sponsors (Designated Political Subdivisions)</a> was updated for the sixth planning cycle and provides best practices that can be utilized to enhance engagement. The guidance includes best practices for communicating with RWPG members, new member orientation, RWPG websites, and use of committees. As needed, RWP staff will further develop existing or create new materials on improving engagement.</p>
<p>15. Provide feedback to RWPGs regarding TWDB funding for water supply and water conservation projects that are recommended in the regional water plans. (4.2.a.5)</p>	<p>Regional water planners provide annual updates on State Water Implementation Fund for Texas (SWIFT) applications and funding commitments during RWPG meetings. Additional information can be provided upon request.</p>
<p>16. Require RWPGs to receive member orientation services and documents provided by the TWDB at the beginning of each cycle. (4.3.a.1)</p>	<p>Recommendation incorporated into regional water planning contract requirements. Exhibit A of the contract requires that RWPGs support and accommodate periodic presentations by the TWDB for the purpose of orientation, training, and retraining as determined and provided by the TWDB during regular RWPG meetings.</p>
<p>17. Require RWPG Chairs and Administrative Agents to follow recommendations in the Best Management Practices Guide document prepared and updated by the TWDB. (4.3.a.2)</p>	<p>Recommendation incorporated into regional water planning contract requirements. Exhibit A of contract requires RWPG administrators to consider recommendations in <a href="#">the Administrative Guidance for RWPG Sponsors</a> as prepared and updated by TWDB.</p>



TWDB recommended actions	Status of recommendation
<p>18. Invest in media consultants to assist in effectively delivering messages and review current practices for email for providing material. (4.3.a.3)</p>	<p><i>RWP staff have coordinated with internal agency Communications staff to develop more effective strategies for improving the RWPG member consumption of information, including reviewing current TWDB practices around the use of email, social media, program newsletters and external communications distributions for providing information to RWPGs. As a result, a regional water planning email address has been created for broadcast communications. Broadcast emails are now sent directly to all RWPG stakeholders rather than to RWPG political subdivisions for further distribution. Communications staff have also provided social media pushes when relevant regional water planning content is available to share. Staff will continue to work with Communications on improvements and specific feedback from the IPC and RWPG members is welcome.</i></p>
<p>19. Require RWPGs to add TCEQ as a non-voting member. (4.4.a.1)</p>	<p><i>There are existing provisions for RWPGs to add voting and non-voting members, and six RWPGs have chosen to add TCEQ as a non-voting member. TWDB developed and distributed <a href="#">supporting materials</a> to facilitate RWPG consideration of adding TCEQ as a non-voting member in April 2023.</i></p>
<p>20. Review and make a recommendation to the legislature regarding additional non-voting members that affect statewide regional water planning stakeholders. (4.4.a.2)</p>	<p><i>No action. Provisions already exist for RWPGs to add additional voting and non-voting members. Each RWPG must weigh the tradeoffs between the size of planning group membership and the governance and decision-making of their group, the engagement level of members as groups grow larger, and logistical difficulties like finding suitable meeting spaces.</i></p>
<p>21. Consider allowing for the reimbursement of labor costs for the RWPG’s designated administrative agency. (4.5.a.1)</p>	<p><i>Recommendation has been incorporated into agency rules and planning contracts.</i></p>

TWDB recommended actions	Status of recommendation
<p>22. Revise rule and contract limitations to accommodate these expenses. (4.5.a.2)</p>	<p><i>Recommendation has been incorporated into agency rules and planning contracts. 31 TAC § 355.92(c)(5) has been amended to allow for reimbursement of certain eligible administrative costs as specifically limited by the regional water planning grant contract. Sixth cycle planning contracts include a new expense budget category that allows for limited reimbursement of RWPG Political Subdivision personnel costs for the staff hours that are directly spent providing, preparing for, and posting public notice for RWPG meetings and hearings. No additional legislative appropriations have been made to cover such administrative costs. Existing funds for regional water plan development may be redistributed to cover these expenses.</i></p>
<p>23. Evaluate the fiscal impacts associated with technology required for virtual meetings. (4.6.a)</p>	<p><i>In 2021, TWDB conducted a Regional Water Planning Stakeholder Survey, which collected limited information on the support needed for RWPGs to successfully hold hybrid meetings. Sixth cycle planning contract expense budgets now allow for reimbursement of pre-approved, proportional costs of purchasing audio/visual equipment for hybrid RWPG meetings. A complete fiscal impact assessment has not been completed.</i></p>
<p>24. Incorporate a set of management practices to improve efficiency and effectiveness by eliminating waste in the regional water planning process. (4.7.a.1)</p>	<p><i>At the start of the sixth planning cycle, staff reviewed regional water planning rules and contract materials to identify planning activities that could be removed to improve efficiency in the regional water planning process. As a result, 31 TAC §357.42 was revised to align the rules more closely with statute and reduce unessential reporting requirements. Staff conduct these reviews at the start of each planning cycle.</i></p>
<p>25. Evaluate the RWPG voting and non-voting membership costs of time and funding. (4.7.a.2)</p>	<p><i>TWDB has compiled and distributed <a href="#">available information on RWPG membership costs</a>.</i></p>

**II. Legislative recommended actions**

<b>Legislative recommended actions</b>	<b>Status of recommendation</b>
<p>1. Some specific recommendations for additional funds to be appropriated for the planning process are</p> <ul style="list-style-type: none"> <li>a) for additional planning group work for interregional coordination (2.1-3.b);</li> <li>b) for additional planning group work associated with long range, visionary planning (3.1.b.3);</li> <li>c) for better methods of disseminating information for the regional water planning process (4.2.b.1);</li> <li>d) funding enhanced communications between RWPGs, the TWDB, and RWPG members (4.3.b);</li> <li>e) to accommodate labor costs for administering RWPGs (4.5.b).</li> </ul>	<p><i>No legislative action. TWDB's 2022 Legislative Appropriations Request includes an exceptional item request for additional funding to support the regional water supply planning process.</i></p>
<p>2. Return to providing initial sponsorship of projects by the State without financial guarantees from local sponsors. (3.1.b.1)</p>	<p><i>No legislative action.</i></p>
<p>3. Provide financial incentives for local sponsorship of innovative, visionary, multi-benefit projects. (3.1.b.2)</p>	<p><i>No legislative action.</i></p>
<p>4. Establish a process for coordination amongst state agencies, at the state level, related to installation of infrastructure during planning and construction of large-scale projects. (3.1.b.4)</p>	<p><i>No legislative action.</i></p>
<p>5. Discontinue the requirement to update groundwater and surface water availability values in the regional water plan if those availability numbers have not changed significantly (TWC Sec. 16.053(i)) (4.1.b.1) or strike simplified planning from the statute. (4.1.b.2)</p>	<p><i>No legislative action.</i></p>
<p>6. Authorize the use of remote conferencing or webinars. (4.2.b.2)</p>	<p><i>No legislative action.</i></p>
<p>7. Amend TWC Sec. 16.053(c) to add TCEQ as an ex-officio member of each RWPG. (4.4.b)</p>	<p><i>No legislative action.</i></p>

Legislative recommended actions	Status of recommendation
<p>8. Amend the Texas Open Meetings Act to allow virtual participation during the regional water planning process. (4.6.b)</p>	<p><i>No legislative action. This recommendation was included in the TWDB's Legislative Priorities Report for the 87th Legislative Session. The Texas Open Meetings Act currently permits RWPGs to hold hybrid meetings that allow for virtual participation in accordance with video conference requirements in Texas Government Code §551.127.</i></p>

### III. Regional Water Planning Group recommended actions

The status of RWPG recommended actions provided below is based on the results of an RWPG survey conducted in January 2023. Responses were received from representatives of 9 regions.

RWPG recommended actions	Status of recommendation
<p>1. Enhance interregional coordination efforts and include standing agenda items for reports from interregional liaisons. (2.1.c)</p>	<p><i>8 of the 9 regions that responded have a standing agenda item to receive reports from interregional liaisons.</i></p>
<p>2. Receive the early input from project consultants and sponsors, planning liaisons, and stakeholders to improve interregional coordination and mitigate future interregional conflict. (2.2.c)</p>	<p><i>8 of the 9 regions that responded have or plan to receive early input from project consultants and sponsors, planning liaisons, and stakeholders to improve interregional coordination and mitigate future interregional conflict. One region responded that it may receive this early input.</i></p> <p><i>Note: RWPGs are required to discuss how they will conduct interregional coordination at the preplanning meeting and to ensure necessary communication, coordination, and facilitation occurs to develop WMS recommendations.</i></p>
<p>3. Involve the appropriate parties and coordinate timely on potentially feasible interregional water management strategy opportunities and issues. (2.3.c)</p>	<p><i>7 of the 9 regions that responded have or will involve the appropriate parties and coordinate timely on potentially feasible interregional water management strategy opportunities and issues. Two regions responded that they may do this.</i></p>
<p>4. Collaborate with other RWPGs early in the planning process for multi-regional project opportunities. (3.1.c)</p>	<p><i>9 of the 9 regions that responded have or will collaborate with other RWPGs early in the planning process for multi-regional project opportunities.</i></p>

<b>RWPG recommended actions</b>	<b>Status of recommendation</b>
5. Provide new member orientations. (4.2.c.1)	<i>9 of 9 regions that responded provide new member orientations.</i>
6. Utilize educational programs and subject matter speakers at RWPG meetings. (4.2.c.2)	<i>8 of 9 regions that responded utilize educational programs and subject matter speakers at RWPG meetings.</i>
7. Develop better methods to encourage public participation. (4.2.c.3)	<i>9 of 9 regions that responded use one or more of the following methods to encourage public participation: surveys, targeted email blasts, website updates, and phone calls.</i>
8. Follow recommendations in the Best Management Practices Guide. (4.3.c.1)	<i>7 of 9 regions that responded follow the recommendations in the Administrative Guidance for Regional Water Planning Group Sponsors. Technical consultants submitted responses for two regions and indicated that this document was not applicable to them as technical consultants.</i>
9. Read and disseminate the Best Management Practices Guide and New Member Guide. (4.3.c.2)	<p><i>4 of 9 regions that responded confirmed that the Administrative Guidance for Regional Water Planning Group Sponsors and Regional Water Planning Group Member Overview been sent to members in your region to read. Five regions indicated they were not sure if this information had been disseminated.</i></p> <p><i>Note: Links to these documents were included in the TWDB's October 2022 Regional Water Planning Newsletter that was emailed to all RWPG members, sponsors, and technical consultants.</i></p>
10. Consider adding TCEQ as an ex-officio member if not required by the Legislature. (4.4.c)	<i>7 of 9 regions that responded indicated they had or would consider adding TCEQ as a non-voting member. Two regions did not know if the RWPG would consider adding a TCEQ non-voting member.</i>
11. Include requests for funding in Chapter 8 recommendations of the regional water plans. (4.5.c)	<i>Of the 9 regions that responded to the survey, 3 regions indicated they were very likely, 5 regions indicated they were somewhat likely, and 1 region indicated it was somewhat unlikely to include requests for funding as a Chapter 8 recommendation in the regional water plan.</i>

**IV. Future Interregional Planning Council recommended actions**

1. Review progress on all of the recommendations in this report and submit its assessment to the TWDB.
2. Monitor the effectiveness of enhanced efforts to promote interregional coordination and review the role of interregional liaisons. (2.1-3.d)
3. Consider whether the Council or RWPGs are the appropriate mechanism for planning for water resources for the state as a whole. (3.1.d.1)
4. Utilize state agencies' expertise to assist RWPGs in developing a vision of planning resources for the state as a whole. (3.1.d.2)
5. Hold work sessions to "deep dive" into more complicated topics. (4.2.d.1)
6. Require RWPG Chairs to meet at minimum on an annual basis to evaluate and document best practices. (4.2.d.2)
7. Review existing technology and recommend appropriate changes. (4.3.d)
8. Review materials and meeting notes from TWDB's lessons learned technical meetings with RWPG consultants. (4.7.d)