REGION H
Water Planning Group

MEETING MATERIALS

February 6, 2019

San Jacinto River Authority

Common Region H Terms and Conversion Factors

List of Abbreviations

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

Water Measurements

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

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

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

1 million gallons per day (mgd) = 1,000,000 gallons per day = 1120 ac-ft/yr

Region H Water Planning Group
10:00 AM Wednesday
February 6, 2019
San Jacinto River Authority Office
1577 Dam Site Rd, Conroe, Texas 77304

AGENDA

1. Call to order.
2. Introductions.
3. Review and approve minutes of October 31, 2018 meeting.
4. **Receive public comments on specific issues related to agenda items 5 through 13**. (Public comments limited to 3 minutes per speaker)
5. Discuss vacancies on the Region H Water Planning Group and consider taking action to approve members to fill vacancies on the Planning Group.
6. Receive update from Consultant Team regarding the schedule and milestones for the development of the 2021 Region H Regional Water Plan (RWP).
7. Receive update from Consultant Team regarding water source availability.
8. Receive update from Consultant Team regarding projected water needs and consider authorizing Consultant Team to submit a request to TWDB for analysis of socioeconomic impacts of unmet water needs in the Region H Water Planning Area.
9. Receive presentation from the Texas Living Waters Project regarding the 2018 Water Conservation by the Yard report.
10. Receive update from Consultant Team regarding status of investigation of water supply alternatives for the 2021 Region H Regional Water Plan.
11. Receive update on the Region H Legislative Committee.
12. Receive report regarding recent and upcoming activities related to communications and outreach efforts on behalf of the Region H Water Planning Group.
13. Agency communications and general information.
14. **Receive public comments**. (Public comments limited to 3 minutes per speaker)
15. Next Meeting: May 1, 2019.
16. Adjourn.

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

Agenda Item 3

Review and approve minutes of October 31, 2018 meeting.

REGION H
Water Planning Group

REGION H WATER PLANNING GROUP
MINUTES OF REGULAR MEETING
OCTOBER 31, 2018

MEMBERS PRESENT: David Bailey, John Bartos, Robert Bruner, Brad Brunett, James Comin, Mark Evans, Bob Hebert, Art Henson, Jace Houston, Robert Istre, Kathy Jones, Ivan Langford, Glenn Lord, Carl Masterson, Michael Turco, and Pudge Willcox.

DESIGNATED ALTERNATES: Alisa Max for John Blount, Veronica Osegueda for Yvonne Forrest, Jun Chang for Jimmie Schindewolf, Tom Michel for Bill Teer, and Jim Sims for Kevin Ward.

MEMBERS ABSENT: Marvin Marcell, James Morrison, and Ruth Stultz.

NON-VOTING MEMBERS PRESENT: Kristen Lambrecht and Lann Bookout.

1. CALL TO ORDER

The meeting was called to order at 10:05 a.m.

2. INTRODUCTIONS

Mr. Bruner introduced Mr. W.R. Baker of Polk County and requested that he fill the Small Business position on the Region H Water Planning Group. Mr. Evans stated that the recommendation would be considered at the next Nominating Committee meeting, whereby their recommendation would be placed on the agenda at the next Region H Water Planning Group's meeting for consideration.

3. REVIEW AND APPROVE MINUTES OF AUGUST 1, 2018 MEETING

Mr. Masterson made a motion to approve the minutes of August 1, 2018. The motion was seconded by Mr. Houston and carried unanimously.

4. RECEIVE PUBLIC COMMENTS ON SPECIFIC ISSUES RELATED TO AGENDA ITEMS 5 THROUGH 14

There were no public comments.

5. RECEIVE PRESENTATION FROM CONSULTANT TEAM REGARDING THE PROPOSED APPLICATION BY GULF COAST WATER AUTHORITY TO AMEND THE 2016 REGION H REGIONAL WATER PLAN AND CONSIDER APPROVING THE SUBMITTAL OF THE APPLICATION PACKAGE TO TWDB FOR THE DETERMINATION OF MINOR AMENDMENT STATUS

Mr. Afinowicz provided information related to the proposed application by the Gulf Coast Water Authority ("GCWA") to amend the 2016 Region H Regional Water Plan. He stated that the proposed amendment will reflect GCWA's water supply plans for the future. He described the different aspects of the amendment, stating that it will align their strategies with the plan, reflect anticipated sources, and provide for consistency. He stated that it will impact several strategies and projects throughout the plan. Mr. Afinowicz provided an overview of the primary strategies identified by GCWA. He then briefly explained the necessary revisions to the Plan and the necessary procedures for implementation. Mr. Lord made a motion to approve the submittal of the application package to the Texas Water Development Board ("TWDB") for determination of a minor amendment status. The motion was seconded by Mr. Hebert and carried unanimously.

6. RECEIVE UPDATE FROM CONSULTANT TEAM REGARDING THE SCHEDULE AND MILESTONES FOR THE DEVELOPMENT OF THE 2021 REGION H REGIONAL WATER PLAN (RWP)

Mr. Taucer provided information related to the milestones for the development of the 2021 Region H Regional Water Plan by stating that they are rapidly transitioning into management strategies. He reviewed upcoming due dates for scheduled events and tasks.

7. RECEIVE UPDATE FROM CONSULTANT TEAM REGARDING NON-MAG AVAILABLE GROUNDWATER SUPPLIES IN THE GULF COAST AQUIFER IN SUBSIDENCE DISTRICT COUNTIES AND CONSIDER TAKING ACTION TO AUTHORIZE THE CONSULTANT TEAM TO UPDATE SOURCE AVAILABILITY

Mr. Taucer explained that TWDB determined that subsidence districts were non-MAG and their availability is up to the discretion of the planning group. He explained the methodology of using the regulatory pumpage as the availability for the Gulf Coast Aquifer in Harris, Fort Bend, and Galveston Counties. Mr. Turco explained that the Harris-Galveston Subsidence District planning process, as related to the regulatory plan, is based on expectations related to population projections, migration, and per capita use as opposed to a worst case period of record drought. Further, he stated that to date, the regulatory plan is the best methodology to determine the availability of groundwater in Harris, Fort Bend, and Galveston Counties. Further discussion ensued. Mr. Turco made a motion to authorize the consultant team to update source availability for the Gulf Coast Aquifer in Subsidence District counties. The motion was seconded by Mr. Lord and carried with all present voting aye.

8. RECEIVE UPDATE FROM CONSULTANT TEAM REGARDING MODELED AVAILABLE GROUNDWATER (MAG) PEAK FACTORS AND CONSIDER TAKING ACTION TO AUTHORIZE THE CONSULTANT TEAM TO SUBMIT THE PEAK FACTOR REQUEST TO TEXAS WATER DEVELOPMENT BOARD (TWDB)

Mr. Taucer provided a brief overview of Modeled Available Groundwater ("MAG"). He explained the methodologies and data used and stated that the numbers in the Regional Plan are compatible with the GCDs and the GMAs. Mr. Taucer provided an overview of the process to date. Mr. Lord made a motion to submit the peak factor request to TWDB. The motion was seconded by Mr. Bartos and carried unanimously.

9. RECEIVE UPDATE FROM CONSULTANT TEAM REGARDING STATUS OF INVESTIGATION OF WATER SUPPLY ALTERNATIVES FOR THE 2021 REGION H REGIONAL WATER PLAN

Mr. Taucer provided an update of water supply investigations. He stated that the development of WMS planning database is nearing completion which is key to efficient plan development. Further, he stated that Groundwater Reductions Plans are in progress and interrelated with existing supplies. Mr. Taucer then provided key processes occurring in the near future.

10. RECEIVE REPORT FROM CONSULTANT TEAM AND WATER MANAGEMENT STRATEGY COMMITTEE REGARDING POTENTIAL WMS ANALYSES AND CONSIDER TAKING ACTION TO APPROVE A NOTICE-TO-PROCEED REQUEST AND AUTHORIZING THE CONSULTANT TEAM AND SAN JACINTO RIVER AUTHORITY TO SUBMIT THE REQUEST TO TWDB, COORDINATE WITH TWDB AS NEEDED ON FOLLOW-UP INFORMATION, AND EXECUTE THE SUBSEQUENT CONTRACT AMENDMENT ISSUED

Mr. Taucer stated that TWDB allocated $948,695 to Region H for Water Management Strategies. He explained the process for TWDB to release funds and provided background on previous requests. He provided an overview of potential WMS projects which include brackish groundwater and groundwater blending, regional return flows, WUG-level reuse, BRA system operation permit, interbasin transfers, Northeastern Water Purification Plant expansion, and other facility and storage projects. He stated that the aforementioned tasks total $348,100, leaving approximately $118,395 of unassigned, unallocated funds. Mr. Chang made a motion to approve the notice-to-proceed request and authorize the consultant team and the San Jacinto River Authority to submit the request to TWDB, coordinate with TWDB as needed on follow-up information, and execute the subsequent contract amendment issued. The motion was seconded by Mr. Comin and carried unanimously

11. DISCUSS THE 86TH REGULAR SESSION OF THE TEXAS LEGISLATURE AND APPROVE THE REGION H WATER PLANNING GROUP LEGISLATIVE COMMITTEE

Mr. Evans proposed that the Planning Group authorize a legislative committee for the upcoming 86th Legislative Session. He explained that the purpose of the committee would be to take a proactive approach and to provide information to the legislature to clarify information related to Region H's Regional planning. Mr. Chang made a motion to approve the Region H Water Planning Group Legislative Committee. The motion was seconded by Mr. Masterson and carried unanimously.

12. RECEIVE REPORT REGARDING RECENT AND UPCOMING ACTIVITIES RELATED TO COMMUNICATIONS AND OUTREACH EFFORTS ON BEHALF OF THE REGION H WATER PLANNING GROUP

There were no recent or upcoming activities reported.

13. AGENCY COMMUNICATIONS AND GENERAL INFORMATION

There were no communications or general information to report.

14. RECEIVE PRESENTATION FROM GALVESTON BAY FOUNDATION REGARDING THE 2018 GALVESTON BAY REPORT CARD

Ms. Thompson provided an overview of the 2018 Galveston Bay Foundation report card.

15. RECEIVE PUBLIC COMMENTS

There were no public comments.

16. NEXT MEETING

Mr. Evans announced that the next Region H Water Planning Group meeting will take place on February 6, 2019.

17. ADJOURN

Without objection, the meeting was adjourned at 11:30 a.m.

Agenda Item 5

Discuss vacancies on the Region H Water Planning Group and consider taking action to approve members to fill vacancies on the Planning Group.

REGION H
Water Planning Group

Agenda Item 5
Membership

Action:

Approve members to fill vacancies on the Region H Water Planning Group.

W.R. Baker

Background History:

I was born in 1953 in Livingston, Texas. I graduated high school from Livingston High School and college from Sam Houston State University with a degree in General Business.

After graduation I managed my father's ranch while he was judge of Polk County. In 1986 I went to work for Southwest Livestock Equipment, selling cattle handling equipment. My territory was Texas and Louisiana.

In 1993 I leased part of the family ranch and several other ranches in the area. I started raising Corriente Cattle to furnish for ropings and rodeos. I still raise these cattle for my own use and also to sell to other roping producers all over the country.

In 1986 I married Sherry Cassity. We have one son who helps me with the ranch and the roping business. We have 2 grandkids. Sherry owns her own business.

Why I want to be part of the Board:

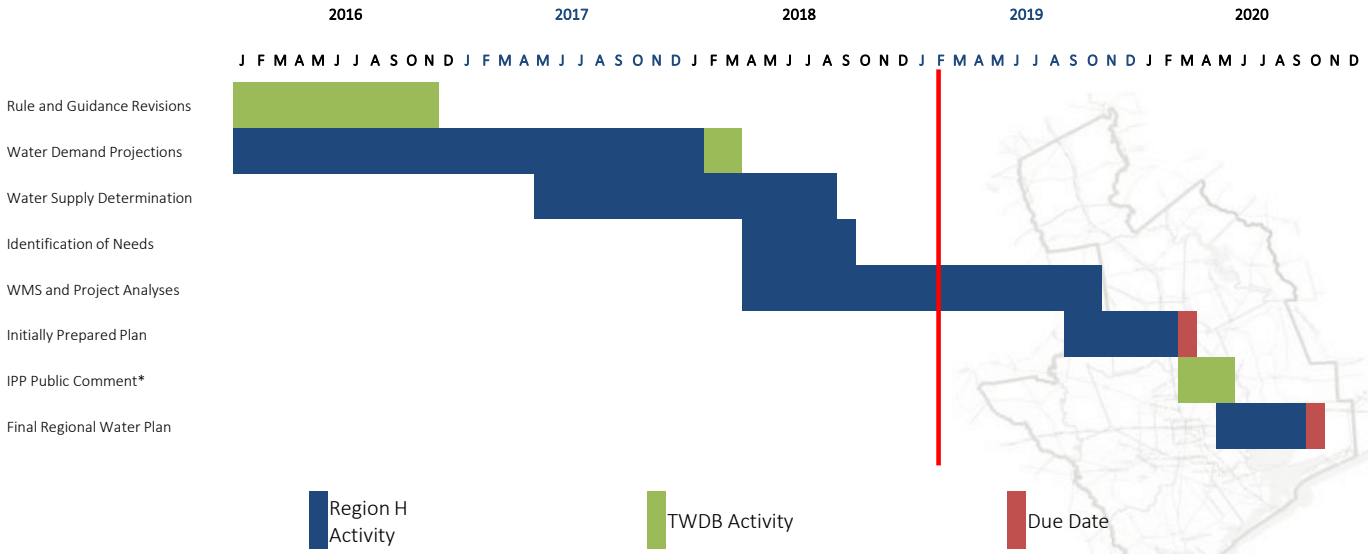
I am pleased to be considered as a member of the Region H water planning group. I was born, raised and now own a ranch on the Trinity River. We are the first private land owners on the Polk County side below Lake Livingston Dam. Not only am I concerned about the Trinity River, but all aspects of water. I believe water will become more crucial as more people move into this area. Water will have to be conserved and used wisely to supply the needs of the people, industry and agriculture to keep us viable. I will do all I can to help Region H water planning group.

Agenda Item 6

Receive update from Consultant Team regarding the schedule and milestones for the development of the 2021 Region H Regional Water Plan (RWP).

REGION H
Water Planning Group

Agenda Item 6
2021 RWP Schedule



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

Agenda Item 6
2021 RWP Schedule

Date	Scheduled Events/Tasks
02/2019	**RWPG Meeting**
05/2019	DUE DATE: Economic Impacts Analysis Request
03/2020	DUE DATE: Initially Prepared Plan
10/2020	DUE DATE: FINAL RWP

Agenda Item 6
2021 RWP Schedule

- Stakeholder coordination
- Continue WMS analyses
- Conservation and drought

Agenda Item 7

Receive update from Consultant Team regarding water source availability.

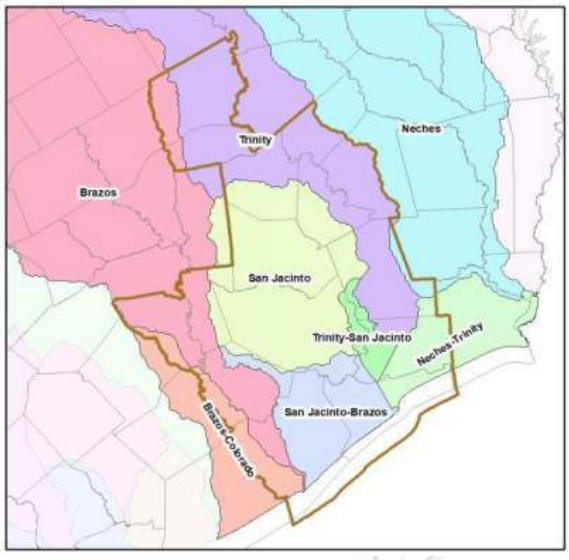
REGION H
Water Planning Group

Agenda Item 7
Source Availability

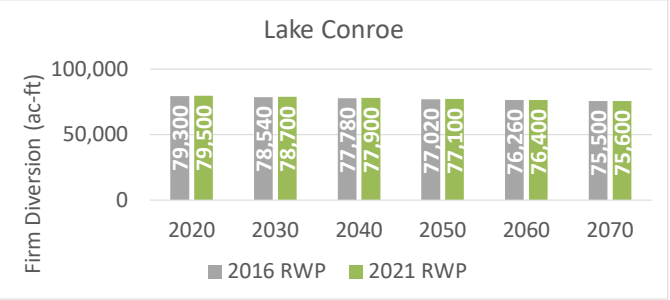
- Availability and allocations – measure twice and cut once!
- Recap before discussing needs

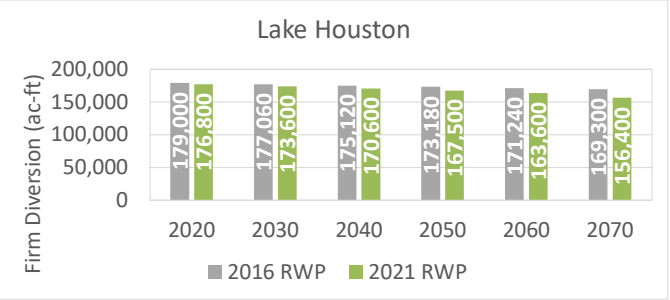
Agenda Item 7
Source Availability: ROR Surface Water

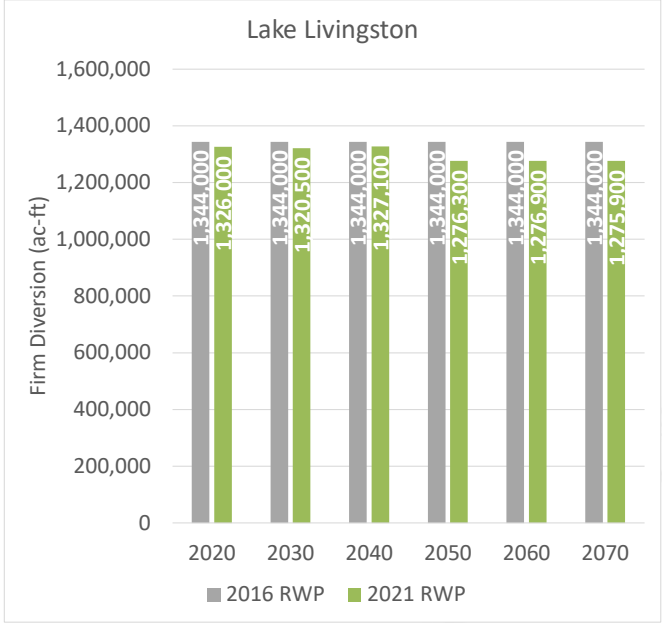
Basin	Projected 2020 Availability (ac-ft)		
	2016 RWP	2021 RWP	Δ
Brazos-Colorado	3,211	11,729	265.3%
Brazos	464,250	453,418	-2.3%
San Jacinto-Brazos	38,826	38,827	0.0%
San Jacinto	12,652	12,627	-0.2%
Trinity-San Jacinto	5,316	5,537	4.2%
Trinity	139,186	137,217	-1.4%
Neches-Trinity	37,700	37,481	-0.6%
Neches	0	176	N/A
TOTAL	**701,141**	**697,012**	**-0.6%**



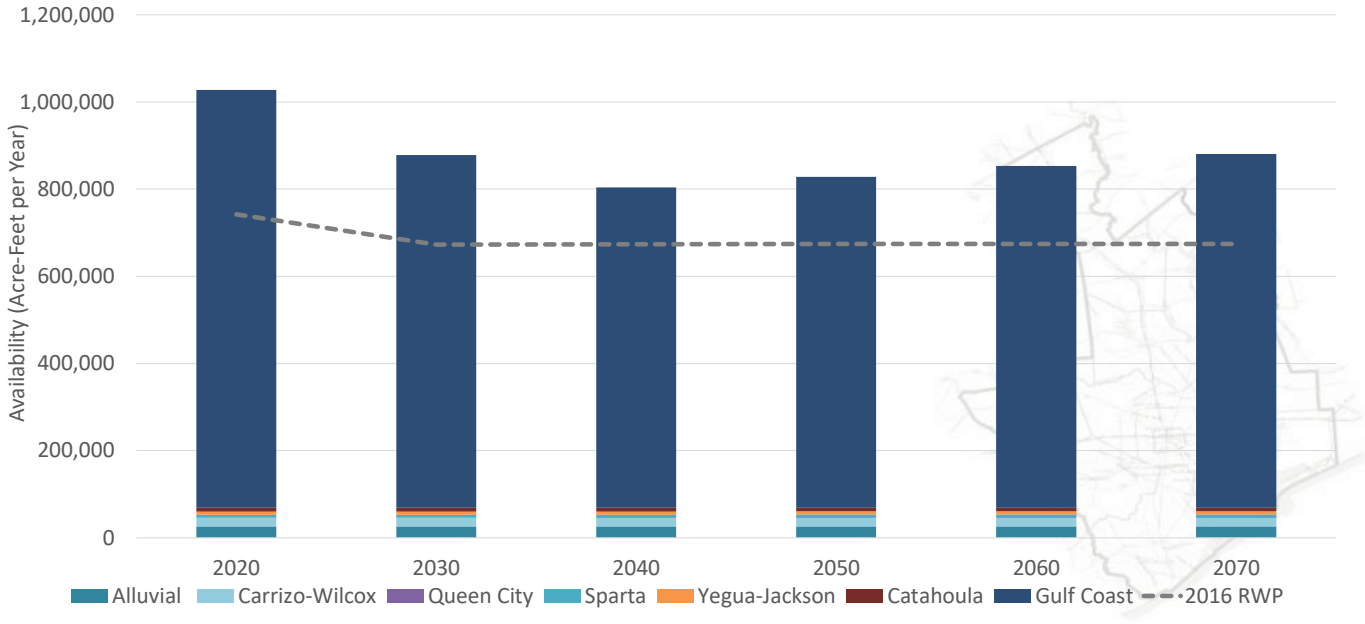
Agenda Item 7
Source Availability: Reservoir



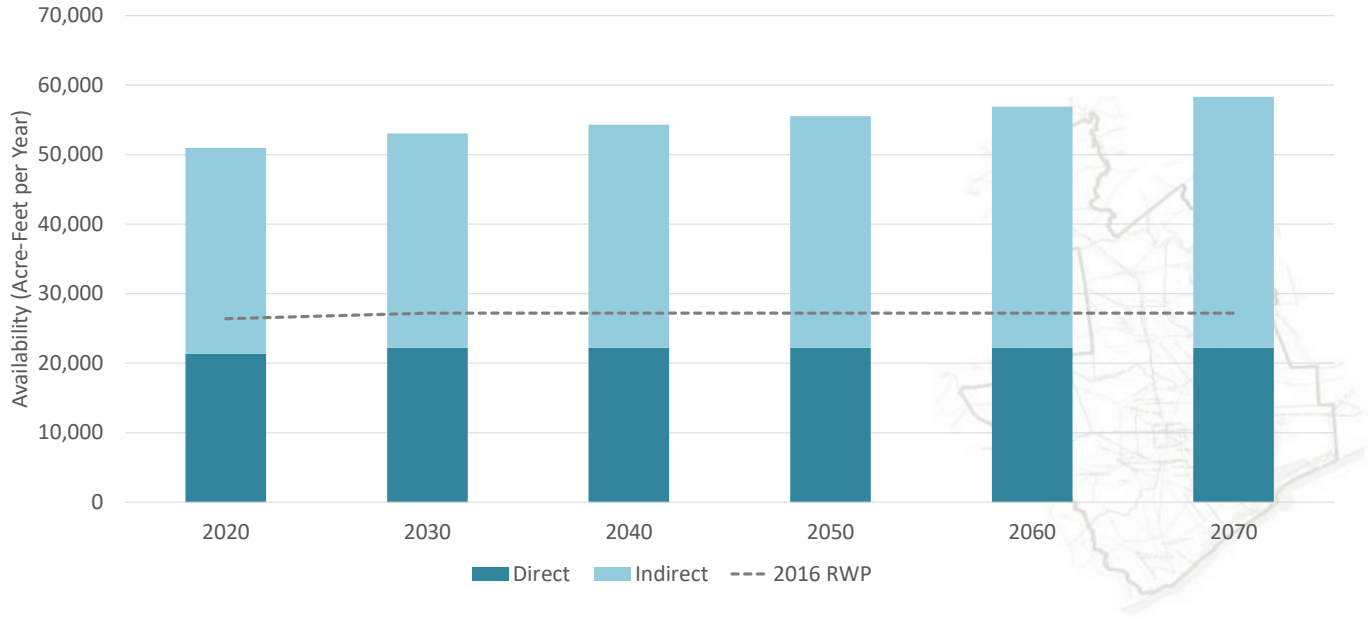




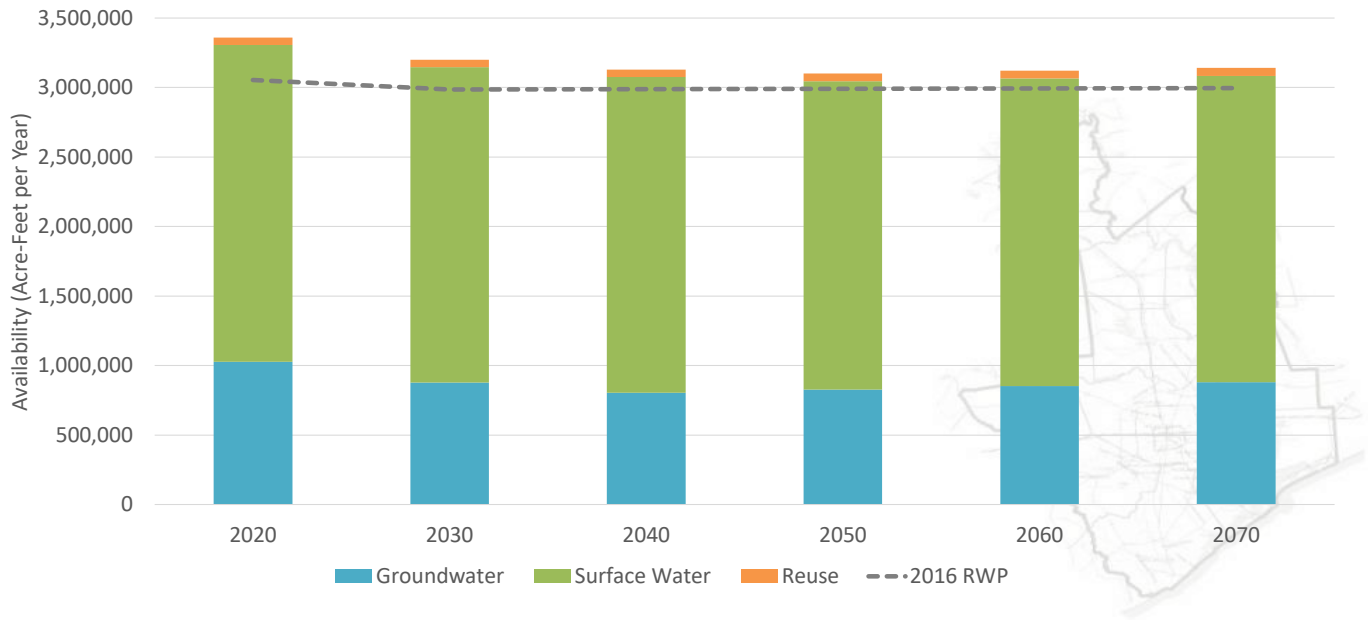
Agenda Item 7
Source Availability: Groundwater



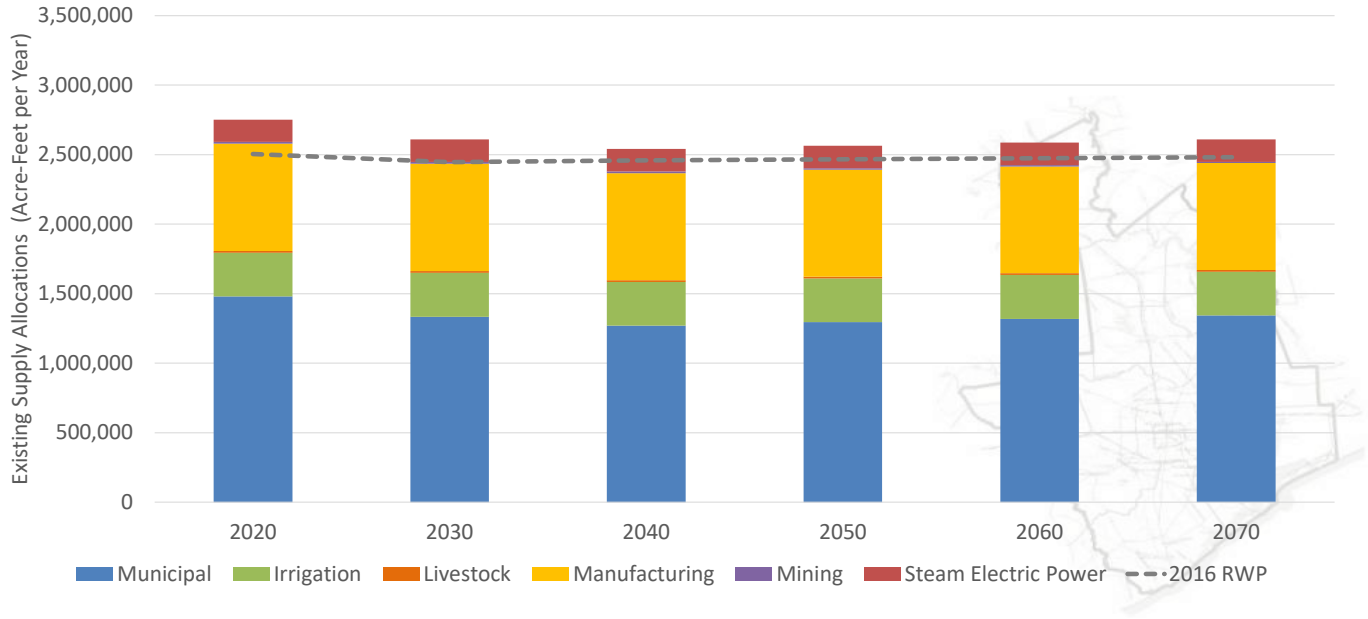
Agenda Item 7
Source Availability: Reuse



Agenda Item 7
Source Availability: Total



Agenda Item 7
Source Availability: Allocations



SOURCE AVAILABILITY (acre-feet/year)							
COUNTY	**SOURCE TYPE**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
AUSTIN	GROUNDWATER	36,095	36,095	36,095	36,095	36,095	36,095
Total Availability in Austin County		***36,095***	***36,095***	***36,095***	***36,095***	***36,095***	***36,095***
BRAZORIA	GROUNDWATER	71,022	71,194	71,258	71,319	71,380	71,450
BRAZORIA	REUSE	3,721	4,561	4,561	4,561	4,561	4,561
BRAZORIA	SURFACE WATER	210,961	210,599	210,236	209,874	209,511	209,149
Total Availability in Brazoria County		***285,704***	***286,354***	***286,055***	***285,754***	***285,452***	***285,160***
CHAMBERS	GROUNDWATER	22,951	22,951	22,951	22,951	22,951	22,951
CHAMBERS	REUSE	0	0	0	0	0	0
CHAMBERS	SURFACE WATER	99,531	99,531	99,531	99,531	99,531	99,531
Total Availability in Chambers County		***122,482***	***122,482***	***122,482***	***122,482***	***122,482***	***122,482***
FORT BEND	GROUNDWATER	146,175	113,016	126,847	141,019	156,118	173,291
FORT BEND	REUSE	4,331	4,331	4,331	4,331	4,331	4,331
FORT BEND	SURFACE WATER	292,546	292,452	292,356	292,261	292,165	292,070
Total Availability in Fort Bend County		***443,052***	***409,799***	***423,534***	***437,611***	***452,614***	***469,692***
GALVESTON	GROUNDWATER	11,788	13,094	13,410	13,729	14,018	14,303
GALVESTON	REUSE	1,257	1,257	1,257	1,257	1,257	1,257
GALVESTON	SURFACE WATER	36	36	36	36	36	36
Total Availability in Galveston County		***13,081***	***14,387***	***14,703***	***15,022***	***15,311***	***15,596***
HARRIS	GROUNDWATER	430,930	312,250	224,125	232,974	242,710	252,881
HARRIS	REUSE	30,770	30,986	31,225	31,474	31,740	31,875
HARRIS	SURFACE WATER	15,285	15,285	15,285	15,285	15,285	15,285
Total Availability in Harris County		***476,985***	***358,521***	***270,635***	***279,733***	***289,735***	***300,041***
LEON	GROUNDWATER	14,903	15,076	15,329	15,616	15,639	15,639
LEON	REUSE	58	58	58	58	58	58
LEON	SURFACE WATER	158	158	158	158	158	158
Total Availability in Leon County		***15,119***	***15,292***	***15,545***	***15,832***	***15,855***	***15,855***
LIBERTY	GROUNDWATER	43,229	43,231	43,229	43,231	43,231	43,231
LIBERTY	SURFACE WATER	51,172	51,172	51,172	51,172	51,172	51,172
Total Availability in Brazoria County		***94,401***	***94,403***	***94,401***	***94,403***	***94,403***	***94,403***
MADISON	GROUNDWATER	7,950	7,861	7,747	7,645	7,635	7,635
MADISON	SURFACE WATER	169	169	169	169	169	169
Total Availability in Madison County		***8,119***	***8,030***	***7,916***	***7,814***	***7,804***	***7,804***
MONTGOMERY	GROUNDWATER	90,821	90,821	90,821	90,821	90,821	90,821
MONTGOMERY	REUSE	8,570	9,613	10,643	11,629	12,711	14,008
MONTGOMERY	SURFACE WATER	141	141	141	141	141	141
Total Availability in Montgomery County		***99,532***	***100,575***	***101,605***	***102,591***	***103,673***	***104,970***
POLK	GROUNDWATER	21,810	21,810	21,810	21,810	21,810	21,810
POLK	SURFACE WATER	26,510	26,510	26,510	26,510	26,510	26,510
Total Availability in Polk County		***48,320***	***48,320***	***48,320***	***48,320***	***48,320***	***48,320***
SAN JACINTO	GROUNDWATER	20,983	20,983	20,983	20,983	20,983	20,983
Total Availability in San Jacinto County		***20,983***	***20,983***	***20,983***	***20,983***	***20,983***	***20,983***
TRINITY	GROUNDWATER	2,419	2,637	2,641	2,658	2,658	2,658
Total Availability in Trinity County		***2,419***	***2,637***	***2,641***	***2,658***	***2,658***	***2,658***
WALKER	GROUNDWATER	34,841	34,841	34,841	34,841	34,841	34,841
WALKER	REUSE	2,240	2,240	2,240	2,240	2,240	2,240
WALKER	SURFACE WATER	460	460	460	460	460	460
Total Availability in Walker County		***37,541***	***37,541***	***37,541***	***37,541***	***37,541***	***37,541***

SOURCE AVAILABILITY (acre-feet/year)							
COUNTY	**SOURCE TYPE**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
WALLER	GROUNDWATER	72,210	72,210	72,210	72,210	72,210	72,210
WALLER	REUSE	16	16	16	16	16	16
WALLER	SURFACE WATER	43	43	43	43	43	43
Total Availability in Waller County		***72,269***	***72,269***	***72,269***	***72,269***	***72,269***	***72,269***
Total Reservoir Availability (multiple counties)		***1,582,300***	***1,572,800***	***1,575,600***	***1,520,900***	***1,516,900***	***1,507,900***
Total Source Availability (Region H)		***3,358,402***	***3,200,488***	***3,130,325***	***3,100,008***	***3,122,095***	***3,141,769***

SOURCE AVAILABILITY - GROUNDWATER (acre-feet/year)								
SOURCE NAME	**COUNTY**	**BASIN**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
BRAZOS RIVER ALLUVIUM AQUIFER	AUSTIN	BRAZOS	7,944	7,944	7,944	7,944	7,944	7,944
GULF COAST AQUIFER SYSTEM	AUSTIN	BRAZOS	8,152	8,152	8,152	8,152	8,152	8,152
GULF COAST AQUIFER SYSTEM	AUSTIN	BRAZOS-COLORADO	19,329	19,329	19,329	19,329	19,329	19,329
GULF COAST AQUIFER SYSTEM	AUSTIN	COLORADO	150	150	150	150	150	150
SAN BERNARD RIVER ALLUVIUM AQUIFER	AUSTIN	BRAZOS-COLORADO	520	520	520	520	520	520
GULF COAST AQUIFER SYSTEM	BRAZORIA	SAN JACINTO-BRAZOS	53,614	54,308	54,735	55,261	55,766	56,223
GULF COAST AQUIFER SYSTEM	BRAZORIA	BRAZOS	4,540	4,306	4,215	4,118	4,036	3,974
GULF COAST AQUIFER SYSTEM	BRAZORIA	BRAZOS-COLORADO	12,868	12,580	12,308	11,940	11,578	11,253
GULF COAST AQUIFER SYSTEM	CHAMBERS	NECHES-TRINITY	10,798	10,798	10,798	10,798	10,798	10,798
GULF COAST AQUIFER SYSTEM	CHAMBERS	TRINITY	10,104	10,104	10,104	10,104	10,104	10,104
GULF COAST AQUIFER SYSTEM	CHAMBERS	TRINITY-SAN JACINTO	2,049	2,049	2,049	2,049	2,049	2,049
GULF COAST AQUIFER SYSTEM	FORT BEND	SAN JACINTO	32,644	24,900	28,912	31,281	32,618	33,388
GULF COAST AQUIFER SYSTEM	FORT BEND	SAN JACINTO-BRAZOS	55,134	38,217	44,055	48,463	51,702	54,232
GULF COAST AQUIFER SYSTEM	FORT BEND	BRAZOS	45,923	36,446	38,704	43,586	50,423	58,908
GULF COAST AQUIFER SYSTEM	FORT BEND	BRAZOS-COLORADO	12,474	13,453	15,176	17,689	21,375	26,763
GULF COAST AQUIFER SYSTEM	GALVESTON	NECHES-TRINITY	92	95	101	107	114	122
GULF COAST AQUIFER SYSTEM	GALVESTON	SAN JACINTO-BRAZOS	11,696	12,999	13,309	13,622	13,904	14,181
GULF COAST AQUIFER SYSTEM	HARRIS	TRINITY-SAN JACINTO	10,766	12,074	12,035	12,113	12,200	12,289
GULF COAST AQUIFER SYSTEM	HARRIS	SAN JACINTO	405,157	283,540	194,965	203,265	212,376	221,899
GULF COAST AQUIFER SYSTEM	HARRIS	SAN JACINTO-BRAZOS	15,007	16,636	17,125	17,596	18,134	18,693
CARRIZO-WILCOX AQUIFER	LEON	TRINITY	10,676	11,057	11,389	11,650	11,668	11,668
CARRIZO-WILCOX AQUIFER	LEON	BRAZOS	3,612	3,404	3,325	3,351	3,356	3,356
QUEEN CITY AQUIFER	LEON	TRINITY	349	349	349	349	349	349
QUEEN CITY AQUIFER	LEON	BRAZOS	245	245	245	245	245	245
SPARTA AQUIFER	LEON	TRINITY	21	21	21	21	21	21
SPARTA AQUIFER	LEON	BRAZOS	0	0	0	0	0	0
YEGUA-JACKSON AQUIFER	LEON	TRINITY	0	0	0	0	0	0
GULF COAST AQUIFER SYSTEM	LIBERTY	NECHES	5,071	5,071	5,071	5,071	5,071	5,071
GULF COAST AQUIFER SYSTEM	LIBERTY	NECHES-TRINITY	364	364	364	364	364	364
GULF COAST AQUIFER SYSTEM	LIBERTY	TRINITY	22,867	22,867	22,867	22,867	22,867	22,867
GULF COAST AQUIFER SYSTEM	LIBERTY	TRINITY-SAN JACINTO	8,850	8,850	8,850	8,850	8,850	8,850
GULF COAST AQUIFER SYSTEM	LIBERTY	SAN JACINTO	6,077	6,079	6,077	6,079	6,079	6,079
CARRIZO-WILCOX AQUIFER	MADISON	TRINITY	2,481	2,399	2,304	2,219	2,210	2,210
CARRIZO-WILCOX AQUIFER	MADISON	BRAZOS	381	371	352	335	334	334
QUEEN CITY AQUIFER	MADISON	TRINITY	379	379	379	379	379	379
QUEEN CITY AQUIFER	MADISON	BRAZOS	1	1	1	1	1	1
SPARTA AQUIFER	MADISON	TRINITY	3,890	3,890	3,890	3,890	3,890	3,890
SPARTA AQUIFER	MADISON	BRAZOS	8	11	11	11	11	11
YEGUA-JACKSON AQUIFER	MADISON	BRAZOS	8	8	8	8	8	8
YEGUA-JACKSON AQUIFER	MADISON	TRINITY	802	802	802	802	802	802
GULF COAST AQUIFER SYSTEM	MONTGOMERY	SAN JACINTO	82,060	82,060	82,060	82,060	82,060	82,060
GULF COAST AQUIFER SYSTEM (CATAHOULA FORMATION)	MONTGOMERY	SAN JACINTO	8,761	8,761	8,761	8,761	8,761	8,761
GULF COAST AQUIFER SYSTEM	POLK	TRINITY	21,810	21,810	21,810	21,810	21,810	21,810
YEGUA-JACKSON AQUIFER	POLK	TRINITY	0	0	0	0	0	0
GULF COAST AQUIFER SYSTEM	SAN JACINTO	TRINITY	10,603	10,603	10,603	10,603	10,603	10,603
GULF COAST AQUIFER SYSTEM	SAN JACINTO	SAN JACINTO	10,380	10,380	10,380	10,380	10,380	10,380
CARRIZO-WILCOX AQUIFER	TRINITY	TRINITY	99	99	99	99	99	99
GULF COAST AQUIFER SYSTEM	TRINITY	TRINITY	100	318	322	339	339	339
QUEEN CITY AQUIFER	TRINITY	TRINITY	0	0	0	0	0	0
SPARTA AQUIFER	TRINITY	TRINITY	29	29	29	29	29	29
YEGUA-JACKSON AQUIFER	TRINITY	TRINITY	2,191	2,191	2,191	2,191	2,191	2,191
CARRIZO-WILCOX AQUIFER	WALKER	TRINITY	2,099	2,099	2,099	2,099	2,099	2,099
GULF COAST AQUIFER SYSTEM	WALKER	TRINITY	10,175	10,175	10,175	10,175	10,175	10,175
GULF COAST AQUIFER SYSTEM	WALKER	SAN JACINTO	10,451	10,451	10,451	10,451	10,451	10,451
QUEEN CITY AQUIFER	WALKER	TRINITY	229	229	229	229	229	229
SAN JACINTO RIVER ALLUVIUM AQUIFER	WALKER	SAN JACINTO	1,450	1,450	1,450	1,450	1,450	1,450
SPARTA AQUIFER	WALKER	TRINITY	2,084	2,084	2,084	2,084	2,084	2,084
SPARTA AQUIFER	WALKER	SAN JACINTO	266	266	266	266	266	266
TRINITY RIVER ALLUVIUM AQUIFER	WALKER	TRINITY	3,913	3,913	3,913	3,913	3,913	3,913
YEGUA-JACKSON AQUIFER	WALKER	TRINITY	3,823	3,823	3,823	3,823	3,823	3,823
YEGUA-JACKSON AQUIFER	WALKER	SAN JACINTO	351	351	351	351	351	351
BRAZOS RIVER ALLUVIUM AQUIFER	WALLER	BRAZOS	12,027	12,027	12,027	12,027	12,027	12,027
GULF COAST AQUIFER SYSTEM	WALLER	SAN JACINTO	38,596	38,596	38,596	38,596	38,596	38,596
GULF COAST AQUIFER SYSTEM	WALLER	BRAZOS	21,587	21,587	21,587	21,587	21,587	21,587
Total Available Groundwater (Region H)			***1,028,127***	***878,070***	***804,297***	***827,902***	***853,100***	***880,799***

SOURCE AVAILABILITY - REUSE (acre-feet/year)								
Source Name	**County**	**Basin**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
DIRECT REUSE	BRAZORIA	BRAZOS	0	0	0	0	0	0
DIRECT REUSE	BRAZORIA	SAN JACINTO-BRAZOS	81	81	81	81	81	81
DIRECT REUSE	BRAZORIA	SAN JACINTO-BRAZOS	17	17	17	17	17	17
DIRECT REUSE	BRAZORIA	SAN JACINTO-BRAZOS	3,300	3,300	3,300	3,300	3,300	3,300
DIRECT REUSE	BRAZORIA	SAN JACINTO-BRAZOS	0	0	0	0	0	0
DIRECT REUSE	BRAZORIA	SAN JACINTO-BRAZOS	314	1,154	1,154	1,154	1,154	1,154
DIRECT REUSE	BRAZORIA	SAN JACINTO-BRAZOS	9	9	9	9	9	9
DIRECT REUSE	CHAMBERS	NECHES-TRINITY	0	0	0	0	0	0
DIRECT REUSE	FORT BEND	BRAZOS	426	426	426	426	426	426
DIRECT REUSE	FORT BEND	SAN JACINTO-BRAZOS	521	521	521	521	521	521
DIRECT REUSE	FORT BEND	SAN JACINTO-BRAZOS	0	0	0	0	0	0
DIRECT REUSE	FORT BEND	SAN JACINTO-BRAZOS	0	0	0	0	0	0
DIRECT REUSE	FORT BEND	SAN JACINTO	9	9	9	9	9	9
DIRECT REUSE	FORT BEND	SAN JACINTO	26	26	26	26	26	26
DIRECT REUSE	FORT BEND	SAN JACINTO	2,014	2,014	2,014	2,014	2,014	2,014
DIRECT REUSE	FORT BEND	BRAZOS	6	6	6	6	6	6
DIRECT REUSE	FORT BEND	SAN JACINTO-BRAZOS	634	634	634	634	634	634
DIRECT REUSE	FORT BEND	BRAZOS	263	263	263	263	263	263
DIRECT REUSE	FORT BEND	BRAZOS	0	0	0	0	0	0
DIRECT REUSE	FORT BEND	SAN JACINTO-BRAZOS	12	12	12	12	12	12
DIRECT REUSE	FORT BEND	SAN JACINTO-BRAZOS	108	108	108	108	108	108
DIRECT REUSE	FORT BEND	SAN JACINTO-BRAZOS	312	312	312	312	312	312
DIRECT REUSE	FORT BEND	SAN JACINTO-BRAZOS	0	0	0	0	0	0
DIRECT REUSE	GALVESTON	SAN JACINTO-BRAZOS	68	68	68	68	68	68
DIRECT REUSE	GALVESTON	SAN JACINTO-BRAZOS	0	0	0	0	0	0
DIRECT REUSE	GALVESTON	SAN JACINTO-BRAZOS	645	645	645	645	645	645
DIRECT REUSE	GALVESTON	SAN JACINTO-BRAZOS	0	0	0	0	0	0
DIRECT REUSE	GALVESTON	SAN JACINTO-BRAZOS	383	383	383	383	383	383
DIRECT REUSE	GALVESTON	SAN JACINTO-BRAZOS	161	161	161	161	161	161
DIRECT REUSE	HARRIS	SAN JACINTO	54	54	54	54	54	54
DIRECT REUSE	HARRIS	SAN JACINTO	50	50	50	50	50	50
DIRECT REUSE	HARRIS	SAN JACINTO	32	32	32	32	32	32
DIRECT REUSE	HARRIS	SAN JACINTO-BRAZOS	773	773	773	773	773	773
DIRECT REUSE	HARRIS	SAN JACINTO	0	0	0	0	0	0
DIRECT REUSE	HARRIS	SAN JACINTO	0	0	0	0	0	0
DIRECT REUSE	HARRIS	SAN JACINTO-BRAZOS	0	0	0	0	0	0
DIRECT REUSE	HARRIS	SAN JACINTO	6,844	6,844	6,844	6,844	6,844	6,844
DIRECT REUSE	HARRIS	SAN JACINTO-BRAZOS	303	303	303	303	303	303
DIRECT REUSE	HARRIS	SAN JACINTO-BRAZOS	436	436	436	436	436	436
DIRECT REUSE	HARRIS	SAN JACINTO	23	23	23	23	23	23
DIRECT REUSE	HARRIS	SAN JACINTO	48	48	48	48	48	48
DIRECT REUSE	HARRIS	SAN JACINTO	9	9	9	9	9	9
DIRECT REUSE	HARRIS	SAN JACINTO-BRAZOS	9	9	9	9	9	9
DIRECT REUSE	HARRIS	SAN JACINTO	83	83	83	83	83	83
DIRECT REUSE	HARRIS	SAN JACINTO	8	8	8	8	8	8
DIRECT REUSE	HARRIS	SAN JACINTO	772	772	772	772	772	772
DIRECT REUSE	HARRIS	SAN JACINTO	9	9	9	9	9	9
DIRECT REUSE	HARRIS	SAN JACINTO	734	734	734	734	734	734
DIRECT REUSE	HARRIS	SAN JACINTO	9	9	9	9	9	9
INDIRECT REUSE	HARRIS	SAN JACINTO	5,630	5,846	6,085	6,334	6,600	6,735
INDIRECT REUSE	HARRIS	SAN JACINTO	14,944	14,944	14,944	14,944	14,944	14,944
DIRECT REUSE	LEON	TRINITY	58	58	58	58	58	58
DIRECT REUSE	MONTGOMERY	SAN JACINTO	43	43	43	43	43	43
DIRECT REUSE	MONTGOMERY	SAN JACINTO	256	256	256	256	256	256
DIRECT REUSE	MONTGOMERY	SAN JACINTO	1,314	1,314	1,314	1,314	1,314	1,314
DIRECT REUSE	MONTGOMERY	SAN JACINTO	0	0	0	0	0	0
DIRECT REUSE	MONTGOMERY	SAN JACINTO	6	6	6	6	6	6
DIRECT REUSE	MONTGOMERY	SAN JACINTO	10	10	10	10	10	10
DIRECT REUSE	MONTGOMERY	SAN JACINTO	144	144	144	144	144	144
INDIRECT REUSE	MONTGOMERY	SAN JACINTO	144	144	144	144	144	144
INDIRECT REUSE	MONTGOMERY	SAN JACINTO	952	982	1,090	1,205	1,327	1,590
INDIRECT REUSE	MONTGOMERY	SAN JACINTO	5,701	6,714	7,636	8,507	9,467	10,501
INDIRECT REUSE	WALKER	SAN JACINTO	2,240	2,240	2,240	2,240	2,240	2,240
DIRECT REUSE	WALLER	SAN JACINTO	16	16	16	16	16	16
Total Available Reuse (Region H)			***50,963***	***53,062***	***54,331***	***55,566***	***56,914***	***58,346***

SOURCE AVAILABILITY - SURFACE WATER (acre-feet/year)								
Source Name	**County**	**Basin**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
BRAZOS RUN-OF-RIVER	BRAZORIA	BRAZOS	166,632	166,270	165,907	165,545	165,182	164,820
BRAZOS-COLORADO RUN-OF-RIVER	BRAZORIA	BRAZOS-COLORADO	11,729	11,729	11,729	11,729	11,729	11,729
SAN JACINTO-BRAZOS RUN-OF-RIVER	BRAZORIA	SAN JACINTO-BRAZOS	32,600	32,600	32,600	32,600	32,600	32,600
NECHES-TRINITY RUN-OF-RIVER	CHAMBERS	NECHES-TRINITY	37,481	37,481	37,481	37,481	37,481	37,481
TRINITY RUN-OF-RIVER	CHAMBERS	TRINITY	60,837	60,837	60,837	60,837	60,837	60,837
TRINITY-SAN JACINTO RUN-OF-RIVER	CHAMBERS	TRINITY-SAN JACINTO	0	0	0	0	0	0
TRINITY-SAN JACINTO RUN-OF-RIVER	CHAMBERS	TRINITY-SAN JACINTO	1,213	1,213	1,213	1,213	1,213	1,213
BRAZOS RUN-OF-RIVER	FORT BEND	BRAZOS	286,743	286,649	286,553	286,458	286,362	286,267
SAN JACINTO-BRAZOS RUN-OF-RIVER	FORT BEND	SAN JACINTO-BRAZOS	5,803	5,803	5,803	5,803	5,803	5,803
SAN JACINTO-BRAZOS RUN-OF-RIVER	GALVESTON	SAN JACINTO-BRAZOS	36	36	36	36	36	36
SAN JACINTO RUN-OF-RIVER	HARRIS	SAN JACINTO	12,477	12,477	12,477	12,477	12,477	12,477
SAN JACINTO-BRAZOS RUN-OF-RIVER	HARRIS	SAN JACINTO-BRAZOS	388	388	388	388	388	388
TRINITY-SAN JACINTO RUN-OF-RIVER	HARRIS	TRINITY-SAN JACINTO	2,420	2,420	2,420	2,420	2,420	2,420
TRINITY RUN-OF-RIVER	LEON	TRINITY	158	158	158	158	158	158
NECHES RUN-OF-RIVER	LIBERTY	NECHES	176	176	176	176	176	176
SAN JACINTO RUN-OF-RIVER	LIBERTY	SAN JACINTO	9	9	9	9	9	9
TRINITY RUN-OF-RIVER	LIBERTY	TRINITY	49,083	49,083	49,083	49,083	49,083	49,083
TRINITY-SAN JACINTO RUN-OF-RIVER	LIBERTY	TRINITY-SAN JACINTO	1,904	1,904	1,904	1,904	1,904	1,904
TRINITY RUN-OF-RIVER	MADISON	TRINITY	169	169	169	169	169	169
SAN JACINTO RUN-OF-RIVER	MONTGOMERY	SAN JACINTO	141	141	141	141	141	141
TRINITY RUN-OF-RIVER	POLK	TRINITY	26,510	26,510	26,510	26,510	26,510	26,510
CONROE LAKE/RESERVOIR	RESERVOIR	SAN JACINTO	79,500	78,700	77,900	77,100	76,400	75,600
HOUSTON LAKE/RESERVOIR	RESERVOIR	SAN JACINTO	176,800	173,600	170,600	167,500	163,600	156,400
LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	RESERVOIR	TRINITY	1,326,000	1,320,500	1,327,100	1,276,300	1,276,900	1,275,900
TRINITY RUN-OF-RIVER	WALKER	TRINITY	460	460	460	460	460	460
BRAZOS RUN-OF-RIVER	WALLER	BRAZOS	43	43	43	43	43	43

Total Available Surface Water (Region H)	***2,279,312***	***2,269,356***	***2,271,697***	***2,216,540***	***2,212,081***	***2,202,624***

EXISTING WUG SUPPLIES (acre-feet/year)							
COUNTY	**SOURCE TYPE**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
AUSTIN	GROUNDWATER	12,515	12,896	13,183	13,549	13,973	14,409
Total Supplies in Austin County		***12,515***	***12,896***	***13,183***	***13,549***	***13,973***	***14,409***
BRAZORIA	GROUNDWATER	56,315	60,359	62,514	64,914	67,682	70,443
	REUSE	3,407	3,407	3,407	3,407	3,407	3,407
	SURFACE WATER	257,811	257,086	256,276	255,645	255,157	254,620
Total Supplies in Brazoria County		***317,533***	***320,852***	***322,197***	***323,966***	***326,246***	***328,470***
CHAMBERS	GROUNDWATER	13,344	14,335	14,818	15,131	15,478	15,847
	SURFACE WATER	196,190	196,284	196,381	196,491	196,620	196,757
Total Supplies in Chambers County		***209,534***	***210,619***	***211,199***	***211,622***	***212,098***	***212,604***
FORT BEND	GROUNDWATER	140,214	104,009	115,251	123,608	129,926	134,943
	REUSE	4,331	4,331	4,331	4,331	4,331	4,331
	SURFACE WATER	213,634	213,441	213,396	213,327	213,226	213,158
Total Supplies in Fort Bend County		***358,179***	***321,781***	***332,978***	***341,266***	***347,483***	***352,432***
GALVESTON	GROUNDWATER	6,071	6,437	6,738	7,043	7,316	7,585
	REUSE	1,240	1,240	1,240	1,240	1,240	1,240
	SURFACE WATER	139,522	139,110	138,820	138,528	138,245	137,937
Total Supplies in Galveston County		***146,833***	***146,787***	***146,798***	***146,811***	***146,801***	***146,762***
HARRIS	GROUNDWATER	430,611	312,129	224,430	233,292	243,030	253,202
	REUSE	25,377	25,685	25,999	26,233	26,477	26,598
	SURFACE WATER	960,102	963,058	966,290	966,487	968,118	969,890
Total Supplies in Harris County		***1,416,090***	***1,300,872***	***1,216,719***	***1,226,012***	***1,237,625***	***1,249,690***
LEON	GROUNDWATER	8,904	9,030	8,792	8,414	8,034	7,848
	REUSE	58	58	58	58	58	58
	SURFACE WATER	158	158	158	158	158	158
Total Supplies in Leon County		***9,120***	***9,246***	***9,008***	***8,630***	***8,250***	***8,064***
LIBERTY	GROUNDWATER	14,658	15,956	17,186	18,545	19,976	21,385
	SURFACE WATER	53,522	53,522	53,522	53,523	53,523	53,523
Total Supplies in Brazoria County		***68,180***	***69,478***	***70,708***	***72,068***	***73,499***	***74,908***
MADISON	GROUNDWATER	4,709	4,826	4,938	5,033	4,979	5,014
	SURFACE WATER	169	169	169	169	169	169
Total Supplies in Madison County		***4,878***	***4,995***	***5,107***	***5,202***	***5,148***	***5,183***
MONTGOMERY	GROUNDWATER	90,683	90,673	90,665	90,660	90,659	90,658
	REUSE	3,021	2,930	2,870	2,871	2,878	2,888
	SURFACE WATER	35,808	35,808	35,808	35,808	35,808	35,808
Total Supplies in Montgomery County		***129,512***	***129,411***	***129,343***	***129,339***	***129,345***	***129,354***

EXISTING WUG SUPPLIES (acre-feet/year)							
COUNTY	**SOURCE TYPE**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
POLK	GROUNDWATER	4,169	4,420	4,614	4,791	4,961	5,107
	SURFACE WATER	6,191	6,192	6,191	6,191	6,191	6,191
Total Supplies in Polk County		***10,360***	***10,612***	***10,805***	***10,982***	***11,152***	***11,298***
SAN JACINTO	GROUNDWATER	3,972	4,205	4,392	4,636	4,854	5,051
	SURFACE WATER	909	909	909	909	909	909
Total Supplies in San Jacinto County		***4,881***	***5,114***	***5,301***	***5,545***	***5,763***	***5,960***
TRINITY	GROUNDWATER	915	948	942	917	948	974
	SURFACE WATER	2,630	2,629	2,628	2,625	2,623	2,625
Total Supplies in Trinity County		***3,545***	***3,577***	***3,570***	***3,542***	***3,571***	***3,599***
WALKER	GROUNDWATER	8,673	8,835	8,907	8,999	9,090	9,171
	SURFACE WATER	22,987	22,987	22,991	22,992	22,994	22,994
Total Supplies in Walker County		***31,660***	***31,822***	***31,898***	***31,991***	***32,084***	***32,165***
WALLER	GROUNDWATER	30,004	30,905	31,933	33,042	34,137	35,105
	REUSE	16	16	16	16	16	16
	SURFACE WATER	93	93	93	93	93	93
Total Supplies in Waller County		***30,113***	***31,014***	***32,042***	***33,151***	***34,246***	***35,214***
Total Supplies in Region H*		***2,752,933***	***2,609,076***	***2,540,856***	***2,563,676***	***2,587,284***	***2,610,112***

** Supplies shown here reflect all existing supplies allocated within a county boundary, including those in portions of WUGs that are primarily assigned to another Region.*

EXISTING WUG SUPPLIES (acre-feet/year)							
WUG	**SOURCE NAME**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
ALVIN	GULF COAST AQUIFER SYSTEM	4,644	4,866	5,160	5,587	6,186	6,983
ALVIN	DIRECT REUSE	81	81	81	81	81	81
ANAHUAC	TRINITY RUN-OF-RIVER	1,105	1,105	1,105	1,105	1,105	1,105
ANGLETON	GULF COAST AQUIFER SYSTEM	184	184	184	184	184	184
ANGLETON	BRAZOS RUN-OF-RIVER	2,016	2,016	2,016	2,016	2,016	2,016
AUSTIN COUNTY WSC	GULF COAST AQUIFER	124	139	156	178	203	231
AUSTIN COUNTY WSC	GULF COAST AQUIFER	124	139	156	177	202	230
BACLIFF MUD	GULF COAST AQUIFER SYSTEM	5	5	5	5	5	5
BACLIFF MUD	DIRECT REUSE	68	68	68	68	68	68
BACLIFF MUD	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	213	214	214	213	214	213
BACLIFF MUD	BRAZOS RUN-OF-RIVER	840	839	838	838	837	837
BAKER ROAD MUD	GULF COAST AQUIFER SYSTEM	278	201	141	141	141	141
BAYBROOK MUD 1	GULF COAST AQUIFER SYSTEM	25	26	29	31	33	35
BAYBROOK MUD 1	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	2,016	2,016	2,016	2,016	2,016	2,016
BAYTOWN	GULF COAST AQUIFER SYSTEM	906	890	881	883	896	911
BAYTOWN	GULF COAST AQUIFER SYSTEM	42	41	41	41	41	42
BAYTOWN	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	12,124	12,115	12,121	12,125	12,126	12,126
BAYVIEW MUD	GULF COAST AQUIFER SYSTEM	15	15	16	17	17	18
BAYVIEW MUD	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	70	70	70	70	70	70
BAYVIEW MUD	BRAZOS RUN-OF-RIVER	274	274	274	273	273	273
BELLAIRE	GULF COAST AQUIFER SYSTEM	840	893	956	1,031	1,120	1,218
BELLAIRE	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	3,360	3,574	3,824	4,124	4,478	4,870
BELLVILLE	GULF COAST AQUIFER	1,126	1,191	1,264	1,359	1,470	1,594
BLUE BELL MANOR UTILITY	GULF COAST AQUIFER SYSTEM	623	440	318	325	332	339
BLUE RIDGE WEST MUD	GULF COAST AQUIFER SYSTEM	1,130	784	780	778	777	777
BLUE RIDGE WEST MUD	GULF COAST AQUIFER SYSTEM	99	69	69	68	68	68
BLUE RIDGE WEST MUD	DIRECT REUSE	9	9	9	9	9	9
BOLIVAR PENINSULA SUD	SAM RAYBURN-STEINHAGEN LAKE/RESERVOIR SYSTEM	6,000	6,000	6,000	6,000	6,000	6,000
BRAZORIA	BRAZOS RUN-OF-RIVER	353	353	353	353	353	353
BRAZORIA COUNTY MUD 2	GULF COAST AQUIFER SYSTEM	1,666	1,658	1,655	1,653	1,653	1,654
BRAZORIA COUNTY MUD 21	GULF COAST AQUIFER SYSTEM	646	669	719	769	819	853
BRAZORIA COUNTY MUD 25	GULF COAST AQUIFER SYSTEM	417	459	502	554	618	689
BRAZORIA COUNTY MUD 29	GULF COAST AQUIFER SYSTEM	456	716	920	920	920	920
BRAZORIA COUNTY MUD 3	GULF COAST AQUIFER SYSTEM	655	646	648	654	662	676
BRAZORIA COUNTY MUD 3	DIRECT REUSE	9	9	9	9	9	9
BRAZORIA COUNTY MUD 31	GULF COAST AQUIFER SYSTEM	409	459	537	608	675	717
BRAZORIA COUNTY MUD 6	GULF COAST AQUIFER SYSTEM	1,268	1,258	1,257	1,258	1,260	1,266
BROOKSHIRE MWD	GULF COAST AQUIFER SYSTEM	301	355	419	491	573	663
BROOKSHIRE MWD	GULF COAST AQUIFER SYSTEM	301	355	418	490	573	663
BUFFALO	CARRIZO-WILCOX AQUIFER	386	387	387	393	401	410
BUNKER HILL VILLAGE	GULF COAST AQUIFER SYSTEM	332	355	380	408	440	475
BUNKER HILL VILLAGE	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	1,330	1,418	1,518	1,632	1,760	1,900
CAPE ROYALE UD	GULF COAST AQUIFER SYSTEM	270	293	311	332	351	368
CENTERVILLE	CARRIZO-WILCOX AQUIFER	203	212	219	232	246	258
CENTRAL HARRIS COUNTY REGIONAL WATER AUTHORITY	GULF COAST AQUIFER SYSTEM	3,764	2,282	1,187	1,237	1,289	1,347
CENTRAL HARRIS COUNTY REGIONAL WATER AUTHORITY	HOUSTON LAKE/RESERVOIR	2,374	2,374	2,374	2,374	2,374	2,374
CHAMBERS COUNTY MUD 1	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	260	295	333	377	431	488
CHATEAU WOODS MUD	GULF COAST AQUIFER SYSTEM	259	329	322	320	320	320
CHIMNEY HILL MUD	GULF COAST AQUIFER SYSTEM	398	222	109	108	110	112
CHIMNEY HILL MUD	DIRECT REUSE	50	50	50	50	50	50
CHIMNEY HILL MUD	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	170	333	435	434	439	447
CLEAR BROOK CITY MUD	GULF COAST AQUIFER SYSTEM	349	346	379	402	423	444
CLEAR BROOK CITY MUD	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	2,800	2,800	2,800	2,800	2,800	2,800
CLEAR LAKE CITY WATER AUTHORITY	GULF COAST AQUIFER SYSTEM	1,309	1,328	1,409	1,481	1,555	1,633
CLEAR LAKE CITY WATER AUTHORITY	DIRECT REUSE	436	436	436	436	436	436

EXISTING WUG SUPPLIES (acre-feet/year)							
WUG	**SOURCE NAME**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
CLEAR LAKE CITY WATER AUTHORITY	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	18,127	18,105	18,088	18,067	18,048	18,030
CLEVELAND	GULF COAST AQUIFER SYSTEM	1,539	1,527	1,520	1,525	1,543	1,563
CLEVELAND	GULF COAST AQUIFER SYSTEM	30	30	30	30	30	30
CLUTE	GULF COAST AQUIFER SYSTEM	364	363	374	406	459	520
CLUTE	BRAZOS RUN-OF-RIVER	1,120	1,120	1,120	1,120	1,120	1,120
CONCORD-ROBBINS WSC	QUEEN CITY AQUIFER	94	92	92	95	98	102
CONCORD-ROBBINS WSC	CARRIZO-WILCOX AQUIFER	74	73	72	75	77	81
CONCORD-ROBBINS WSC	CARRIZO-WILCOX AQUIFER	174	172	170	176	183	188
CONROE	GULF COAST AQUIFER SYSTEM	4,819	4,824	4,842	4,855	4,862	4,866
CONROE	GULF COAST AQUIFER	1,485	1,485	1,485	1,485	1,485	1,485
CONROE	CONROE LAKE/RESERVOIR	7,933	7,933	7,933	7,933	7,933	7,933
CORINTHIAN POINT MUD 2	GULF COAST AQUIFER SYSTEM	242	242	243	244	244	244
CORINTHIAN POINT MUD 2	GULF COAST AQUIFER	134	134	134	134	134	134
CORINTHIAN POINT MUD 2	DIRECT REUSE	6	6	6	6	6	6
COUNTRY TERRACE WATER	GULF COAST AQUIFER SYSTEM	31	32	34	35	37	39
COUNTRY TERRACE WATER	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	140	140	140	140	140	140
COUNTY-OTHER, AUSTIN	GULF COAST AQUIFER	808	834	834	834	834	834
COUNTY-OTHER, AUSTIN	GULF COAST AQUIFER	1,230	1,321	1,321	1,321	1,321	1,321
COUNTY-OTHER, AUSTIN	GULF COAST AQUIFER	16	18	21	25	29	31
COUNTY-OTHER, BRAZORIA	GULF COAST AQUIFER SYSTEM	10,457	12,908	12,908	12,908	12,908	12,908
COUNTY-OTHER, BRAZORIA	GULF COAST AQUIFER SYSTEM	969	1,094	1,300	1,512	1,598	1,598
COUNTY-OTHER, BRAZORIA	GULF COAST AQUIFER SYSTEM	3,772	3,772	3,772	3,772	3,772	3,772
COUNTY-OTHER, BRAZORIA	BRAZOS RUN-OF-RIVER	52	52	52	52	52	52
COUNTY-OTHER, CHAMBERS	GULF COAST AQUIFER SYSTEM	122	143	165	189	216	245
COUNTY-OTHER, CHAMBERS	GULF COAST AQUIFER SYSTEM	1,246	1,454	1,679	1,930	2,207	2,501
COUNTY-OTHER, CHAMBERS	GULF COAST AQUIFER SYSTEM	193	226	261	299	342	388
COUNTY-OTHER, CHAMBERS	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	971	936	898	854	800	743
COUNTY-OTHER, FORT BEND	GULF COAST AQUIFER SYSTEM	240	135	132	111	77	52
COUNTY-OTHER, FORT BEND	GULF COAST AQUIFER SYSTEM	6,023	3,512	4,532	5,774	6,688	7,370
COUNTY-OTHER, FORT BEND	GULF COAST AQUIFER SYSTEM	1,692	1,419	1,293	1,537	1,987	2,605
COUNTY-OTHER, FORT BEND	GULF COAST AQUIFER SYSTEM	1,503	2,444	2,866	2,866	2,866	2,866
COUNTY-OTHER, FORT BEND	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	161	161	161	161	161	161
COUNTY-OTHER, FORT BEND	BRAZOS RUN-OF-RIVER	50	50	50	50	50	50
COUNTY-OTHER, GALVESTON	GULF COAST AQUIFER SYSTEM	1	1	1	1	1	2
COUNTY-OTHER, GALVESTON	GULF COAST AQUIFER SYSTEM	117	103	95	87	79	71
COUNTY-OTHER, GALVESTON	BRAZOS RUN-OF-RIVER	12	12	12	12	12	12
COUNTY-OTHER, HARRIS	GULF COAST AQUIFER SYSTEM	596	565	544	618	685	753
COUNTY-OTHER, HARRIS	GULF COAST AQUIFER SYSTEM	11,067	8,742	5,859	5,938	6,617	7,258
COUNTY-OTHER, HARRIS	GULF COAST AQUIFER SYSTEM	38	61	57	6	35	63
COUNTY-OTHER, HARRIS	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	3,385	3,385	3,385	3,385	3,385	3,385
COUNTY-OTHER, HARRIS	HOUSTON LAKE/RESERVOIR	723	723	723	723	723	723
COUNTY-OTHER, LEON	QUEEN CITY AQUIFER	20	18	16	15	13	12
COUNTY-OTHER, LEON	QUEEN CITY AQUIFER	25	23	23	22	22	22
COUNTY-OTHER, LEON	SPARTA AQUIFER	8	7	6	6	5	4
COUNTY-OTHER, LEON	CARRIZO-WILCOX AQUIFER	172	155	134	127	116	102
COUNTY-OTHER, LEON	CARRIZO-WILCOX AQUIFER	31	30	28	28	27	27
COUNTY-OTHER, LIBERTY	GULF COAST AQUIFER SYSTEM	30	31	32	34	36	37
COUNTY-OTHER, LIBERTY	GULF COAST AQUIFER SYSTEM	13	14	15	15	16	17
COUNTY-OTHER, LIBERTY	GULF COAST AQUIFER SYSTEM	2,946	3,081	3,206	3,365	3,548	3,720
COUNTY-OTHER, LIBERTY	GULF COAST AQUIFER SYSTEM	376	393	409	430	453	475
COUNTY-OTHER, LIBERTY	GULF COAST AQUIFER SYSTEM	1,296	1,356	1,411	1,480	1,561	1,637
COUNTY-OTHER, MADISON	QUEEN CITY AQUIFER	32	33	35	37	39	41
COUNTY-OTHER, MADISON	SPARTA AQUIFER	1,130	1,182	1,231	1,300	1,369	1,442
COUNTY-OTHER, MADISON	YEGUA-JACKSON AQUIFER	75	79	82	86	91	96
COUNTY-OTHER, MADISON	CARRIZO-WILCOX AQUIFER	73	76	80	84	89	93
COUNTY-OTHER, MONTGOMERY	GULF COAST AQUIFER SYSTEM	19,327	19,347	19,415	19,463	19,489	19,510
COUNTY-OTHER, MONTGOMERY	DIRECT REUSE	10	10	10	10	10	10
COUNTY-OTHER, POLK	GULF COAST AQUIFER SYSTEM	1,532	1,585	1,608	1,618	1,614	1,586
COUNTY-OTHER, POLK	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	20	20	20	20	20	20
COUNTY-OTHER, SAN JACINTO	GULF COAST AQUIFER SYSTEM	625	668	700	741	776	804
COUNTY-OTHER, SAN JACINTO	GULF COAST AQUIFER SYSTEM	829	886	928	983	1,028	1,067
COUNTY-OTHER, WALKER	GULF COAST AQUIFER SYSTEM	914	914	914	914	914	914
COUNTY-OTHER, WALKER	GULF COAST AQUIFER SYSTEM	1,327	1,327	1,327	1,327	1,327	1,327
COUNTY-OTHER, WALKER	YEGUA-JACKSON AQUIFER	255	255	255	255	255	255

EXISTING WUG SUPPLIES (acre-feet/year)							
WUG	**SOURCE NAME**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
COUNTY-OTHER, WALKER	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	3,000	3,000	3,000	3,000	3,000	3,000
COUNTY-OTHER, WALLER	GULF COAST AQUIFER SYSTEM	1,025	1,025	1,025	1,025	1,025	1,025
COUNTY-OTHER, WALLER	GULF COAST AQUIFER SYSTEM	1,139	1,139	1,139	1,139	1,139	1,139
CROSBY MUD	GULF COAST AQUIFER SYSTEM	71	72	73	74	76	77
CROSBY MUD	SAN JACINTO RUN-OF-RIVER	978	978	978	978	978	978
CUT & SHOOT	GULF COAST AQUIFER SYSTEM	354	354	356	357	357	357
DAISETTA	GULF COAST AQUIFER SYSTEM	128	138	148	160	173	186
DANBURY	GULF COAST AQUIFER SYSTEM	176	169	162	159	159	159
DAYTON	GULF COAST AQUIFER SYSTEM	2,393	3,051	3,684	4,329	4,957	5,558
DEER PARK	GULF COAST AQUIFER SYSTEM	132	134	136	140	144	149
DEER PARK	GULF COAST AQUIFER SYSTEM	281	287	291	299	308	317
DEER PARK	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	3,957	3,957	3,957	3,957	4,067	4,189
DEVERS	GULF COAST AQUIFER SYSTEM	4	4	5	5	5	6
DEVERS	GULF COAST AQUIFER SYSTEM	168	186	204	223	242	259
DOBBIN PLANTERSVILLE WSC	GULF COAST AQUIFER SYSTEM	138	156	170	185	198	210
DOBBIN PLANTERSVILLE WSC	GULF COAST AQUIFER SYSTEM	44	49	53	58	62	66
DOBBIN PLANTERSVILLE WSC	GULF COAST AQUIFER SYSTEM	199	200	200	201	201	201
DOBBIN PLANTERSVILLE WSC	GULF COAST AQUIFER	153	153	153	153	153	153
DODGE OAKHURST WSC	GULF COAST AQUIFER SYSTEM	58	60	62	65	68	70
DODGE OAKHURST WSC	GULF COAST AQUIFER SYSTEM	136	141	145	152	158	164
DOMESTIC WATER	GULF COAST AQUIFER SYSTEM	165	166	166	167	167	167
DOUGLAS UTILITY	GULF COAST AQUIFER SYSTEM	234	159	113	113	113	113
EAST PLANTATION UD	GULF COAST AQUIFER SYSTEM	258	260	300	344	396	410
EL DORADO UD	GULF COAST AQUIFER SYSTEM	405	281	201	202	203	203
FAR HILLS UD	GULF COAST AQUIFER SYSTEM	339	339	340	341	342	342
FAR HILLS UD	GULF COAST AQUIFER	196	196	196	196	196	196
FIRST COLONY MUD 9	GULF COAST AQUIFER SYSTEM	1,350	974	970	968	968	967
FIRST COLONY MUD 9	GULF COAST AQUIFER SYSTEM	422	305	304	303	303	303
FLO COMMUNITY WSC	CARRIZO-WILCOX AQUIFER	392	444	498	553	615	677
FOREST HILLS MUD	GULF COAST AQUIFER SYSTEM	359	258	186	185	185	185
FOREST HILLS MUD	DIRECT REUSE	23	23	23	23	23	23
FORT BEND COUNTY FWSD 1	GULF COAST AQUIFER SYSTEM	82	65	71	76	82	88
FORT BEND COUNTY FWSD 2	GULF COAST AQUIFER SYSTEM	226	177	192	207	223	239
FORT BEND COUNTY MUD 115	GULF COAST AQUIFER SYSTEM	108	28	28	28	28	28
FORT BEND COUNTY MUD 115	GULF COAST AQUIFER SYSTEM	204	52	52	51	51	51
FORT BEND COUNTY MUD 115	BRAZOS RUN-OF-RIVER	586	586	586	586	586	586
FORT BEND COUNTY MUD 116	GULF COAST AQUIFER SYSTEM	642	414	485	541	596	652
FORT BEND COUNTY MUD 116	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	275	275	275	275	275	275
FORT BEND COUNTY MUD 121	GULF COAST AQUIFER SYSTEM	325	184	183	182	182	182
FORT BEND COUNTY MUD 121	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	139	139	139	139	139	139
FORT BEND COUNTY MUD 128	GULF COAST AQUIFER SYSTEM	681	386	384	383	382	382
FORT BEND COUNTY MUD 128	DIRECT REUSE	312	312	312	312	312	312
FORT BEND COUNTY MUD 128	BRAZOS RUN-OF-RIVER	292	292	292	292	292	292
FORT BEND COUNTY MUD 129	GULF COAST AQUIFER SYSTEM	401	51	50	49	49	49
FORT BEND COUNTY MUD 129	BRAZOS RUN-OF-RIVER	347	347	347	347	347	347
FORT BEND COUNTY MUD 140	GULF COAST AQUIFER SYSTEM	352	199	197	197	196	196
FORT BEND COUNTY MUD 140	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	151	151	151	151	151	151
FORT BEND COUNTY MUD 149	GULF COAST AQUIFER SYSTEM	69	27	40	40	40	39
FORT BEND COUNTY MUD 149	BRAZOS RUN-OF-RIVER	60	60	60	60	60	60
FORT BEND COUNTY MUD 152	GULF COAST AQUIFER SYSTEM	152	121	132	131	131	131
FORT BEND COUNTY MUD 155	GULF COAST AQUIFER SYSTEM	369	292	317	317	317	316
FORT BEND COUNTY MUD 158	GULF COAST AQUIFER SYSTEM	233	184	200	200	200	200
FORT BEND COUNTY MUD 162	GULF COAST AQUIFER SYSTEM	266	209	227	226	226	225
FORT BEND COUNTY MUD 187	GULF COAST AQUIFER SYSTEM	304	170	169	168	168	168
FORT BEND COUNTY MUD 187	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	130	130	130	130	130	130
FORT BEND COUNTY MUD 23	GULF COAST AQUIFER SYSTEM	1,319	952	968	984	1,001	1,019
FORT BEND COUNTY MUD 24	GULF COAST AQUIFER SYSTEM	146	115	125	124	124	124
FORT BEND COUNTY MUD 25	GULF COAST AQUIFER SYSTEM	942	532	533	537	546	555
FORT BEND COUNTY MUD 25	GULF COAST AQUIFER SYSTEM	135	76	76	77	78	80
FORT BEND COUNTY MUD 25	DIRECT REUSE	521	521	521	521	521	521
FORT BEND COUNTY MUD 26	GULF COAST AQUIFER SYSTEM	616	481	531	529	529	529
FORT BEND COUNTY MUD 42	GULF COAST AQUIFER SYSTEM	865	678	675	674	673	673
FORT BEND COUNTY MUD 46	GULF COAST AQUIFER SYSTEM	173	66	109	108	108	107
FORT BEND COUNTY MUD 46	GULF COAST AQUIFER SYSTEM	25	10	16	16	16	16

EXISTING WUG SUPPLIES (acre-feet/year)							
WUG	**SOURCE NAME**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
FORT BEND COUNTY MUD 46	BRAZOS RUN-OF-RIVER	747	747	747	747	747	747
FORT BEND COUNTY MUD 47	GULF COAST AQUIFER SYSTEM	55	20	33	32	32	32
FORT BEND COUNTY MUD 47	BRAZOS RUN-OF-RIVER	203	203	203	203	203	203
FORT BEND COUNTY MUD 48	GULF COAST AQUIFER SYSTEM	151	17	16	15	15	15
FORT BEND COUNTY MUD 48	BRAZOS RUN-OF-RIVER	130	130	130	130	130	130
FORT BEND COUNTY MUD 49	GULF COAST AQUIFER SYSTEM	72	26	26	26	25	25
FORT BEND COUNTY MUD 49	BRAZOS RUN-OF-RIVER	62	62	62	62	62	62
FORT BEND COUNTY MUD 5	GULF COAST AQUIFER SYSTEM	262	204	202	201	201	201
FORT BEND COUNTY MUD 81	GULF COAST AQUIFER SYSTEM	1,504	1,595	1,722	1,851	1,980	2,110
FORT BEND COUNTY WCID 2	GULF COAST AQUIFER SYSTEM	975	620	740	860	981	1,110
FORT BEND COUNTY WCID 2	GULF COAST AQUIFER SYSTEM	267	188	107	121	134	149
FORT BEND COUNTY WCID 2	GULF COAST AQUIFER SYSTEM	4,754	3,330	3,811	4,293	4,778	5,295
FORT BEND COUNTY WCID 2	BRAZOS RUN-OF-RIVER	3,253	3,253	3,253	3,253	3,253	3,253
FORT BEND COUNTY WCID 3	GULF COAST AQUIFER SYSTEM	36	26	26	26	26	26
FORT BEND COUNTY WCID 3	GULF COAST AQUIFER SYSTEM	340	240	239	239	239	239
FORT BEND COUNTY WCID 3	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	161	161	161	161	161	161
FREEPORT	GULF COAST AQUIFER SYSTEM	82	82	82	82	82	82
FREEPORT	DIRECT REUSE	17	17	17	17	17	17
FREEPORT	BRAZOS RUN-OF-RIVER	2,240	2,240	2,240	2,240	2,240	2,240
FRIENDSWOOD	GULF COAST AQUIFER SYSTEM	557	577	605	640	682	729
FRIENDSWOOD	GULF COAST AQUIFER SYSTEM	404	481	529	587	640	700
FRIENDSWOOD	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	13,440	13,440	13,440	13,440	13,440	13,440
FULSHEAR	GULF COAST AQUIFER SYSTEM	80	88	121	121	121	121
FULSHEAR	GULF COAST AQUIFER SYSTEM	1,506	1,238	1,248	1,247	1,247	1,246
FULSHEAR	GULF COAST AQUIFER SYSTEM	270	337	344	344	344	344
G & W WSC	GULF COAST AQUIFER SYSTEM	394	520	665	790	790	790
G & W WSC	GULF COAST AQUIFER SYSTEM	55	73	93	111	111	111
GALENA PARK	GULF COAST AQUIFER SYSTEM	84	81	78	77	79	80
GALENA PARK	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	912	912	912	912	912	912
GALVESTON	GULF COAST AQUIFER SYSTEM	1,662	1,742	1,828	1,924	2,016	2,115
GALVESTON	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	3,766	3,766	3,766	3,767	3,766	3,766
GALVESTON	BRAZOS RUN-OF-RIVER	14,466	14,458	14,449	14,438	14,427	14,415
GALVESTON COUNTY FWSD 6	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	65	65	65	65	65	64
GALVESTON COUNTY FWSD 6	BRAZOS RUN-OF-RIVER	253	253	253	253	253	253
GALVESTON COUNTY MUD 12	GULF COAST AQUIFER SYSTEM	27	26	26	25	25	25
GALVESTON COUNTY MUD 12	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	81	80	80	81	81	80
GALVESTON COUNTY MUD 12	BRAZOS RUN-OF-RIVER	318	318	318	317	317	317
GALVESTON COUNTY WCID 1	GULF COAST AQUIFER SYSTEM	297	324	354	387	422	459
GALVESTON COUNTY WCID 1	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	748	748	748	748	747	747
GALVESTON COUNTY WCID 1	DIRECT REUSE	383	383	383	383	383	383
GALVESTON COUNTY WCID 1	BRAZOS RUN-OF-RIVER	1,784	1,782	1,781	1,779	1,778	1,776
GALVESTON COUNTY WCID 12	GULF COAST AQUIFER SYSTEM	187	229	233	238	241	245
GALVESTON COUNTY WCID 12	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	187	188	187	188	187	187
GALVESTON COUNTY WCID 12	BRAZOS RUN-OF-RIVER	736	735	735	734	734	733
GALVESTON COUNTY WCID 8	GULF COAST AQUIFER SYSTEM	61	60	61	62	64	66
GALVESTON COUNTY WCID 8	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	180	179	180	179	180	179
GALVESTON COUNTY WCID 8	DIRECT REUSE	161	161	161	161	161	161
GALVESTON COUNTY WCID 8	BRAZOS RUN-OF-RIVER	705	705	704	704	703	703
GLENDALE WSC	YEGUA-JACKSON AQUIFER	81	81	81	81	81	81
GLENDALE WSC	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	75	75	75	75	75	75
GREEN TRAILS MUD	GULF COAST AQUIFER SYSTEM	630	438	313	314	315	315
GREENWOOD UD	GULF COAST AQUIFER SYSTEM	70	78	77	77	78	79
GREENWOOD UD	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	281	310	308	309	311	314
GROVETON	YEGUA-JACKSON AQUIFER	61	63	61	58	60	63
GROVETON	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	625	625	625	625	625	625
GULF UTILITY	GULF COAST AQUIFER SYSTEM	780	781	783	785	786	787
HARDIN WSC	GULF COAST AQUIFER SYSTEM	497	598	699	804	909	1,010
HARRIS COUNTY FWSD 1-A	GULF COAST AQUIFER SYSTEM	29	30	31	33	34	36

EXISTING WUG SUPPLIES (acre-feet/year)							
WUG	**SOURCE NAME**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
HARRIS COUNTY FWSD 1-A	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	185	185	185	185	185	185
HARRIS COUNTY FWSD 27	GULF COAST AQUIFER SYSTEM	24	25	26	27	29	30
HARRIS COUNTY FWSD 27	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	267	267	267	267	267	267
HARRIS COUNTY FWSD 58	GULF COAST AQUIFER SYSTEM	386	280	202	206	211	216
HARRIS COUNTY MUD 106	GULF COAST AQUIFER SYSTEM	1,428	1,002	723	730	736	740
HARRIS COUNTY MUD 11	GULF COAST AQUIFER SYSTEM	332	232	166	168	170	173
HARRIS COUNTY MUD 11	DIRECT REUSE	32	32	32	32	32	32
HARRIS COUNTY MUD 119	GULF COAST AQUIFER SYSTEM	636	439	313	314	317	320
HARRIS COUNTY MUD 119	DIRECT REUSE	48	48	48	48	48	48
HARRIS COUNTY MUD 122	GULF COAST AQUIFER SYSTEM	29	34	39	39	39	39
HARRIS COUNTY MUD 122	BRAZOS RUN-OF-RIVER	107	107	107	107	107	107
HARRIS COUNTY MUD 132	GULF COAST AQUIFER SYSTEM	1,065	739	526	527	527	528
HARRIS COUNTY MUD 148	GULF COAST AQUIFER SYSTEM	68	69	69	69	69	70
HARRIS COUNTY MUD 148	HOUSTON LAKE/RESERVOIR	215	221	219	219	221	222
HARRIS COUNTY MUD 151	GULF COAST AQUIFER SYSTEM	1,093	762	545	544	545	546
HARRIS COUNTY MUD 152	GULF COAST AQUIFER SYSTEM	1,090	766	551	556	560	563
HARRIS COUNTY MUD 153	GULF COAST AQUIFER SYSTEM	1,315	913	652	651	651	651
HARRIS COUNTY MUD 154	GULF COAST AQUIFER SYSTEM	1,043	723	519	522	527	534
HARRIS COUNTY MUD 158	GULF COAST AQUIFER SYSTEM	477	264	129	127	127	127
HARRIS COUNTY MUD 158	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	204	397	516	509	507	507
HARRIS COUNTY MUD 180	GULF COAST AQUIFER SYSTEM	541	388	278	278	277	277
HARRIS COUNTY MUD 189	GULF COAST AQUIFER SYSTEM	357	252	182	184	187	190
HARRIS COUNTY MUD 216	GULF COAST AQUIFER SYSTEM	154	111	78	78	78	78
HARRIS COUNTY MUD 221	GULF COAST AQUIFER SYSTEM	450	328	235	238	241	244
HARRIS COUNTY MUD 23	GULF COAST AQUIFER SYSTEM	264	156	76	75	74	74
HARRIS COUNTY MUD 23	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	113	234	303	299	298	298
HARRIS COUNTY MUD 278	GULF COAST AQUIFER SYSTEM	1,213	1,000	681	681	680	680
HARRIS COUNTY MUD 278	DIRECT REUSE	9	9	9	9	9	9
HARRIS COUNTY MUD 278	HOUSTON LAKE/RESERVOIR	836	836	906	902	901	900
HARRIS COUNTY MUD 290	GULF COAST AQUIFER SYSTEM	710	510	371	376	379	382
HARRIS COUNTY MUD 321	GULF COAST AQUIFER SYSTEM	216	162	86	92	92	92
HARRIS COUNTY MUD 321	HOUSTON LAKE/RESERVOIR	93	242	346	370	369	369
HARRIS COUNTY MUD 342	GULF COAST AQUIFER SYSTEM	681	723	632	634	634	634
HARRIS COUNTY MUD 342	HOUSTON LAKE/RESERVOIR	0	0	135	128	127	127
HARRIS COUNTY MUD 344	GULF COAST AQUIFER SYSTEM	958	355	0	0	0	0
HARRIS COUNTY MUD 344	HOUSTON LAKE/RESERVOIR	52	751	1,097	1,093	1,091	1,091
HARRIS COUNTY MUD 345	GULF COAST AQUIFER SYSTEM	900	624	445	444	444	444
HARRIS COUNTY MUD 36	GULF COAST AQUIFER SYSTEM	374	272	191	191	191	191
HARRIS COUNTY MUD 361	GULF COAST AQUIFER SYSTEM	435	460	453	449	448	448
HARRIS COUNTY MUD 372	GULF COAST AQUIFER SYSTEM	880	498	247	246	246	246
HARRIS COUNTY MUD 372	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	595	747	989	986	985	985
HARRIS COUNTY MUD 400	GULF COAST AQUIFER SYSTEM	1,246	906	655	667	674	677
HARRIS COUNTY MUD 412	GULF COAST AQUIFER SYSTEM	538	389	281	287	293	300
HARRIS COUNTY MUD 412	HOUSTON LAKE/RESERVOIR	637	637	637	637	637	637
HARRIS COUNTY MUD 420	GULF COAST AQUIFER SYSTEM	28	29	30	29	29	29
HARRIS COUNTY MUD 420	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	110	114	119	118	117	117
HARRIS COUNTY MUD 46	GULF COAST AQUIFER SYSTEM	618	427	304	303	303	303
HARRIS COUNTY MUD 49	GULF COAST AQUIFER SYSTEM	677	479	343	345	347	349
HARRIS COUNTY MUD 49	HOUSTON LAKE/RESERVOIR	361	361	361	367	374	382
HARRIS COUNTY MUD 5	GULF COAST AQUIFER SYSTEM	355	203	104	109	115	123
HARRIS COUNTY MUD 5	HOUSTON LAKE/RESERVOIR	152	305	417	435	462	491
HARRIS COUNTY MUD 50	GULF COAST AQUIFER SYSTEM	79	76	77	78	78	78
HARRIS COUNTY MUD 50	SAN JACINTO RUN-OF-RIVER	560	560	560	560	560	560
HARRIS COUNTY MUD 55	GULF COAST AQUIFER SYSTEM	286	293	297	311	333	365
HARRIS COUNTY MUD 55	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	3,878	3,878	3,878	3,878	3,878	3,878
HARRIS COUNTY MUD 58	GULF COAST AQUIFER SYSTEM	249	179	129	129	129	129
HARRIS COUNTY MUD 6	GULF COAST AQUIFER SYSTEM	344	206	101	100	100	100
HARRIS COUNTY MUD 6	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	208	208	208	208	208	208
HARRIS COUNTY MUD 8	GULF COAST AQUIFER SYSTEM	97	93	89	89	88	88
HARRIS COUNTY MUD 8	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	581	581	581	581	581	581
HARRIS COUNTY MUD 96	GULF COAST AQUIFER SYSTEM	407	237	125	133	141	148

EXISTING WUG SUPPLIES (acre-feet/year)							
WUG	**SOURCE NAME**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
HARRIS COUNTY MUD 96	HOUSTON LAKE/RESERVOIR	175	355	500	533	566	590
HARRIS COUNTY UD 14	GULF COAST AQUIFER SYSTEM	217	162	118	128	139	155
HARRIS COUNTY UD 15	GULF COAST AQUIFER SYSTEM	521	375	275	269	263	256
HARRIS COUNTY WCID 1	GULF COAST AQUIFER SYSTEM	3	3	3	3	4	4
HARRIS COUNTY WCID 1	GULF COAST AQUIFER SYSTEM	71	69	69	71	72	75
HARRIS COUNTY WCID 1	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	784	784	784	784	784	784
HARRIS COUNTY WCID 133	GULF COAST AQUIFER SYSTEM	674	464	335	343	353	365
HARRIS COUNTY WCID 156	GULF COAST AQUIFER SYSTEM	30	32	34	36	38	40
HARRIS COUNTY WCID 156	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	302	324	341	362	381	399
HARRIS COUNTY WCID 50	GULF COAST AQUIFER SYSTEM	37	37	37	37	37	37
HARRIS COUNTY WCID 50	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	336	333	329	331	332	333
HARRIS COUNTY WCID 70	GULF COAST AQUIFER SYSTEM	238	171	121	120	120	120
HARRIS COUNTY WCID 74	GULF COAST AQUIFER SYSTEM	609	415	295	293	292	292
HARRIS COUNTY WCID 89	GULF COAST AQUIFER SYSTEM	103	101	99	100	100	101
HARRIS COUNTY WCID 89	DIRECT REUSE	9	9	9	9	9	9
HARRIS COUNTY WCID 89	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	2,879	2,879	2,879	2,879	2,879	2,879
HARRIS COUNTY WCID 96	GULF COAST AQUIFER SYSTEM	1,159	658	329	329	329	328
HARRIS COUNTY WCID 96	DIRECT REUSE	83	83	83	83	83	83
HARRIS COUNTY WCID 96	HOUSTON LAKE/RESERVOIR	2,464	2,464	2,464	2,464	2,464	2,464
HARRIS COUNTY WCID-FONDREN ROAD	GULF COAST AQUIFER SYSTEM	70	83	96	95	94	94
HARRIS COUNTY WCID-FONDREN ROAD	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	293	332	383	378	378	377
HARRIS-MONTGOMERY COUNTIES MUD 386	GULF COAST AQUIFER SYSTEM	170	170	170	170	170	170
HARRIS-MONTGOMERY COUNTIES MUD 386	CONROE LAKE/RESERVOIR	255	255	255	255	255	255
HEMPSTEAD	GULF COAST AQUIFER SYSTEM	652	745	851	972	1,109	1,146
HEMPSTEAD	GULF COAST AQUIFER SYSTEM	651	744	851	972	1,109	1,146
HILLCREST VILLAGE	GULF COAST AQUIFER SYSTEM	120	117	114	113	113	113
HILLTOP LAKES WSC	QUEEN CITY AQUIFER	57	60	62	66	70	73
HILLTOP LAKES WSC	CARRIZO-WILCOX AQUIFER	192	201	209	222	234	247
HILSHIRE VILLAGE	GULF COAST AQUIFER SYSTEM	137	81	43	48	53	58
HILSHIRE VILLAGE	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	59	122	173	190	210	232
HITCHCOCK	GULF COAST AQUIFER SYSTEM	50	50	50	50	50	50
HITCHCOCK	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	269	270	269	269	269	269
HITCHCOCK	BRAZOS RUN-OF-RIVER	1,058	1,057	1,057	1,056	1,055	1,054
HMW SUD	GULF COAST AQUIFER SYSTEM	405	311	232	251	250	250
HMW SUD	GULF COAST AQUIFER SYSTEM	836	837	840	842	843	844
HOUSTON	GULF COAST AQUIFER SYSTEM	34	20	11	11	12	13
HOUSTON	GULF COAST AQUIFER SYSTEM	3,504	2,077	2,138	2,202	2,265	2,314
HOUSTON	GULF COAST AQUIFER SYSTEM	165,196	116,924	83,124	88,759	95,113	101,937
HOUSTON	GULF COAST AQUIFER SYSTEM	1,261	1,263	1,268	1,272	1,274	1,275
HOUSTON	GULF COAST AQUIFER SYSTEM	2,258	1,338	1,377	1,418	1,459	1,491
HOUSTON	GULF COAST AQUIFER SYSTEM	2,866	3,054	3,239	3,439	3,651	3,874
HOUSTON	INDIRECT REUSE	5,312	5,529	5,783	6,018	6,269	6,400
HOUSTON	SAN JACINTO RUN-OF-RIVER	5,412	5,425	5,452	5,450	5,448	5,450
HOUSTON	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	283,868	283,868	283,868	283,868	283,868	283,868
HOUSTON	HOUSTON LAKE/RESERVOIR	32,552	32,552	32,552	32,552	32,552	32,552
HUMBLE	GULF COAST AQUIFER SYSTEM	1,901	1,276	706	759	801	833
HUMBLE	HOUSTON LAKE/RESERVOIR	814	1,914	2,824	3,034	3,203	3,333
HUNTSVILLE	GULF COAST AQUIFER SYSTEM	2,890	2,923	2,944	2,973	3,002	3,028
HUNTSVILLE	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	19,400	19,400	19,400	19,400	19,400	19,400
IRRIGATION, AUSTIN	GULF COAST AQUIFER	1,111	1,111	1,111	1,111	1,111	1,111
IRRIGATION, AUSTIN	GULF COAST AQUIFER	4,896	4,896	4,896	4,896	4,896	4,896
IRRIGATION, BRAZORIA	GULF COAST AQUIFER SYSTEM	8,189	8,189	8,189	8,189	8,189	8,189
IRRIGATION, BRAZORIA	GULF COAST AQUIFER SYSTEM	1,293	1,293	1,293	1,293	1,293	1,293
IRRIGATION, BRAZORIA	GULF COAST AQUIFER SYSTEM	4,045	4,045	4,045	4,045	4,045	3,962
IRRIGATION, BRAZORIA	BRAZOS RUN-OF-RIVER	2,661	2,661	2,661	2,661	2,661	2,661
IRRIGATION, BRAZORIA	SAN JACINTO-BRAZOS RUN-OF-RIVER	16,670	16,670	16,670	16,670	16,670	16,670
IRRIGATION, CHAMBERS	GULF COAST AQUIFER SYSTEM	320	320	320	320	320	320

EXISTING WUG SUPPLIES (acre-feet/year)							
WUG	**SOURCE NAME**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
IRRIGATION, CHAMBERS	GULF COAST AQUIFER SYSTEM	60	60	60	60	60	60
IRRIGATION, CHAMBERS	GULF COAST AQUIFER SYSTEM	20	20	20	20	20	20
IRRIGATION, CHAMBERS	SAM RAYBURN-STEINHAGEN LAKE/RESERVOIR SYSTEM	37,000	37,000	37,000	37,000	37,000	37,000
IRRIGATION, CHAMBERS	NECHES-TRINITY RUN-OF-RIVER	37,474	37,474	37,474	37,474	37,474	37,474
IRRIGATION, CHAMBERS	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	28,299	28,299	28,299	28,299	28,299	28,299
IRRIGATION, CHAMBERS	TRINITY RUN-OF-RIVER	41,201	41,201	41,201	41,201	41,201	41,201
IRRIGATION, CHAMBERS	TRINITY-SAN JACINTO RUN-OF-RIVER	1,213	1,213	1,213	1,213	1,213	1,213
IRRIGATION, FORT BEND	GULF COAST AQUIFER SYSTEM	307	307	307	307	307	307
IRRIGATION, FORT BEND	GULF COAST AQUIFER SYSTEM	3,113	3,113	3,113	3,113	3,113	3,113
IRRIGATION, FORT BEND	GULF COAST AQUIFER SYSTEM	5,023	5,023	5,023	5,023	5,023	5,023
IRRIGATION, FORT BEND	GULF COAST AQUIFER SYSTEM	10,445	10,445	10,445	10,445	10,445	10,445
IRRIGATION, FORT BEND	SAN JACINTO-BRAZOS RUN-OF-RIVER	165	165	165	165	165	165
IRRIGATION, FORT BEND	BRAZOS RUN-OF-RIVER	12,000	12,000	12,000	12,000	12,000	12,000
IRRIGATION, GALVESTON	GULF COAST AQUIFER SYSTEM	57	57	57	57	57	57
IRRIGATION, GALVESTON	GULF COAST AQUIFER SYSTEM	208	208	208	208	208	208
IRRIGATION, GALVESTON	SAN JACINTO-BRAZOS RUN-OF-RIVER	36	36	36	36	36	36
IRRIGATION, HARRIS	GULF COAST AQUIFER SYSTEM	932	932	932	932	932	932
IRRIGATION, HARRIS	GULF COAST AQUIFER SYSTEM	8,508	8,508	8,508	8,508	8,508	8,508
IRRIGATION, HARRIS	SAN JACINTO-BRAZOS RUN-OF-RIVER	388	388	388	388	388	388
IRRIGATION, HARRIS	SAN JACINTO RUN-OF-RIVER	2,749	2,749	2,749	2,749	2,749	2,749
IRRIGATION, HARRIS	TRINITY-SAN JACINTO RUN-OF-RIVER	2,419	2,419	2,419	2,419	2,419	2,419
IRRIGATION, LEON	TRINITY RUN-OF-RIVER	158	158	158	158	158	158
IRRIGATION, LEON	CARRIZO-WILCOX AQUIFER	205	205	205	205	205	205
IRRIGATION, LEON	CARRIZO-WILCOX AQUIFER	129	129	129	129	129	129
IRRIGATION, LIBERTY	GULF COAST AQUIFER SYSTEM	73	73	73	73	73	73
IRRIGATION, LIBERTY	GULF COAST AQUIFER SYSTEM	37	37	37	37	37	37
IRRIGATION, LIBERTY	GULF COAST AQUIFER SYSTEM	426	426	426	426	426	426
IRRIGATION, LIBERTY	GULF COAST AQUIFER SYSTEM	432	432	432	432	432	432
IRRIGATION, LIBERTY	GULF COAST AQUIFER SYSTEM	73	73	73	73	73	73
IRRIGATION, LIBERTY	SAM RAYBURN-STEINHAGEN LAKE/RESERVOIR SYSTEM	23,000	23,000	23,000	23,000	23,000	23,000
IRRIGATION, LIBERTY	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	11,001	11,001	11,001	11,001	11,001	11,001
IRRIGATION, LIBERTY	TRINITY RUN-OF-RIVER	17,537	17,537	17,537	17,537	17,537	17,537
IRRIGATION, LIBERTY	TRINITY-SAN JACINTO RUN-OF-RIVER	1,904	1,904	1,904	1,904	1,904	1,904
IRRIGATION, MADISON	SPARTA AQUIFER	96	96	96	96	96	96
IRRIGATION, MADISON	SPARTA AQUIFER	2	2	2	2	2	2
IRRIGATION, MADISON	TRINITY RUN-OF-RIVER	169	169	169	169	169	169
IRRIGATION, MADISON	CARRIZO-WILCOX AQUIFER	6	6	6	6	6	6
IRRIGATION, MADISON	CARRIZO-WILCOX AQUIFER	18	18	18	18	18	18
IRRIGATION, MONTGOMERY	GULF COAST AQUIFER SYSTEM	5,352	5,358	5,377	5,391	5,398	5,403
IRRIGATION, MONTGOMERY	SAN JACINTO RUN-OF-RIVER	25	25	25	25	25	25
IRRIGATION, MONTGOMERY	CONROE LAKE/RESERVOIR	943	943	943	943	943	943
IRRIGATION, POLK	GULF COAST AQUIFER SYSTEM	332	332	332	332	332	332
IRRIGATION, SAN JACINTO	GULF COAST AQUIFER SYSTEM	74	74	74	74	74	74
IRRIGATION, SAN JACINTO	GULF COAST AQUIFER SYSTEM	74	74	74	74	74	74
IRRIGATION, SAN JACINTO	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	120	120	120	120	120	120
IRRIGATION, WALKER	GULF COAST AQUIFER SYSTEM	40	40	40	40	40	40
IRRIGATION, WALKER	GULF COAST AQUIFER SYSTEM	240	240	240	240	240	240
IRRIGATION, WALKER	YEGUA-JACKSON AQUIFER	158	158	158	158	158	158
IRRIGATION, WALKER	TRINITY RUN-OF-RIVER	122	122	122	122	122	122
IRRIGATION, WALLER	GULF COAST AQUIFER SYSTEM	14,282	14,282	14,282	14,282	14,282	14,282
IRRIGATION, WALLER	GULF COAST AQUIFER SYSTEM	7,651	7,651	7,651	7,651	7,651	7,651
IRRIGATION, WALLER	BRAZOS RUN-OF-RIVER	43	43	43	43	43	43
IRRIGATION, WALLER	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	50	50	50	50	50	50
JACINTO CITY	GULF COAST AQUIFER SYSTEM	154	148	150	154	159	163
JACINTO CITY	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	1,121	1,121	1,121	1,121	1,121	1,121
JAMAICA BEACH	BRAZOS RUN-OF-RIVER	259	258	258	259	262	265
JERSEY VILLAGE	GULF COAST AQUIFER SYSTEM	1,259	714	359	364	371	379
JERSEY VILLAGE	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	829	1,071	1,436	1,454	1,483	1,518
JEWETT	CARRIZO-WILCOX AQUIFER	274	319	355	407	454	501

EXISTING WUG SUPPLIES (acre-feet/year)							
WUG	**SOURCE NAME**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
JOHNSTON WATER UTILITY	GULF COAST AQUIFER SYSTEM	717	718	720	722	723	724
KATY	GULF COAST AQUIFER SYSTEM	1,665	2,019	2,019	2,020	2,024	2,028
KATY	GULF COAST AQUIFER SYSTEM	3,214	2,293	1,649	1,669	1,688	1,706
KATY	GULF COAST AQUIFER SYSTEM	354	434	527	628	742	866
KENDLETON	GULF COAST AQUIFER SYSTEM	183	225	258	291	324	358
KINGS MANOR MUD	GULF COAST AQUIFER SYSTEM	464	465	467	468	468	469
KIRKMONT MUD	GULF COAST AQUIFER SYSTEM	73	78	83	89	96	104
KIRKMONT MUD	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	291	313	330	357	385	415
LA MARQUE	GULF COAST AQUIFER SYSTEM	336	358	359	362	367	371
LA MARQUE	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	499	498	499	499	499	499
LA MARQUE	BRAZOS RUN-OF-RIVER	1,961	1,960	1,959	1,958	1,956	1,955
LA PORTE	GULF COAST AQUIFER SYSTEM	31	31	31	31	31	31
LA PORTE	GULF COAST AQUIFER SYSTEM	441	436	431	435	439	445
LA PORTE	DIRECT REUSE	773	773	773	773	773	773
LA PORTE	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	6,856	6,856	6,856	6,856	6,856	6,856
LAKE BONANZA WSC	GULF COAST AQUIFER SYSTEM	209	209	210	210	211	211
LAKE CONROE HILLS MUD	GULF COAST AQUIFER SYSTEM	222	222	223	223	223	224
LAKE JACKSON	GULF COAST AQUIFER SYSTEM	2,988	3,012	3,068	3,179	3,347	3,539
LAKE JACKSON	GULF COAST AQUIFER SYSTEM	22	23	22	22	23	26
LAKE JACKSON	BRAZOS RUN-OF-RIVER	2,240	2,240	2,240	2,240	2,240	2,240
LAKE LIVINGSTON WSC	GULF COAST AQUIFER SYSTEM	90	100	111	123	136	148
LAKE LIVINGSTON WSC	GULF COAST AQUIFER SYSTEM	592	659	731	807	888	973
LAKE LIVINGSTON WSC	GULF COAST AQUIFER SYSTEM	185	205	228	252	277	303
LAKE LIVINGSTON WSC	GULF COAST AQUIFER SYSTEM	13	14	16	17	19	21
LAKE LIVINGSTON WSC	GULF COAST AQUIFER SYSTEM	46	51	57	63	66	66
LAKE LIVINGSTON WSC	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	906	906	906	906	906	906
LAKE MUD	GULF COAST AQUIFER SYSTEM	61	64	62	61	61	61
LAKE MUD	GULF COAST AQUIFER SYSTEM	5	5	5	5	4	4
LAKE MUD	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	1,120	1,120	1,120	1,120	1,120	1,120
LAZY RIVER IMPROVEMENT DISTRICT	GULF COAST AQUIFER SYSTEM	211	211	212	212	213	213
LEAGUE CITY	GULF COAST AQUIFER SYSTEM	1,417	1,562	1,677	1,776	1,835	1,877
LEAGUE CITY	GULF COAST AQUIFER SYSTEM	38	43	45	47	49	50
LEAGUE CITY	DIRECT REUSE	645	645	645	645	645	645
LEAGUE CITY	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	457	456	457	457	456	457
LEAGUE CITY	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	24,080	24,080	24,080	24,080	24,080	24,080
LEAGUE CITY	BRAZOS RUN-OF-RIVER	2,914	2,913	2,911	2,911	2,910	2,908
LEGGETT WSC	GULF COAST AQUIFER SYSTEM	334	364	387	409	429	445
LIBERTY	GULF COAST AQUIFER SYSTEM	1,571	1,649	1,728	1,822	1,926	2,028
LIBERTY COUNTY FWSD 1 HULL	GULF COAST AQUIFER SYSTEM	106	117	127	139	150	161
LIVESTOCK, AUSTIN	GULF COAST AQUIFER	426	426	426	426	426	426
LIVESTOCK, AUSTIN	GULF COAST AQUIFER	665	665	665	665	665	665
LIVESTOCK, AUSTIN	GULF COAST AQUIFER	17	17	17	17	17	17
LIVESTOCK, BRAZORIA	GULF COAST AQUIFER SYSTEM	987	987	987	987	987	987
LIVESTOCK, BRAZORIA	GULF COAST AQUIFER SYSTEM	107	107	107	107	107	107
LIVESTOCK, BRAZORIA	GULF COAST AQUIFER SYSTEM	401	401	401	401	401	393
LIVESTOCK, CHAMBERS	GULF COAST AQUIFER SYSTEM	280	280	280	280	280	280
LIVESTOCK, CHAMBERS	GULF COAST AQUIFER SYSTEM	74	74	74	74	74	74
LIVESTOCK, CHAMBERS	GULF COAST AQUIFER SYSTEM	143	143	143	143	143	143
LIVESTOCK, FORT BEND	GULF COAST AQUIFER SYSTEM	55	55	55	55	55	55
LIVESTOCK, FORT BEND	GULF COAST AQUIFER SYSTEM	157	157	157	157	157	157
LIVESTOCK, FORT BEND	GULF COAST AQUIFER SYSTEM	458	458	458	458	458	458
LIVESTOCK, FORT BEND	GULF COAST AQUIFER SYSTEM	162	162	162	162	162	162
LIVESTOCK, GALVESTON	GULF COAST AQUIFER SYSTEM	6	6	6	6	6	6
LIVESTOCK, GALVESTON	GULF COAST AQUIFER SYSTEM	20	20	20	20	20	20
LIVESTOCK, HARRIS	GULF COAST AQUIFER SYSTEM	25	25	25	25	25	25
LIVESTOCK, HARRIS	GULF COAST AQUIFER SYSTEM	894	511	255	255	255	255
LIVESTOCK, LEON	QUEEN CITY AQUIFER	318	318	318	318	318	318
LIVESTOCK, LEON	SPARTA AQUIFER	11	11	11	11	11	11
LIVESTOCK, LEON	CARRIZO-WILCOX AQUIFER	1,861	1,861	1,861	1,861	1,861	1,861
LIVESTOCK, LEON	CARRIZO-WILCOX AQUIFER	714	714	714	714	714	714
LIVESTOCK, LIBERTY	GULF COAST AQUIFER SYSTEM	62	62	62	62	62	62
LIVESTOCK, LIBERTY	GULF COAST AQUIFER SYSTEM	21	21	21	21	21	21

EXISTING WUG SUPPLIES (acre-feet/year)							
WUG	**SOURCE NAME**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
LIVESTOCK, LIBERTY	GULF COAST AQUIFER SYSTEM	267	267	267	267	267	267
LIVESTOCK, LIBERTY	GULF COAST AQUIFER SYSTEM	20	20	20	20	20	20
LIVESTOCK, LIBERTY	GULF COAST AQUIFER SYSTEM	84	84	84	84	84	84
LIVESTOCK, MADISON	SPARTA AQUIFER	341	341	341	341	341	341
LIVESTOCK, MADISON	YEGUA-JACKSON AQUIFER	254	254	254	254	254	254
LIVESTOCK, MADISON	CARRIZO-WILCOX AQUIFER	602	602	602	602	602	602
LIVESTOCK, MADISON	CARRIZO-WILCOX AQUIFER	209	209	209	209	209	209
LIVESTOCK, MONTGOMERY	GULF COAST AQUIFER SYSTEM	520	520	522	523	524	524
LIVESTOCK, POLK	GULF COAST AQUIFER SYSTEM	181	181	181	181	181	181
LIVESTOCK, SAN JACINTO	GULF COAST AQUIFER SYSTEM	207	207	207	207	207	207
LIVESTOCK, SAN JACINTO	GULF COAST AQUIFER SYSTEM	206	206	206	206	206	206
LIVESTOCK, WALKER	GULF COAST AQUIFER SYSTEM	198	198	198	198	198	198
LIVESTOCK, WALKER	GULF COAST AQUIFER SYSTEM	353	353	353	353	353	353
LIVESTOCK, WALKER	QUEEN CITY AQUIFER	101	101	101	101	101	101
LIVESTOCK, WALKER	YEGUA-JACKSON AQUIFER	101	101	101	101	101	101
LIVESTOCK, WALLER	GULF COAST AQUIFER SYSTEM	270	270	270	270	270	270
LIVESTOCK, WALLER	GULF COAST AQUIFER SYSTEM	909	909	909	909	909	909
LIVINGSTON	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	5,600	5,600	5,600	5,600	5,600	5,600
LONGHORN TOWN UD	GULF COAST AQUIFER SYSTEM	354	246	176	176	176	176
LUCE BAYOU PUD	GULF COAST AQUIFER SYSTEM	141	102	73	73	73	73
MADISON COUNTY WSC	QUEEN CITY AQUIFER	7	7	7	8	8	8
MADISON COUNTY WSC	SPARTA AQUIFER	157	164	171	180	190	200
MADISONVILLE	SPARTA AQUIFER	900	941	980	1,033	1,089	1,146
MAGNOLIA	GULF COAST AQUIFER SYSTEM	1,167	1,168	1,172	1,175	1,177	1,178
MANUFACTURING, AUSTIN	GULF COAST AQUIFER	69	74	74	74	74	74
MANUFACTURING, AUSTIN	GULF COAST AQUIFER	37	40	40	40	40	40
MANUFACTURING, BRAZORIA	GULF COAST AQUIFER SYSTEM	848	848	848	848	848	848
MANUFACTURING, BRAZORIA	GULF COAST AQUIFER SYSTEM	108	147	139	130	121	112
MANUFACTURING, BRAZORIA	GULF COAST AQUIFER SYSTEM	2,014	2,014	2,014	2,014	2,014	1,971
MANUFACTURING, BRAZORIA	DIRECT REUSE	3,300	3,300	3,300	3,300	3,300	3,300
MANUFACTURING, BRAZORIA	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	24,525	24,528	24,526	24,525	24,526	24,531
MANUFACTURING, BRAZORIA	BRAZOS RUN-OF-RIVER	145,124	144,792	144,460	144,128	143,796	143,464
MANUFACTURING, BRAZORIA	BRAZOS-COLORADO RUN-OF-RIVER	11,729	11,729	11,729	11,729	11,729	11,729
MANUFACTURING, BRAZORIA	SAN JACINTO-BRAZOS RUN-OF-RIVER	15,070	15,070	15,070	15,070	15,070	15,070
MANUFACTURING, BRAZORIA	BRAZOS RUN-OF-RIVER	17,638	17,630	17,623	17,615	17,608	17,599
MANUFACTURING, CHAMBERS	GULF COAST AQUIFER SYSTEM	1,474	1,474	1,474	1,474	1,474	1,474
MANUFACTURING, CHAMBERS	GULF COAST AQUIFER SYSTEM	972	972	972	972	972	972
MANUFACTURING, CHAMBERS	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	45,168	45,168	45,168	45,168	45,168	45,168
MANUFACTURING, FORT BEND	GULF COAST AQUIFER SYSTEM	146	92	92	92	92	92
MANUFACTURING, FORT BEND	GULF COAST AQUIFER SYSTEM	2,167	1,361	1,361	1,361	1,361	1,361
MANUFACTURING, FORT BEND	GULF COAST AQUIFER SYSTEM	1,469	924	924	924	924	924
MANUFACTURING, FORT BEND	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	622	622	622	622	622	622
MANUFACTURING, FORT BEND	BRAZOS RUN-OF-RIVER	2,227	2,226	2,226	2,225	2,224	2,223
MANUFACTURING, GALVESTON	GULF COAST AQUIFER SYSTEM	301	301	301	301	301	301
MANUFACTURING, GALVESTON	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	10,955	10,954	10,955	10,953	10,955	10,954
MANUFACTURING, GALVESTON	BRAZOS RUN-OF-RIVER	43,710	43,684	43,657	43,634	43,605	43,581
MANUFACTURING, HARRIS	GULF COAST AQUIFER SYSTEM	8,047	9,408	9,408	9,408	9,408	9,408
MANUFACTURING, HARRIS	GULF COAST AQUIFER SYSTEM	16,432	19,175	19,175	19,175	19,175	19,175
MANUFACTURING, HARRIS	GULF COAST AQUIFER SYSTEM	6,906	8,074	8,074	8,074	8,074	8,074
MANUFACTURING, HARRIS	DIRECT REUSE	6,844	6,844	6,844	6,844	6,844	6,844
MANUFACTURING, HARRIS	DIRECT REUSE	303	303	303	303	303	303
MANUFACTURING, HARRIS	INDIRECT REUSE	9,836	9,836	9,836	9,836	9,836	9,836
MANUFACTURING, HARRIS	SAN JACINTO RUN-OF-RIVER	1,558	1,558	1,558	1,558	1,558	1,558
MANUFACTURING, HARRIS	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	252,968	252,968	252,968	252,968	252,968	252,968
MANUFACTURING, HARRIS	TRINITY RUN-OF-RIVER	26,510	26,510	26,510	26,510	26,510	26,510
MANUFACTURING, HARRIS	TRINITY RUN-OF-RIVER	17,610	17,610	17,610	17,610	17,610	17,610
MANUFACTURING, HARRIS	TRINITY RUN-OF-RIVER	31,546	31,546	31,546	31,546	31,546	31,546
MANUFACTURING, HARRIS	HOUSTON LAKE/RESERVOIR	59,050	57,450	55,950	54,650	54,650	54,650
MANUFACTURING, LEON	DIRECT REUSE	58	58	58	58	58	58
MANUFACTURING, LEON	CARRIZO-WILCOX AQUIFER	846	868	868	868	868	868
MANUFACTURING, LIBERTY	GULF COAST AQUIFER SYSTEM	180	212	212	212	212	212
MANUFACTURING, LIBERTY	GULF COAST AQUIFER SYSTEM	53	63	63	63	63	63
MANUFACTURING, LIBERTY	GULF COAST AQUIFER SYSTEM	12	14	14	14	14	14

EXISTING WUG SUPPLIES (acre-feet/year)							
WUG	**SOURCE NAME**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
MANUFACTURING, MONTGOMERY	GULF COAST AQUIFER SYSTEM	1,783	1,785	1,791	1,796	1,798	1,800
MANUFACTURING, SAN JACINTO	GULF COAST AQUIFER SYSTEM	9	10	10	10	10	10
MANUFACTURING, WALKER	GULF COAST AQUIFER SYSTEM	138	168	168	168	168	168
MANUFACTURING, WALKER	GULF COAST AQUIFER SYSTEM	29	36	36	36	36	36
MANUFACTURING, WALKER	YEGUA-JACKSON AQUIFER	82	99	99	99	99	99
MANUFACTURING, WALKER	TRINITY RUN-OF-RIVER	337	337	337	337	337	337
MANUFACTURING, WALLER	GULF COAST AQUIFER SYSTEM	69	70	70	70	70	70
MANUFACTURING, WALLER	GULF COAST AQUIFER SYSTEM	65	66	66	66	66	66
MANUFACTURING, WALLER	DIRECT REUSE	16	16	16	16	16	16
MANVEL	GULF COAST AQUIFER SYSTEM	130	208	279	359	455	573
MASON CREEK UD	GULF COAST AQUIFER SYSTEM	1,447	996	710	710	709	709
MEADOWCREEK MUD	GULF COAST AQUIFER SYSTEM	394	308	306	306	305	305
MEADOWS PLACE	GULF COAST AQUIFER SYSTEM	715	497	496	498	503	509
MEADOWS PLACE	GULF COAST AQUIFER SYSTEM	64	44	44	44	45	45
MEADOWS PLACE	DIRECT REUSE	26	26	26	26	26	26
MEMORIAL POINT UD	GULF COAST AQUIFER SYSTEM	182	198	211	223	233	242
MEMORIAL POINT UD	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	10	10	10	10	10	10
MEMORIAL VILLAGES WATER AUTHORITY	GULF COAST AQUIFER SYSTEM	1,120	1,208	1,306	1,414	1,533	1,664
MEMORIAL VILLAGES WATER AUTHORITY	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	2,283	2,283	2,283	2,283	2,283	2,283
MERCY WSC	GULF COAST AQUIFER SYSTEM	21	22	23	25	26	27
MERCY WSC	GULF COAST AQUIFER SYSTEM	168	177	184	195	206	216
MINING, AUSTIN	GULF COAST AQUIFER	97	97	97	97	97	69
MINING, AUSTIN	GULF COAST AQUIFER	28	28	28	28	28	20
MINING, AUSTIN	GULF COAST AQUIFER	2	2	2	2	2	1
MINING, BRAZORIA	GULF COAST AQUIFER SYSTEM	581	581	581	581	581	581
MINING, BRAZORIA	GULF COAST AQUIFER SYSTEM	135	135	135	135	135	135
MINING, BRAZORIA	GULF COAST AQUIFER SYSTEM	252	252	252	252	252	247
MINING, CHAMBERS	GULF COAST AQUIFER SYSTEM	3,316	3,316	3,316	3,316	3,316	3,316
MINING, CHAMBERS	GULF COAST AQUIFER SYSTEM	1,925	1,925	1,925	1,925	1,925	1,925
MINING, CHAMBERS	GULF COAST AQUIFER SYSTEM	380	380	380	380	380	380
MINING, FORT BEND	GULF COAST AQUIFER SYSTEM	11	6	5	4	2	2
MINING, FORT BEND	GULF COAST AQUIFER SYSTEM	41	42	32	24	16	11
MINING, FORT BEND	GULF COAST AQUIFER SYSTEM	16	17	13	9	6	4
MINING, FORT BEND	BRAZOS RUN-OF-RIVER	378	378	378	378	378	378
MINING, GALVESTON	GULF COAST AQUIFER SYSTEM	8	8	9	10	11	11
MINING, GALVESTON	GULF COAST AQUIFER SYSTEM	30	32	36	39	41	44
MINING, HARRIS	GULF COAST AQUIFER SYSTEM	16	16	16	16	16	16
MINING, HARRIS	GULF COAST AQUIFER SYSTEM	291	289	284	281	279	277
MINING, HARRIS	GULF COAST AQUIFER SYSTEM	20	20	19	19	19	19
MINING, LEON	CARRIZO-WILCOX AQUIFER	1,681	1,681	1,454	1,071	689	444
MINING, LEON	CARRIZO-WILCOX AQUIFER	721	721	623	459	296	190
MINING, LIBERTY	GULF COAST AQUIFER SYSTEM	52	52	52	52	52	52
MINING, LIBERTY	GULF COAST AQUIFER SYSTEM	22	22	22	22	22	22
MINING, LIBERTY	GULF COAST AQUIFER SYSTEM	258	258	258	258	258	258
MINING, LIBERTY	GULF COAST AQUIFER SYSTEM	26	26	26	26	26	26
MINING, LIBERTY	GULF COAST AQUIFER SYSTEM	79	79	79	79	79	79
MINING, MADISON	CARRIZO-WILCOX AQUIFER	597	597	597	538	323	194
MINING, MONTGOMERY	GULF COAST AQUIFER SYSTEM	1,406	1,320	1,047	897	786	711
MINING, POLK	GULF COAST AQUIFER SYSTEM	92	66	40	14	0	0
MINING, POLK	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	32	32	32	32	32	32
MINING, SAN JACINTO	GULF COAST AQUIFER SYSTEM	2	2	2	2	2	2
MINING, SAN JACINTO	GULF COAST AQUIFER SYSTEM	6	6	7	7	7	7
MINING, WALKER	GULF COAST AQUIFER SYSTEM	11	11	11	11	11	11
MINING, WALLER	GULF COAST AQUIFER SYSTEM	3	3	3	3	3	3
MINING, WALLER	GULF COAST AQUIFER SYSTEM	4	4	4	4	4	4
MISSOURI CITY	GULF COAST AQUIFER SYSTEM	149	56	83	112	141	173
MISSOURI CITY	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	109	45	45	45	45	45
MONT BELVIEU	GULF COAST AQUIFER SYSTEM	2,699	3,428	3,629	3,629	3,629	3,629
MONTGOMERY	GULF COAST AQUIFER SYSTEM	611	611	613	615	616	616
MONTGOMERY	GULF COAST AQUIFER	230	230	230	230	230	230
MONTGOMERY COUNTY MUD 112	GULF COAST AQUIFER SYSTEM	276	276	277	278	278	278
MONTGOMERY COUNTY MUD 115	GULF COAST AQUIFER SYSTEM	206	206	206	206	206	206
MONTGOMERY COUNTY MUD 119	GULF COAST AQUIFER SYSTEM	760	761	764	766	767	768
MONTGOMERY COUNTY MUD 15	GULF COAST AQUIFER SYSTEM	477	459	453	474	495	515
MONTGOMERY COUNTY MUD 18	GULF COAST AQUIFER SYSTEM	1,213	1,215	1,219	1,222	1,224	1,225

EXISTING WUG SUPPLIES (acre-feet/year)							
WUG	**SOURCE NAME**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
MONTGOMERY COUNTY MUD 18	GULF COAST AQUIFER	1,335	1,335	1,335	1,335	1,335	1,335
MONTGOMERY COUNTY MUD 19	GULF COAST AQUIFER SYSTEM	455	455	457	458	459	459
MONTGOMERY COUNTY MUD 56	GULF COAST AQUIFER SYSTEM	151	151	144	84	84	84
MONTGOMERY COUNTY MUD 8	GULF COAST AQUIFER SYSTEM	690	691	693	695	696	696
MONTGOMERY COUNTY MUD 8	GULF COAST AQUIFER	691	691	691	691	691	691
MONTGOMERY COUNTY MUD 83	GULF COAST AQUIFER SYSTEM	394	509	506	506	506	507
MONTGOMERY COUNTY MUD 84	GULF COAST AQUIFER SYSTEM	391	277	282	284	285	285
MONTGOMERY COUNTY MUD 88	GULF COAST AQUIFER SYSTEM	84	106	132	131	131	131
MONTGOMERY COUNTY MUD 89	GULF COAST AQUIFER SYSTEM	659	638	614	617	618	619
MONTGOMERY COUNTY MUD 9	GULF COAST AQUIFER SYSTEM	567	568	570	571	572	572
MONTGOMERY COUNTY MUD 9	GULF COAST AQUIFER	307	307	307	307	307	307
MONTGOMERY COUNTY MUD 95	GULF COAST AQUIFER SYSTEM	130	148	156	137	117	97
MONTGOMERY COUNTY MUD 98	GULF COAST AQUIFER SYSTEM	227	227	227	227	227	227
MONTGOMERY COUNTY MUD 99	GULF COAST AQUIFER SYSTEM	39	39	40	41	41	41
MONTGOMERY COUNTY MUD 99	CONROE LAKE/RESERVOIR	140	140	140	140	140	140
MONTGOMERY COUNTY UD 2	GULF COAST AQUIFER SYSTEM	334	334	335	336	337	337
MONTGOMERY COUNTY UD 3	GULF COAST AQUIFER SYSTEM	297	297	298	299	300	300
MONTGOMERY COUNTY UD 3	GULF COAST AQUIFER SYSTEM	553	502	503	468	404	344
MONTGOMERY COUNTY UD 4	GULF COAST AQUIFER SYSTEM	288	289	290	290	291	291
MONTGOMERY COUNTY UD 4	GULF COAST AQUIFER	521	572	571	606	670	730
MONTGOMERY COUNTY WCID 1	GULF COAST AQUIFER SYSTEM	81	81	82	82	82	82
MONTGOMERY COUNTY WCID 1	CONROE LAKE/RESERVOIR	212	212	212	212	212	212
MORGANS POINT	GULF COAST AQUIFER SYSTEM	2	2	3	3	3	3
MORGANS POINT	GULF COAST AQUIFER SYSTEM	14	15	15	16	17	18
MORGANS POINT	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	616	616	616	616	616	616
MOUNT HOUSTON ROAD MUD	GULF COAST AQUIFER SYSTEM	626	491	359	373	384	392
MSEC ENTERPRISES	GULF COAST AQUIFER SYSTEM	2,829	2,832	2,842	2,849	2,853	2,856
MSEC ENTERPRISES	CONROE LAKE/RESERVOIR	1,553	1,553	1,553	1,553	1,553	1,553
NASSAU BAY	GULF COAST AQUIFER SYSTEM	104	104	104	106	107	108
NASSAU BAY	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	2,184	2,184	2,184	2,184	2,184	2,184
NEEDVILLE	GULF COAST AQUIFER SYSTEM	136	133	130	131	135	142
NEEDVILLE	GULF COAST AQUIFER SYSTEM	165	160	158	158	164	172
NEW CANEY MUD	GULF COAST AQUIFER SYSTEM	796	797	800	802	803	804
NEW WAVERLY	GULF COAST AQUIFER SYSTEM	190	193	194	197	201	204
NEWPORT MUD	GULF COAST AQUIFER SYSTEM	713	412	209	212	216	221
NEWPORT MUD	SAN JACINTO RUN-OF-RIVER	896	896	896	896	896	896
NORMANGEE	CARRIZO-WILCOX AQUIFER	107	112	115	122	129	135
NORMANGEE	CARRIZO-WILCOX AQUIFER	13	14	14	15	16	17
NORTH BELT UD	GULF COAST AQUIFER SYSTEM	515	356	256	258	260	264
NORTH CHANNEL WATER AUTHORITY	GULF COAST AQUIFER SYSTEM	2,043	2,041	2,047	2,072	2,117	2,158
NORTH CHANNEL WATER AUTHORITY	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	8,891	8,891	8,891	8,891	8,891	8,891
NORTH FOREST MUD	GULF COAST AQUIFER SYSTEM	199	139	99	99	99	99
NORTH FORT BEND WATER AUTHORITY	GULF COAST AQUIFER SYSTEM	22,651	17,768	21,579	23,784	24,960	25,561
NORTH FORT BEND WATER AUTHORITY	GULF COAST AQUIFER SYSTEM	1,331	758	380	381	383	384
NORTH FORT BEND WATER AUTHORITY	GULF COAST AQUIFER SYSTEM	14,509	10,526	13,634	15,433	16,392	16,882
NORTH FORT BEND WATER AUTHORITY	GULF COAST AQUIFER SYSTEM	1,387	1,050	1,313	1,465	1,547	1,588
NORTH FORT BEND WATER AUTHORITY	DIRECT REUSE	2,014	2,014	2,014	2,014	2,014	2,014
NORTH FORT BEND WATER AUTHORITY	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	21,840	21,840	21,840	21,840	21,840	21,840
NORTH GREEN MUD	GULF COAST AQUIFER SYSTEM	495	342	244	244	245	247
NORTH GREEN MUD	DIRECT REUSE	8	8	8	8	8	8
NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY	GULF COAST AQUIFER SYSTEM	83,592	49,185	24,456	25,408	26,346	27,234
NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY	DIRECT REUSE	772	772	772	772	772	772
NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY	HOUSTON LAKE/RESERVOIR	34,720	34,720	34,720	34,720	34,720	34,720
NORTH ZULCH MUD	SPARTA AQUIFER	193	201	209	219	232	244
NORTH ZULCH MUD	SPARTA AQUIFER	4	4	4	5	5	5
NORTHWEST HARRIS COUNTY MUD 16	GULF COAST AQUIFER SYSTEM	494	356	250	250	249	249

EXISTING WUG SUPPLIES (acre-feet/year)							
WUG	**SOURCE NAME**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
OAK HOLLOW UTILITY	GULF COAST AQUIFER SYSTEM	206	240	282	328	381	439
OAK RIDGE NORTH	GULF COAST AQUIFER SYSTEM	207	207	208	209	209	209
OAK RIDGE NORTH	CONROE LAKE/RESERVOIR	361	361	361	361	361	361
ONALASKA WSC	GULF COAST AQUIFER SYSTEM	364	443	504	557	605	644
ONE FIVE O WSC	GULF COAST AQUIFER SYSTEM	296	313	327	348	366	384
OYSTER CREEK	GULF COAST AQUIFER SYSTEM	110	110	111	117	125	136
OYSTER CREEK	BRAZOS RUN-OF-RIVER	148	148	148	148	148	148
P B & S C WSC	GULF COAST AQUIFER SYSTEM	251	268	282	300	317	332
PALMER PLANTATION MUD 1	GULF COAST AQUIFER SYSTEM	517	406	405	404	404	403
PALMER PLANTATION MUD 2	GULF COAST AQUIFER SYSTEM	377	261	260	259	259	259
PANORAMA VILLAGE	DIRECT REUSE	43	43	43	43	43	43
PANORAMA VILLAGE	GULF COAST AQUIFER	470	470	470	470	470	470
PARKWAY MUD	GULF COAST AQUIFER SYSTEM	104	106	104	103	103	104
PARKWAY MUD	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	416	422	415	413	414	417
PASADENA	GULF COAST AQUIFER SYSTEM	3,374	3,378	3,387	3,440	3,522	3,615
PASADENA	GULF COAST AQUIFER SYSTEM	497	497	499	506	518	532
PASADENA	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	42,278	42,278	42,278	42,278	42,278	42,278
PATTISON WSC	GULF COAST AQUIFER SYSTEM	132	155	183	213	248	285
PATTISON WSC	GULF COAST AQUIFER SYSTEM	131	155	182	213	247	285
PEARLAND	GULF COAST AQUIFER SYSTEM	4,419	5,168	6,292	7,570	9,024	10,445
PEARLAND	GULF COAST AQUIFER SYSTEM	434	538	644	729	788	832
PEARLAND	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	17,920	17,920	17,920	17,920	17,920	17,920
PECAN GROVE MUD 1	GULF COAST AQUIFER SYSTEM	13	7	7	7	7	7
PECAN GROVE MUD 1	GULF COAST AQUIFER SYSTEM	1,591	885	866	866	867	869
PECAN GROVE MUD 1	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	4,253	4,253	4,253	4,253	4,253	4,253
PECAN GROVE MUD 1	BRAZOS RUN-OF-RIVER	1,781	1,780	1,780	1,779	1,777	1,776
PHELPS SUD	GULF COAST AQUIFER SYSTEM	219	218	217	218	221	223
PINE VILLAGE PUD	GULF COAST AQUIFER SYSTEM	231	165	119	121	124	127
PINE VILLAGE PUD	HOUSTON LAKE/RESERVOIR	0	76	131	141	150	161
PINEHURST DECKER PRAIRIE WSC	GULF COAST AQUIFER SYSTEM	83	83	84	84	84	84
PINEWOOD COMMUNITY	GULF COAST AQUIFER SYSTEM	113	81	57	57	57	57
PLANTATION MUD	GULF COAST AQUIFER SYSTEM	430	294	288	285	284	284
PLANTATION MUD	DIRECT REUSE	6	6	6	6	6	6
POINT AQUARIUS MUD	GULF COAST AQUIFER SYSTEM	404	405	406	407	408	408
POINT AQUARIUS MUD	GULF COAST AQUIFER	552	552	552	552	552	552
PORTER SUD	GULF COAST AQUIFER SYSTEM	550	429	378	386	389	390
PORTER SUD	INDIRECT REUSE	1,120	1,120	1,120	1,120	1,120	1,120
PRAIRIE VIEW	GULF COAST AQUIFER SYSTEM	431	573	732	907	1,103	1,316
PRAIRIE VIEW	GULF COAST AQUIFER SYSTEM	375	500	638	791	962	1,148
PRAIRIE VIEW A&M UNIVERSITY	GULF COAST AQUIFER SYSTEM	21	21	21	21	21	21
PRAIRIE VIEW A&M UNIVERSITY	GULF COAST AQUIFER SYSTEM	195	195	195	195	195	195
PROVIDENCE WSC	GULF COAST AQUIFER SYSTEM	157	165	173	184	193	201
QUADVEST	GULF COAST AQUIFER SYSTEM	171	140	107	122	139	158
QUADVEST	GULF COAST AQUIFER SYSTEM	4,710	4,715	4,731	4,744	4,750	4,755
QUADVEST	GULF COAST AQUIFER SYSTEM	150	194	247	310	387	470
QUADVEST	GULF COAST AQUIFER SYSTEM	369	302	354	416	492	574
QUADVEST	GULF COAST AQUIFER SYSTEM	26	34	43	54	68	82
QUAIL VALLEY UD	GULF COAST AQUIFER SYSTEM	2,421	1,896	2,098	2,094	2,092	2,091
QUAIL VALLEY UD	DIRECT REUSE	634	634	634	634	634	634
RANCH UTILITIES	GULF COAST AQUIFER SYSTEM	140	140	141	141	141	142
RAYFORD ROAD MUD	GULF COAST AQUIFER SYSTEM	540	540	542	544	544	545
RAYFORD ROAD MUD	CONROE LAKE/RESERVOIR	862	862	862	862	862	862
RICHMOND	GULF COAST AQUIFER SYSTEM	1,393	770	792	837	890	944
RICHMOND	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	1,601	1,601	1,601	1,601	1,601	1,601
RICHMOND	DIRECT REUSE	263	263	263	263	263	263
RICHWOOD	GULF COAST AQUIFER SYSTEM	128	128	131	139	155	173
RICHWOOD	BRAZOS RUN-OF-RIVER	263	263	263	263	263	263
RIVER PLANTATION MUD	GULF COAST AQUIFER SYSTEM	544	543	505	464	413	399
RIVER PLANTATION MUD	DIRECT REUSE	256	256	256	256	256	256
RIVERSIDE WSC	GULF COAST AQUIFER SYSTEM	26	30	32	34	36	38
RIVERSIDE WSC	YEGUA-JACKSON AQUIFER	257	289	313	336	353	368
RIVERSIDE WSC	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	85	85	85	85	85	85
ROLLING FORK PUD	GULF COAST AQUIFER SYSTEM	321	180	89	88	88	88

EXISTING WUG SUPPLIES (acre-feet/year)							
WUG	**SOURCE NAME**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
ROLLING FORK PUD	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	189	189	189	189	189	189
ROMAN FOREST CONSOLIDATED MUD	GULF COAST AQUIFER SYSTEM	233	233	234	235	235	235
ROSENBERG	GULF COAST AQUIFER SYSTEM	2,739	1,373	1,440	1,526	1,645	1,793
ROSENBERG	DIRECT REUSE	426	426	426	426	426	426
ROSENBERG	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0
ROSENBERG	BRAZOS RUN-OF-RIVER	6,384	6,384	6,384	6,384	6,384	6,384
ROYAL VALLEY UTILITIES	GULF COAST AQUIFER SYSTEM	641	508	554	553	553	553
SAGEMEADOW UD	GULF COAST AQUIFER SYSTEM	143	148	155	166	177	189
SAGEMEADOW UD	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	898	876	859	832	804	774
SAN JACINTO SUD	GULF COAST AQUIFER SYSTEM	250	261	268	285	300	314
SAN JACINTO SUD	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	280	280	280	280	280	280
SAN LEON MUD	GULF COAST AQUIFER SYSTEM	1	1	1	1	1	1
SAN LEON MUD	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	321	321	321	321	321	320
SAN LEON MUD	BRAZOS RUN-OF-RIVER	1,258	1,258	1,257	1,256	1,255	1,255
SEABROOK	GULF COAST AQUIFER SYSTEM	179	180	179	182	185	189
SEABROOK	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	1,680	1,680	1,680	1,680	1,680	1,680
SEALY	GULF COAST AQUIFER	689	757	834	930	1,041	1,165
SEALY	GULF COAST AQUIFER	691	759	836	933	1,044	1,169
SEDONA LAKES MUD 1	GULF COAST AQUIFER SYSTEM	174	194	214	238	265	296
SEQUOIA IMPROVEMENT DISTRICT	GULF COAST AQUIFER SYSTEM	163	118	85	85	85	85
SHENANDOAH	GULF COAST AQUIFER SYSTEM	1,125	1,126	1,130	1,133	1,135	1,136
SHEPHERD	GULF COAST AQUIFER SYSTEM	313	332	348	369	389	407
SHOREACRES	GULF COAST AQUIFER SYSTEM	33	32	32	33	33	34
SHOREACRES	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	364	364	364	364	364	364
SIENNA PLANTATION	GULF COAST AQUIFER SYSTEM	1,313	587	1,275	1,963	2,651	3,288
SIENNA PLANTATION	GULF COAST AQUIFER SYSTEM	484	217	470	724	977	1,212
SIENNA PLANTATION	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	513	583	589	596	602	608
SIENNA PLANTATION	DIRECT REUSE	12	12	12	12	12	12
SIENNA PLANTATION	BRAZOS RUN-OF-RIVER	7,802	7,732	7,726	7,719	7,713	7,707
SODA WSC	GULF COAST AQUIFER SYSTEM	174	185	194	203	212	220
SOUTH CLEVELAND WSC	GULF COAST AQUIFER SYSTEM	215	232	250	271	293	315
SOUTH HOUSTON	GULF COAST AQUIFER SYSTEM	384	382	382	388	400	413
SOUTH HOUSTON	DIRECT REUSE	54	54	54	54	54	54
SOUTH HOUSTON	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	4,139	4,139	4,139	4,139	4,139	4,139
SOUTHEAST WSC	CARRIZO-WILCOX AQUIFER	263	273	281	298	314	330
SOUTHEAST WSC	CARRIZO-WILCOX AQUIFER	4	4	4	4	4	5
SOUTHERN MONTGOMERY COUNTY MUD	GULF COAST AQUIFER SYSTEM	356	356	358	359	359	359
SOUTHERN MONTGOMERY COUNTY MUD	DIRECT REUSE	144	144	144	144	144	144
SOUTHERN MONTGOMERY COUNTY MUD	CONROE LAKE/RESERVOIR	976	976	976	976	976	976
SOUTHERN WATER	GULF COAST AQUIFER SYSTEM	460	330	232	231	231	231
SOUTHSIDE PLACE	GULF COAST AQUIFER SYSTEM	68	66	65	64	66	71
SOUTHSIDE PLACE	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	273	264	258	255	262	282
SOUTHWEST HARRIS COUNTY MUD 1	GULF COAST AQUIFER SYSTEM	28	33	32	32	32	32
SOUTHWEST HARRIS COUNTY MUD 1	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	147	147	147	147	147	147
SPLENDORA	GULF COAST AQUIFER SYSTEM	728	728	731	733	734	734
SPRING CREEK UD	GULF COAST AQUIFER SYSTEM	921	922	925	928	929	930
SPRING MEADOWS MUD	GULF COAST AQUIFER SYSTEM	62	64	62	61	61	61
SPRING MEADOWS MUD	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	246	255	249	245	244	244
SPRING VALLEY	GULF COAST AQUIFER SYSTEM	1,047	761	552	568	587	608
SPRING VALLEY	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	488	488	638	704	780	863
STANLEY LAKE MUD	GULF COAST AQUIFER SYSTEM	477	478	479	480	481	482
STANLEY LAKE MUD	GULF COAST AQUIFER	537	537	537	537	537	537

EXISTING WUG SUPPLIES (acre-feet/year)							
WUG	**SOURCE NAME**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
STEAM ELECTRIC POWER, CHAMBERS	GULF COAST AQUIFER SYSTEM	120	120	120	120	120	120
STEAM ELECTRIC POWER, CHAMBERS	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	1,190	1,190	1,190	1,190	1,190	1,190
STEAM ELECTRIC POWER, FORT BEND	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	83,000	83,000	83,000	83,000	83,000	83,000
STEAM ELECTRIC POWER, FORT BEND	BRAZOS RUN-OF-RIVER	41,743	41,719	41,695	41,670	41,646	41,622
STEAM ELECTRIC POWER, HARRIS	GULF COAST AQUIFER SYSTEM	2,881	2,881	2,881	2,881	2,881	2,881
STEAM ELECTRIC POWER, HARRIS	GULF COAST AQUIFER SYSTEM	19	19	19	19	19	19
STEAM ELECTRIC POWER, HARRIS	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	15,120	15,120	15,120	15,120	15,120	15,120
STEAM ELECTRIC POWER, HARRIS	HOUSTON LAKE/RESERVOIR	4,849	4,849	4,849	4,849	4,849	4,849
STEAM ELECTRIC POWER, MONTGOMERY	GULF COAST AQUIFER SYSTEM	4,464	4,469	4,485	4,496	4,502	4,506
STEAM ELECTRIC POWER, MONTGOMERY	CONROE LAKE/RESERVOIR	7,841	7,841	7,841	7,841	7,841	7,841
SUBURBAN UTILITY	GULF COAST AQUIFER SYSTEM	340	234	167	166	166	166
SUGAR LAND	GULF COAST AQUIFER SYSTEM	693	393	392	392	392	393
SUGAR LAND	GULF COAST AQUIFER SYSTEM	6,972	4,277	4,368	4,435	4,480	4,529
SUGAR LAND	GULF COAST AQUIFER SYSTEM	14,422	8,456	9,001	9,590	10,123	10,480
SUGAR LAND	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0
SUGAR LAND	DIRECT REUSE	108	108	108	108	108	108
SUGAR LAND	SAN JACINTO-BRAZOS RUN-OF-RIVER	5,478	5,478	5,478	5,478	5,478	5,478
SUGAR LAND	BRAZOS RUN-OF-RIVER	11,165	11,165	11,165	11,165	11,165	11,165
SUNBELT FWSD	GULF COAST AQUIFER SYSTEM	2,837	1,985	1,421	1,441	1,472	1,509
SUNBELT FWSD	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	861	861	1,429	1,509	1,634	1,779
SURFSIDE BEACH	GULF COAST AQUIFER SYSTEM	202	202	202	202	202	202
SWEENY	GULF COAST AQUIFER SYSTEM	524	510	498	493	494	497
T & W WATER SERVICE	GULF COAST AQUIFER SYSTEM	357	445	543	660	804	977
T & W WATER SERVICE	GULF COAST AQUIFER SYSTEM	1,504	1,505	1,510	1,514	1,516	1,518
TARKINGTON SUD	GULF COAST AQUIFER SYSTEM	424	481	538	599	660	720
TDCJ JESTER UNITS	GULF COAST AQUIFER SYSTEM	804	561	559	559	559	559
TDCJ JESTER UNITS	GULF COAST AQUIFER SYSTEM	539	376	376	376	375	375
TDCJ RAMSEY AREA	GULF COAST AQUIFER SYSTEM	1,573	1,566	1,561	1,559	1,558	1,558
TDCJ RAMSEY AREA	BRAZOS RUN-OF-RIVER	1,008	1,008	1,008	1,008	1,008	1,008
TEMPE WSC 1	GULF COAST AQUIFER SYSTEM	206	220	231	242	253	263
TEXAS CITY	GULF COAST AQUIFER SYSTEM	708	752	790	827	867	904
TEXAS CITY	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	2,065	2,065	2,065	2,065	2,065	2,065
TEXAS CITY	BRAZOS RUN-OF-RIVER	7,505	7,501	7,496	7,491	7,486	7,481
THE COMMONS WATER SUPPLY	GULF COAST AQUIFER SYSTEM	403	288	207	209	211	212
THE WOODLANDS	GULF COAST AQUIFER SYSTEM	3,872	2,822	2,066	2,122	2,165	2,197
THE WOODLANDS	GULF COAST AQUIFER SYSTEM	10,133	10,144	10,180	10,207	10,221	10,231
THE WOODLANDS	DIRECT REUSE	1,314	1,314	1,314	1,314	1,314	1,314
THE WOODLANDS	INDIRECT REUSE	144	144	144	144	144	144
THE WOODLANDS	SAN JACINTO RUN-OF-RIVER	116	116	116	116	116	116
THE WOODLANDS	CONROE LAKE/RESERVOIR	14,591	14,591	14,591	14,591	14,591	14,591
THUNDERBIRD UD	GULF COAST AQUIFER SYSTEM	1,215	952	948	947	946	946
TOMBALL	GULF COAST AQUIFER SYSTEM	3,210	2,301	1,658	1,682	1,706	1,728
TRAIL OF THE LAKES MUD	GULF COAST AQUIFER SYSTEM	1,043	739	526	526	527	529
TRAIL OF THE LAKES MUD	DIRECT REUSE	9	9	9	9	9	9
TRINITY	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	1,196	1,196	1,196	1,196	1,196	1,196
TRINITY BAY CONSERVATION DISTRICT	SAM RAYBURN-STEINHAGEN LAKE/RESERVOIR SYSTEM	737	737	737	737	737	737
TRINITY BAY CONSERVATION DISTRICT	TRINITY RUN-OF-RIVER	921	921	921	921	921	921
TRINITY RURAL WSC	YEGUA-JACKSON AQUIFER	126	153	150	134	151	174
TRINITY RURAL WSC	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	375	375	375	375	375	375
VALLEY RANCH MUD 1	GULF COAST AQUIFER SYSTEM	211	264	325	322	321	321
VARNER CREEK UD	GULF COAST AQUIFER SYSTEM	210	204	198	198	198	198
WALKER COUNTY RURAL SUD	GULF COAST AQUIFER SYSTEM	370	382	390	400	410	420
WALKER COUNTY RURAL SUD	GULF COAST AQUIFER SYSTEM	278	286	292	300	308	314
WALKER COUNTY RURAL SUD	YEGUA-JACKSON AQUIFER	364	376	383	393	404	413
WALLER	GULF COAST AQUIFER SYSTEM	59	34	17	18	19	20

EXISTING WUG SUPPLIES (acre-feet/year)							
WUG	**SOURCE NAME**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
WALLER	GULF COAST AQUIFER SYSTEM	356	379	407	440	479	523
WALLIS	GULF COAST AQUIFER	160	164	170	180	192	207
WATERWOOD MUD 1	GULF COAST AQUIFER SYSTEM	123	133	142	152	160	168
WATERWOOD MUD 1	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	336	336	336	336	336	336
WEBSTER	GULF COAST AQUIFER SYSTEM	378	406	426	446	460	471
WEBSTER	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	9,011	9,011	9,011	9,011	9,011	9,011
WEST COLUMBIA	GULF COAST AQUIFER SYSTEM	440	421	406	407	408	411
WEST END WSC	GULF COAST AQUIFER	349	382	411	448	491	539
WEST END WSC	GULF COAST AQUIFER	33	36	39	43	47	52
WEST HARRIS COUNTY MUD 6	GULF COAST AQUIFER SYSTEM	366	264	189	191	192	194
WEST HARRIS COUNTY REGIONAL WATER AUTHORITY	GULF COAST AQUIFER SYSTEM	483	65	61	61	64	69
WEST HARRIS COUNTY REGIONAL WATER AUTHORITY	GULF COAST AQUIFER SYSTEM	46,211	25,859	12,120	13,015	13,329	13,621
WEST HARRIS COUNTY REGIONAL WATER AUTHORITY	DIRECT REUSE	734	734	734	734	734	734
WEST HARRIS COUNTY REGIONAL WATER AUTHORITY	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	31,976	31,976	31,976	31,976	31,976	31,976
WEST UNIVERSITY PLACE	GULF COAST AQUIFER SYSTEM	585	614	650	693	745	803
WEST UNIVERSITY PLACE	DIRECT REUSE	9	9	9	9	9	9
WEST UNIVERSITY PLACE	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	2,341	2,458	2,598	2,772	2,982	3,213
WESTWOOD NORTH WSC	GULF COAST AQUIFER SYSTEM	445	446	447	448	449	449
WESTWOOD SHORES MUD	LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	495	495	495	495	495	495
WHITE OAK UTILITIES	GULF COAST AQUIFER SYSTEM	160	160	160	161	161	161
WHITE OAK UTILITIES	GULF COAST AQUIFER SYSTEM	6	8	7	7	7	7
WHITE OAK WSC	GULF COAST AQUIFER SYSTEM	99	99	99	99	100	100
WILLIS	GULF COAST AQUIFER SYSTEM	875	876	879	881	882	883
WILLIS	GULF COAST AQUIFER	1,596	1,596	1,596	1,596	1,596	1,596
WOOD BRANCH VILLAGE	GULF COAST AQUIFER SYSTEM	106	107	107	107	107	107
WOODCREEK MUD	GULF COAST AQUIFER SYSTEM	392	271	194	193	194	194
WOODCREEK WATER OF LIBERTY	GULF COAST AQUIFER SYSTEM	283	283	283	283	283	283

Total Existing WUG Supplies (Region H)	***2,752,916***	***2,609,097***	***2,540,915***	***2,563,787***	***2,587,424***	***2,610,289***

EXISTING WUG SUPPLIES (acre-feet/year)						
WUG	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
ALVIN	4,725	4,947	5,241	5,668	6,267	7,064
ANAHUAC	1,105	1,105	1,105	1,105	1,105	1,105
ANGLETON	2,200	2,200	2,200	2,200	2,200	2,200
AUSTIN COUNTY WSC	248	278	312	355	405	461
BACLIFF MUD	1,126	1,126	1,125	1,124	1,124	1,123
BAKER ROAD MUD	278	201	141	141	141	141
BAYBROOK MUD 1	2,041	2,042	2,045	2,047	2,049	2,051
BAYTOWN	13,072	13,046	13,043	13,049	13,063	13,079
BAYVIEW MUD	359	359	360	360	360	361
BELLAIRE	4,200	4,467	4,780	5,155	5,598	6,088
BELLVILLE	1,126	1,191	1,264	1,359	1,470	1,594
BLUE BELL MANOR UTILITY	623	440	318	325	332	339
BLUE RIDGE WEST MUD	1,238	862	858	855	854	854
BOLIVAR PENINSULA SUD	6,000	6,000	6,000	6,000	6,000	6,000
BRAZORIA	353	353	353	353	353	353
BRAZORIA COUNTY MUD 2	1,666	1,658	1,655	1,653	1,653	1,654
BRAZORIA COUNTY MUD 21	646	669	719	769	819	853
BRAZORIA COUNTY MUD 25	417	459	502	554	618	689
BRAZORIA COUNTY MUD 29	456	716	920	920	920	920
BRAZORIA COUNTY MUD 3	664	655	657	663	671	685
BRAZORIA COUNTY MUD 31	409	459	537	608	675	717
BRAZORIA COUNTY MUD 6	1,268	1,258	1,257	1,258	1,260	1,266
BROOKSHIRE MWD	602	710	837	981	1,146	1,326
BUFFALO	386	387	387	393	401	410
BUNKER HILL VILLAGE	1,662	1,773	1,898	2,040	2,200	2,375
CAPE ROYALE UD	270	293	311	332	351	368
CENTERVILLE	203	212	219	232	246	258
CENTRAL HARRIS COUNTY REGIONAL WATER AUTHORITY	6,138	4,656	3,561	3,611	3,663	3,721
CHAMBERS COUNTY MUD 1	260	295	333	377	431	488
CHATEAU WOODS MUD	259	329	322	320	320	320
CHIMNEY HILL MUD	618	605	594	592	599	609
CLEAR BROOK CITY MUD	3,149	3,146	3,179	3,202	3,223	3,244
CLEAR LAKE CITY WATER AUTHORITY	19,872	19,869	19,933	19,984	20,039	20,099
CLEVELAND	1,569	1,557	1,550	1,555	1,573	1,593
CLUTE	1,484	1,483	1,494	1,526	1,579	1,640
CONCORD-ROBBINS WSC	342	337	334	346	358	371
CONROE	14,237	14,242	14,260	14,273	14,280	14,284
CORINTHIAN POINT MUD 2	382	382	383	384	384	384
COUNTRY TERRACE WATER	171	172	174	175	177	179
COUNTY-OTHER, AUSTIN	2,054	2,173	2,176	2,180	2,184	2,186
COUNTY-OTHER, BRAZORIA	15,250	17,826	18,032	18,244	18,330	18,330
COUNTY-OTHER, CHAMBERS	2,532	2,759	3,003	3,272	3,565	3,877
COUNTY-OTHER, FORT BEND	9,669	7,721	9,034	10,499	11,829	13,104
COUNTY-OTHER, GALVESTON	130	116	108	100	92	85
COUNTY-OTHER, HARRIS	15,809	13,476	10,568	10,670	11,445	12,182
COUNTY-OTHER, LEON	256	233	207	198	183	167
COUNTY-OTHER, LIBERTY	4,661	4,875	5,073	5,324	5,614	5,886
COUNTY-OTHER, MADISON	1,310	1,370	1,428	1,507	1,588	1,672
COUNTY-OTHER, MONTGOMERY	19,337	19,357	19,425	19,473	19,499	19,520
COUNTY-OTHER, POLK	1,552	1,605	1,628	1,638	1,634	1,606
COUNTY-OTHER, SAN JACINTO	1,454	1,554	1,628	1,724	1,804	1,871
COUNTY-OTHER, WALKER	5,496	5,496	5,496	5,496	5,496	5,496
COUNTY-OTHER, WALLER	2,164	2,164	2,164	2,164	2,164	2,164
CROSBY MUD	1,049	1,050	1,051	1,052	1,054	1,055
CUT & SHOOT	354	354	356	357	357	357
DAISETTA	128	138	148	160	173	186
DANBURY	176	169	162	159	159	159
DAYTON	2,393	3,051	3,684	4,329	4,957	5,558
DEER PARK	4,370	4,378	4,384	4,396	4,519	4,655
DEVERS	172	190	209	228	247	265

EXISTING WUG SUPPLIES (acre-feet/year)						
WUG	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
DOBBIN PLANTERSVILLE WSC	534	558	576	597	614	630
DODGE OAKHURST WSC	194	201	207	217	226	234
DOMESTIC WATER	165	166	166	167	167	167
DOUGLAS UTILITY	234	159	113	113	113	113
EAST PLANTATION UD	258	260	300	344	396	410
EL DORADO UD	405	281	201	202	203	203
FAR HILLS UD	535	535	536	537	538	538
FIRST COLONY MUD 9	1,772	1,279	1,274	1,271	1,271	1,270
FLO COMMUNITY WSC	392	444	498	553	615	677
FOREST HILLS MUD	382	281	209	208	208	208
FORT BEND COUNTY FWSD 1	82	65	71	76	82	88
FORT BEND COUNTY FWSD 2	226	177	192	207	223	239
FORT BEND COUNTY MUD 115	898	666	666	665	665	665
FORT BEND COUNTY MUD 116	917	689	760	816	871	927
FORT BEND COUNTY MUD 121	464	323	322	321	321	321
FORT BEND COUNTY MUD 128	1,285	990	988	987	986	986
FORT BEND COUNTY MUD 129	748	398	397	396	396	396
FORT BEND COUNTY MUD 140	503	350	348	348	347	347
FORT BEND COUNTY MUD 149	129	87	100	100	100	99
FORT BEND COUNTY MUD 152	152	121	132	131	131	131
FORT BEND COUNTY MUD 155	369	292	317	317	317	316
FORT BEND COUNTY MUD 158	233	184	200	200	200	200
FORT BEND COUNTY MUD 162	266	209	227	226	226	225
FORT BEND COUNTY MUD 187	434	300	299	298	298	298
FORT BEND COUNTY MUD 23	1,319	952	968	984	1,001	1,019
FORT BEND COUNTY MUD 24	146	115	125	124	124	124
FORT BEND COUNTY MUD 25	1,598	1,129	1,130	1,135	1,145	1,156
FORT BEND COUNTY MUD 26	616	481	531	529	529	529
FORT BEND COUNTY MUD 42	865	678	675	674	673	673
FORT BEND COUNTY MUD 46	945	823	872	871	871	870
FORT BEND COUNTY MUD 47	258	223	236	235	235	235
FORT BEND COUNTY MUD 48	281	147	146	145	145	145
FORT BEND COUNTY MUD 49	134	88	88	88	87	87
FORT BEND COUNTY MUD 5	262	204	202	201	201	201
FORT BEND COUNTY MUD 81	1,504	1,595	1,722	1,851	1,980	2,110
FORT BEND COUNTY WCID 2	9,249	7,391	7,911	8,527	9,146	9,807
FORT BEND COUNTY WCID 3	537	427	426	426	426	426
FREEPORT	2,339	2,339	2,339	2,339	2,339	2,339
FRIENDSWOOD	14,401	14,498	14,574	14,667	14,762	14,869
FULSHEAR	1,856	1,663	1,713	1,712	1,712	1,711
G & W WSC	449	593	758	901	901	901
GALENA PARK	996	993	990	989	991	992
GALVESTON	19,894	19,966	20,043	20,129	20,209	20,296
GALVESTON COUNTY FWSD 6	318	318	318	318	318	317
GALVESTON COUNTY MUD 12	426	424	424	423	423	422
GALVESTON COUNTY WCID 1	3,212	3,237	3,266	3,297	3,330	3,365
GALVESTON COUNTY WCID 12	1,110	1,152	1,155	1,160	1,162	1,165
GALVESTON COUNTY WCID 8	1,107	1,105	1,106	1,106	1,108	1,109
GLENDALE WSC	156	156	156	156	156	156
GREEN TRAILS MUD	630	438	313	314	315	315
GREENWOOD UD	351	388	385	386	389	393
GROVETON	686	688	686	683	685	688
GULF UTILITY	780	781	783	785	786	787
HARDIN WSC	497	598	699	804	909	1,010
HARRIS COUNTY FWSD 1-A	214	215	216	218	219	221
HARRIS COUNTY FWSD 27	291	292	293	294	296	297
HARRIS COUNTY FWSD 58	386	280	202	206	211	216
HARRIS COUNTY MUD 106	1,428	1,002	723	730	736	740
HARRIS COUNTY MUD 11	364	264	198	200	202	205
HARRIS COUNTY MUD 119	684	487	361	362	365	368

EXISTING WUG SUPPLIES (acre-feet/year)						
WUG	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
HARRIS COUNTY MUD 122	136	141	146	146	146	146
HARRIS COUNTY MUD 132	1,065	739	526	527	527	528
HARRIS COUNTY MUD 148	283	290	288	288	290	292
HARRIS COUNTY MUD 151	1,093	762	545	544	545	546
HARRIS COUNTY MUD 152	1,090	766	551	556	560	563
HARRIS COUNTY MUD 153	1,315	913	652	651	651	651
HARRIS COUNTY MUD 154	1,043	723	519	522	527	534
HARRIS COUNTY MUD 158	681	661	645	636	634	634
HARRIS COUNTY MUD 180	541	388	278	278	277	277
HARRIS COUNTY MUD 189	357	252	182	184	187	190
HARRIS COUNTY MUD 216	154	111	78	78	78	78
HARRIS COUNTY MUD 221	450	328	235	238	241	244
HARRIS COUNTY MUD 23	377	390	379	374	372	372
HARRIS COUNTY MUD 278	2,058	1,845	1,596	1,592	1,590	1,589
HARRIS COUNTY MUD 290	710	510	371	376	379	382
HARRIS COUNTY MUD 321	309	404	432	462	461	461
HARRIS COUNTY MUD 342	681	723	767	762	761	761
HARRIS COUNTY MUD 344	1,010	1,106	1,097	1,093	1,091	1,091
HARRIS COUNTY MUD 345	900	624	445	444	444	444
HARRIS COUNTY MUD 36	374	272	191	191	191	191
HARRIS COUNTY MUD 361	435	460	453	449	448	448
HARRIS COUNTY MUD 372	1,475	1,245	1,236	1,232	1,231	1,231
HARRIS COUNTY MUD 400	1,246	906	655	667	674	677
HARRIS COUNTY MUD 412	1,175	1,026	918	924	930	937
HARRIS COUNTY MUD 420	138	143	149	147	146	146
HARRIS COUNTY MUD 46	618	427	304	303	303	303
HARRIS COUNTY MUD 49	1,038	840	704	712	721	731
HARRIS COUNTY MUD 5	507	508	521	544	577	614
HARRIS COUNTY MUD 50	639	636	637	638	638	638
HARRIS COUNTY MUD 55	4,164	4,171	4,175	4,189	4,211	4,243
HARRIS COUNTY MUD 58	249	179	129	129	129	129
HARRIS COUNTY MUD 6	552	414	309	308	308	308
HARRIS COUNTY MUD 8	678	674	670	670	669	669
HARRIS COUNTY MUD 96	582	592	625	666	707	738
HARRIS COUNTY UD 14	217	162	118	128	139	155
HARRIS COUNTY UD 15	521	375	275	269	263	256
HARRIS COUNTY WCID 1	858	856	856	858	860	863
HARRIS COUNTY WCID 133	674	464	335	343	353	365
HARRIS COUNTY WCID 156	332	356	375	398	419	439
HARRIS COUNTY WCID 50	373	370	366	368	369	370
HARRIS COUNTY WCID 70	238	171	121	120	120	120
HARRIS COUNTY WCID 74	609	415	295	293	292	292
HARRIS COUNTY WCID 89	2,991	2,989	2,987	2,988	2,988	2,989
HARRIS COUNTY WCID 96	3,706	3,205	2,876	2,876	2,876	2,875
HARRIS COUNTY WCID-FONDREN ROAD	363	415	479	473	472	471
HARRIS-MONTGOMERY COUNTIES MUD 386	425	425	425	425	425	425
HEMPSTEAD	1,303	1,489	1,702	1,944	2,218	2,292
HILLCREST VILLAGE	120	117	114	113	113	113
HILLTOP LAKES WSC	249	261	271	288	304	320
HILSHIRE VILLAGE	196	203	216	238	263	290
HITCHCOCK	1,377	1,377	1,376	1,375	1,374	1,373
HMW SUD	1,241	1,148	1,072	1,093	1,093	1,094
HOUSTON	502,263	452,050	418,812	424,989	431,911	439,174
HUMBLE	2,715	3,190	3,530	3,793	4,004	4,166
HUNTSVILLE	22,290	22,323	22,344	22,373	22,402	22,428
IRRIGATION, AUSTIN	6,007	6,007	6,007	6,007	6,007	6,007
IRRIGATION, BRAZORIA	32,858	32,858	32,858	32,858	32,858	32,775
IRRIGATION, CHAMBERS	145,587	145,587	145,587	145,587	145,587	145,587
IRRIGATION, FORT BEND	31,053	31,053	31,053	31,053	31,053	31,053
IRRIGATION, GALVESTON	301	301	301	301	301	301

EXISTING WUG SUPPLIES (acre-feet/year)						
WUG	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
IRRIGATION, HARRIS	14,996	14,996	14,996	14,996	14,996	14,996
IRRIGATION, LEON	492	492	492	492	492	492
IRRIGATION, LIBERTY	54,483	54,483	54,483	54,483	54,483	54,483
IRRIGATION, MADISON	291	291	291	291	291	291
IRRIGATION, MONTGOMERY	6,320	6,326	6,345	6,359	6,366	6,371
IRRIGATION, POLK	332	332	332	332	332	332
IRRIGATION, SAN JACINTO	268	268	268	268	268	268
IRRIGATION, WALKER	560	560	560	560	560	560
IRRIGATION, WALLER	22,026	22,026	22,026	22,026	22,026	22,026
JACINTO CITY	1,275	1,269	1,271	1,275	1,280	1,284
JAMAICA BEACH	259	258	258	259	262	265
JERSEY VILLAGE	2,088	1,785	1,795	1,818	1,854	1,897
JEWETT	274	319	355	407	454	501
JOHNSTON WATER UTILITY	717	718	720	722	723	724
KATY	5,233	4,746	4,195	4,317	4,454	4,600
KENDLETON	183	225	258	291	324	358
KINGS MANOR MUD	464	465	467	468	468	469
KIRKMONT MUD	364	391	413	446	481	519
LA MARQUE	2,796	2,816	2,817	2,819	2,822	2,825
LA PORTE	8,101	8,096	8,091	8,095	8,099	8,105
LAKE BONANZA WSC	209	209	210	210	211	211
LAKE CONROE HILLS MUD	222	222	223	223	223	224
LAKE JACKSON	5,250	5,275	5,330	5,441	5,610	5,805
LAKE LIVINGSTON WSC	1,832	1,935	2,049	2,168	2,292	2,417
LAKE MUD	1,186	1,189	1,187	1,186	1,185	1,185
LAZY RIVER IMPROVEMENT DISTRICT	211	211	212	212	213	213
LEAGUE CITY	29,551	29,699	29,815	29,916	29,975	30,017
LEGGETT WSC	334	364	387	409	429	445
LIBERTY	1,571	1,649	1,728	1,822	1,926	2,028
LIBERTY COUNTY FWSD 1 HULL	106	117	127	139	150	161
LIVESTOCK, AUSTIN	1,108	1,108	1,108	1,108	1,108	1,108
LIVESTOCK, BRAZORIA	1,495	1,495	1,495	1,495	1,495	1,487
LIVESTOCK, CHAMBERS	497	497	497	497	497	497
LIVESTOCK, FORT BEND	832	832	832	832	832	832
LIVESTOCK, GALVESTON	26	26	26	26	26	26
LIVESTOCK, HARRIS	919	536	280	280	280	280
LIVESTOCK, LEON	2,904	2,904	2,904	2,904	2,904	2,904
LIVESTOCK, LIBERTY	454	454	454	454	454	454
LIVESTOCK, MADISON	1,406	1,406	1,406	1,406	1,406	1,406
LIVESTOCK, MONTGOMERY	520	520	522	523	524	524
LIVESTOCK, POLK	181	181	181	181	181	181
LIVESTOCK, SAN JACINTO	413	413	413	413	413	413
LIVESTOCK, WALKER	753	753	753	753	753	753
LIVESTOCK, WALLER	1,179	1,179	1,179	1,179	1,179	1,179
LIVINGSTON	5,600	5,600	5,600	5,600	5,600	5,600
LONGHORN TOWN UD	354	246	176	176	176	176
LUCE BAYOU PUD	141	102	73	73	73	73
MADISON COUNTY WSC	164	171	178	188	198	208
MADISONVILLE	900	941	980	1,033	1,089	1,146
MAGNOLIA	1,167	1,168	1,172	1,175	1,177	1,178
MANUFACTURING, AUSTIN	106	114	114	114	114	114
MANUFACTURING, BRAZORIA	220,356	220,058	219,709	219,359	219,012	218,624
MANUFACTURING, CHAMBERS	47,614	47,614	47,614	47,614	47,614	47,614
MANUFACTURING, FORT BEND	6,631	5,225	5,225	5,224	5,223	5,222
MANUFACTURING, GALVESTON	54,966	54,939	54,913	54,888	54,861	54,836
MANUFACTURING, HARRIS	437,610	441,282	439,782	438,482	438,482	438,482
MANUFACTURING, LEON	904	926	926	926	926	926
MANUFACTURING, LIBERTY	245	289	289	289	289	289
MANUFACTURING, MONTGOMERY	1,783	1,785	1,791	1,796	1,798	1,800
MANUFACTURING, SAN JACINTO	9	10	10	10	10	10

EXISTING WUG SUPPLIES (acre-feet/year)						
WUG	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
MANUFACTURING, WALKER	586	640	640	640	640	640
MANUFACTURING, WALLER	150	152	152	152	152	152
MANVEL	130	208	279	359	455	573
MASON CREEK UD	1,447	996	710	710	709	709
MEADOWCREEK MUD	394	308	306	306	305	305
MEADOWS PLACE	805	567	566	568	574	580
MEMORIAL POINT UD	192	208	221	233	243	252
MEMORIAL VILLAGES WATER AUTHORITY	3,403	3,491	3,589	3,697	3,816	3,947
MERCY WSC	189	199	207	220	232	243
MINING, AUSTIN	127	127	127	127	127	90
MINING, BRAZORIA	968	968	968	968	968	963
MINING, CHAMBERS	5,621	5,621	5,621	5,621	5,621	5,621
MINING, FORT BEND	446	443	428	415	402	395
MINING, GALVESTON	38	40	45	49	52	55
MINING, HARRIS	327	325	319	316	314	312
MINING, LEON	2,402	2,402	2,077	1,530	985	634
MINING, LIBERTY	437	437	437	437	437	437
MINING, MADISON	597	597	597	538	323	194
MINING, MONTGOMERY	1,406	1,320	1,047	897	786	711
MINING, POLK	124	98	72	46	32	32
MINING, SAN JACINTO	8	8	9	9	9	9
MINING, WALKER	11	11	11	11	11	11
MINING, WALLER	7	7	7	7	7	7
MISSOURI CITY	258	101	128	157	186	218
MONT BELVIEU	2,699	3,428	3,629	3,629	3,629	3,629
MONTGOMERY	841	841	843	845	846	846
MONTGOMERY COUNTY MUD 112	276	276	277	278	278	278
MONTGOMERY COUNTY MUD 115	206	206	206	206	206	206
MONTGOMERY COUNTY MUD 119	760	761	764	766	767	768
MONTGOMERY COUNTY MUD 15	477	459	453	474	495	515
MONTGOMERY COUNTY MUD 18	2,548	2,550	2,554	2,557	2,559	2,560
MONTGOMERY COUNTY MUD 19	455	455	457	458	459	459
MONTGOMERY COUNTY MUD 56	151	151	144	84	84	84
MONTGOMERY COUNTY MUD 8	1,381	1,382	1,384	1,386	1,387	1,387
MONTGOMERY COUNTY MUD 83	394	509	506	506	506	507
MONTGOMERY COUNTY MUD 84	391	277	282	284	285	285
MONTGOMERY COUNTY MUD 88	84	106	132	131	131	131
MONTGOMERY COUNTY MUD 89	659	638	614	617	618	619
MONTGOMERY COUNTY MUD 9	874	875	877	878	879	879
MONTGOMERY COUNTY MUD 95	130	148	156	137	117	97
MONTGOMERY COUNTY MUD 98	227	227	227	227	227	227
MONTGOMERY COUNTY MUD 99	179	179	180	181	181	181
MONTGOMERY COUNTY UD 2	334	334	335	336	337	337
MONTGOMERY COUNTY UD 3	850	799	801	767	704	644
MONTGOMERY COUNTY UD 4	809	861	861	896	961	1,021
MONTGOMERY COUNTY WCID 1	293	293	294	294	294	294
MORGANS POINT	632	633	634	635	636	637
MOUNT HOUSTON ROAD MUD	626	491	359	373	384	392
MSEC ENTERPRISES	4,382	4,385	4,395	4,402	4,406	4,409
NASSAU BAY	2,288	2,288	2,288	2,290	2,291	2,292
NEEDVILLE	301	293	288	289	299	314
NEW CANEY MUD	796	797	800	802	803	804
NEW WAVERLY	190	193	194	197	201	204
NEWPORT MUD	1,609	1,308	1,105	1,108	1,112	1,117
NORMANGEE	120	126	129	137	145	152
NORTH BELT UD	515	356	256	258	260	264
NORTH CHANNEL WATER AUTHORITY	10,934	10,932	10,938	10,963	11,008	11,049
NORTH FOREST MUD	199	139	99	99	99	99
NORTH FORT BEND WATER AUTHORITY	63,732	53,956	60,760	64,917	67,136	68,269
NORTH GREEN MUD	503	350	252	252	253	255

EXISTING WUG SUPPLIES (acre-feet/year)						
WUG	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY	119,084	84,677	59,948	60,900	61,838	62,726
NORTH ZULCH MUD	197	205	213	224	237	249
NORTHWEST HARRIS COUNTY MUD 16	494	356	250	250	249	249
OAK HOLLOW UTILITY	206	240	282	328	381	439
OAK RIDGE NORTH	568	568	569	570	570	570
ONALASKA WSC	364	443	504	557	605	644
ONE FIVE O WSC	296	313	327	348	366	384
OYSTER CREEK	258	258	259	265	273	284
P B & S C WSC	251	268	282	300	317	332
PALMER PLANTATION MUD 1	517	406	405	404	404	403
PALMER PLANTATION MUD 2	377	261	260	259	259	259
PANORAMA VILLAGE	513	513	513	513	513	513
PARKWAY MUD	520	528	519	516	517	521
PASADENA	46,149	46,153	46,164	46,224	46,318	46,425
PATTISON WSC	263	310	365	426	495	570
PEARLAND	22,773	23,626	24,856	26,219	27,732	29,197
PECAN GROVE MUD 1	7,638	6,925	6,906	6,905	6,904	6,905
PHELPS SUD	219	218	217	218	221	223
PINE VILLAGE PUD	231	241	250	262	274	288
PINEHURST DECKER PRAIRIE WSC	83	83	84	84	84	84
PINEWOOD COMMUNITY	113	81	57	57	57	57
PLANTATION MUD	436	300	294	291	290	290
POINT AQUARIUS MUD	956	957	958	959	960	960
PORTER SUD	1,670	1,549	1,498	1,506	1,509	1,510
PRAIRIE VIEW	806	1,073	1,370	1,698	2,065	2,464
PRAIRIE VIEW A&M UNIVERSITY	216	216	216	216	216	216
PROVIDENCE WSC	157	165	173	184	193	201
QUADVEST	5,426	5,385	5,482	5,646	5,836	6,039
QUAIL VALLEY UD	3,055	2,530	2,732	2,728	2,726	2,725
RANCH UTILITIES	140	140	141	141	141	142
RAYFORD ROAD MUD	1,402	1,402	1,404	1,406	1,406	1,407
RICHMOND	3,257	2,634	2,656	2,701	2,754	2,808
RICHWOOD	391	391	394	402	418	436
RIVER PLANTATION MUD	800	799	761	720	669	655
RIVERSIDE WSC	368	404	430	455	474	491
ROLLING FORK PUD	510	369	278	277	277	277
ROMAN FOREST CONSOLIDATED MUD	233	233	234	235	235	235
ROSENBERG	9,549	8,183	8,250	8,336	8,455	8,603
ROYAL VALLEY UTILITIES	641	508	554	553	553	553
SAGEMEADOW UD	1,041	1,024	1,014	998	981	963
SAN JACINTO SUD	530	541	548	565	580	594
SAN LEON MUD	1,580	1,580	1,579	1,578	1,577	1,576
SEABROOK	1,859	1,860	1,859	1,862	1,865	1,869
SEALY	1,380	1,516	1,670	1,863	2,085	2,334
SEDONA LAKES MUD 1	174	194	214	238	265	296
SEQUOIA IMPROVEMENT DISTRICT	163	118	85	85	85	85
SHENANDOAH	1,125	1,126	1,130	1,133	1,135	1,136
SHEPHERD	313	332	348	369	389	407
SHOREACRES	397	396	396	397	397	398
SIENNA PLANTATION	10,124	9,131	10,072	11,014	11,955	12,827
SODA WSC	174	185	194	203	212	220
SOUTH CLEVELAND WSC	215	232	250	271	293	315
SOUTH HOUSTON	4,577	4,575	4,575	4,581	4,593	4,606
SOUTHEAST WSC	267	277	285	302	318	335
SOUTHERN MONTGOMERY COUNTY MUD	1,476	1,476	1,478	1,479	1,479	1,479
SOUTHERN WATER	460	330	232	231	231	231
SOUTHSIDE PLACE	341	330	323	319	328	353
SOUTHWEST HARRIS COUNTY MUD 1	175	180	179	179	179	179
SPLENDORA	728	728	731	733	734	734
SPRING CREEK UD	921	922	925	928	929	930

EXISTING WUG SUPPLIES (acre-feet/year)						
WUG	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
SPRING MEADOWS MUD	308	319	311	306	305	305
SPRING VALLEY	1,535	1,249	1,190	1,272	1,367	1,471
STANLEY LAKE MUD	1,014	1,015	1,016	1,017	1,018	1,019
STEAM ELECTRIC POWER, CHAMBERS	1,310	1,310	1,310	1,310	1,310	1,310
STEAM ELECTRIC POWER, FORT BEND	124,743	124,719	124,695	124,670	124,646	124,622
STEAM ELECTRIC POWER, HARRIS	22,869	22,869	22,869	22,869	22,869	22,869
STEAM ELECTRIC POWER, MONTGOMERY	12,305	12,310	12,326	12,337	12,343	12,347
SUBURBAN UTILITY	340	234	167	166	166	166
SUGAR LAND	38,838	29,877	30,512	31,168	31,746	32,153
SUNBELT FWSD	3,698	2,846	2,850	2,950	3,106	3,288
SURFSIDE BEACH	202	202	202	202	202	202
SWEENY	524	510	498	493	494	497
T & W WATER SERVICE	1,861	1,950	2,053	2,174	2,320	2,495
TARKINGTON SUD	424	481	538	599	660	720
TDCJ JESTER UNITS	1,343	937	935	935	934	934
TDCJ RAMSEY AREA	2,581	2,574	2,569	2,567	2,566	2,566
TEMPE WSC 1	206	220	231	242	253	263
TEXAS CITY	10,278	10,318	10,351	10,383	10,418	10,450
THE COMMONS WATER SUPPLY	403	288	207	209	211	212
THE WOODLANDS	30,170	29,131	28,411	28,494	28,551	28,593
THUNDERBIRD UD	1,215	952	948	947	946	946
TOMBALL	3,210	2,301	1,658	1,682	1,706	1,728
TRAIL OF THE LAKES MUD	1,052	748	535	535	536	538
TRINITY	1,196	1,196	1,196	1,196	1,196	1,196
TRINITY BAY CONSERVATION DISTRICT	1,658	1,658	1,658	1,658	1,658	1,658
TRINITY RURAL WSC	501	528	525	509	526	549
VALLEY RANCH MUD 1	211	264	325	322	321	321
VARNER CREEK UD	210	204	198	198	198	198
WALKER COUNTY RURAL SUD	1,012	1,044	1,065	1,093	1,122	1,147
WALLER	415	413	424	458	498	543
WALLIS	160	164	170	180	192	207
WATERWOOD MUD 1	459	469	478	488	496	504
WEBSTER	9,389	9,417	9,437	9,457	9,471	9,482
WEST COLUMBIA	440	421	406	407	408	411
WEST END WSC	382	418	450	491	538	591
WEST HARRIS COUNTY MUD 6	366	264	189	191	192	194
WEST HARRIS COUNTY REGIONAL WATER AUTHORITY	79,404	58,634	44,891	45,786	46,103	46,400
WEST UNIVERSITY PLACE	2,935	3,081	3,257	3,474	3,736	4,025
WESTWOOD NORTH WSC	445	446	447	448	449	449
WESTWOOD SHORES MUD	495	495	495	495	495	495
WHITE OAK UTILITIES	166	168	167	168	168	168
WHITE OAK WSC	99	99	99	99	100	100
WILLIS	2,471	2,472	2,475	2,477	2,478	2,479
WOOD BRANCH VILLAGE	106	107	107	107	107	107
WOODCREEK MUD	392	271	194	193	194	194
WOODCREEK WATER OF LIBERTY	283	283	283	283	283	283

Total Existing WUG Supplies (Region H)	***2,752,916***	***2,609,097***	***2,540,915***	***2,563,787***	***2,587,424***	***2,610,289***

REGION H
Water Planning Group

REGION H WATER PLANNING GROUP
Senate Bill 1 - Texas Water Development Board
c/o San Jacinto River Authority
P. O. Box 329, Conroe, Texas 77305
Telephone 936-588-1111 Facsimile 936-588-3043

November 14, 2018

Jeff Walker
Executive Administrator
Texas Water Development Board
1700 North Congress Av.
Austin, Texas 78701

Re: Region H Modeled Available Groundwater Peak Factor Request

Dear Mr. Walker:

The Texas Water Development Board (TWDB) has given Regional Water Planning Groups the option to request the application of a MAG Peak Factor to reflect short term increases in source groundwater production for planning purposes in the 2021 Regional Water Plans. The Region H Water Planning Group (RHWPG) developed a consistent methodology based on historical groundwater pumpage behavior to generate a MAG Peak Factor for each aquifer-county split in the Region and presented this methodology to the Groundwater Conservation Districts (GCDs) and Groundwater Management Areas (GMAs) in Region H. Four GCDs approved the MAG Peak Factors presented by Region H for some or all aquifer-county splits in their jurisdiction, which were subsequently approved by the associated GMAs. The RHWPG took action at the regular planning group meeting on October 31, 2018, to approve the submission of a request to TWDB to consider the MAG Peak Factors recommended by the RHWPG.

The attached memorandum documents the methodology used to determine these Peak Factors, the administrative process followed, and the rules and processes currently applied by the applicable GCDs to monitor groundwater use and progress toward achievement of Desired Future Conditions (DFCs). It should be noted that the Peak Factors developed by Region H and approved by the relevant local regulatory entities are intended to represent short term peak production during infrequent periods of high demand and limited availability of other water supplies and is not intended to reflect a change to any DFC or an increase in the long-term average availability of groundwater.

The RHWPG appreciates TWDB's consideration of this request for approval of MAG Peak Factors. Please feel free to contact myself or Philip Taucer of Freese and Nichols at 713-600-6835 with any questions regarding this request.

Sincerely,

Mark Evans
Chair, Region H Water Planning Group

MEMORANDUM

FREESE AND NICHOLS

Innovative approaches
Practical results
Outstanding service

10497 Town and Country Way, Suite 600 • Houston, Texas 77024 • 713-600-6800 • FAX 817-735-7491 www.freese.com

TO: Texas Water Development Board

FROM: Philip Taucer, P.E.

SUBJECT: MAG Peak Factors – Region H Recommendations

DATE: November 14, 2018

PROJECT: Region H 2021 Regional Water Plan – Supply Evaluation

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1. Introduction

When developing Regional Water Plans (RWPs), planning groups consider water supply availability under drought-of-record conditions. Meanwhile, the joint planning process for groundwater in Texas considers long-term average conditions and determines Modeled Available Groundwater (MAG) supplies, which estimate a potential level of pumping that can be sustained to meet a Desired Future Condition (DFC) based on the most current Groundwater Availability Model (GAM) and understanding of an aquifer. Previously, the RWP process has used the MAG to estimate available groundwater supplies. However, because of the disconnect between the joint planning approach and the worst-case scenario in regional planning, MAGs can underestimate the actual peak pumping that may occur during a drought-of-record year. Some Groundwater Conservation Districts (GCDs) have rules and regulatory structures which allow for short-term peak pumping while still complying with the DFC on a long-term basis. In these cases, application of the MAG to the RWP process excludes this regulatory flexibility and may place unnecessary limitations upon supplies used for planning purposes, thus underrepresenting the water supply available to meet short-term peak demands.

In the 4th cycle of regional water planning, the Region H Water Planning Group (RHWPG) identified the difference between MAG volumes and allowable pumpage under current regulatory terms as a significant impact to RWP groundwater resource availability in the region. For the 5th cycle of RWP development, the Texas Water Development Board (TWDB) has allowed the implementation of MAG Peak Factors, which are multipliers greater than 100% applied to MAG values to estimate dry-year availability. The intent of the Peak Factor is to bridge the gap between groundwater joint planning and regional planning perspectives. Regional Water Planning Groups (RWPGs) are not required to use Peak Factors but are given the option to apply them where deemed appropriate on a county-aquifer basis. The MAG Peak Factor is not intended to adjust the long-term supply as derived from the DFCs developed through joint planning process for groundwater but is instead intended to make the regional planning process consistent with regulations by local groundwater districts and patterns of permitted and exempt water use. The following sections summarize the Peak Factor development methodology applied by the RHWPG, the administrative and approvals process, and the rules and processes currently applied by the applicable GCDs to monitor groundwater use and progress toward achievement of DFCs.

2. Peak Factors in Region H

The RHWPG developed a consistent methodology to determine a MAG Peak Factor for each county-aquifer unit in the Region which has an associated MAG. In order to reflect realistic peaking behavior, the methodology was primarily based on historical pumping. Because pumping records and reporting for individual well owners or

operators may vary from year to year, Peak Factors for Region H were calculated on a county-aquifer basis and are applied evenly to each river basin within those splits. While potential Peak Factors were calculated for each county and aquifer with a MAG within the Region, not every GCD elected to pursue application of the factors for the current planning cycle. The results and administrative processes summarized in this memorandum therefore are limited to counties and aquifers for which the applicable GCD approved the relevant Peak Factor. Please note that areas within the Harris-Galveston Subsidence District (HGSD) and Fort Bend Subsidence District (FBSD) are excluded as these areas have been deemed non-MAG areas for RWP purposes by TWDB.

2.1. Methodology

The GCDs in Region H manage groundwater with respect to their DFC and do not restrict total annual pumping to the MAG, but instead allow pumping to fluctuate between years. While many districts do consider groundwater production relative to the MAG, they do so as one of a number of approaches to evaluating the impacts of pumpage on aquifers and progress toward long-term DFC achievement. As such, historical pumpage within many areas of Region H varies from year to year, with production typically increasing noticeably during dry years and subsequently declining upon the return of more normal or wet conditions. Timing and magnitude of peaks and reductions in pumpage vary widely among counties based upon overall demand, demand types, and aquifer.

When applied, a MAG Peak Factor is the ratio of RWP supply availability (dry-year conditions) to the corresponding MAG. Similar to historical patterns of groundwater use, in which dry-year pumping exceeds the long-term trend, Region H assumes that the drought-of-record years represented in the RWP would also experience pumping above the long-term trend which is represented in the RWP by the MAG. Therefore, historical pumping was assessed to determine the ratio of peak to long-term annual pumpage using TWDB Water Use Survey historical pumping data from years 2000 to 2015. For counties in which the Gulf Coast Aquifer is the only major aquifer, all pumping categorized in the TWDB datasets as “Other Aquifer” or “Unknown Aquifer” was assumed to originate from the Gulf Coast Aquifer. Additionally, the two relevant aquifers within the Region H portion of Trinity County – the Carrizo-Wilcox Aquifer and the Sparta Aquifer – were excluded from this assessment due to the lack of historical pumping records. TWDB Water Use Survey data was utilized for several reasons:

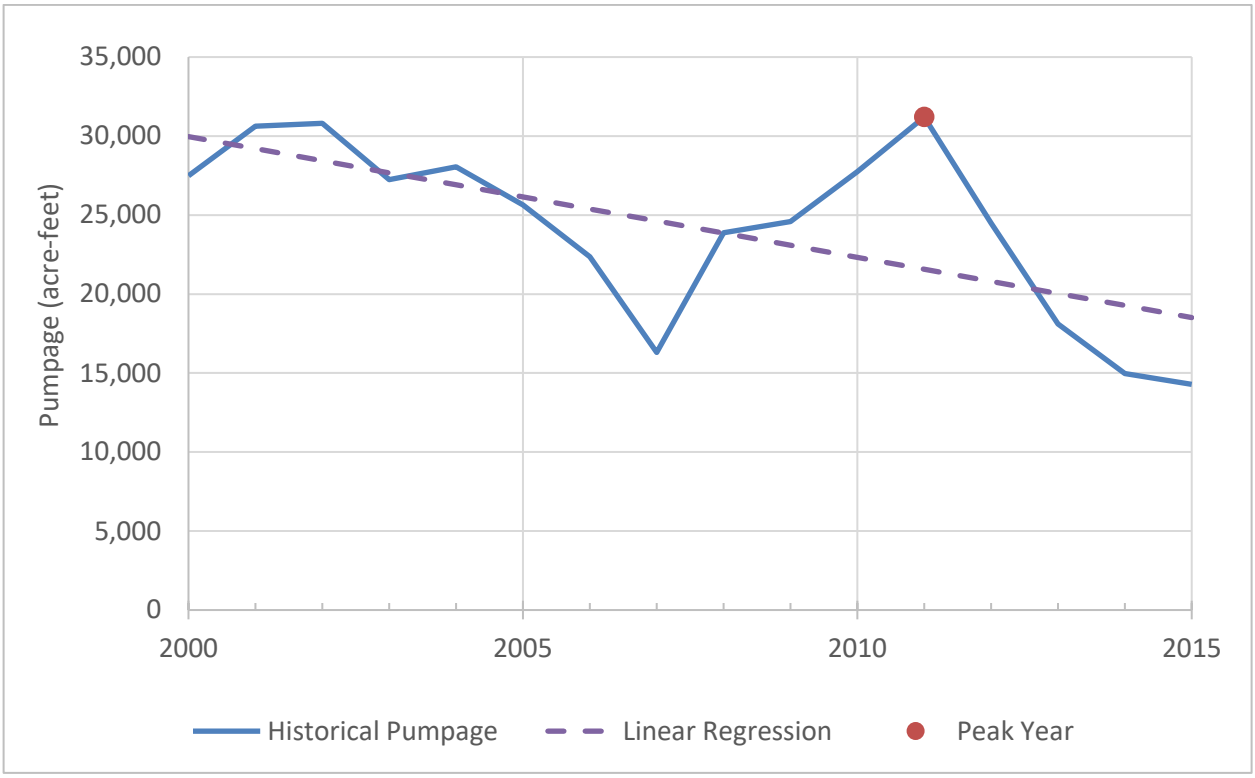
- Availability of county-level information in a consistent format;
- Representation of recent conditions, including recent growth in urbanizing portions of Region H; and
- Inclusion of a range of hydrologic conditions, including extremely dry conditions for year 2011.

The Peak Factor was estimated using the relationship:

$$Peak\ Factor = \frac{(peak\ pumpage)}{(linear\ approximation\ in\ year\ of\ peak\ pumpage)}$$

For this analysis, peak pumpage was defined as the maximum annual pumping volume from an aquifer within a given county during 2000 to 2015. The linear approximation in the denominator represents the long-term trend and is the predicted pumping in the year of peak pumping based on linear fit of annual pumping during 2000 to 2015. Linear approximations were developed from a linear fit of the 2000 to 2015 data to account for overall trends in pumpage. This concept is represented in *Figure 1*.

Figure 1. Historical Pumping from the Gulf Coast Aquifer in Waller County



2.2. Results

Peak Factor results for counties and aquifers approved by the applicable GCD and Groundwater Management Area (GMA) are summarized in *Table 1*, with information on specific county and aquifer analyses in the following subsections. Supporting data for Peak Factor calculations in electronic format will be transmitted to TWDB along with this memorandum. Additional information on the administrative process and GCD approvals can be found in *Section 4* of this memorandum.

Table 1. Summary of Peak Factors for Region H

County	Aquifer	GCD	GMA	Peak Factor
Austin	Gulf Coast	Bluebonnet GCD	14	123.9167%
Brazoria	Gulf Coast	Brazoria County GCD	14	140.8701%
Madison	Sparta	Mid-East Texas GCD	12	117.4066%
Montgomery	Gulf Coast	Lone Star GCD	14	133.1516%
Walker	Gulf Coast	Bluebonnet GCD	14	114.7589%
Waller	Gulf Coast	Bluebonnet GCD	14	144.6970%

2.3. Austin County – Gulf Coast Aquifer

Historical information used to calculate the Peak Factor for the Gulf Coast Aquifer in Austin County is illustrated in *Figure 2*, with resultant peaked MAG values for RWP purposes shown in *Figure 3*. Based on the results of the calculations, a Peak Factor of 123.9167% is recommended.

Figure 2. Historical Pumping from the Gulf Coast Aquifer in Austin County

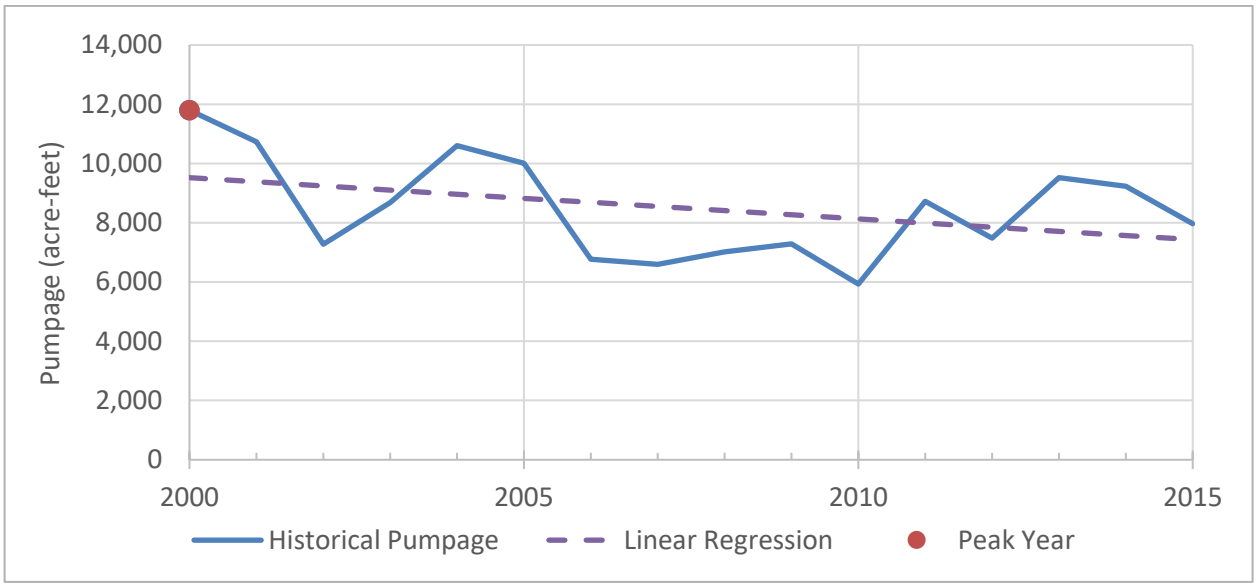
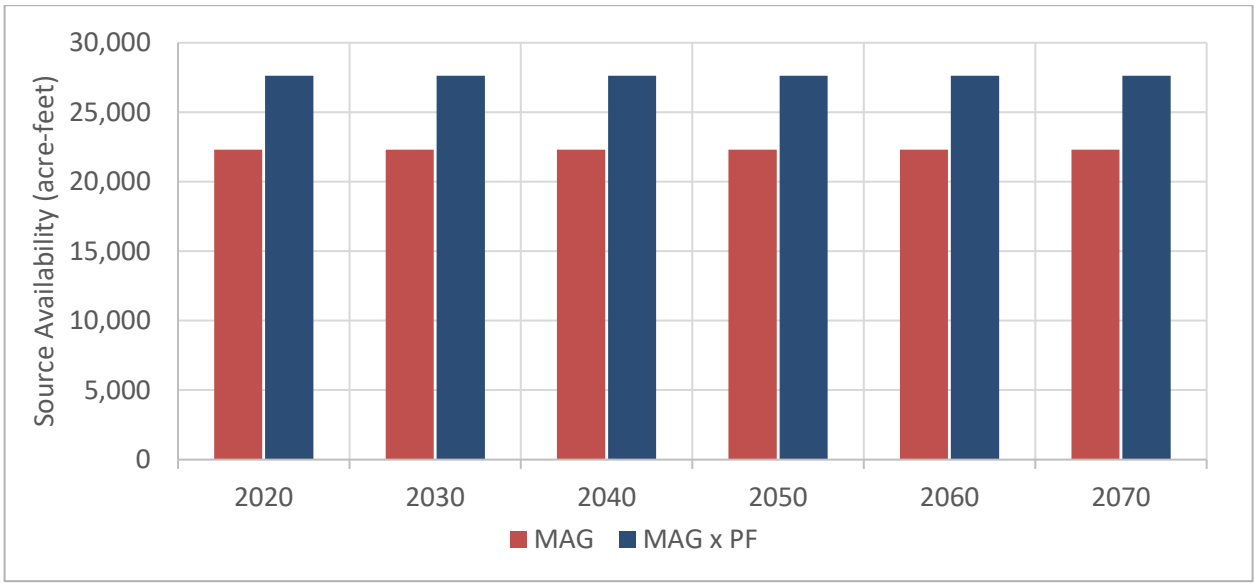


Figure 3. Peaked MAG for the Gulf Coast Aquifer in Austin County



2.4. Brazoria County – Gulf Coast Aquifer

Historical information used to calculate the Peak Factor for the Gulf Coast Aquifer in Brazoria County is illustrated in *Figure 4*, with resultant peaked MAG values for RWP purposes shown in *Figure 5*. Based on the results of the calculations, a Peak Factor of 140.8701% is recommended.

Figure 4. Historical Pumping from the Gulf Coast Aquifer in Brazoria County

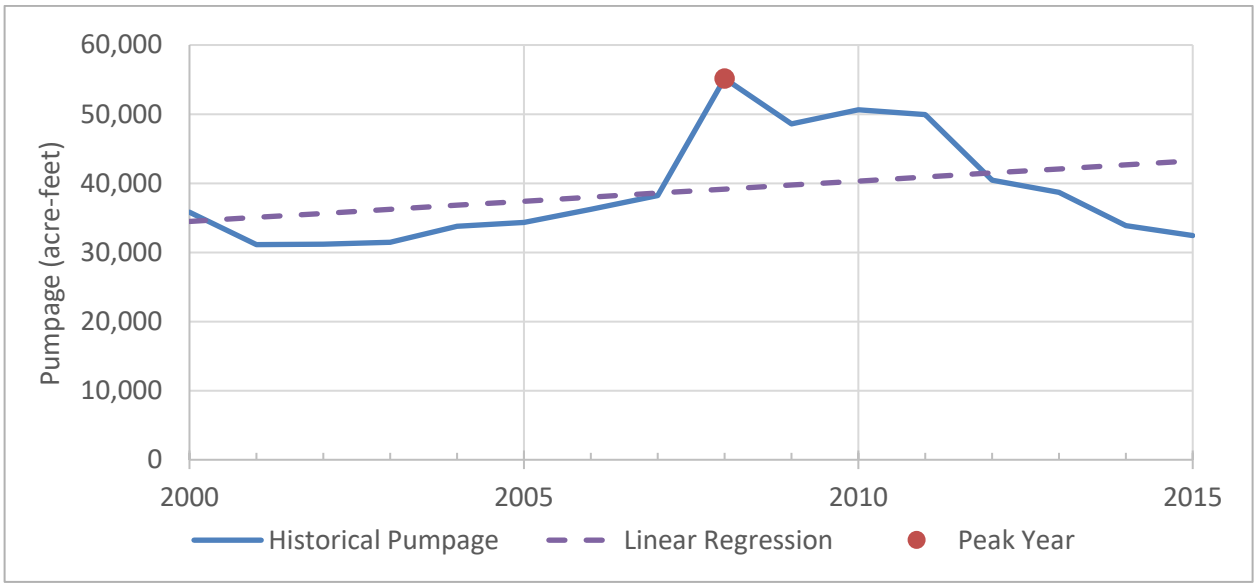
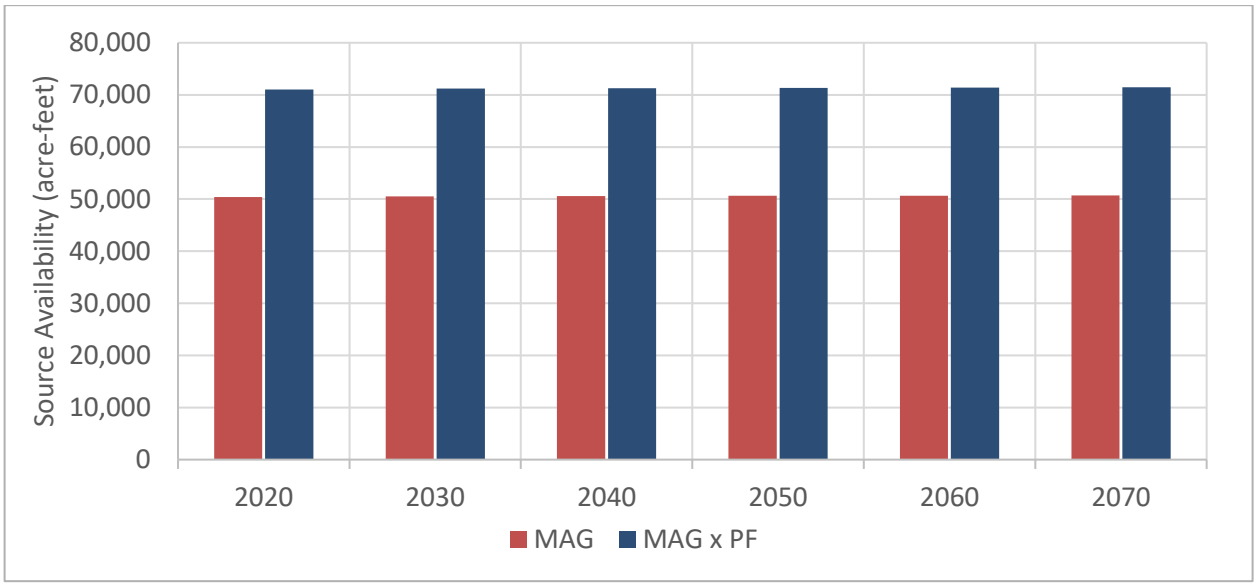


Figure 5. Peaked MAG for the Gulf Coast Aquifer in Brazoria County



2.5. Madison County – Sparta Aquifer

Historical information used to calculate the Peak Factor for the Sparta Aquifer in Madison County is illustrated in *Figure 6*, with resultant peaked MAG values for RWP purposes shown in *Figure 7*. Based on the results of the calculations, a Peak Factor of 117.4066% is recommended.

Figure 6. Historical Pumping from the Sparta Aquifer in Madison County

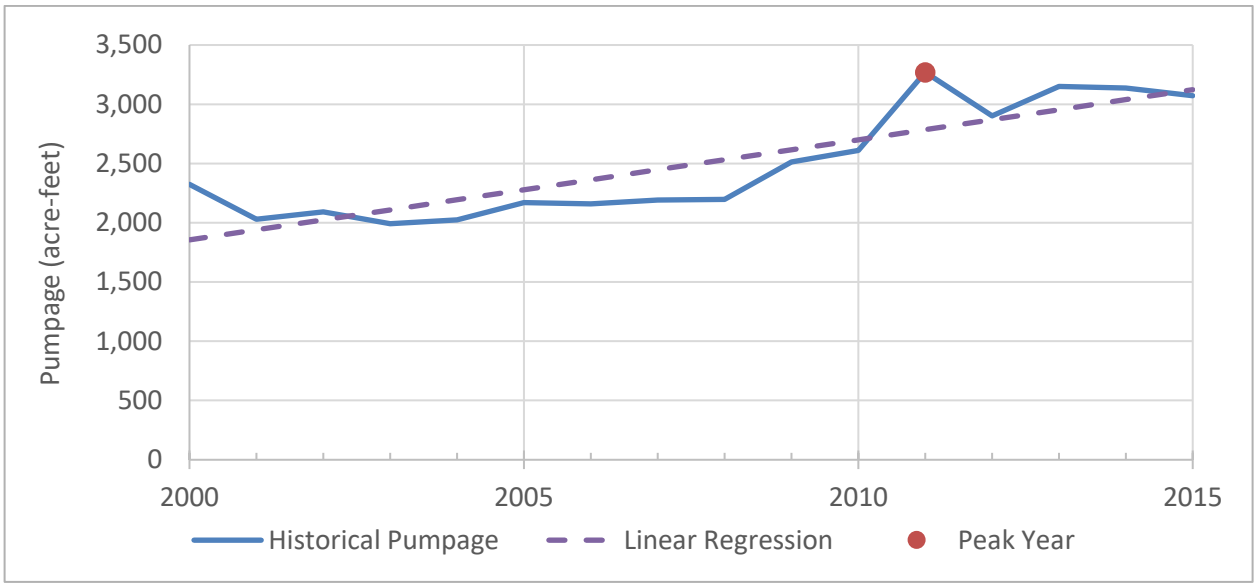


Figure 7. Peaked MAG for the Sparta Aquifer in Madison County

2.6. Montgomery County – Gulf Coast Aquifer

Historical information used to calculate the Peak Factor for the Gulf Coast Aquifer in Montgomery County is illustrated in *Figure 8*, with resultant peaked MAG values for RWP purposes shown in *Figure 9*. Based on the results of the calculations, a Peak Factor of 133.1516% is recommended.

Figure 8. Historical Pumping from the Gulf Coast Aquifer in Montgomery County

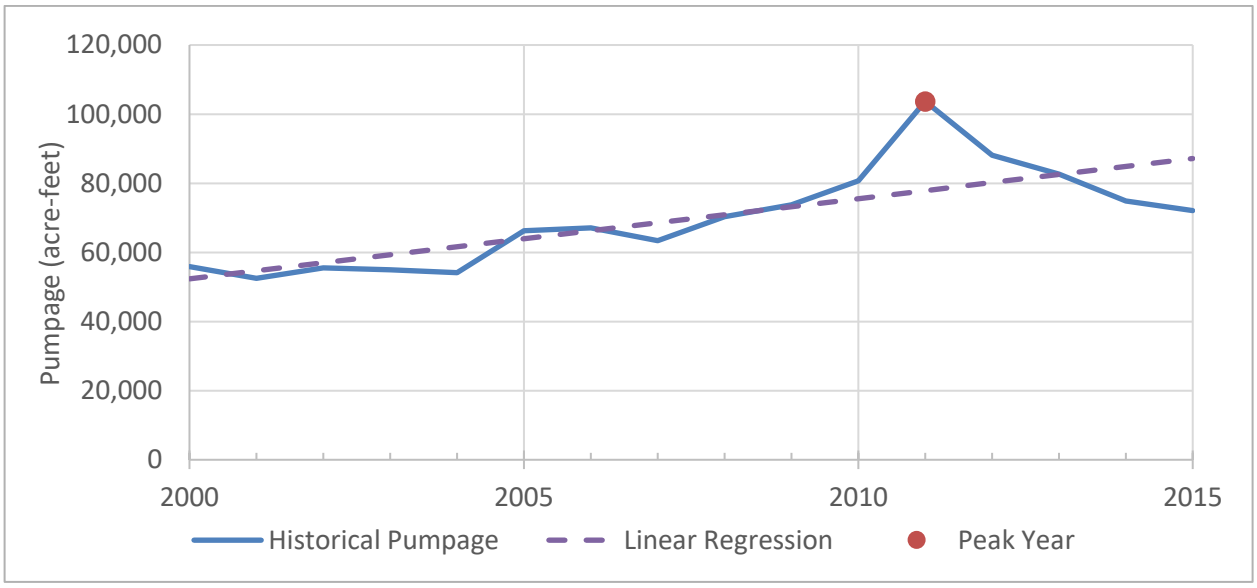
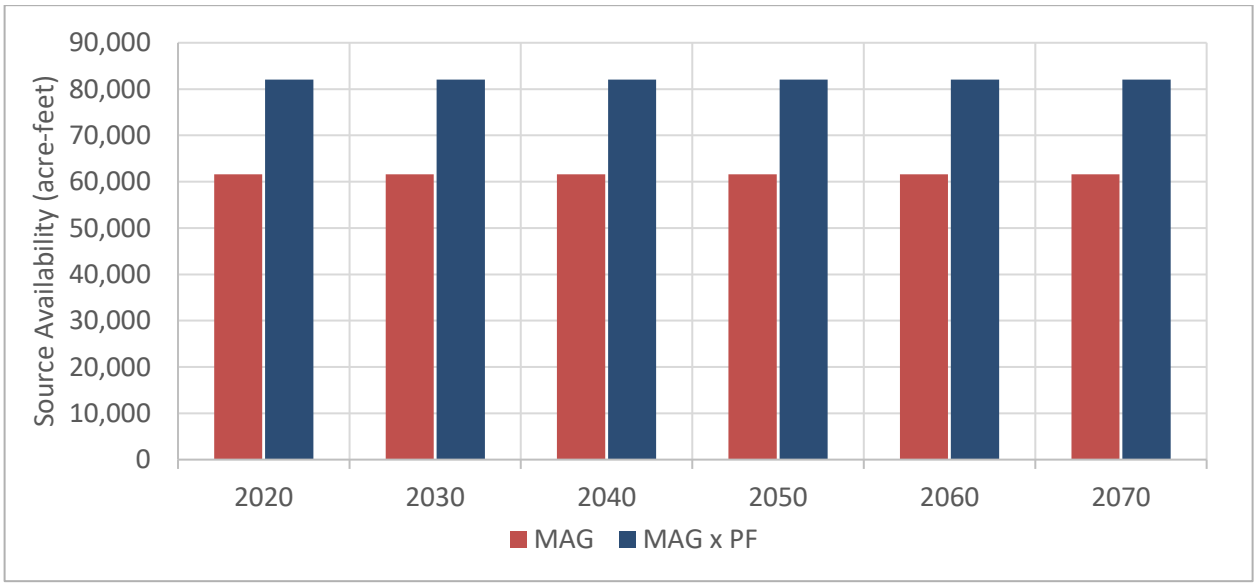


Figure 9. Peaked MAG for the Gulf Coast Aquifer in Montgomery County



2.7. Walker County – Gulf Coast Aquifer

Historical information used to calculate the Peak Factor for the Gulf Coast Aquifer in Walker County is illustrated in *Figure 10*, with resultant peaked MAG values for RWP purposes shown in *Figure 11*. Based on the results of the calculations, a Peak Factor of 114.7589% is recommended.

Figure 10. Historical Pumping from the Gulf Coast Aquifer in Walker County

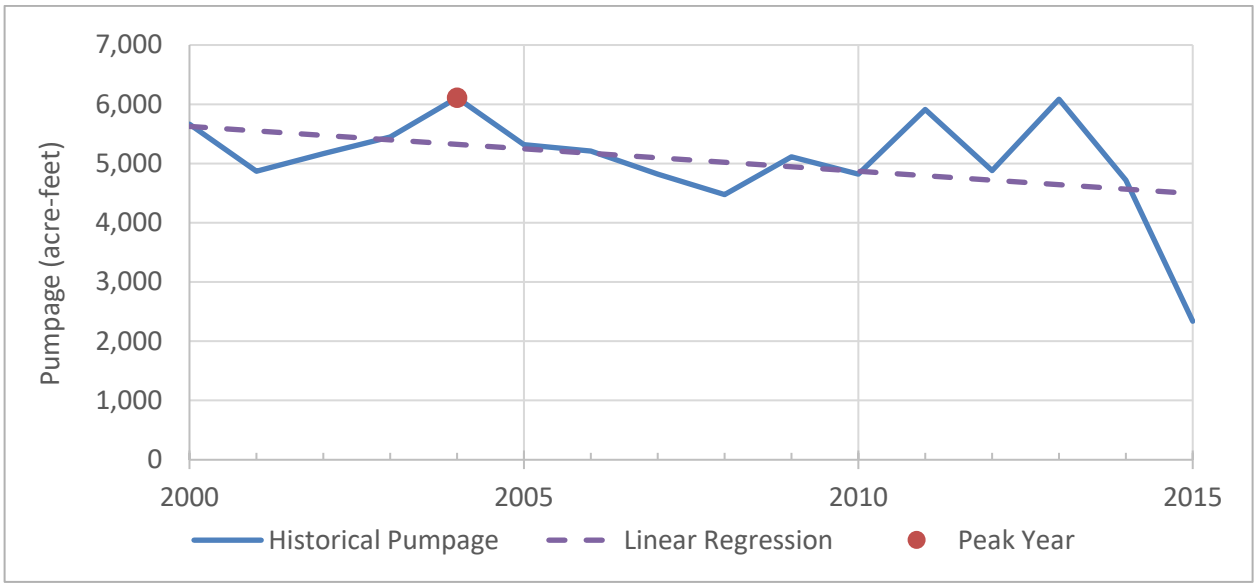


Figure 11. Peaked MAG for the Gulf Coast Aquifer in Walker County

2.8. Waller County – Gulf Coast Aquifer

Historical information used to calculate the Peak Factor for the Gulf Coast Aquifer in Waller County is illustrated in *Figure 12*, with resultant peaked MAG values for RWP purposes shown in *Figure 13*. Based on the results of the calculations, a Peak Factor of 144.6970% is recommended.

Figure 12. Historical Pumping from the Gulf Coast Aquifer in Waller County

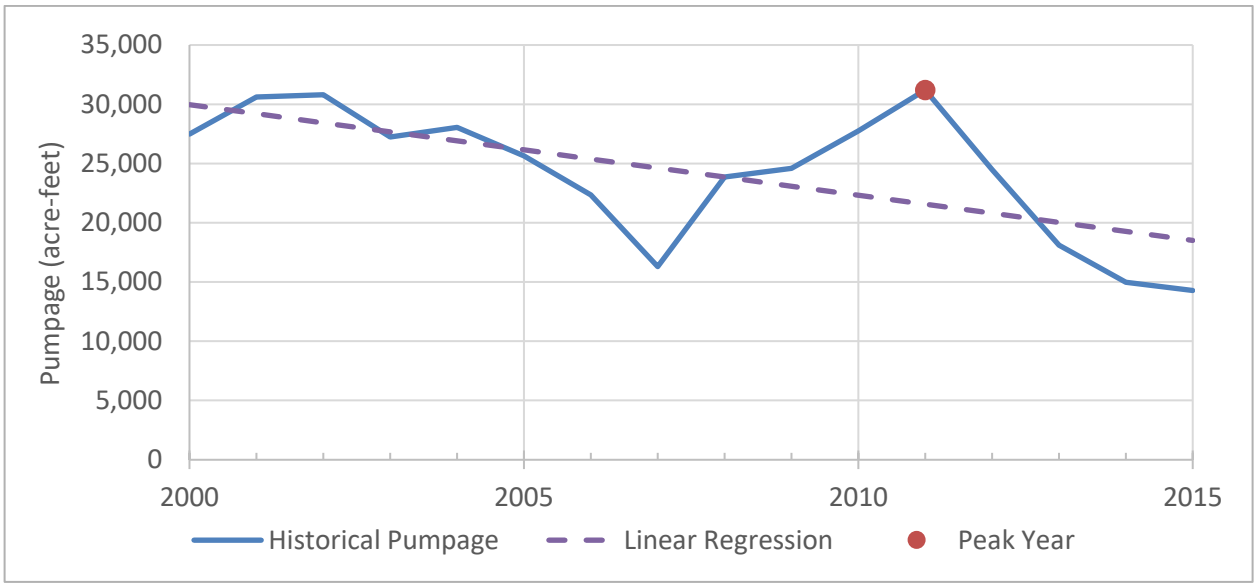
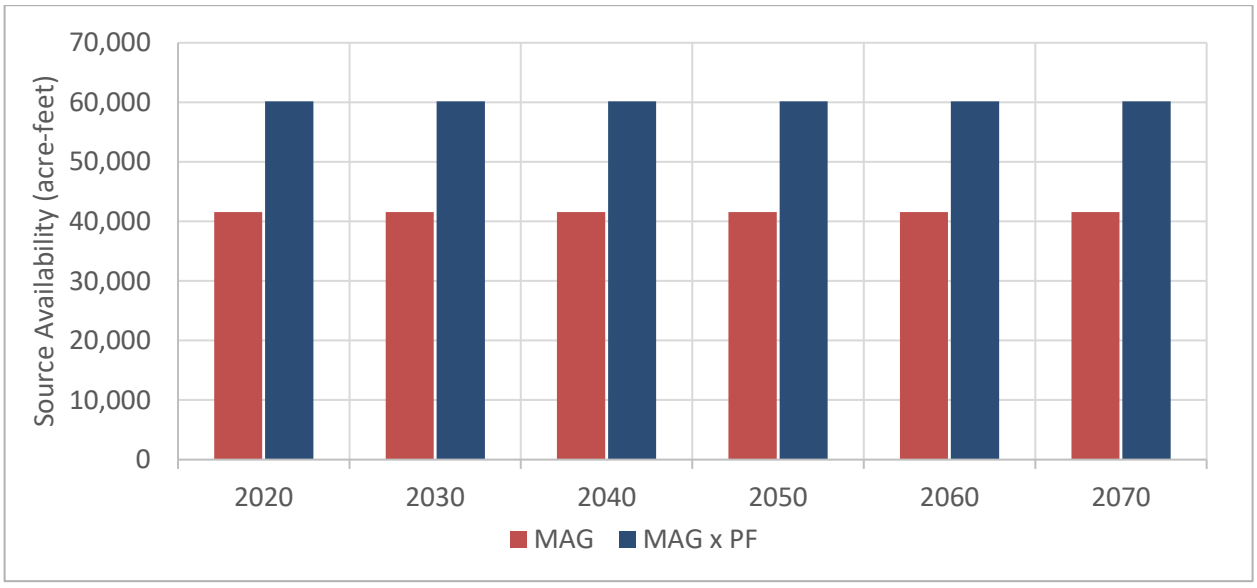


Figure 13. Peaked MAG for the Gulf Coast Aquifer in Waller County



3. Administrative Process

In accordance with the *Second Amended General Guidelines for Fifth Cycle of Regional Water Plan Development* and other TWDB guidance, the RHWPG coordinated with local groundwater regulatory entities regarding proposed Peak Factors and compatibility with GCD management goals. At its April 4, 2018 public meeting, the RHWPG considered the topic of Peak Factors and authorized the Region H Consultant Team to coordinate with groundwater regulatory entities to develop Peak Factors for Region H and submit an associated request to TWDB.

The methodology and calculated Peak Factors were then presented to the five GCDs in Region H: Bluebonnet GCD, Brazoria County GCD, Lone Star GCD, Mid-East GCD, and Lower Trinity GCD. Lower Trinity GCD declined to request a Peak Factor, as the MAGs in Polk and San Jacinto Counties greatly exceed projected demands in the RWP. The remaining GCDs considered the option for a Peak Factor at public meetings of their District Boards and took formal action to approve the use of Peak Factors for the 2021 Region H RWP. Bluebonnet GCD, Brazoria County GCD, and Lone Star GCD approved the proposed Peak Factors for the Gulf Coast Aquifer in their respective counties within Region H. Mid-East GCD approved a Peak Factor only for the Sparta Aquifer in Madison County, where existing supplies are limited by available groundwater. GMA 12 and GMA 14 subsequently approved the Peak Factors proposed by Region H and approved by the GCDs. GCD and GMA approvals are summarized in *Table 2*, with documentation of these approvals included in *Attachment A*.

Table 2. GCD and GMA Peak Factor Approvals

County	Aquifer	GCD	GCD Approval Date	GMA	GMA Approval Date
Austin	Gulf Coast	Bluebonnet GCD	9/19/2018	GMA 14	9/26/2018
Walker	Gulf Coast	Bluebonnet GCD	9/19/2018	GMA 14	9/26/2018
Waller	Gulf Coast	Bluebonnet GCD	9/19/2018	GMA 14	9/26/2018
Brazoria	Gulf Coast	Brazoria County GCD	7/12/2018	GMA 14	9/26/2018
Montgomery	Gulf Coast	Lone Star GCD	7/10/2018	GMA 14	9/26/2018
Madison	Sparta	Mid-East Texas GCD	8/21/2018	GMA 12	10/9/2018

At its October 31, 2018 public meeting, the RHWPG discussed approvals of proposed Peak Factors by local groundwater regulatory entities and took action authorizing the Region H Consultant Team to submit a Peak Factor request to TWDB.

4. District Methodologies for Monitoring DFC Compliance

As noted in *Section 2.1* of this memorandum, the GCDs within Region H manage groundwater within their jurisdictions in the context of their DFCs, allowing some degree of inter-annual fluctuation in production. The MAG Peak Factor option allows the RWP to better reflect this short-term peak use allowed by GCD rules and observed in historical pumpage records and does not impact the joint groundwater planning process or in any way modify established MAG values or DFCs for any district. The Peak Factors proposed in this memorandum have been approved by the applicable GCDs and GMAs and are not anticipated to preclude or hinder achievement of DFC attainment or other GCD management goals.

The GCDs in Region H which approved Peak Factors include within their Groundwater Management Plans and district rules measures to facilitate meeting their goals, including but not limited to goals for DFC achievement. As part of this process, all four of these GCDs engage in monitoring of groundwater levels, either as part of regular in-house technical evaluations of well data or through special studies and participation in long-term monitoring programs with the United States Geological Survey (USGS) or HGSD. These evaluations allow the GCDs to assess changes in water levels over time relative to levels consistent with DFC achievement. The districts also require permitted (non-exempt) wells to report groundwater pumpage on a regular basis, providing another metric to assist in evaluating progress toward long-term DFC achievement. Key processes in monitoring DFC achievement, controlling subsidence, and promoting the efficient use of groundwater for each of the applicable GCDs are summarized in *Table 3*.

Table 3. Key GCD Monitoring and Management Processes

Measure	Bluebonnet GCD	Brazoria County GCD	Lone Star GCD	Mid-East Texas GCD
Water Level Analyses?	Yes - Annual analysis by GCD	Yes - Biannual analysis by GCD, work w/ USGS	Yes - Special study, work w/ USGS	Yes - Annual analysis by GCD
Subsidence Analyses?	Considered during permit review process	Yes - Biannual analysis by GCD, work w/ USGS et al.	Yes – work w/ HGSD	No – not a relevant issue at this time
Well Permitting Required?	Yes	Yes	Yes	Yes
Registration of Exempt Wells Required?	Yes	Yes	Yes	Yes
Pumpage Reporting for Non-Exempt Wells	Yes	Yes	Yes	Yes
Production Fees Applied?	Yes – based on production	Yes – based on permitted volume	Yes – based on permitted volume	Yes – based on production
Consideration of Drought Monitor?	Yes	Yes	Yes	Yes

Attachment A:
Administrative Documentation for
Region H MAG Peak Factors

Bluebonnet GCD

BLUEBONNET GROUNDWATER CONSERVATION DISTRICT

Board of Directors Meeting

Wednesday, September 19, 2018
6:00 PM

Bluebonnet Groundwater Conservation District
Board Room, Suite B & C
303 East Washington Avenue
Navasota, Texas

In attendance:
Directors – Huebner, Vaughn, Kembro, Beckendorff, Muse, Blezinger, Minze, Fairchild, Brown, Hopper, Patout
Staff - General Manager Holland, Office Manager Jensen
Visitors – Dr. Bill Hutchison

AGENDA

1. Call to order

There being a quorum present, the Board of Directors Meeting and Public Hearing was called to order by the President at 6:01pm.

2. Public Comment

No public comment

3. Public Hearing on proposed revisions to District Management Plan.

No public comment. Public hearing closed at 6:03pm

4. Discussion and possible action to approve revising and readopting the District Management Plan and adopting a resolution approving revising and readopting the District Management Plan.

Director Muse moved that the Board readopt Management Plan. Director Kembro seconded. **Motion carried.**

****Skip to item # 18 and #19** Presentation by Dr. Bill Hutchison**

18. Discussion and possible action to accept recommended MAG Peaking Factors for District to Region H Regional Water Planning Group.

Director Brown moved that the Board accept MAG Peaking Factors for District to Region H Regional Water Planning Group. Director Vaughn seconded. **Motion carried.**

19. Discussion and possible action to approve recommendations, budget and schedule with groundwater model development.

Director Vaughn moved that the Board approve recommendations, budget and schedule with groundwater model development. Director Muse seconded. **Motion carried**

****Back to agenda item #5****

5. **Discussion and possible action to approve minutes of April 18, 2018 Board Meeting.**
   Director Minze moved that the Board approve minutes. Director Kembro seconded. **Motion carried.**

6. **Discussion and possible action to approve amended Board Policies and Investment Policy and adopting a resolution approving the Investment Policy and appointing an Investment Officer.**
   Director Brown moved that the Board approve amended Board Policies, et al. Director Muse seconded. **Motion carried.**

7. **Discussion and possible action to approve Resolution Authorizing Participation in the TexPool Investment Pools and Designating Authorized Representatives.**
   Director Minze moved that the Board approve Resolution. Director Hopper seconded. **Motion carried.**

8. **Discussion and possible action to approve Groundwater Management Area 14 Interlocal Agreement.**
   Director Muse moved that the Board approve GMA 14 Interlocal Agreement. Director Kembro seconded. **Motion carried.**

9. **Discussion and possible action to approve quarterly Financial Report.**
   Director Beckendorff moved that the Board approve Quarterly Financial Report. Director Vaughn seconded. **Motion carried.**

10. **Discussion and possible action to approve quarterly Investment Report.**
    Director Kembro moved that the Board approve the quarterly Investment Report. Director Huebner seconded. **Motion carried.**

11. **Discussion and possible action to accept quarterly Drought Status Assessment.**
    Director Beckendorff moved that the Board accept the quarterly Drought Status Assessment. Director Kembro seconded. **Motion carried.**

12. **Discussion and possible action to approve employment contract for GM Holland.**
    Director Vaughn moved that the Board approve the employment contract for GM Holland. Director Muse seconded. **Motion carried.**

13. **Discussion and possible action to approve Amended FY 2018 District Budget.**
    Director Minze moved that the Board approve Amended FY 2018 District Budget. Director Muse seconded. **Motion carried.**

14. **Discussion and possible action to approve FY 2019 District Budget.**
    Director Hopper moved that the Board approve the FY 2019 District Budget. Director Vaughn seconded. **Motion carried.**

15. Discussion and possible action to approve designations for Money Market Account.

Director Minze moved that the Board approve designations for Money Market Account. Director Beckendorff seconded. **Motion carried.**

16. Discussion and possible action to designate dates and times for FY 2019 Board of Directors Meetings.

No vote.

17. Discussion and possible action to approve membership to the Texas Ground Water Association.

Director Vaughn moved that the Board approve membership to the Texas Ground Water Association. Director Kembro seconded. **Motion carried.**

20. General Managers Report

- **a. Well Registration/Permitting**
- **b. GMA 14**
- **c. TAGD & TWCA**
  - **i. 2018 Texas Groundwater Summit, August 28-30, 2018 at the Hyatt-Hill Country in San Antonio**
- **d. Legislative & Case Law Update**
- **e. Region G & H RWPG**
- **f. Vehicle Summary**
- **g. HYDROS update**

21. Date for next Board meeting October 17, 2018.

22. Adjourned at 7:47pm

Agenda items may be considered, discussed and/or acted upon in a different order than the order set forth above.

The Board approved the above minutes of the regular meeting of the Board of Directors of the Bluebonnet Groundwater Conservation District, held on September 19, 2018, on October 17, 2018.

_____
J Jared Patout, President

ATTEST:

_____
David Minze, Vice President

Brazoria County GCD

CERTIFICATE FOR ORDER

THE STATE OF TEXAS §

COUNTY OF BRAZORIA §

The Board of Directors of the Brazoria County Groundwater Conservation District convened on the 12th day of July, 2018, and the roll was called of the duly constituted Board of Directors, to wit:

Alan Mueller	President
Patrick O'Day	Vice-President
Dennis Davenport	Secretary
Raymond Felder	Assistant Secretary
Ronnie Goolsby	Director

All of said members were present except Director Goolsby, thus constituting a quorum. Among other business, the following action was taken:

Motion by Director Davenport; Seconded by Director Mueller to **APPROVE** the use of peak factors at the proposed 140.87% where deemed appropriate to make the regional planning process consistent with the District's regulations and patterns of permitted and exempt water use for the 5th Cycle of the Regional Water Plan development. Motion approved with all Directors present voting aye.

SIGNED AND SEALED the 12th day of July, 2018.

Alan Mueller, President

Lone Star GCD

655 Conroe Park North Drive • Conroe, Texas 77303
local 936/494-3436 • metro 936/441-3437 • fax 936/494-3438
e-mail: lsgcd@consolidated.net • www.lonestargcd.org

October 3, 2018

The Honorable Mark Evans, Chair
REGION H WATER PLANNING GROUP
C/O San Jacinto River Authority
P.O. Box 329
Conroe, Texas 77305-0329

RE: MAG Peak Factors

Greetings:

On behalf of the Board of Directors of the Lone Star Groundwater Conservation District ("LSGCD"), I want to thank Courtney Corso and Philip Taucer with Freese and Nichols for their presentation providing LSGCD an overview of Region H Water Planning Group's consideration of MAG Peaking Factor(s) and recommendations for Montgomery County.

The LSGCD understands the implementation of MAG peak factor for this 5th cycle of RWP development is intended to bridge the gap between joint planning and regional planning perspectives, allowing RWPs to reflect how GCDs already are able to manage groundwater.

In that regard, at its meeting on July 10, 2018, the LSGCD board voted to accept Region H's recommended MAG Peak Factor of 133.2% for Montgomery County with an allowable pumpage of 85,224 acre/ft in each decade. For your convenience, a copy of the approved meeting minutes is hereto attached.

Should you need additional information, please feel free to contact me at your convenience.

Sincerely,

Kathy Turner Jones
General Manager

KTJ

Attachment

cc: Freese and Nichols

LONE STAR
GROUNDWATER CONSERVATION DISTRICT

July 10, 2018

MINUTES OF REGULAR MEETING

The Board of Directors of the Lone Star Groundwater Conservation District ("District") met in regular session, open to the public, in the Lone Star GCD - James B. "Jim" Wesley Board Room located at 655 Conroe Park North Drive, Conroe, Texas, within the boundaries of the District on July 10, 2018.

CALL TO ORDER:

President Moffatt presided and called to order the regular Board of Directors meeting at 10:06 AM, announcing that it was open to the public.

ROLL CALL:

The roll was called of the members of the Board of Directors, to wit:

John D. Bleyl, PE
Gregg Hope
Jace Houston
Roy McCoy, Jr.
Webb Melder
Rick J. Moffatt
Jim Stinson, PE
M. Scott Weisinger, PG
W. B. Wood

All members of the Board were present, with the exceptions of Director(s) Stinson, thus constituting a quorum of the Board of Directors. Also in attendance at said meeting were Kathy Turner Jones, General Manager; Samantha Reiter, Assistant General Manager; Brian L. Sledge, District Counsel, District staff; and members of the public. *Copies of the public sign-in sheets are attached hereto as Exhibit "A".*

PUBLIC COMMENTS:

Mike Stoecker provided public comment on the agenda item related to approval of the interlocal agreement for governmental functions and services for joint planning in GMA 14. Mr. Stoecker expressed concern over GMA 14's hiring of INTERA and that Lone Star should not be entering into any agreements and becoming obligated to expend funds when a new board will be elected in November, and the current board would be tying their hands. He noted that delaying GMA 14's activities for another three or four months would not matter in this instance. The

General Manager noted that GMA 14 had already approved hiring INTERA at a prior meeting, and that the item on the agenda today has to do with the cost sharing arrangement between the entities participating in GMA 14, of which Lone Star's share is $35,000 for the planning cycle, and which has already been budgeted by Lone Star.

APPROVAL OF THE MINUTES:

President Moffatt stated the Board would consider all meeting minutes as listed for approval on today's agenda as one item. A motion was made to approve the meeting minutes by Director Houston and seconded by Director Bleyl. The motion to approve the minutes was approved unanimously by those present.

a) June 12, 2018, Special Board Meeting
b) June 12, 2018, Public Hearing on Permit Applications
c) June 12, 2018, Notice to Call Election
d) June 12, 2018, Regular Board of Directors Meeting

REGION H WATER PLANNING GROUP PRESENTATION – MAG PEAK FACTORS:

President Moffatt introduced the presentation by stating Regional Planning Groups when developing Regional Water Plans (RWPs) consider water supply availability under drought of record conditions and do not reflect wet year pumping, while the joint planning process for groundwater considers long-term average conditions. For the 5th cycle of RWP development, the Texas Water Development Board (TWDB) has allowed the implementation of MAG peak factors, which are multipliers greater than 100% applied to long-term Modeled Available Groundwater (MAG) values to estimate dry-year availability. The intent of the peak factor is to bridge the gap between joint planning and regional planning perspectives, allowing RWPs to reflect how GCDs already are able to manage groundwater. Philip Taucer and Courtney Corso with Freese & Nichols provided an overview of Region H Water Planning Group's consideration of a MAG Peaking Factor and recommendations for Montgomery County. Mr. Taucer emphasized that the MAG Peak Factor only relates to planned pumping. It does not limit permitting and does not guarantee approval of any future groundwater permit.

Following discussion, Director Bleyl motioned to accept Region H's recommended Peak Factor of 133.2% with an allowable pumpage of 85,224 acre/ft in each decade. Director Houston seconded the motion. The motion passed with Director(s) McCoy, Melder, and Weisinger voting in opposition.

COMMITTEE REPORTS:

A. <u>Executive Committee and/or Settlement Committee – Rick Moffatt, Chair</u>

1) <u>Brief the Board on the Committee's activities since the last regular Board meeting</u> – No meeting.

2) <u>Defense of the following lawsuit: City of Conroe et al. v. Lone Star Groundwater Conservation District (and the District's directors and general manager in their</u>

official capacities) – Mr. Sledge reported that an update had been presented in Executive Session.

B. Water Awareness and Conservation Committee - Billy Wood, Chair

1) Brief the Board on the Committee's activities since the last regular Board meeting – No meeting.

2) Update on public outreach activities, water efficiency, and conservation efforts – James Ridgway – Mr. Ridgway provided a photo of the Texas 4-H Water Ambassadors visit on June 18th. Other topics discussed: the District's portable aquifer and its usefulness as a teaching aid in classroom settings, and outreach presentations at the Lone Star College's Discovery Camp. Announcements: the next meeting of the Water Efficiency Network is scheduled for Thursday, July 26th.

C. Rules and Regulatory Planning Committee – Jim Stinson, Chair

1) Brief the Board on the Committee's activities since the last regular board meeting – General Manager, Kathy Turner Jones reported the committee met on July 2nd and plan to meet again on July 31st before presenting draft recommendations for well spacing guidelines to the Board at the August board meeting.

D. Policy and Personnel Development Committee – Jace Houston, Chair

1) Brief the Board on the Committee's activities since the last regular Board meeting – No report.

E. Budget and Finance Development Committee – Billy Wood, Chair

1) Brief the Board on the Committee's Activities –
No report. However, Director Wood stated that there would be a committee meeting scheduled soon to include the annual review of District water use fees.

2) Review of monthly financial reports – Director Wood reported that, for the month of June, revenue was budgeted at $41,325—actual was $116,335. Expenses were budgeted at $157,303—actual expenses were $82,189. Net income for the month was $116,335. Year-to-date net income is $419,827.

3) Review 2nd Quarterly Investment Report 2018 – General Manager, Kathy Turner Jones reported June 30, 2018 fund balances, including TexPool and First Financial Bank (FFB), as $564,000 with approximately $2.5 million in securities pledged.

F. **Findings and Review Committee – Rick Moffatt, Chair**

1) Brief the Board on the Committee's activities since the last regular Board meeting – President Moffatt reported no meeting.

2) Groundwater Management Area 14 – update the board on the legal, technical, and financial issues related to joint planning activities and development of desire future conditions in GMA 14 - Ms. Jones reported that GMA 14 did not meet in June. Ms. Jones reminded directors that the planning group took action at their May meeting and authorized approval of the scope of work presented by INTERA Inc for professional services. The next meeting of the GMA 14 will be held on Wednesday, July 25th.

   (a) Discussion and possible action related to approving interlocal agreement for governmental functions and services related to the third round of Joint Planning in GMA 14 – Ms. Jones explained that GMA 14's proposed budget for services related to the third round of joint planning increased by 38% from costs associated with round two. The approved scope of work provides for one additional model run than scoped in the previous planning cycle and anticipates an increased number of meetings and increased costs of services over a three-year period.

   GMA 14 consists of five groundwater districts, with the majority of the districts estimated to provide equal funding. Lone Star's proportionate funding obligation is $35,000. Historically, both subsidence districts have contributed to the funding commitment by participating in the interlocal agreement(s). Further, it is anticipated that both Washington and Chambers counties plan to participate and will be contributing as well. Ms. Jones added that funds to cover the District's commitment have been approved and anticipated in the 2018 budget. Therefore, Ms. Jones recommended that the Board approve the Interlocal Agreement and the District's cost participation not to exceed $35,000 for the 3rd round of joint planning.

   Following discussion, Director Houston made the motion to authorize the general manager to enter into an interlocal agreement with GMA 14 for governmental functions and services related to the third round of joint planning, with a not to exceed of $35,000. Motion was seconded by Director Bleyl. The motion passed with Director Melder opposing.

GENERAL MANAGER'S REPORT:

Ms. Jones reported that it had been a busy month. Ms. Jones gave an election update and reminded everyone that places for application on the ballot were open until 6 pm, August 23rd. The public is encouraged to visit the District's website to keep current with board election information.

GENERAL COUNSEL'S REPORT:

Mr. Sledge had nothing further as his report had been given in Executive Session. He made reference to the dichotomy of Mr. Stoecker's earlier comment; that on the one hand Mr. Stoecker was willing to delay the onset of INTERA's work by three or four months but on the

other hand in legislative hearings Mr. Stoecker's attorney argued the urgency to get the DFCs revised.

NEW BUSINESS:

There was no new business.

There being no further business, upon a motion made by Director Wood and seconded by Director Houston, the meeting was adjourned at 10:56 AM.

PASSED, APPROVED, AND ADOPTED THIS 14th DAY OF AUGUST 2018.

Gregg Hope, Board Secretary

Mid-East Texas GCD

MINUTES
MID-EAST TEXAS GROUNDWATER CONSERVATION DISTRICT
DIRECTORS MEETING/PUBLIC HEARING
August 21, 2018, 6:00 PM
Madisonville, Texas

Members present:
John Fryer, President
George Holleman, Vice President
William Parten, Secretary
Elyse Schill, Director
Clark Osborne, Director
John Alford, Director
Jim Nash, Director
Matt Way, Director
Kevin Counsil, Director

Also present:
David Bailey, General Manager
Greg Ellis, Attorney
Carl Robacker
Jason Afinowicz
Stephanie Bailey
Terri Counsil
Craig Schill
Mark Collins

The Public Hearing portion of the Mid-East Texas Groundwater Conservation District (GCD) Board/Public Hearing was called to order by President Fryer at 6:00 pm. During this time public comments were provided, either orally or written concerning the proposed Fiscal Year 2018 – 2019 budget and fee rates for the District. No comments were expressed either vocally or in writing. The Public Hearing was then adjourned at 6:02 pm.

The regular meeting of the District Board was then called to order by Pres. Fryer at 6:03 pm.

The minutes of the Directors Meeting held on June 26, 2018 were then reviewed. A motion was made by Dir. Osborne to approve the minutes as written. Motion was seconded by Sec. Parten and the motion passed unanimously.

The floor was open for public comments by Pres. Fryer. No comments were offered.

The next item on the agenda was the consideration and possible action on the proposed 2018 – 2019 fiscal year budget and fee rates for the District. After some discussion a motion was made to approved and adopt the proposed budget as presented as well as the fee rates used to fund said budget. Motion for approval and adoption was made by Dir. Nash and his motion was seconded by Dir. Alford. The motion passed unanimously upon a called vote by Pres. Fryer.

The Board then reviewed a new Water Well Drilling Permit applied for by Flo Community WSC in Leon County. The use of this water well will be for public water supply. The physical location of this well is at the corner of FM 1618 and CR 2761 in Buffalo TX and is proposed to be drilled to a depth of 2,000 feet into the Simsboro layer of the Wilcox aquifer. The anticipated production rate for the well is proposed to be 400 gallons per minute. Production volume for this proposed well will be incorporated into an existing permit with the District. Applicant is not requesting any additional water for permitting, they are just needing increased capacity to satisfy TCEQ requirements. District staff recommends that this drilling permit be approved. Comments

regarding this agenda item were offered by Carl Robacker and Mark Collins. Most of these comments dealt with surface completion and equipment necessary at this site for production. After a period of discussion, a motion was made by Sec. Holleman to approve the Drilling Permit as recommended by staff. This motion was seconded by Sec. Parten and the motion passed unanimously upon a vote called for by Pres. Fryer.

The next item on the agenda was a presentation given by Jason Afinowicz of Freese & Nichols, Inc. regarding the possible need of a Modeled Available Groundwater (MAG) peaking factor for the Sparta aquifer in Madison County. Freese & Nichols is the consulting firm contracted by the Region H Water Planning Group for technical and hydrological services. Mr. Afinowicz provided a handout (see attached) that he used to explain this observed need and how it might be implemented. After his presentation several questions were asked by the Board regarding model accuracy and the effects of applying a peaking factor to the MAG. After a lengthy discussion a motion was made by Dir. Counsil to approve a MAG Peaking Factor for the Sparta aquifer in Madison County for the current round of Region H regional planning as proposed by Region H Water Planning Group consultants. The motion was seconded by Dir. Way and the motion passed unanimously upon a called vote.

The Board then heard a report from Greg Ellis, attorney for the District regarding an update on an Attorney General's Opinion filed by the District referenced as RQ-0241-KP. Mr. Ellis informed the Board of the status of this opinion as well as his desire to file a brief with the Attorney General questioning changes that were made by Senator Schwertner's office, who carried this opinion request for the District. Verbal approval was given by the Board to pursue this brief to obtain clarification on changes made to the original filing. Any briefs filed will be provided to the District for review.

The next item on the agenda was the consideration and possible action on a Legislative Services Agreement with Gregory M. Ellis, Attorney at Law. This document is to provide legislative services for the District indicating four (4) options for consideration. After a review of these options and after some discussion a motion was made by Sec. Parten to approve Option 2 on this agreement (see attached). This motion was seconded by Dir. Alford. This motion then passed unanimously upon a called vote.

The Board then reviewed a Master Technical Services Agreement with INTERA, Inc. to provide hydrogeologic services for the District. This item was tabled from a previous meeting until more information was obtained. After a review of revisions proposed and partially implemented by INTERA the Board, upon a recommendation by staff and Mr. Ellis, voted to approve this agreement. A motion to that effect was offered by Dir. Osborne with a second to the motion given by Dir. Way. The motion passed unanimously with a called vote by Pres. Fryer.

Manager's Report was then submitted by David Bailey, General Manager of District activities since June 26, 2018. Highlights of the report are listed below:

- Executive Committee meeting in Buffalo on July 23, 2018.
- Participated in a Texas Alliance of Groundwater Conservation District Finance Committee conference call on July 23, 2018.

- Attended the Region H Water Planning Group meeting held in Conroe on August 1, 2018 as a voting member of Groundwater Management Area (GMA) 12.
- Attended the Texas Alliance of Groundwater District business meeting in Austin on May 21, 2018.
- Attendance at the Milam/Burleson County Groundwater Summit in Caldwell on August 15, 2018.
- Attended the Region C WPG meeting held in Arlington on August 20, 2018, 2018 as a voting member for GMA 12.
- Provided the following reports to the Board: Current Investment Report; Drought Report.
- Upcoming events: 7th Annual TAGD Groundwater Summit, San Antonio – 8/28-30/2018; Production fee invoice mailing – 9/7/2018; TAGD Leadership Training, Austin – 10/24/2018.

The Board then reviewed the financial reports and agreed that the reports were in order and that all payments were justified. A listing of the bills approved for payment is attached. The bills and financial records as presented were approved with a motion by Sec. Parten. Motion was seconded by Dir. Counsil and motion passed unanimously.

The date, time and place of the next meeting were tentatively set for **Tuesday, October 23, 2018 at 6:00 PM in Centerville**.

With no further business, the meeting was adjourned at 7:20 pm.

Minutes approved by the Board of Directors (date) _____

Secretary **President**

_____ _____

William Parten **John Fryer**

GMA 12

GROUNDWATER MANAGEMENT AREA 12 MEETING

October 9, 2018 – 10:00 am
Post Oak Savannah GCD Offices
310 East Avenue C
Milano, Texas

GMA 12 Members Present

Gary Westbrook	POSGCD
Jim Totten	LPGCD
David Van Dresar	FCGCD
David Bailey	METGCD
Alan Day	BVGCD

GMA 12 Members Absent

None

Others Present	**Entity**
Elaine Gerren	POSGCD
Bobby Bazan	POSGCD
Doug Box	POSGCD
John Seifert	WSP
Steve Young	Intera
Andy Donnelly	DBS&A
Natalie Ballew	TWDB
Blaire Parker	SAWS
James Bene'	RW Harden
Pat Reilly	Blue Water
Mike Keester	LRE Water, LLC
D.R. Gosnami	R. W. Harden
James Beach	WSP
Steve Box	Environmental Stewardship
Stephen Maldonado	City of College Station
David Dunn	HDR / Brazos G
Nathan Ausley	Self
Shan Rutherford	Terrill & Waldrop
Gary Mechler	City of College Station
Barbara Boulware	The Knight Law Firm
Steve & Dorothy Mayer	Self

Bill Riley
Eddy Young Major Oak Power

MINUTES

1. **Invocation**
   Invocation was given by David Bailey.

2. **Call meeting to order and establish quorum**
   Gary Westbrook, serving as chair for this meeting, called the meeting to order by at 10:00 a.m. and noted that all voting members of GMA 12 were present.

3. **Welcome and introductions**
   Each District and their voting representative introduced themselves.

4. **Minutes of May 11, 2018 GMA 12 Meeting**
   The minutes of the May 11, 2018 meeting were presented. After brief discussion, a motion was made by Alan Day to approve the minutes. The motion was 2nd by David Van Dresar. The motion passed unanimously.

5. **Report from Intera, Inc. on Update on Central Carrizo-Wilcox/Queen City-Sparta Groundwater Availability Model**
   A presentation was given on this item by Dr. Steve Young of Intera, Inc. entitled "Update to the Carrizzo-Wilcox Groundwater Availability Model (GAM)". Dr. Young answered several questions from the audience.

6. **Report from GMA 12 consultants regarding comparisons of simulated drawdowns based on the Run 12 well file produced by the previous Central Carrizo-Wilcox City-Sparta Groundwater Availability Model and the updates Central Carrizo-Wilcox/Queen City-Sparta Groundwater Availability Model**
   Andy Donnelly gave a presentation entitled, "Differences Between the Previous and Updated GAM." He stated that there could be different methods used moving forward to run this new GAM as compared to the previous GAM. A report will be sent to the Texas Water Development Board by month's end. A representative of TWDB noted that TWDB probably will not provide comment, but might request methodology from GMA 12 concerning use of the updated GAM in GMA 12 work. Gary Westbrook reminded that even though the consultants of GMA 12 member Districts would need to discuss use of the updated GAM further, all discussions and decisions will be made in public meetings properly posted and discussed according to the requirements of the Texas Open Meetings Act.

7. **Discussion and possible action on the approval of a 1.17 Modeled Available Groundwater Peaking Factor for the Sparta Aquifer in Madison County in response to a proposal from Region H**
   David Bailey gave a presentation which was given to the Mid- East Texas GCD board by Freese and Nichols entitled, "Consideration of a MAG Peaking Factor for the 2021 Region H Regional Water Plan." Mr. Bailey explained the presentation and stated the METGCD Board had approved the request. A motion was made by David Bailey to approve a 1.17 Modeled Available Groundwater Peaking Factor for the Sparta Aquifer in Madison County in response to a proposal from Region H. The motion was 2nd by Alan Day. The motion carried unanimously.

8. **Update from Groundwater Conservation Districts' (GCDs) of GMA 12 on joint planning and compliance with Chapter 36.108, State Water Code**
   Gary Westbrook provided a summary of the recent work by POSGCD including adoption of a guidance document for methodology in monitoring and DFC Compliance. He further noted the District's Monitoring

Well network was at 200 monitoring wells and he stated based on a report provided at an earlier DFC Committee meeting of the District, Post Oak Savannah GCD is compliant with DFCs and its management plan. Alan Day reviewed the process at the Brazos Valley GCD stating BVGCD was also compliant and was complimentary of POSGCD staff taking input on their compliance document. He also stated BVGCD is awaiting approval from TWDB of the District's recently revised Management Plan. David Van Dresar with the Fayette County GCD stated that FCGCD is also waiting approval of their Management Plan from TWDB. Jim Totten with the Lost Pines GCD stated that they are considering using a Hybrid of the POSGCD shallow management zone restrictions on drawdown for established DFC Compliance. David Bailey noted METGCD is acquiring additional monitoring wells.

9. **Discussion on possible common website for GMA 12 to house all information and data**
   Alan Day provided discussion on possible work from Halff, Inc. to provide a common website committed to storing and making available to the public all monitoring information from each GCD in GMA 12. After discussion, Mr. Day agreed to invite Erin Halff, Inc. to the next GMA 12 meeting for further discussion.

10. **Public Comment**
    Mr. Westbrook invited public comment from all in attendance. No Public Comment was offered.

11. **Agenda items and Date for next meeting**
    All agreed the target a meeting for early January 2019. Also, agenda items for that meeting would include possible common website for GMA 12, discussion of options and methodology for describing and measurement of compliance for DFCs, discussion of options and methodology for running the updated GAM, and any additional items deemed appropriate to GMA 12 at that time.

12. **Adjourn**
    The meeting was adjourned at 11:33 pm.

THE ABOVE MINUTES OF THE MEETING OF GROUNDWATER MANAGEMENT AREA 12 HELD ON OCTOBER 9, WERE APPROVED AND ADOPTED BY GMA 12 ON _____, 2019.

ATTEST:

_____
Mid-East Texas Groundwater Conservation District

_____
Fayette County Groundwater Conservation District

_____
Brazos Valley Groundwater Conservation District

Lost Pines Groundwater Conservation District

Post Oak Savannah Groundwater Conservation District

GMA 14

Groundwater Management Area #14

PO. Box 1407, Jasper, Texas 75951
Phone: 409/383-1577 ▪ fax 409/383-0799

October 22, 2018

Member Districts:

Southeast Texas GCD
John M. Martin
Chair

Bluebonnet GCD
Zach Holland
Secretary

Brazoria GCD
Sherry Plentl

Lone Star GCD
Kathy Turner Jones

Lower Trinity GCD
Gary Ashmore

Interlocal Participants:

Harris Galveston Subsidence District
Mike Turco

Fort Bend Subsidence District
Robert Thompson

Chambers County
Pudge Willcox

Washington County
Judge John Brieden

The Honorable Mark Evans, Chair
REGION H WATER PLANNING GROUP
C/O San Jacinto River Authority
P.O. Box 329
Conroe, Texas 77305-0329

RE: MAG Peak Factor recommendations for REGION H

Greetings:

Groundwater Management Area #14 (GMA 14) understands the implementation of MAG peak factors for this 5th cycle of RWP development is intended to bridge the gap between joint planning and regional planning perspectives. In that regard, GMA 14 convened a meeting on September 26, 2018 at which GMA14 district representatives voted to confirm acceptance of Region H's recommended MAG Peak Factor for the Lone Star Groundwater Conservation District, Bluebonnet Groundwater Conservation District, and the Brazoria Groundwater Conservation District.

Minutes of the September 26, 2018 GMA14 joint planning committee meeting documenting the unanimous agreement will be considered for approval at GMA 14's January 30, 2019 meeting. A copy of those minutes will be transmitted to you after their approval to complete administrative requirements. In the interim, attached is a copy of the GMA's September 26th posted agenda with agenda item #15 highlighted as reference to this action taken by the planning committee group.

Should you need additional information, please feel free to contact me at your convenience.

Sincerely,

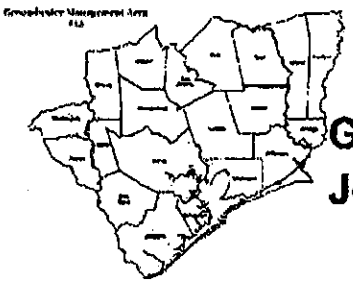
John M. Martin
Chair

KTJ

Attachment

cc: Freese and Nichols

3



GROUNDWATER MANAGEMENT AREA 14
JOINT PLANNING COMMITTEE MEETING

NOTICE OF OPEN MEETING

As required by Section 36.108(e), Texas Water Code, a meeting of the **Groundwater Management Area 14 Joint Planning Committee**, comprised of representatives from the following groundwater conservation districts located wholly or partially within Groundwater Management Area 14—Bluebonnet GCD, Brazoria County GCD, Lone Star GCD, Lower Trinity GCD, and Southeast Texas GCD—will be held on **Wednesday, September 26, 2018, at 10:00 A.M. at the offices of the Lone Star Groundwater Conservation District, located at 655 Conroe Park North, Conroe, Texas 77303.**

At this meeting, the following business may be considered and recommended for Joint Planning Committee possible action:

1. Call to order
2. Welcome and Introductions
3. Public Comment

   (Public comment is limited to a maximum of 5 minutes per speaker and/or 30 minutes total for all speakers)
4. Receipt of Posted Notices
5. Discussion and possible action to approve minutes of the July 25, 2018, GMA 14 Joint Planning meetings

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Meeting will be convened as a meeting of the GMA 14 Joint Planning Interlocal Agreement Participants.

6. Presentation of information from the Texas Water Development Board and discussions of items of interest to the GMA.
7. Receive update from the Harris Galveston Subsidence District on recent research and subsidence in the Region – Van Kelly (INTERA)

8. GMA 14 Interlocal Agreements Financial Report
    a. Financial Report (HGSD)
    b. Status report from participants on interlocal participation
9. Discussion, nomination, and possible action designating Chair to serve for the GMA14 Planning Group
10. Discussion, nomination, and possible action designating Secretary to serve for the GMA 14 Planning Group
11. Discussion, nomination, and possible action to designate GMA 14 representative and alternate to Regional Water Planning Groups G, H, & I.
12. Reports - GMA 14 regional water planning group(s) representation.
    a. Region G – Zach Holland
    b. Region H – Kathy Turner Jones/Gary Ashmore
    c. Region I – John Martin
13. Discussion regarding path forward for GMA 14 to accomplish statutory mandates for Round 3 Joint Planning.
14. Presentation and discussion of recent activities of interest or accomplishments impacting the GMA 14 planning group.

GMA 14 Joint Planning Interlocal Agreement Participants meeting will be adjourned.

Meeting will continue as a meeting of the GMA 14 District Representatives only.

15. Discussion and possible action regarding MAG Peak Factor recommendations for Regional Planning Groups H, and/or I.
16. Other business.
17. Discussion of next meeting date, location, and agenda items.
18. Adjourn.

Further information, questions, or comments concerning any aspect of the above meeting(s) should be directed to Kathy Turner Jones, Lone Star Groundwater Conservation District, 655 Conroe Park North Drive, Conroe, TX 77303; kjones@lonestargcd.org, or (936) 494-3436.

Come to hand and posted on a Bulletin Board in the Courthouse, Montgomery County, Texas, on this, the 13 day of September, 2018, at _____ _.M.

Kathy Turner Jones, Chair
GMA 14 Planning Group

_____, Deputy Clerk

_____ County, Texas

Agenda Item 8

Receive update from Consultant Team regarding projected water needs and consider authorizing Consultant Team to submit a request to TWDB for analysis of socioeconomic impacts of unmet water needs in the Region H Water Planning Area.

REGION H
Water Planning Group

Agenda Item 8
Projected Water Need: Context

- More data
- Utility-based WUGs
- Changes to non-municipal
- MAG Peak Factors
- Project implementation

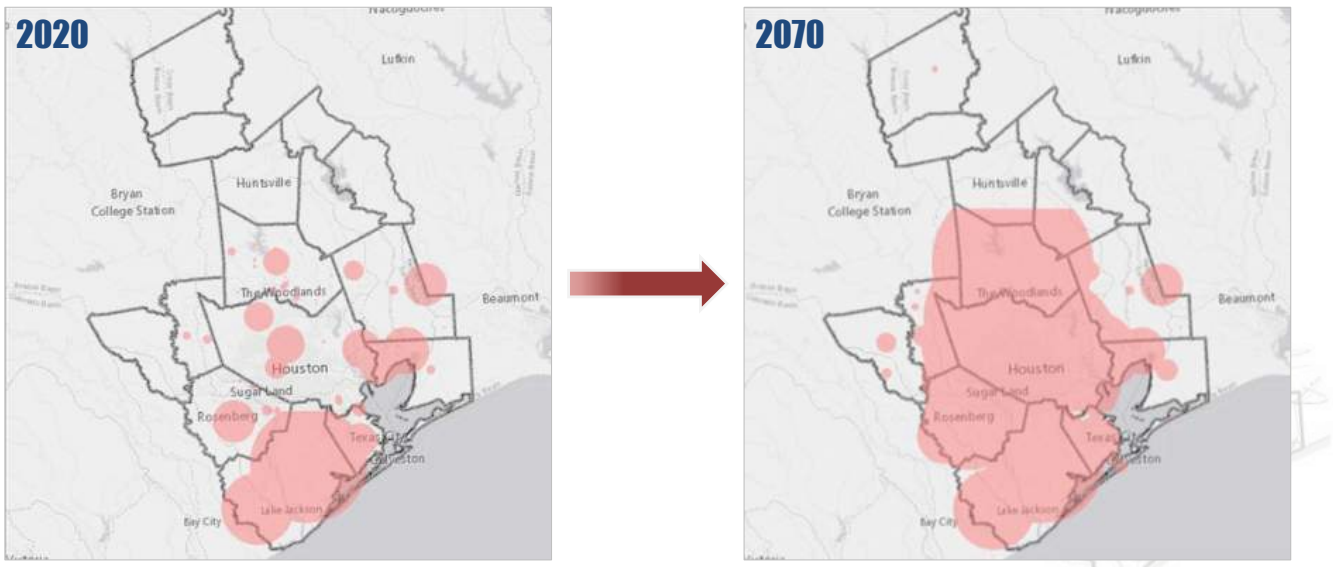
Agenda Item 8
Projected Water Need: Where

County	Projected Need (ac-ft)					
	2020	2030	2040	2050	2060	2070
Austin	0	405	714	1,114	1,583	2,177
Brazoria	79,489	87,973	92,617	97,964	104,105	111,209
Chambers	23,131	24,173	25,096	26,329	27,669	29,082
Fort Bend	8,717	68,977	85,340	101,777	121,382	142,456
Galveston	7,938	17,671	17,980	18,326	18,720	19,964
Harris	22,771	132,860	256,161	289,752	325,476	362,861
Leon	0	222	143	143	143	143
Liberty	9,882	9,920	9,931	9,977	10,030	10,100
Madison	0	375	157	0	0	0
Montgomery	4,560	25,679	50,022	81,221	120,462	167,690
Polk	0	0	0	0	0	0
San Jacinto	0	0	0	0	0	0
Trinity	0	0	0	0	0	0
Walker	0	0	0	0	0	0
Waller	653	1,126	1,678	2,343	3,261	4,488
TOTAL	**157,141**	**369,381**	**539,839**	**628,946**	**732,831**	**850,170**

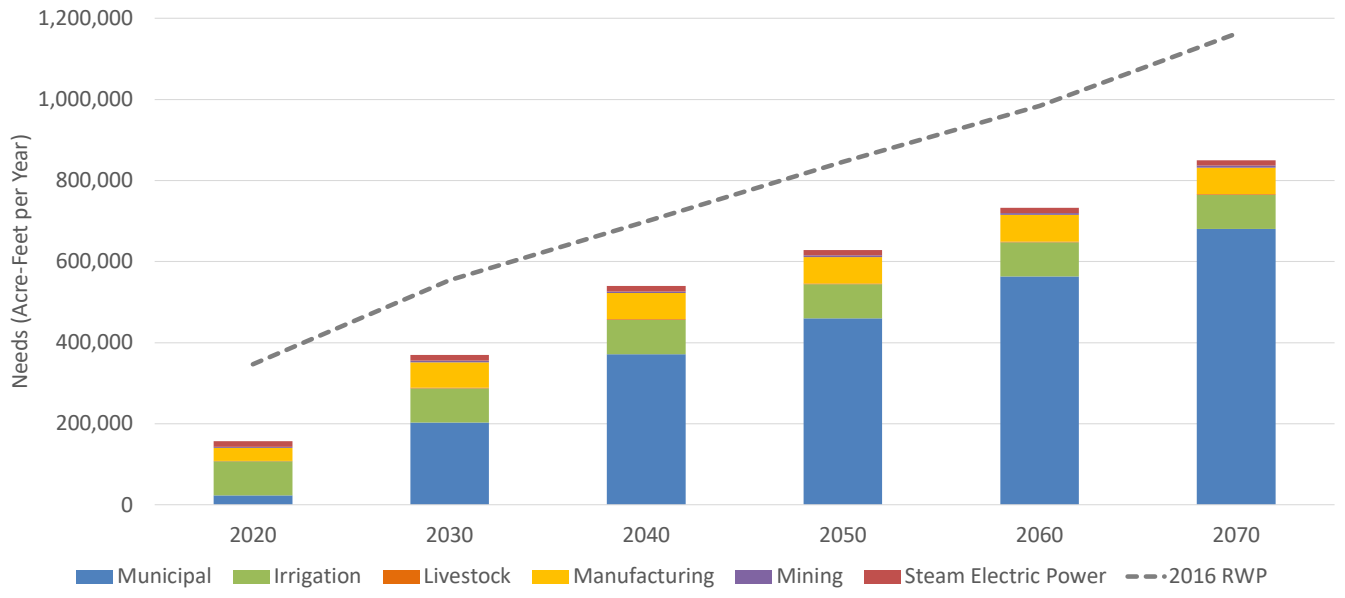
Agenda Item 8
Projected Water Need: Where

Basin	Projected Need (ac-ft)					
	2020	2030	2040	2050	2060	2070
Colorado	0	3	2	1	0	3
Brazos-Colorado	21,910	28,713	30,732	33,983	38,442	44,802
Brazos	8,486	25,048	27,559	34,375	44,193	56,156
San Jacinto-Brazos	66,309	97,952	109,452	119,081	130,819	143,108
San Jacinto	21,811	163,271	315,044	381,690	457,874	542,820
Trinity-San Jacinto	17,891	32,080	34,149	35,949	36,445	36,953
Trinity	12,552	13,850	14,140	14,766	15,581	16,449
Neches-Trinity	483	763	1,061	1,398	1,771	2,168
Neches	7,699	7,701	7,700	7,703	7,706	7,711
TOTAL	**157,141**	**369,381**	**539,839**	**628,946**	**732,831**	**850,170**

Agenda Item 8
Projected Water Need: Where



Agenda Item 8
Projected Water Need: What



Agenda Item 8
Projected Water Need: What

Category	Projected Need (ac-ft)					
	2020	2030	2040	2050	2060	2070
Irrigation	84,455	84,455	84,455	84,455	84,455	84,538
Livestock	1,276	1,659	1,913	1,912	1,911	1,919
Manufacturing	31,431	62,474	63,994	65,314	65,339	65,405
Mining	3,340	4,236	4,034	4,048	4,248	4,582
Municipal	23,119	203,037	371,923	459,697	563,358	680,206
Steam Electric Power	13,520	13,520	13,520	13,520	13,520	13,520
TOTAL	**157,141**	**369,381**	**539,839**	**628,946**	**732,831**	**850,170**

Agenda Item 8
Projected Water Need

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

Prepared in Support of the 2016 Region H Regional Water Plan

Texas Water Development Board

Dr. John R. Ellis
Water Use Projections & Planning Division
Texas Water Development Board

Yun Cho, Team Lead
Water Use Projections & Planning Division
Texas Water Development Board

Kevin Kluge, Manager
Water Use Projections & Planning Division
Texas Water Development Board

August, 2015

- Key to WMS analyses
- What if needs go unmet?
- TWDB Socioeconomic Impacts analysis
  - RWPG must request
  - May 31, 2019 deadline

Agenda Item 8
Projected Water Need

Action:

Authorize Consultant Team to submit a request to TWDB for analysis of socioeconomic impacts of unmet water needs in the Region H Water Planning Area.

TOTAL WUG NEEDS BY COUNTY (acre-feet/year)						
COUNTY	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
AUSTIN	0	(405)	(714)	(1,114)	(1,583)	(2,177)
BRAZORIA	(79,489)	(87,973)	(92,617)	(97,964)	(104,105)	(111,209)
CHAMBERS	(23,131)	(24,173)	(25,096)	(26,329)	(27,669)	(29,082)
FORT BEND	(8,717)	(68,977)	(85,340)	(101,777)	(121,382)	(142,456)
GALVESTON	(7,938)	(17,671)	(17,980)	(18,326)	(18,720)	(19,964)
HARRIS	(22,771)	(132,860)	(256,161)	(289,752)	(325,476)	(362,861)
LEON	0	(222)	(143)	(143)	(143)	(143)
LIBERTY	(9,882)	(9,920)	(9,931)	(9,977)	(10,030)	(10,100)
MADISON	0	(375)	(157)	0	0	0
MONTGOMERY	(4,560)	(25,679)	(50,022)	(81,221)	(120,462)	(167,690)
POLK	0	0	0	0	0	0
SAN JACINTO	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
WALKER	0	0	0	0	0	0
WALLER	(653)	(1,126)	(1,678)	(2,343)	(3,261)	(4,488)

TOTAL WUG NEEDS BY BASIN (acre-feet/year)						
BASIN	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
BRAZOS	(8,486)	(25,048)	(27,559)	(34,375)	(44,193)	(56,156)
BRAZOS-COLORADO	(21,910)	(28,713)	(30,732)	(33,983)	(38,442)	(44,802)
COLORADO	0	(3)	(2)	(1)	0	(3)
NECHES	(7,699)	(7,701)	(7,700)	(7,703)	(7,706)	(7,711)
NECHES-TRINITY	(483)	(763)	(1,061)	(1,398)	(1,771)	(2,168)
SAN JACINTO	(21,811)	(163,271)	(315,044)	(381,690)	(457,874)	(542,820)
SAN JACINTO-BRAZOS	(66,309)	(97,952)	(109,452)	(119,081)	(130,819)	(143,108)
TRINITY	(12,552)	(13,850)	(14,140)	(14,766)	(15,581)	(16,449)
TRINITY-SAN JACINTO	(17,891)	(32,080)	(34,149)	(35,949)	(36,445)	(36,953)

WUG NEEDS (acre-feet/year)						
WUG	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
ALVIN	0	0	0	0	0	0
ANAHUAC	0	0	0	0	0	0
ANGLETON	0	0	0	0	0	0
AUSTIN COUNTY WSC	0	0	0	0	0	0
BACLIFF MUD	0	0	0	0	0	0
BAKER ROAD MUD	0	(94)	(151)	(150)	(150)	(150)
BAYBROOK MUD 1	0	0	0	0	0	0
BAYTOWN	0	0	0	0	0	0
BAYTOWN AREA WATER AUTHORITY	0	0	0	0	0	0
BAYVIEW MUD	0	0	0	0	0	0
BELLAIRE	0	0	0	0	0	0
BELLVILLE	0	0	0	0	0	0
BLUE BELL MANOR UTILITY	0	(192)	(339)	(364)	(395)	(421)
BLUE RIDGE WEST MUD	0	(347)	(341)	(339)	(338)	(337)
BOLIVAR PENINSULA SUD	0	0	0	0	0	0
BRAZORIA	0	0	0	0	0	0
BRAZORIA COUNTY MUD 2	0	0	0	0	0	0
BRAZORIA COUNTY MUD 21	0	0	0	0	0	0
BRAZORIA COUNTY MUD 25	0	0	0	0	0	0
BRAZORIA COUNTY MUD 29	0	0	(20)	(7)	(4)	(3)
BRAZORIA COUNTY MUD 3	0	0	0	0	0	0
BRAZORIA COUNTY MUD 31	0	0	0	0	0	0
BRAZORIA COUNTY MUD 6	0	0	0	0	0	0
BRAZOSPORT WATER AUTHORITY	0	0	0	0	0	0
BROOKSHIRE MWD	0	0	0	0	0	0
BUFFALO	0	0	0	0	0	0
BUNKER HILL VILLAGE	0	0	0	0	0	0
CAPE ROYALE UD	0	0	0	0	0	0
CENTERVILLE	0	0	0	0	0	0
CENTRAL HARRIS COUNTY REGIONAL WATER AUTHORITY	0	(1,050)	(2,376)	(2,572)	(2,780)	(3,014)
CHAMBERS COUNTY MUD 1	0	0	0	0	0	0
CHAMBERS-LIBERTY COUNTIES NAVIGATION DISTRICT	0	0	0	0	0	0
CHATEAU WOODS MUD	(9)	(8)	(8)	(7)	(6)	(6)
CHIMNEY HILL MUD	0	0	0	0	0	0
CLEAR BROOK CITY MUD	0	0	0	0	0	0
CLEAR LAKE CITY WATER AUTHORITY	0	0	0	0	0	0
CLEVELAND	0	0	0	0	0	0
CLUTE	0	0	0	0	0	0
CONCORD-ROBBINS WSC	0	0	0	0	0	0
CONROE	0	(864)	(2,922)	(4,868)	(7,020)	(9,344)
CORINTHIAN POINT MUD 2	0	0	(16)	(14)	(13)	(13)
COUNTRY TERRACE WATER	0	0	0	(1)	(8)	(15)
COUNTY-OTHER, AUSTIN	0	(212)	(584)	(1,047)	(1,578)	(2,177)
COUNTY-OTHER, BRAZORIA	0	(2,197)	(6,623)	(11,764)	(17,676)	(24,358)
COUNTY-OTHER, CHAMBERS	0	0	0	0	0	0
COUNTY-OTHER, FORT BEND	(7,775)	(16,033)	(18,265)	(25,754)	(38,228)	(54,060)
COUNTY-OTHER, GALVESTON	(1,042)	(924)	(851)	(779)	(712)	(639)
COUNTY-OTHER, HARRIS	(900)	(7,126)	(11,359)	(11,700)	(14,875)	(17,882)
COUNTY-OTHER, LEON	0	0	0	0	0	0
COUNTY-OTHER, LIBERTY	0	0	0	0	0	0
COUNTY-OTHER, MADISON	0	0	0	0	0	0
COUNTY-OTHER, MONTGOMERY	(2,982)	(14,771)	(30,662)	(51,088)	(77,157)	(109,296)
COUNTY-OTHER, POLK	0	0	0	0	0	0
COUNTY-OTHER, SAN JACINTO	0	0	0	0	0	0
COUNTY-OTHER, WALKER	0	0	0	0	0	0
COUNTY-OTHER, WALLER	(635)	(1,108)	(1,660)	(2,287)	(3,002)	(3,783)

WUG NEEDS (acre-feet/year)						
WUG	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
CROSBY MUD	0	0	0	0	0	0
CUT & SHOOT	(12)	(23)	(67)	(139)	(244)	(383)
DAISETTA	0	0	0	0	0	0
DANBURY	0	0	0	0	0	0
DAYTON	0	0	0	0	0	0
DEER PARK	0	0	0	0	0	0
DEVERS	0	0	0	0	0	0
DOBBIN PLANTERSVILLE WSC	(289)	(486)	(763)	(1,130)	(1,617)	(2,259)
DODGE OAKHURST WSC	0	0	0	0	0	0
DOMESTIC WATER	(6)	(47)	(96)	(92)	(91)	(90)
DOUGLAS UTILITY	0	(63)	(100)	(100)	(100)	(102)
DOW CHEMICAL USA	0	0	0	0	0	0
EAST PLANTATION UD	(8)	(7)	(7)	(6)	(6)	(6)
EL DORADO UD	0	(119)	(198)	(204)	(207)	(207)
FAR HILLS UD	0	0	(21)	(18)	(16)	(16)
FIRST COLONY MUD 9	0	(588)	(581)	(578)	(576)	(576)
FLO COMMUNITY WSC	0	0	0	0	0	0
FOREST HILLS MUD	0	(94)	(182)	(179)	(178)	(178)
FORT BEND COUNTY FWSD 1	0	(34)	(43)	(52)	(61)	(70)
FORT BEND COUNTY FWSD 2	0	(96)	(118)	(141)	(164)	(189)
FORT BEND COUNTY MUD 115	0	(327)	(325)	(325)	(324)	(324)
FORT BEND COUNTY MUD 116	0	(346)	(453)	(536)	(620)	(703)
FORT BEND COUNTY MUD 121	0	(137)	(136)	(135)	(134)	(133)
FORT BEND COUNTY MUD 128	0	0	0	0	0	0
FORT BEND COUNTY MUD 129	(409)	(751)	(750)	(749)	(748)	(748)
FORT BEND COUNTY MUD 140	0	(147)	(145)	(144)	(144)	(144)
FORT BEND COUNTY MUD 149	(70)	(155)	(176)	(174)	(174)	(174)
FORT BEND COUNTY MUD 152	0	(66)	(82)	(82)	(82)	(82)
FORT BEND COUNTY MUD 155	0	(160)	(199)	(197)	(197)	(197)
FORT BEND COUNTY MUD 158	0	(101)	(126)	(125)	(125)	(125)
FORT BEND COUNTY MUD 162	0	(114)	(140)	(139)	(138)	(138)
FORT BEND COUNTY MUD 187	0	(126)	(123)	(122)	(121)	(121)
FORT BEND COUNTY MUD 23	0	(437)	(461)	(486)	(511)	(539)
FORT BEND COUNTY MUD 24	0	(62)	(77)	(77)	(76)	(76)
FORT BEND COUNTY MUD 25	0	(393)	(393)	(401)	(414)	(431)
FORT BEND COUNTY MUD 26	0	(259)	(334)	(332)	(330)	(330)
FORT BEND COUNTY MUD 42	0	(369)	(366)	(364)	(363)	(363)
FORT BEND COUNTY MUD 46	0	0	0	0	0	0
FORT BEND COUNTY MUD 47	0	0	0	0	0	0
FORT BEND COUNTY MUD 48	(153)	(279)	(277)	(276)	(275)	(275)
FORT BEND COUNTY MUD 49	(74)	(163)	(162)	(161)	(161)	(161)
FORT BEND COUNTY MUD 5	0	(108)	(105)	(104)	(103)	(103)
FORT BEND COUNTY MUD 81	0	0	0	0	0	0
FORT BEND COUNTY WCID #1	0	0	0	0	0	0
FORT BEND COUNTY WCID 2	0	(3,537)	(4,586)	(5,543)	(6,506)	(7,533)
FORT BEND COUNTY WCID 3	0	(237)	(237)	(236)	(236)	(236)
FREEPORT	0	0	0	0	0	0
FRIENDSWOOD	0	0	0	0	0	0
FULSHEAR	0	(1,102)	(1,178)	(1,176)	(1,175)	(1,173)
G & W WSC	0	0	0	(38)	(241)	(462)
GALENA PARK	0	0	0	0	0	0
GALVESTON	0	0	0	0	0	(855)
GALVESTON COUNTY FWSD 6	(43)	(38)	(37)	(37)	(38)	(40)
GALVESTON COUNTY MUD 12	0	0	0	0	0	0
GALVESTON COUNTY WCID 1	0	0	(270)	(570)	(893)	(1,223)
GALVESTON COUNTY WCID 12	(763)	(1,141)	(1,179)	(1,215)	(1,252)	(1,284)

WUG NEEDS (acre-feet/year)						
WUG	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
GALVESTON COUNTY WCID 8	0	0	0	0	0	0
GLENDALE WSC	0	0	0	0	0	0
GREEN TRAILS MUD	0	(185)	(309)	(312)	(313)	(315)
GREENWOOD UD	0	0	0	0	0	0
GROVETON	0	0	0	0	0	0
GULF COAST WATER AUTHORITY	0	0	0	0	0	0
GULF UTILITY	(26)	(20)	(17)	(13)	(11)	(9)
HARDIN WSC	0	0	0	0	0	0
HARRIS COUNTY FWSD 1-A	0	0	0	0	0	0
HARRIS COUNTY FWSD 27	0	0	0	0	0	(3)
HARRIS COUNTY FWSD 58	0	(129)	(228)	(246)	(264)	(283)
HARRIS COUNTY MUD 106	0	(441)	(774)	(805)	(828)	(846)
HARRIS COUNTY MUD 11	0	(65)	(134)	(139)	(149)	(159)
HARRIS COUNTY MUD 119	0	(132)	(250)	(255)	(265)	(276)
HARRIS COUNTY MUD 122	(7)	(29)	(51)	(49)	(48)	(48)
HARRIS COUNTY MUD 132	0	(311)	(510)	(513)	(515)	(518)
HARRIS COUNTY MUD 148	(55)	(57)	(57)	(56)	(56)	(57)
HARRIS COUNTY MUD 151	0	(324)	(538)	(538)	(539)	(542)
HARRIS COUNTY MUD 152	0	(331)	(571)	(588)	(603)	(617)
HARRIS COUNTY MUD 153	0	(385)	(638)	(635)	(634)	(636)
HARRIS COUNTY MUD 154	0	(303)	(511)	(524)	(545)	(570)
HARRIS COUNTY MUD 158	0	0	0	0	0	0
HARRIS COUNTY MUD 180	0	(176)	(303)	(301)	(300)	(299)
HARRIS COUNTY MUD 189	0	(110)	(192)	(203)	(214)	(227)
HARRIS COUNTY MUD 216	0	(51)	(82)	(81)	(81)	(81)
HARRIS COUNTY MUD 221	0	(155)	(263)	(276)	(288)	(301)
HARRIS COUNTY MUD 23	0	0	0	0	0	0
HARRIS COUNTY MUD 278	0	0	0	0	0	0
HARRIS COUNTY MUD 290	0	(225)	(396)	(414)	(427)	(438)
HARRIS COUNTY MUD 321	0	0	0	0	0	0
HARRIS COUNTY MUD 342	0	0	0	0	0	0
HARRIS COUNTY MUD 344	0	0	0	0	0	0
HARRIS COUNTY MUD 345	0	(262)	(431)	(426)	(425)	(425)
HARRIS COUNTY MUD 36	0	(127)	(204)	(202)	(202)	(202)
HARRIS COUNTY MUD 361	0	0	0	0	0	0
HARRIS COUNTY MUD 372	0	0	0	0	0	0
HARRIS COUNTY MUD 400	0	(425)	(749)	(800)	(827)	(839)
HARRIS COUNTY MUD 412	0	0	0	0	0	0
HARRIS COUNTY MUD 420	0	0	0	0	0	0
HARRIS COUNTY MUD 46	0	(179)	(292)	(288)	(287)	(287)
HARRIS COUNTY MUD 49	0	0	0	0	0	0
HARRIS COUNTY MUD 5	0	0	0	0	0	0
HARRIS COUNTY MUD 50	0	0	0	0	0	0
HARRIS COUNTY MUD 55	0	0	0	0	0	0
HARRIS COUNTY MUD 58	0	(82)	(143)	(140)	(140)	(139)
HARRIS COUNTY MUD 6	0	(101)	(196)	(192)	(191)	(191)
HARRIS COUNTY MUD 8	0	0	0	0	0	0
HARRIS COUNTY MUD 96	0	0	0	0	0	0
HARRIS COUNTY UD 14	0	(76)	(140)	(155)	(174)	(204)
HARRIS COUNTY UD 15	0	(177)	(326)	(326)	(330)	(337)
HARRIS COUNTY WCID 1	0	0	0	0	0	0
HARRIS COUNTY WCID 133	0	(192)	(329)	(360)	(403)	(450)
HARRIS COUNTY WCID 156	0	0	0	0	0	0
HARRIS COUNTY WCID 50	0	0	0	0	0	0
HARRIS COUNTY WCID 70	0	(80)	(127)	(126)	(126)	(125)
HARRIS COUNTY WCID 74	0	(166)	(264)	(255)	(254)	(254)

WUG NEEDS (acre-feet/year)						
WUG	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
HARRIS COUNTY WCID 89	0	0	0	0	0	0
HARRIS COUNTY WCID 96	0	0	0	0	0	0
HARRIS COUNTY WCID-FONDREN ROAD	0	0	0	0	0	0
HARRIS-MONTGOMERY COUNTIES MUD 386	0	0	0	0	0	0
HEMPSTEAD	0	0	0	0	0	(225)
HILLCREST VILLAGE	0	0	0	0	0	0
HILLTOP LAKES WSC	0	0	0	0	0	0
HILSHIRE VILLAGE	0	0	0	0	0	0
HITCHCOCK	0	0	0	0	0	0
HMW SUD	(28)	(340)	(661)	(937)	(933)	(930)
HOUSTON	0	(20,451)	(80,273)	(104,075)	(130,856)	(159,399)
HUMBLE	0	0	0	0	0	0
HUNTSVILLE	0	0	0	0	0	0
IRRIGATION, AUSTIN	0	0	0	0	0	0
IRRIGATION, BRAZORIA	(57,717)	(57,717)	(57,717)	(57,717)	(57,717)	(57,800)
IRRIGATION, CHAMBERS	(12,572)	(12,572)	(12,572)	(12,572)	(12,572)	(12,572)
IRRIGATION, FORT BEND	0	0	0	0	0	0
IRRIGATION, GALVESTON	(4,804)	(4,804)	(4,804)	(4,804)	(4,804)	(4,804)
IRRIGATION, HARRIS	0	0	0	0	0	0
IRRIGATION, LEON	0	0	0	0	0	0
IRRIGATION, LIBERTY	(9,344)	(9,344)	(9,344)	(9,344)	(9,344)	(9,344)
IRRIGATION, MADISON	0	0	0	0	0	0
IRRIGATION, MONTGOMERY	0	0	0	0	0	0
IRRIGATION, POLK	0	0	0	0	0	0
IRRIGATION, SAN JACINTO	0	0	0	0	0	0
IRRIGATION, WALKER	0	0	0	0	0	0
IRRIGATION, WALLER	(18)	(18)	(18)	(18)	(18)	(18)
JACINTO CITY	0	0	0	0	0	0
JAMAICA BEACH	0	0	0	0	0	0
JERSEY VILLAGE	0	0	0	0	0	0
JEWETT	0	0	0	0	0	0
JOHNSTON WATER UTILITY	(24)	(231)	(466)	(750)	(1,105)	(1,533)
KATY	0	(2,812)	(3,558)	(3,639)	(3,721)	(3,800)
KENDLETON	0	0	0	0	0	0
KINGS MANOR MUD	(16)	(2)	0	0	0	0
KIRKMONT MUD	0	0	0	0	0	0
LA MARQUE	(568)	(765)	(777)	(802)	(844)	(885)
LA PORTE	0	0	0	0	0	0
LA PORTE AREA WATER AUTHORITY	0	0	0	0	0	0
LAKE BONANZA WSC	(7)	(61)	(123)	(199)	(296)	(415)
LAKE CONROE HILLS MUD	(7)	(65)	(131)	(214)	(318)	(444)
LAKE JACKSON	0	0	0	0	0	0
LAKE LIVINGSTON WSC	0	0	0	0	0	0
LAKE MUD	0	0	0	0	0	0
LAZY RIVER IMPROVEMENT DISTRICT	(7)	(67)	(134)	(133)	(131)	(131)
LEAGUE CITY	0	0	0	0	0	0
LEGGETT WSC	0	0	0	0	0	0
LIBERTY	0	0	0	0	0	0
LIBERTY COUNTY FWSD 1 HULL	0	0	0	0	0	0
LIVESTOCK, AUSTIN	0	0	0	0	0	0
LIVESTOCK, BRAZORIA	0	0	0	0	0	(8)
LIVESTOCK, CHAMBERS	0	0	0	0	0	0
LIVESTOCK, FORT BEND	0	0	0	0	0	0
LIVESTOCK, GALVESTON	(237)	(237)	(237)	(237)	(237)	(237)
LIVESTOCK, HARRIS	(484)	(867)	(1,123)	(1,123)	(1,123)	(1,123)
LIVESTOCK, LEON	0	0	0	0	0	0

WUG NEEDS (acre-feet/year)						
WUG	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
LIVESTOCK, LIBERTY	(538)	(538)	(538)	(538)	(538)	(538)
LIVESTOCK, MADISON	0	0	0	0	0	0
LIVESTOCK, MONTGOMERY	(17)	(17)	(15)	(14)	(13)	(13)
LIVESTOCK, POLK	0	0	0	0	0	0
LIVESTOCK, SAN JACINTO	0	0	0	0	0	0
LIVESTOCK, WALKER	0	0	0	0	0	0
LIVESTOCK, WALLER	0	0	0	0	0	0
LIVINGSTON	0	0	0	0	0	0
LONGHORN TOWN UD	0	(105)	(173)	(172)	(172)	(172)
LUCE BAYOU PUD	0	(47)	(83)	(83)	(82)	(82)
MADISON COUNTY WSC	0	0	0	0	0	0
MADISONVILLE	0	0	0	0	0	0
MAGNOLIA	0	(110)	(375)	(774)	(1,364)	(2,283)
MANUFACTURING, AUSTIN	0	0	0	0	0	0
MANUFACTURING, BRAZORIA	(21,772)	(27,812)	(27,812)	(27,812)	(27,812)	(27,855)
MANUFACTURING, CHAMBERS	(2,753)	(3,452)	(3,452)	(3,452)	(3,452)	(3,452)
MANUFACTURING, FORT BEND	(62)	(839)	(839)	(839)	(839)	(839)
MANUFACTURING, GALVESTON	(138)	(9,394)	(9,420)	(9,445)	(9,472)	(9,497)
MANUFACTURING, HARRIS	(6,354)	(20,206)	(21,706)	(23,006)	(23,006)	(23,006)
MANUFACTURING, LEON	0	(143)	(143)	(143)	(143)	(143)
MANUFACTURING, LIBERTY	0	0	0	0	0	0
MANUFACTURING, MONTGOMERY	(352)	(628)	(622)	(617)	(615)	(613)
MANUFACTURING, SAN JACINTO	0	0	0	0	0	0
MANUFACTURING, WALKER	0	0	0	0	0	0
MANUFACTURING, WALLER	0	0	0	0	0	0
MANVEL	0	0	0	0	0	0
MASON CREEK UD	0	(410)	(672)	(669)	(667)	(667)
MEADOWCREEK MUD	0	(166)	(165)	(163)	(163)	(163)
MEADOWS PLACE	0	(204)	(200)	(205)	(212)	(222)
MEMORIAL POINT UD	0	0	0	0	0	0
MEMORIAL VILLAGES WATER AUTHORITY	(2,197)	(2,549)	(2,940)	(3,373)	(3,851)	(4,373)
MERCY WSC	0	0	0	0	0	0
MINING, AUSTIN	0	(193)	(130)	(67)	(5)	0
MINING, BRAZORIA	0	(221)	(421)	(641)	(874)	(1,163)
MINING, CHAMBERS	0	0	0	0	0	0
MINING, FORT BEND	(4)	(10)	(7)	(5)	(4)	(2)
MINING, GALVESTON	(343)	(368)	(405)	(437)	(468)	(500)
MINING, HARRIS	(2,946)	(2,927)	(2,875)	(2,843)	(2,818)	(2,798)
MINING, LEON	0	(79)	0	0	0	0
MINING, LIBERTY	0	(20)	(9)	(31)	(59)	(102)
MINING, MADISON	0	(375)	(157)	0	0	0
MINING, MONTGOMERY	(47)	(43)	(30)	(24)	(20)	(17)
MINING, POLK	0	0	0	0	0	0
MINING, SAN JACINTO	0	0	0	0	0	0
MINING, WALKER	0	0	0	0	0	0
MINING, WALLER	0	0	0	0	0	0
MISSOURI CITY	(170)	(417)	(458)	(500)	(544)	(591)
MONT BELVIEU	0	0	(557)	(1,378)	(2,260)	(3,188)
MONTGOMERY	0	(323)	(598)	(876)	(1,162)	(1,612)
MONTGOMERY COUNTY MUD 112	(9)	(87)	(83)	(81)	(80)	(80)
MONTGOMERY COUNTY MUD 115	0	(56)	(119)	(117)	(116)	(116)
MONTGOMERY COUNTY MUD 119	(26)	(242)	(487)	(480)	(478)	(476)
MONTGOMERY COUNTY MUD 15	(20)	(66)	(145)	(224)	(354)	(549)
MONTGOMERY COUNTY MUD 18	0	0	0	(268)	(567)	(1,299)
MONTGOMERY COUNTY MUD 19	0	0	0	0	0	0
MONTGOMERY COUNTY MUD 56	(5)	(45)	(98)	(155)	(155)	(154)

WUG NEEDS (acre-feet/year)						
WUG	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
MONTGOMERY COUNTY MUD 8	0	0	0	0	0	0
MONTGOMERY COUNTY MUD 83	0	0	0	0	0	0
MONTGOMERY COUNTY MUD 84	(29)	(257)	(247)	(243)	(241)	(241)
MONTGOMERY COUNTY MUD 88	0	0	0	0	0	0
MONTGOMERY COUNTY MUD 89	0	0	0	0	0	0
MONTGOMERY COUNTY MUD 9	(51)	(72)	(188)	(309)	(305)	(304)
MONTGOMERY COUNTY MUD 95	0	(14)	(42)	(58)	(78)	(97)
MONTGOMERY COUNTY MUD 98	0	0	(16)	(14)	(13)	(13)
MONTGOMERY COUNTY MUD 99	(4)	(54)	(110)	(107)	(107)	(107)
MONTGOMERY COUNTY UD 2	0	0	0	0	0	0
MONTGOMERY COUNTY UD 3	0	0	0	0	0	0
MONTGOMERY COUNTY UD 4	0	0	0	0	0	(163)
MONTGOMERY COUNTY WCID 1	0	(5)	(18)	(47)	(79)	(120)
MORGANS POINT	0	0	0	0	0	0
MOUNT HOUSTON ROAD MUD	0	(266)	(494)	(552)	(595)	(628)
MSEC ENTERPRISES	(49)	(3,275)	(3,697)	(4,249)	(4,969)	(5,377)
NASSAU BAY	0	0	0	0	0	0
NEEDVILLE	0	0	0	0	0	0
NEW CANEY MUD	0	(14)	(57)	(129)	(236)	(369)
NEW WAVERLY	0	0	0	0	0	0
NEWPORT MUD	0	0	0	0	0	0
NORMANGEE	0	0	0	0	0	0
NORTH BELT UD	0	(150)	(252)	(260)	(272)	(284)
NORTH CHANNEL WATER AUTHORITY	0	0	0	0	0	0
NORTH FOREST MUD	0	(59)	(96)	(94)	(94)	(94)
NORTH FORT BEND WATER AUTHORITY	0	(31,770)	(42,925)	(49,167)	(52,494)	(54,202)
NORTH GREEN MUD	0	(136)	(229)	(229)	(234)	(238)
NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY	(3,663)	(44,114)	(73,986)	(77,794)	(81,547)	(85,100)
NORTH ZULCH MUD	0	0	0	0	0	0
NORTHWEST HARRIS COUNTY MUD 16	0	(163)	(262)	(258)	(258)	(257)
NRG	0	0	0	0	0	0
OAK HOLLOW UTILITY	0	0	0	0	0	0
OAK RIDGE NORTH	0	(6)	(31)	(44)	(51)	(53)
ONALASKA WSC	0	0	0	0	0	0
ONE FIVE O WSC	0	0	0	0	0	0
OYSTER CREEK	0	0	0	0	0	0
P B & S C WSC	0	0	0	0	0	0
PALMER PLANTATION MUD 1	0	(221)	(219)	(218)	(218)	(218)
PALMER PLANTATION MUD 2	0	(109)	(107)	(107)	(106)	(106)
PANORAMA VILLAGE	(49)	(50)	(79)	(123)	(187)	(274)
PARKWAY MUD	0	0	0	0	0	0
PASADENA	0	0	0	0	0	0
PATTISON WSC	0	0	0	0	0	0
PEARLAND	0	0	0	0	0	0
PECAN GROVE MUD 1	0	0	0	0	0	0
PHELPS SUD	0	0	0	0	0	0
PINE VILLAGE PUD	0	0	0	0	0	0
PINEHURST DECKER PRAIRIE WSC	0	(15)	(75)	(164)	(303)	(545)
PINEWOOD COMMUNITY	0	(36)	(57)	(56)	(56)	(56)
PLANTATION MUD	0	(113)	(104)	(99)	(98)	(98)
POINT AQUARIUS MUD	0	0	0	0	0	0
PORTER SUD	(23)	(567)	(1,045)	(1,456)	(1,874)	(2,221)
PRAIRIE VIEW	0	0	0	0	0	0
PRAIRIE VIEW A&M UNIVERSITY	0	0	0	0	0	0
PROVIDENCE WSC	0	0	0	0	0	0
QUADVEST	(158)	(1,853)	(3,721)	(5,901)	(8,589)	(11,481)

WUG NEEDS (acre-feet/year)						
WUG	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
QUAIL VALLEY UD	0	(395)	(698)	(691)	(688)	(687)
RANCH UTILITIES	(5)	(41)	(36)	(34)	(34)	(33)
RAYFORD ROAD MUD	0	0	(30)	(133)	(253)	(295)
RICHMOND	0	0	0	0	0	0
RICHWOOD	0	0	0	0	0	0
RIVER PLANTATION MUD	0	0	(65)	(253)	(467)	(543)
RIVERSIDE WSC	0	0	0	0	0	0
ROLLING FORK PUD	0	(81)	(167)	(165)	(164)	(164)
ROMAN FOREST CONSOLIDATED MUD	(8)	(5)	(28)	(60)	(104)	(161)
ROSENBERG	0	0	0	0	0	0
ROYAL VALLEY UTILITIES	0	(281)	(351)	(350)	(349)	(349)
SAGEMEADOW UD	0	0	0	0	0	0
SAN JACINTO RIVER AUTHORITY	0	0	0	0	0	0
SAN JACINTO SUD	0	0	0	0	0	0
SAN LEON MUD	0	0	0	0	0	0
SEABROOK	0	0	0	0	0	(16)
SEALY	0	0	0	0	0	0
SEDONA LAKES MUD 1	0	0	0	0	0	0
SEQUOIA IMPROVEMENT DISTRICT	0	(54)	(95)	(94)	(94)	(94)
SHENANDOAH	(183)	(562)	(713)	(815)	(937)	(1,095)
SHEPHERD	0	0	0	0	0	0
SHOREACRES	0	0	0	0	0	0
SIENNA PLANTATION	0	0	0	(275)	(1,689)	(2,994)
SODA WSC	0	0	0	0	0	0
SOUTH CLEVELAND WSC	0	0	0	0	0	0
SOUTH HOUSTON	0	0	0	0	0	0
SOUTHEAST WSC	0	0	0	0	0	0
SOUTHERN MONTGOMERY COUNTY MUD	0	0	0	0	0	0
SOUTHERN WATER	0	(150)	(239)	(235)	(233)	(233)
SOUTHSIDE PLACE	0	0	0	0	0	0
SOUTHWEST HARRIS COUNTY MUD 1	0	0	0	0	0	0
SPLENDORA	(24)	(67)	(199)	(378)	(614)	(916)
SPRING CREEK UD	(31)	(96)	(131)	(214)	(328)	(366)
SPRING MEADOWS MUD	0	0	0	0	0	0
SPRING VALLEY	0	0	0	0	0	0
STANLEY LAKE MUD	0	0	0	(198)	(566)	(1,029)
STEAM ELECTRIC POWER, CHAMBERS	(7,396)	(7,396)	(7,396)	(7,396)	(7,396)	(7,396)
STEAM ELECTRIC POWER, FORT BEND	0	0	0	0	0	0
STEAM ELECTRIC POWER, HARRIS	(6,124)	(6,124)	(6,124)	(6,124)	(6,124)	(6,124)
STEAM ELECTRIC POWER, MONTGOMERY	0	0	0	0	0	0
SUBURBAN UTILITY	0	(96)	(156)	(153)	(152)	(152)
SUGAR LAND	0	(5,245)	(6,197)	(7,181)	(8,048)	(8,659)
SUNBELT FWSD	0	0	0	0	0	0
SURFSIDE BEACH	0	(26)	(24)	(23)	(22)	(22)
SWEENY	0	0	0	0	0	0
T & W WATER SERVICE	(50)	(430)	(853)	(1,358)	(1,986)	(2,735)
TARKINGTON SUD	0	0	0	0	0	0
TDCJ JESTER UNITS	0	(398)	(396)	(394)	(394)	(394)
TDCJ RAMSEY AREA	0	0	0	0	0	0
TEMPE WSC 1	0	0	0	0	0	0
TEXAS CITY	0	0	0	0	0	0
THE COMMONS WATER SUPPLY	0	(130)	(224)	(233)	(239)	(244)
THE WOODLANDS	0	(1,220)	(2,434)	(4,125)	(6,559)	(9,479)
THUNDERBIRD UD	0	(518)	(513)	(510)	(509)	(508)
TOMBALL	0	(1,043)	(1,815)	(1,913)	(2,008)	(2,098)
TRAIL OF THE LAKES MUD	0	(317)	(530)	(532)	(536)	(540)

WUG NEEDS (acre-feet/year)						
WUG	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
TRINITY	0	0	0	0	0	0
TRINITY BAY CONSERVATION DISTRICT	(410)	(753)	(1,119)	(1,531)	(1,989)	(2,474)
TRINITY RURAL WSC	0	0	0	0	0	0
VALLEY RANCH MUD 1	0	0	0	0	0	0
VARNER CREEK UD	0	0	0	0	0	0
WALKER COUNTY RURAL SUD	0	0	0	0	0	0
WALLER	(25)	(50)	(69)	(72)	(76)	(82)
WALLIS	0	0	0	0	0	0
WATERWOOD MUD 1	0	0	0	0	0	0
WEBSTER	0	0	0	0	0	0
WEST COLUMBIA	0	0	0	0	0	0
WEST END WSC	0	0	0	0	0	0
WEST HARRIS COUNTY MUD 6	0	(121)	(205)	(212)	(219)	(224)
WEST HARRIS COUNTY REGIONAL WATER AUTHORITY	0	(15,523)	(33,306)	(36,883)	(38,145)	(39,318)
WEST UNIVERSITY PLACE	0	0	0	0	0	0
WESTWOOD NORTH WSC	(15)	(19)	(69)	(120)	(171)	(246)
WESTWOOD SHORES MUD	0	0	0	0	0	0
WHITE OAK UTILITIES	0	0	0	0	0	0
WHITE OAK WSC	0	(12)	(9)	(8)	(6)	(6)
WILLIS	0	0	0	0	0	0
WOOD BRANCH VILLAGE	0	0	0	(20)	(49)	(86)
WOODCREEK MUD	0	(112)	(184)	(183)	(184)	(188)
WOODCREEK WATER OF LIBERTY	0	(18)	(40)	(64)	(89)	(116)

Agenda Item 9

Receive presentation from the Texas Living Waters Project regarding the 2018 Water Conservation by the Yard report.

REGION H
Water Planning Group

Water Conservation by the Yard:

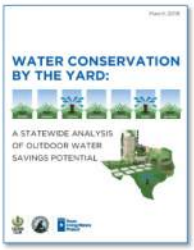
REGION H APPENDIX

SIERRA CLUB

Texas Living Waters Project

INTRODUCTION

The Region H Appendix provides a regional summary outdoor water use and estimated municipal savings from outdoor watering restrictions and compares these estimates against projected municipal water needs and recommended water management strategies. Information presented in the Region H Appendix comes from two primary sources: the 2016 Region H Water Plan and the *Water Conservation by the Yard: A Statewide Analysis of Outdoor Water Savings Potential* report. Published in March 2018, this report examines outdoor water use across Texas and estimates the municipal water savings from no more than twice per week watering restrictions for each of the 16 water planning regions. The results of this study demonstrate that Texas cities can achieve significant water savings from the implementation of permanent, year-round outdoor watering restrictions. To achieve the full breadth of these water savings, however, robust education and enforcement efforts mechanisms must be in place.



With progress on the 2021 Region H Water Plan already underway, the Region H Appendix serves as a planning tool to inform the decisions of the Region H Planning Group and demonstrate how much further Region H can drive its municipal conservation efforts during the next planning cycle. The Texas Living Waters Project strongly believes permanent outdoor watering restrictions represent a core municipal conservation strategy because this measure drives long-term savings that can be sustained year-round regardless of drought conditions. As such, we are advocating Region H take stronger steps to encourage its water user groups to adopt no more than twice per week outdoor watering restrictions. Region H can accomplish this by incorporating no more than twice per week outdoor watering restrictions into the municipal conservation water management strategy and by also providing WUGs with detailed savings information to help them better understand the amount of savings they can expect to achieve with this measure. In tandem with these efforts, the Texas Living Waters Project has also developed a Municipal Best Management Practice focusing on outdoor watering restrictions. Once adopted by the Texas Water Development Board, this BMP will provide WUGs formal guidance on how to develop and implement effective outdoor watering restrictions.

OUTDOOR WATERING RESTRICTIONS
AN OVERVIEW

WHAT

Outdoor watering restrictions generally limit the following: 1) the number of days in a week residents can water their lawns, gardens, and plants; 2) the hours during which residents can irrigate; and 3) the specific water delivering technologies that are allowed. Since the 2011 drought, more cities across Texas have moved to adopt mandatory, permanent outdoor watering restrictions to replace their temporary drought-related watering restrictions. Doing so can prevent a rebound in water usage following the end of a drought.

WHY

To help maintain a conservation mindset regardless of drought conditions, the *Water Conservation by the Yard* report **advocates the adoption of a mandatory, year-round no more than twice per week watering schedule**. Since all regions in Texas are prone to drought, keeping watering restrictions in place on a full-time basis is a proactive strategy for helping utilities meet their current and future municipal water needs. Having permanent, agreed upon watering restrictions not only sends consistent messaging to customers, it also provides stability for the landscape and irrigation industries that can assist customers in selecting regionally appropriate plants and technologies for long-term water efficiency.

HOW

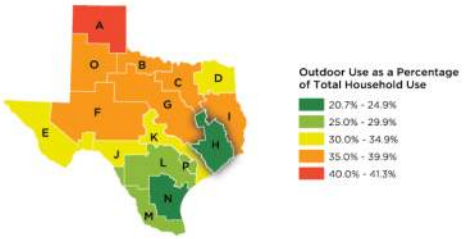
Water utilities can enforce mandatory outdoor watering schedules by adopting these provisions as part of an ordinance or rule. Effective implementation of the watering schedule requires careful planning, stakeholder input, education, and enforcement mechanisms to ensure compliance.

OUTDOOR WATER USE METRICS
REGION H

20.7%

SINGLE-FAMILY OUTDOOR WATER USE AS A PERCENTAGE OF TOTAL HOUSEHOLD USE

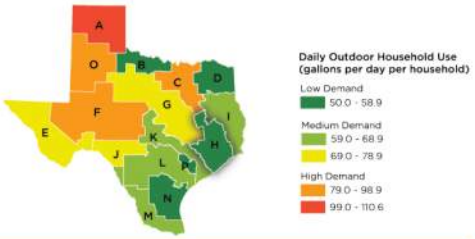
STATEWIDE



50.0 gal/day

DAILY HOUSEHOLD OUTDOOR WATER USE

STATEWIDE



ESTIMATED SAVINGS POTENTIAL
OF OUTDOOR WATERING RESTRICTIONS

LOW EFFORT

2.0%
of total municipal demand

→

HIGH EFFORT

7.0%
of total municipal demand

IMPORTANCE OF EDUCATION & ENFORCEMENT

For Region H, the estimated savings potential of twice per week outdoor watering restrictions ranges from 2 to 7 percent (of total municipal demand) – depending on the level of effort employed to implement the measure. Research indicates that education and enforcement have a direct impact on the effectiveness of outdoor watering restrictions. To achieve the greatest amount of water savings, robust education and enforcement mechanisms must be in place. It is also important to note that total water savings from outdoor watering restrictions increase in proportion to municipal population and demand growth given the coincidence of new housing stock, especially in the single-family sector where in-ground irrigation systems and turf grass have become increasingly prevalent.

For additional information on how the range of savings was determined, please see the *Water Conservation by the Yard: A Statewide Analysis of Outdoor Water Savings Potential* report.

ESTIMATED MUNICIPAL SAVINGS
FROM OUTDOOR WATERING RESTRICTIONS

PROJECTED MUNICIPAL SAVINGS BASED ON MUNICIPAL DEMANDS IDENTIFIED IN THE 2016 REGION H WATER PLAN

Planning Decade	Municipal Demand (ac-feet per year)	Water Savings (ac-feet per year)*		Unmet Municipal Need (ac-feet per year)	Savings as a % of Needs
		LOW EFFORT	HIGH EFFORT		
2020	1,257,276	25,146	88,009	141,908	18% - 62%
2030	1,377,892	27,558	96,452	310,606	9% -31%
2040	1,491,882	29,838	104,432	420,866	7% - 25%
2050	1,613,566	32,271	112,950	523,604	6% - 22%
2060	1,748,052	34,961	122,364	635,865	5% - 19%
2070	1,893,397	37,868	132,538	760,957	5% - 17%

*Please note that these savings estimates are inclusive of the utilities in Region H that already have watering restrictions in place, including City of Conroe and Montgomery County MUD 47.

KEY TAKEAWAYS

- The level of implementation effort (low or high) has a significant effect on the estimated municipal savings from outdoor watering restrictions. With more robust education and enforcement efforts, Region H can nearly double its outdoor water savings.
- Projected municipal savings from no more than twice per week watering restrictions are enough to satisfy a significant portion of municipal needs (i.e., the deficit between municipal demand and available supplies from existing sources) identified in the Region H Water Plan.
- Permanent watering restrictions have the potential to drastically cut future municipal demands, thereby enhancing the resiliency of future municipal supplies and reducing future municipal needs.

EXPANDING FUTURE SUPPLIES
WITH OUTDOOR WATERING RESTRICTIONS

WATER SUPPLY FROM RECOMMENDED MUNICIPAL WATER MANAGEMENT STRATEGIES BY TYPE		
Municipal WMS Type	Water Volume (ac-feet per year)	
	2020	2070
CONJUNCTIVE USE	23,212	47,310
GROUNDWATER DESALINATION	14,740	26,642
GROUNDWATER WELLS & OTHER	12,856	21,875
INDIRECT REUSE	117,921	392,638
IRRIGATION CONSERVATION	86,123	86,123
MUNICIPAL CONSERVATION	20,364	150,660
NEW MAJOR RESERVOIR	100,611	159,819
OTHER CONSERVATION	9,281	65,261
OTHER DIRECT REUSE	7,214	47,270
OTHER SURFACE WATER	323,660	782,145
SEAWATER DESALINATION	-	11,200
TOTAL WATER VOLUME FROM RECOMMENDED WMSs	715,982	1,790,943
TOTAL WATER VOLUME IF OUTDOOR WATERING RESTRICTIONS ARE IMPLEMENTED AS A MUNICIPAL CONSERVATION WMS	741,128 to 803,991	1,828,811 to 1,923,481
% INCREASE IN WATER VOLUME FROM ALL WMSs	4% to 12%	2% to 7%

KEY TAKEAWAYS

- Region H can bolster its long-term municipal conservation efforts through permanent outdoor watering restrictions. Doing so will help reduce the region's reliance upon expensive supply-side water management strategies and stretch future water supplies even further.

OUTDOOR WATERING RESTRICTIONS
AS A MUNICIPAL CONSERVATION WMS

WATER SUPPLY FROM RECOMMENDED MUNICIPAL CONSERVATION WATER MANAGEMENT STRATEGIES		
Municipal Conservation WMS Type	Water Volume (acre-feet per year)	
	2020	2070
GENERAL*	9,052	101,203
WATER LOSS CONTROL	11,312	49,457
TOTAL WATER VOLUME FROM RECOMMENDED MUNICIPAL CONSERVATION WMSs	20,364	150,660
TOTAL WATER VOLUME IF OUTDOOR WATERING RESTRICTIONS ARE IMPLEMENTED AS A MUNICIPAL CONSERVATION WMS	45,510 to 108,373	188,528 to 283,198
% INCREASE IN WATER VOLUME FROM MUNICIPAL CONSERVATION	>100%	25% to 88%

*Region H's 2016 Regional Water Plan identifies the following measures as general municipal conservation strategies: efficient residential irrigation controllers, efficient meter installations, tank-type ultra-low-flow toilet rebates, efficient commercial dishwashers, efficient commercial spray-rinse valves, efficient commercial steamers, efficient commercial cooling towers, large landscape surveys for single-family residences, large landscape water budgets for single-family residences, large landscape irrigation controllers for single-family residences, **outdoor watering restrictions (2x per week)**, and customer behavioral engagement software

KEY TAKEAWAYS

- No more than twice per week outdoor watering restrictions can yield significant water savings even in areas with higher annual precipitation rates like Region H. It is especially critical in this region given its projected population growth and the prevalence of in-ground irrigation systems in single-family homes.
- Region H can double the supplies from municipal conservation water management strategies by encouraging all water user groups to adopt permanent outdoor watering restrictions supported by robust educational and enforcement mechanisms.

IMPLICATIONS FOR REGION H'S WATER PLANNING PROCESS

- Region H can do even more to promote proactive, ongoing municipal conservation efforts
- Region H can establish higher municipal conservation targets by incorporating no more than twice per week watering restrictions into its municipal conservation water management strategy
- To ensure greater conservation savings, Region H should encourage WUGs to combine outdoor watering restrictions with robust education and enforcement mechanisms
- Savings from outdoor watering restrictions can significantly reduce municipal water demand, which will in turn help close the gap between future municipal demand and future water supplies (i.e., municipal needs)
- Placing more emphasis on municipal water conservation WMSs, especially outdoor watering restrictions, can help Region H offset supply-side water management strategies requiring large capital investments

ESTIMATED MUNICIPAL SAVINGS by WUG

WUG Name (Utility-Based / New)	2020 Planning Decade					2040 Planning Decade					2070 Planning Decade				
	Municipal Demand	Water Savings		Municipal Needs	Savings as a % of Needs	Municipal Demand	Water Savings		Municipal Needs	Savings as a % of Needs	Municipal Demand	Water Savings		Municipal Needs	Savings as a % of Needs
		Low	High				Low	High				Low	High		
ALVIN	4,644	93	325	0	>100%	5,161	103	361	0	>100%	6,983	140	489	0	>100%
ANAHUAC	267	5	19	0	>100%	255	5	18	0	>100%	261	5	18	0	>100%
ANGLETON	1,964	39	137	0	>100%	1,835	37	128	0	>100%	1,830	37	128	0	>100%
BACLIFF MUD	539	11	38	0	>100%	506	10	35	0	>100%	528	11	37	0	>100%
BAKER ROAD MUD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BAYBROOK MUD 1	171	3	12	7	50% - >100%	191	4	13	35	11% - 38%	229	5	16	71	6% - 23%
BAYTOWN	10,150	203	711	0	>100%	10,082	202	706	0	>100%	10,765	215	754	0	>100%
BAYVIEW MUD	339	7	24	172	4% - 14%	455	9	32	277	3% - 11%	486	10	34	308	3% - 11%
BELLAIRE	3,804	76	266	305	25% - 87%	4,329	87	303	82	>100%	5,514	110	386	217	51% - >100%
BELLVILLE	1,217	24	85	0	>100%	1,366	27	96	0	>100%	1,722	34	121	0	>100%
BLUE BELL MANOR UTILITY	646	13	45	259	5% - 17%	681	14	48	382	4% - 12%	788	16	55	505	3% - 11%
BLUE RIDGE WEST MUD	931	19	65	6	>100%	1,289	26	90	390	7% - 23%	1,633	33	114	692	5% - 17%
BOLIVAR PENINSULA SUD	198	4	14	0	>100%	277	6	19	0	>100%	460	9	32	0	>100%
BRAZORIA	318	6	22	0	>100%	309	6	22	0	>100%	316	6	22	0	>100%
BRAZORIA COUNTY MUD 2	2,199	44	154	0	>100%	2,185	44	153	0	>100%	2,184	44	153	0	>100%
BRAZORIA COUNTY MUD 21	549	11	38	0	>100%	610	12	43	0	>100%	724	14	51	0	>100%
BRAZORIA COUNTY MUD 29	1,380	28	97	0	>100%	2,954	59	207	1,223	5% - 17%	6,065	121	425	4,335	3% - 10%
BRAZORIA COUNTY MUD 3	566	11	40	0	>100%	560	11	39	0	>100%	584	12	41	0	>100%
BRAZORIA COUNTY MUD 31	292	6	20	0	>100%	381	8	27	0	>100%	508	10	36	0	>100%
BRAZORIA COUNTY MUD 6	681	14	48	0	>100%	676	14	47	0	>100%	680	14	48	0	>100%
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Agenda Item 10

Receive update from Consultant Team regarding status of investigation of water supply alternatives for the 2021 Region H Regional Water Plan.

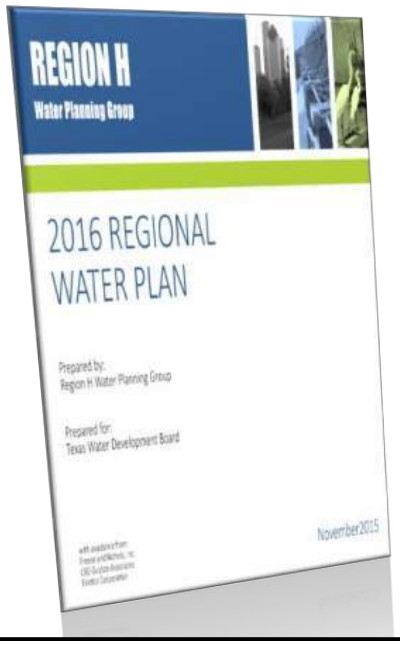
REGION H
Water Planning Group

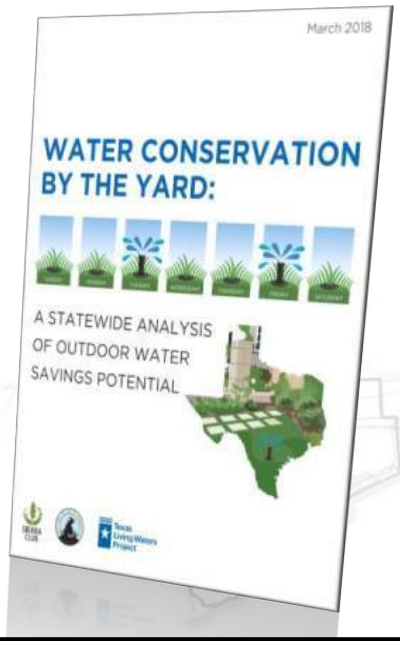
Agenda Item 10
Water Supply Alternatives: Conservation



- Reservoir-sized savings
- Simple concept, complex reality
- Evolving process

Agenda Item 10
Water Supply Alternatives: Advanced Municipal Conservation





Agenda Item 10
Water Supply Alternatives: Advanced Municipal Conservation

- New from TWDB
- Numerous factors
  - Demand
  - Measures by category
  - Rates and saturation
- Flexible
- Basis for Region H tool
  - Bulk execution
  - Additional TWDB category data


Texas Water Development Board

Municipal Water Conservation Planning Tool

This tool was developed to assist water utilities with their water conservation planning and reporting. It provides an accounting framework for projecting future conservation program costs and water savings as well as estimating the water savings from previous implementation of conservation measures.

It is recommended that users review the User Guide to familiarize themselves with the tool's functionality. Quick Start Guides also are provided below. Users may add additional worksheets to the workbook, which may be useful for keeping notes or performing additional data calculations.

Conservation Plan Quick Start

Step 1. Go to the **Baseline Demand Projection** worksheet and click the **Find My Utility** button to locate your utility. If your utility is not listed, select UNLISTED and enter your utility's Planning Region and name when prompted. Choose whether you will use the TWDB baseline demand projection for your utility or enter your own baseline projection. If your utility is UNLISTED, you will have to enter your own baseline projection.

Step 2. Go to the **Conservation Measures** worksheet and select the conservation measures you want to include in your analysis. There are two types of measures: Pre-Defined Measures and User-Defined Measures. Pre-Defined Measures already are fully specified. You only need to enter the average annual level of activity for these measures by planning decade and indicate whether any of the measures will be debt financed. With User-Defined Measures, you must also specify their cost and water savings parameters. You can also copy any Pre-Defined Measure and paste it into the corresponding User-Defined Measure table so that you can customize it to your utility.

Step 3. Once you've selected/defined your conservation measures and entered their activity levels, click the **Manage Scenarios** button on the worksheet to save your selections and measure specifications. You can create as many scenarios as you like.

Step 4. Review your Conservation Plan. Your Conservation Plan's annual implementation activity, water savings, and costs are summarized on the **Conservation Plan** worksheet. Projected water use under your Conservation Plan is summarized on the **Plan Demand Projection** worksheet.

Single-Year Savings Calculator Quick Start

Step 1. Go to the **Single-Year Savings Calculator** worksheet. Click the **Manage Scenarios** button and load your Conservation Plan.

Step 2. Enter the activity completed in the year you are interested in for each measure in your Conservation Plan.

Step 3. If you implemented measures that are not in your Conservation Plan, go to the **Conservation Measures** worksheet and select Y in the **Include in Plan?** column for the additional measures you want to include. If any of these additional measures are user-defined measures, make sure they are fully specified before returning to the **Single-Year Savings Calculator** worksheet.

The Municipal Water Conservation Planning Tool was Developed by:

Alliance for Water Efficiency
Bill Cubed
Freese & Nichols, Inc.
Texas State University
Walworth, Inc.

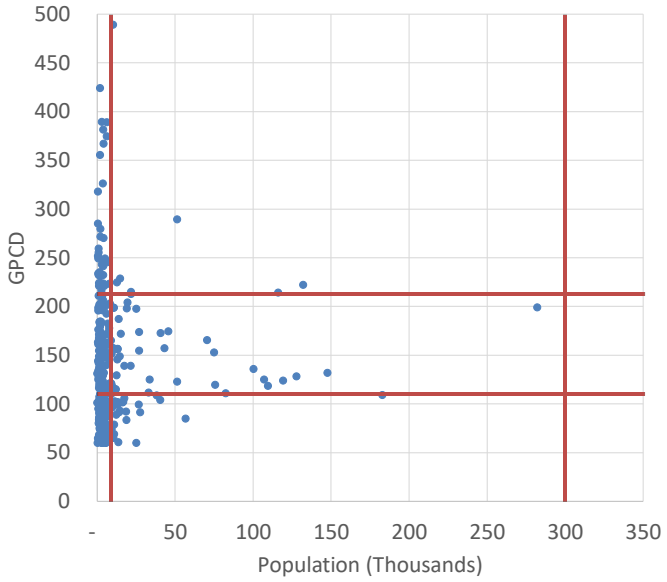
Agenda Item 10
Water Supply Alternatives: Advanced Municipal Conservation

Step 1: Adapt MWCPT logic

Step 2: Create categories

- No one-size fits all approach
- Potential by GPCD
- Programs by size
- Dynamic

Step 3: Even more categories



Agenda Item 10
Water Supply Alternatives: Advanced Municipal Conservation

Step 4: Implementation Schedules

- Select conservation measures
  - What programs
  - How many users implementing
- Most aggressive for large utilities with high use
- Outdoor focus

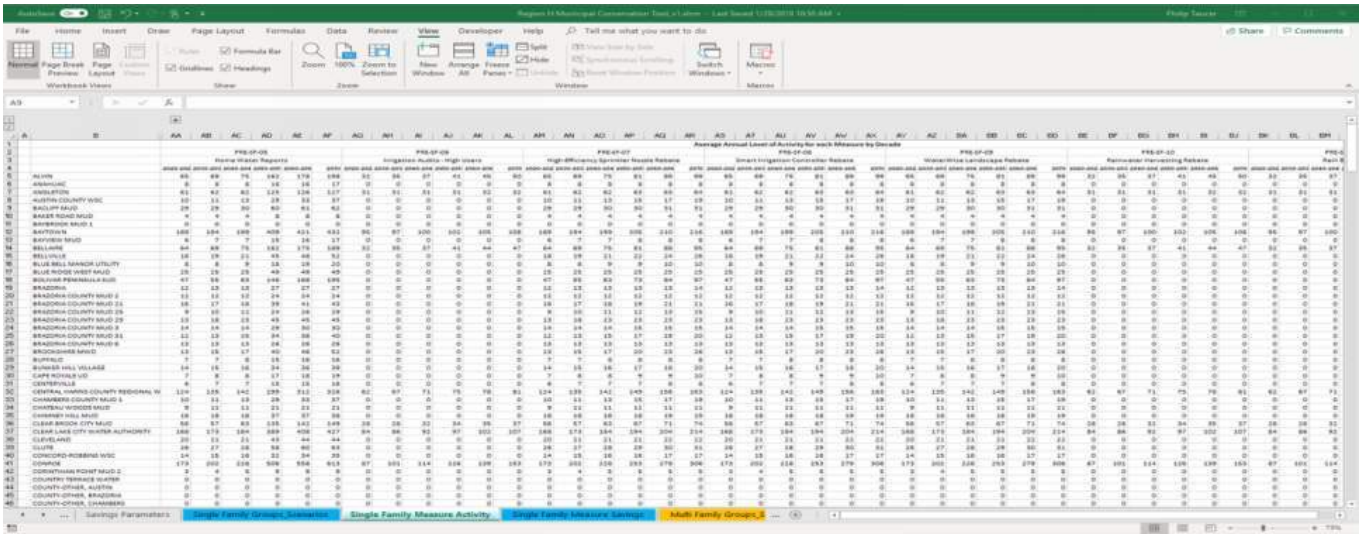
Mid Potential Large Utility		Percentage of SF Connections Participating Annually					
Single-Family Measures		2020-2029	2030-2039	2040-2049	2050-2059	2060-2069	2070
PRE-SF-01	HE Toilet Rebate						
PRE-SF-02	Bathroom Retrofit						
PRE-SF-03	Showerhead and Aerator Kit						
PRE-SF-04	Clothes Washer Rebate						
PRE-SF-05	Home Water Reports	1.00%	2.00%	3.00%	3.00%	3.00%	3.00%
PRE-SF-06	Irrigation Audits - High Users	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
PRE-SF-07	High-Efficiency Sprinkler Nozzle Rebate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
PRE-SF-08	Smart Irrigation Controller Rebate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
PRE-SF-09	WaterWise Landscape Rebate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
PRE-SF-10	Rainwater Harvesting Rebate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
PRE-SF-11	Rain Barrel	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%

Mid Potential Large Utility		Percentage of MF Connections Participating Annually					
Multi-Family Measures		2020-2029	2030-2039	2040-2049	2050-2059	2060-2069	2070
PRE-MF-01	HE Toilet Rebate						
PRE-MF-02	Bathroom Retrofit						
PRE-MF-03	Showerhead and Aerator Kit						
PRE-MF-04	Clothes Washer Rebate						
PRE-MF-05	Irrigation Audits - High Users	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
PRE-MF-06	High-Efficiency Sprinkler Nozzle Rebate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
PRE-MF-07	Smart Irrigation Controller Rebate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
PRE-MF-08	WaterWise Landscape Rebate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
PRE-MF-09	Rainwater Harvesting Rebate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%

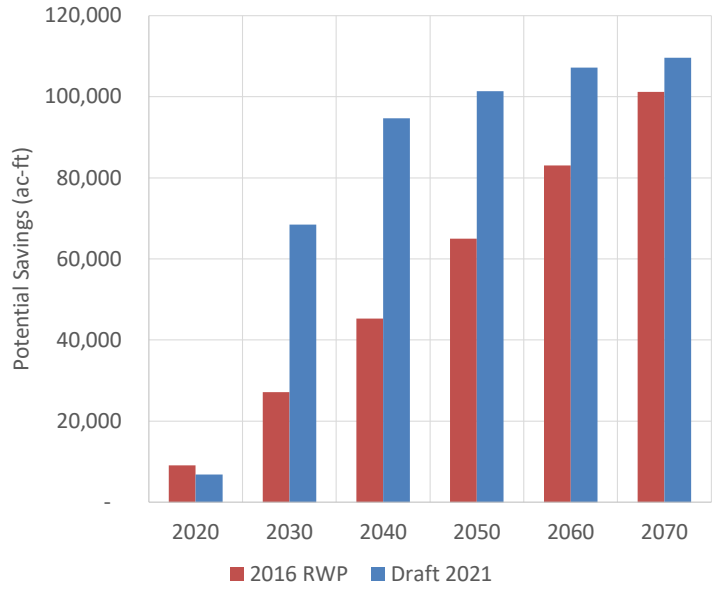
Mid Potential Large Utility		Percentage of ICI Connections Participating Annually					
ICI Measures		2020-2029	2030-2039	2040-2049	2050-2059	2060-2069	2070
PRE-ICI-01	HE Toilet Rebate						
PRE-ICI-02	Urinal Rebate						
PRE-ICI-03	Clothes Washer Rebate						
PRE-ICI-04	Commercial General Rebate	0.90%	0.80%	0.70%	0.60%		
PRE-ICI-05	Kitchen Pre-Rinse Spray Valve Installation	0.90%	0.80%	0.70%	0.60%		
PRE-ICI-06	Irrigation Audits - High Users	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
PRE-ICI-07	High-Efficiency Sprinkler Nozzle Rebate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
PRE-ICI-08	Smart Irrigation Controller Rebate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
PRE-ICI-09	WaterWise Landscape Rebate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
PRE-ICI-10	Rainwater Harvesting Rebate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
PRE-ICI-11	Commercial Dishwasher Rebate	0.90%	0.80%	0.70%	0.60%		
PRE-ICI-12	Commercial Food Steamer Rebate	0.90%	0.80%	0.70%	0.60%		

Agenda Item 10
Water Supply Alternatives: Advanced Municipal Conservation

Step 5: Bringing it Together (Tons of Math)



Agenda Item 10
Water Supply Alternatives: Advanced Municipal Conservation

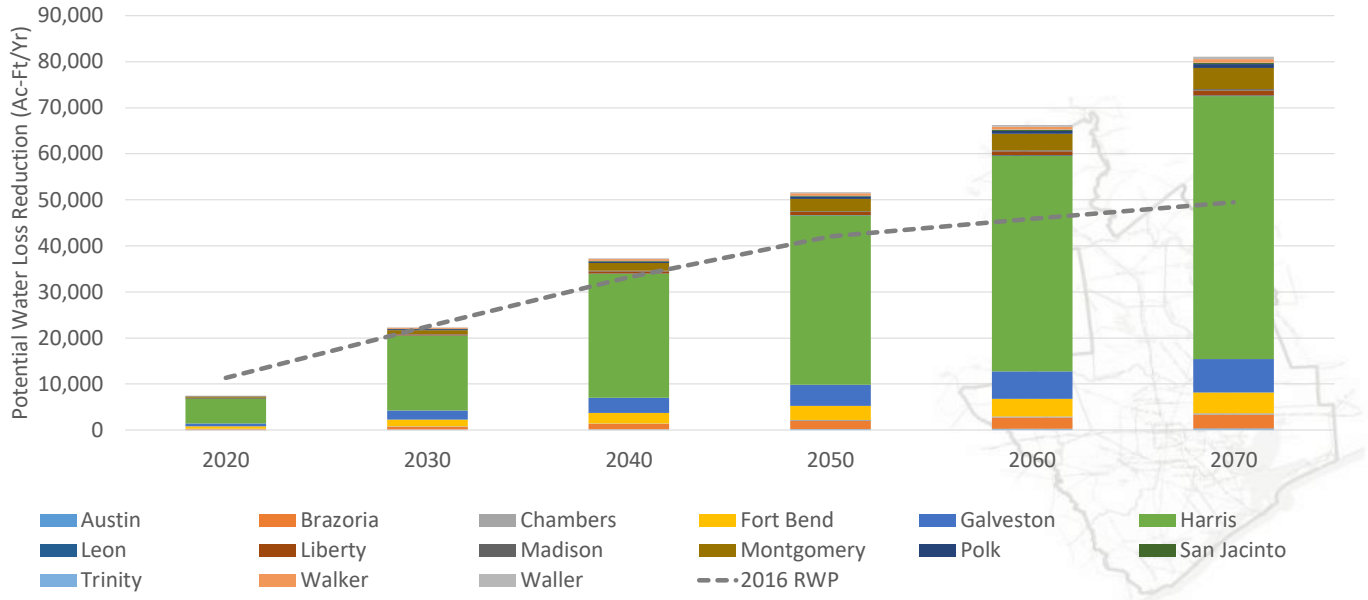


- Accelerated concept
- Opportunity to fine-tune
  - Measures
  - Implementation rates
  - County-Other
  - Lower boundary

Agenda Item 10
Water Supply Alternatives: Water Loss Reduction

- WUG distribution systems
- Real losses
- Reservoir-sized loss
- Max. 2015-2017 TWDB data
- WUG losses > 5%
- 1% annual reduction until 5% reached

Agenda Item 10
Water Supply Alternatives: Water Loss Reduction



Agenda Item 10
Water Supply Alternatives: Groundwater

Expanded Use of Groundwater

- Front-line strategy
- Bound by rules and supply
- Post-conservation
- Phased infrastructure

Groundwater Reduction Plans

- Key to Region
- Sponsor updates
- Good news – some done

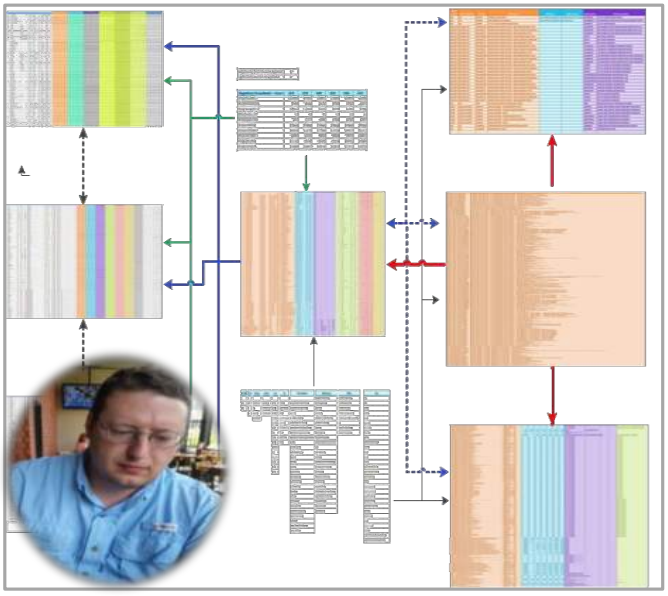
Agenda Item 10
Water Supply Alternatives: Reuse

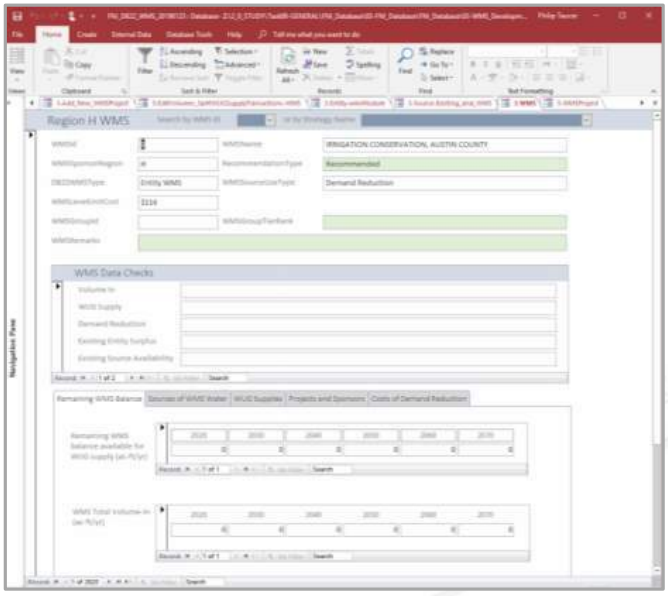
- WUG Level – known or potential expansion
- Municipal Irrigation –revised approach
- Regional Return Flows – expand on last RWP
- Watch out for overlap!

Agenda Item 10
Water Supply Alternatives: Other Infrastructure

- Many WMS and projects returning
- Ongoing sponsor coordination
- ≈50 entities

Agenda Item 10
Water Supply Alternatives: Data Management





Agenda Item 10
Water Supply Alternatives: Cost Updates

- Major Consideration for Region
- New UCM → New Region H tool
- Three categories
  - Package projects
  - Individual projects
  - Comprehensive updates

REGION H
Water Planning Group

REGION H WATER PLANNING GROUP
Senate Bill 1 - Texas Water Development Board
c/o San Jacinto River Authority
P. O. Box 329, Conroe, Texas 77305
Telephone 936-588-1111 Facsimile 936-588-3043

November 5, 2018

Lann Bookout
Planner, Water Supply and Infrastructure
Texas Water Development Board
1700 North Congress Av.
Austin, Texas 78701

Re: Region H Second Request for Task 5A Notice-to-Proceed

Dear Mr. Bookout:

The Region H Water Planning Group (RHWPG) took public comment on and adopted a process for identifying and evaluating Water Management Strategies (WMS) at a public meeting on December 6, 2017. Following approval of this process, the RHWPG considered the efforts anticipated to be necessary for WMS analysis and initiated the Task 5A scope development process. The RHWPG approved a request for notice-to-proceed for a number of WMS subtasks at its April 4, 2018 meeting, with the request approved by the Texas Water Development Board (TWDB).

Subsequently, an additional seven subtasks have been identified for which the RHWPG wishes to request written notice-to-proceed from TWDB; in accordance with TWDB guidance, more information on these subtasks is included in the attached budget request form. Approval for submittal of this request was granted at the October 31, 2018 meeting of the RHWPG. The identified subtasks address a broad range of strategy and project types, including reuse both at the WUG level and larger scale, the emerging use of brackish groundwater in Region H, interregional apportionment of new supplies, interbasin transfer projects, large-scale treatment capacity, and analysis of other potential major storage, treatment, and transmission facilities.

Please feel free to contact me or Philip Taucer of Freese and Nichols at 713-600-6835 with any questions regarding this request.

Sincerely,

Mark Evans
Chair, Region H Water Planning Group

SUGGESTED SCOPING TEMPLATE FOR CURRENLY CONTRACTED TASK 5A FUNDING FOR REGION-SPECIFIC SUBTASKS

Strategy Type(s)																				
ASR	Conservation/Drought Management	Groundwater Desal	Groundwater Dvlp	Reuse	New Major Reservoir	Other Surface Water	Seawater Desal	Conjunctive Use	Other WMS (Subordination, etc)	Region	Overall TWDB Task Number	SubTask WMS evaluation number	SubTask WMS	SubTask Scope of Work Write-up	Deliverable	SubTask Budget ($)	WUG(s) &/OR WWP Entities Potentially Served by WMS(s)	Addressing a changed condition from previous cycle? If yes, describe the changed condition.	When was this WMS identified by RWPG as potentially feasible?	Was the WMS evaluated in any previous Regional Water Planning Cycles?	Is evaluation a limited update to previous technical evaluation information? If no, indicate specific update in subtask sow column E
			X							H	**5A**	05.4	Brackish Groundwater and Groundwater Blending	Identify areas within Region H where water from two different aquifers could be blended to obtain a combined supply not requiring advanced treatment. Assess viable areas in the context of current regulatory structures to identify areas or entities that could benefit from blended groundwater sources. Coordinate with current users of brackish water regarding potential future expansions of brackish groundwater capacity. Update technical details, yields, costs, and other appropriate factors as applicable.	Technical memorandum describing strategy and summarizing as applicable supply sources and quantities, sponsors and users, facility locations, implementation schedule, cost, issues and considerations regarding implementation, and relevant references.	$ 32,300	Multiple potential WWPs and WUGs in Region H in proximity to brackish groundwater	Yes - increased development of brackish groundwater supplies in the Region	Was a recommended WMS in 2016 Regional Water Plan	Yes - 4th planning cycle	No
				X						H	**5A**	06.1	Regional Return Flows	Evaluate potential source availability with consideration for updated demand distribution, utility-based WUG boundaries, and existing and pending reuse authorizations. Incorporate conservation WMS data from the 2016 RWP to assess potential impacts to source availability. Coordinate with strategy sponsors regarding implementation concepts. Update technical details, yields, costs, and other appropriate factors as applicable.	Technical memorandum describing strategy and summarizing as applicable supply sources and quantities, sponsors and users, facility locations, implementation schedule, cost, issues and considerations regarding implementation, and relevant references.	$ 45,900	WWPs and WUGs in the San Jacinto River Basin	No	Was a recommended WMS in 2016 Regional Water Plan	Yes - 4th planning cycle	Yes
				X						H	**5A**	06.2	WUG-Level Reuse	Coordinate with strategy sponsors regarding the status of the project. Update technical details, yields, costs, and other appropriate factors as applicable. Strategies include potential WUG-level reuse projects for sponsors identified in the 2016 RWP, potential expansion of current reuse facilities, and wastewater reclamation for municipal irrigation.	Technical memorandum describing strategy and summarizing as applicable supply sources and quantities, sponsors and users, facility locations, implementation schedule, cost, issues and considerations regarding implementation, and relevant references.	$ 21,900	Multiple potential WUGs in Region H	Varies by project	Reuse considered or recommended in 2001, 2006, 2011, and 2016 Regional Water Plans	Yes - 1st, 2nd, 3rd, and 4th planning cycles	Yes
						X				H	**5A**	07.1	BRA System Operation Permit	Review water right language for BRA System Operation Permit as well as technical information regarding implementation from 2016 RWPs for Regions H and G. Coordinate with the Brazos River Authority and Brazos G Water Planning Group regarding anticipated supply volumes potentially available to Region H. Identify likely entities to benefit from the project. Update technical details, yields, costs, and other appropriate factors as applicable.	Technical memorandum describing strategy and summarizing as applicable supply sources and quantities, sponsors and users, facility locations, implementation schedule, cost, issues and considerations regarding implementation, and relevant references.	$ 20,200	WUGs and WWPs in the Brazos and adjoining coastal basins	Yes - Continued evolution of permit development	Was a recommended WMS in 2006, 2011, and 2016 Regional Water Plans	Yes - 2nd, 3rd, and 4th planning cycles	No
						X				H	**5A**	07.2	Interbasin Transfers	Examine available literature regarding potential inter-basin transfers to supply users in Region H, including strategies considered or recommended in prior RWPs. Coordinate with sponsors regarding the status of projects and sponsor analyses, including expected changes to project capacity, implementation timeline, and costs. Where applicable, refine RWP-level estimates of infrastructure components and potential transfer routing. Update technical details, yields, costs, and other appropriate factors as applicable.	Technical memorandum describing strategy and summarizing as applicable supply sources and quantities, sponsors and users, facility locations, implementation schedule, cost, issues and considerations regarding implementation, and relevant references.	$ 60,600	Multiple potential WWPs and WUGs in Region H	Yes - Changes in supply reservations among basins	Considered or recommended in 2001, 2006, 2011, and 2016 Regional Water Plans	Yes - 1st, 2nd, 3rd, and 4th planning cycles	No
									X	H	**5A**	08.1	Northeast Water Purification Plant Expansion	Coordinate with the City of Houston regarding the status of project development and identify any expected changes to project capacity, implementation timeline, and costs. Update technical details, yields, costs, and other appropriate factors as applicable.	Technical memorandum describing strategy and summarizing as applicable supply sources and quantities, sponsors and users, facility locations, implementation schedule, cost, issues and considerations regarding implementation, and relevant references.	$ 36,900	WWPs and WUGs receiving supply from the NEWPP	No	Was a recommended WMS in 2011 and 2016 Regional Water Plans	Yes - 3rd and 4th planning cycles	Yes
									X	H	**5A**	08.2	Other Facility and Storage Projects	Coordinate with identified or potential sponsors regarding the status of projects. Update technical details, yields, costs, and other appropriate factors as applicable. Strategies include Allens Creek Reservoir, Dow storage expansion, CLCND West Chambers System, seawater desalination, and other treatment, transmission, and storage projects.	Technical memoranda describing strategy and summarizing as applicable supply sources and quantities, sponsors and users, facility locations, implementation schedule, cost, issues and considerations regarding implementation, and relevant references.	$ 130,300	Multiple	Varies by project	Various infrastructure and storage concepts in prior Regional Water Plans	Yes - 2nd, 3rd, and 4th planning cycles	Yes
													REGION-SPECIFIC SUBTASKS TOTAL BUDGET			**$ 348,100**					

Agenda Item 11

Receive update on the Region H Legislative Committee.

REGION H
Water Planning Group

Agenda Item 11
Legislative Session

- 86th Texas Legislature
- Began January 8, 2019
- Concludes May 27, 2019
- Prior sessions have impacted RWP/SWP process

Agenda Item 12

Receive report regarding recent and upcoming activities related to communications and outreach efforts on behalf of the Region H Water Planning Group.

REGION H
Water Planning Group

Agenda Item 12
Community Outreach

- 01/23 - Fort Bend Subsidence District
  Groundwater Management Area 14 and Region H

- 02/07 – HGAC Natural Resources Advisory Committee
  Update on the 2021 Region H Plan

- 03/14 – Brazoria County GCD
  Regional Planning Process Overview

Agenda Item 13

Agency communications and general information.

REGION H
Water Planning Group

Texas Water Development Board

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

November 27, 2018

Mr. Mark Evans
Region H Regional Water Planning Group
P.O. Box 2342
Trinity, TX 75862

Dear Mr. Evans:

As required by the Texas Water Code §16.012(i), the Texas Water Development Board (TWDB) is pleased to notify you that the updated groundwater availability model (GAM) for the central portion of the Carrizo-Wilcox, Queen City, and Sparta aquifers has been reviewed and accepted by TWDB as the current GAM. We believe this model will be useful to you as a tool to assess groundwater availability in your area. The report is available for downloading from our web page: www.twdb.texas.gov/groundwater/models/gam/czwx_c/czwx_c.asp. The enclosed flash drive includes all model files and copies of the final reports documenting the features of the model.

This groundwater model (Version 3.01) developed by Intera Inc., Frontera Exploration Consultants, GSI Environmental, Inc., and R.W. Harden and Associates replaces the existing groundwater model for the central portion of the Carrizo-Wilcox, Queen City, and Sparta aquifers.

Please feel free to contact Cindy Ridgeway of our Groundwater staff at (512) 936-2386 or cindy.ridgeway@twdb.texas.gov if you have any questions or need further information.

Respectfully,

Jeff Walker
Executive Administrator

Enclosure

c w/o enc.: John T. Dupnik, P.G., Deputy Executive Administrator of Water Science and Conservation
Larry French, P.G., Groundwater
Cindy Ridgeway, P.G., Groundwater

Texas Water Development Board

Municipal Water Conservation Planning Tool

A Tool for Planning and Tracking Municipal Water Conservation Programs

The Texas Water Development Board announces the release of the Texas Municipal Water Conservation Planning Tool, a user-friendly resource that can be used in the development of conservation plans and regional water plans.

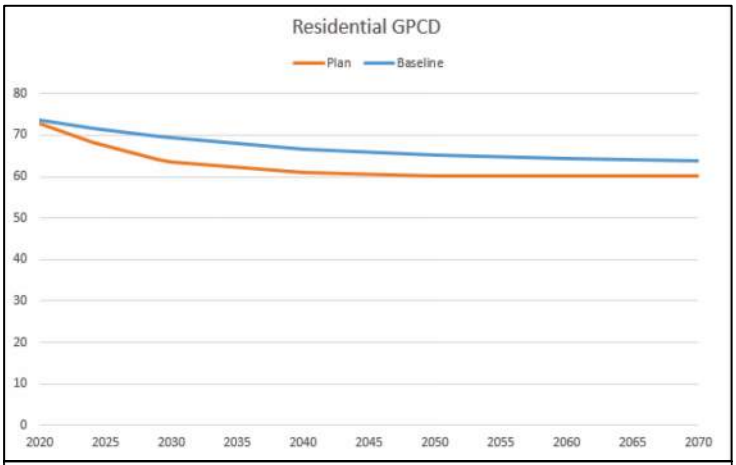
The Municipal Water Conservation Planning Tool:

- Contains pre-loaded baseline water use projections for more than 450 Texas municipal water systems
- Includes a library of common water conservation measures and their estimated cost and water savings, with many of the TWDB's recommended Best Management Practices
- Offers flexibility for custom water conservation measures to be entered
- Provides an accounting framework for projecting future conservation program costs and water savings as well as estimating the water savings from previous implementation of conservation measures

The Municipal Water Conservation Tool is an Excel-based model developed to assist:

Water utility staff developing conservation plans and reporting conservation savings

Regional water planning groups developing their municipal water conservation management strategies.



Compare no-action residential water use trends to projected water use including conservation plan savings.

If you have any questions about the Conservation Tool, please contact wcpteam@twdb.texas.gov

Best Management Practices Guide for Regional Water Planning Group Designated Political Subdivisions

Fifth Cycle of Regional Water Planning

Water Use, Projections, & Planning Division
Regional Water Planning

Maintained and published by the Texas Water Development Board on behalf of Regional Water Planning Group administrators

Latest updates to this document as of November 8, 2018 are highlighted in yellow.

November 2018

Table of Contents

1 Introduction

The purpose of this guide is to provide an orientation to the responsibilities of acting as a regional water planning group's (RWPG) designated political subdivision and/or administrative agent, and to provide suggestions on some of the best administrative practices that may be used by a political subdivision in the execution of their duties on behalf of the RWPG. This guide has been distributed to the 16 RWPG political subdivisions for review and input.

Each five-year planning cycle, an RWPG must designate a political subdivision to act as a representative of the RWPG and apply for and receive financial assistance from the Texas Water Development Board (TWDB) to develop a regional water plan or revision pursuant to 31 Texas Administrative Code (TAC) §355, Subchapter C. Examples of designated political subdivisions include river authorities, municipalities, or councils of governments.

The political subdivision enters into a primary contract with the TWDB on behalf of the RWPG and administers the contract throughout the planning cycle. The political subdivision also executes and administers a subcontract with the primary technical consultant on behalf of the RWPG that mirrors the requirements laid out in the primary TWDB contract. Political subdivisions may expend a portion of these funds for direct costs related to public notice and other administrative costs. In addition, some planning groups also authorize their designated political subdivision to raise local funds from the region's stakeholders in order to cover expenses not eligible for reimbursement through the TWDB's grant funds.

In the capacity of serving as the RWPG's administrative agent, the political subdivision (or other identified entity) organizes the RWPG meeting locations, public notices, agendas, meeting presentations, handouts, and meeting minutes.

Political subdivisions may familiarize themselves with and utilize the RWPG administrative resources located on the TWDB's Regional Water Planning (RWP) Fifth Cycle Working Documents webpage. Hyperlinks to useful TWDB webpages and documents mentioned throughout this document are found in Section 6.

2 TWDB requirements[1]

RWPGs and their designated political subdivisions must adhere to the TWDB's rules on regional water planning and regional water planning grants, as well as requirements in the TWDB grant contracts. This section highlights the specific responsibilities within the TWDB's rules and notable contract requirements that are directly applicable to the political subdivisions.

2.1 Political subdivision and administrator responsibilities from 31 TAC §355 and §357

1. Obtain designation by the RWPG as the political subdivision in order to be eligible to apply for, receive, and administer TWDB funds on behalf of the region (§357.12(a)(4); §355.90(b)(5)).
    - This process must occur before or at the beginning of each new five-year planning cycle.

[1] See the TWDB water planning rules pamphlet (Section 6) for full rule requirements.

- The RWPG must provide a written designation to the TWDB Executive Administrator (EA) naming their authorized political subdivision.

2. Apply for planning grant funds through a formal Request for Application (RFA) process (§355.91).
    - Public notice requirements for this application are subject to §357.21(e).
    - Utilize the most up-to-date online "Regional Water Planning Public Notification Quick-Reference" document that is located on the TWDB's RWP Fifth Cycle Working Documents webpage.
    - The RFA Process typically occurs twice during the planning cycle.
    - The TWDB will provide a special webpage for application instructions and supporting documentation during each RFA process.
3. Execute contracts with the TWDB by the specified deadline (§355.93), including the following:
    - The initial TWDB/political subdivision contract that will contain initially committed grant funds.
    - All TWDB/political subdivision contract amendments that are issued during the planning cycle.
    - All political subdivision/consultant subcontracts and consultant sub-subcontracts must also be updated to reflect changes or additions to the TWDB/political subdivision contract and submitted to the TWDB for acceptance.
4. Political subdivisions must adhere to the limitations of use of contractual funds that are identified in the expense budgets footnotes and elsewhere in these contracts (§355.92).
5. Procure technical consultants at the beginning of each planning cycle in accordance with §355.92(c) and submit the required Certification of Procurement (COP) form to the TWDB.
6. Submit either RWP advance or reimbursement payment requests with all necessary backup documentation to the TWDB on a quarterly basis as stated in the TWDB contract. These funds are utilized to reimburse eligible political subdivision, consultant, and voting member expenses.
7. Ensure all meetings of the RWPG, committees, and subcommittees are posted and held in accordance with the Texas Open Meetings Act and additional Chapter 357 public notice requirements for specific RWPG activities (§357.21).
    - Post notices, meeting agendas, and materials in accordance with §357.21. An Excel file tool has been provided on the TWDB's RWP Fifth Cycle Working Documents webpage, under 'Administrative Documents', to help calculate when various notices and/or documentation should be provided for a RWPG meeting and RWPG activities.
    - Maintain and use contact lists (depending on the activity) for voting and non-voting RWPG members, any person or entity who has requested notice of RWPG activities, county clerks within the regional water planning area (RWPA) (if notices are not posted on RWPG host website), each mayor of a municipality that is located in whole or in part of the RWPA with a population of 1,000 or more or which is a county seat, and each county judge of a country located in whole or in part of the RWPA.
    - Notification lists for surface water rights holders, public water utilities, and general/special law districts and river authorities may be obtained from the TWDB's RWP Fifth Cycle Working Documents webpage.
8. Maintain RWPG membership contact information and provide membership lists to the TWDB (§357.11(f)). Since the vast majority of planning group communications occur via email, it is recommended that the political subdivision request updated email address information from planning group members at every RWPG meeting. This could be successfully accomplished by utilizing a sign-in sheet for RWPG members prefilled with their name and current email

addresses, with an adjacent space to write updated email addresses. Full contact information may be solicited on a less frequent schedule.

9. Provide copies of updated bylaws to the TWDB (§357.11(c)). It is recommended that the planning groups review and/or update their bylaws at least at the beginning of each planning cycle in order to account for legislative or other changes that may have occurred since the previous bylaws update.
10. Follow draft and final regional water plan (RWP) submittal requirements, including holding a public hearing on the initially prepared plan (IPP) (§357.50) (see the "Regional Water Planning Public Notification Quick Reference Document").

2.2 Notable contract requirements

At the beginning of each planning cycle, the TWDB will present a regional water planning contracts webinar as a refresher on important contract requirements. The current webinar is available as an on-demand video on the TWDB's RWP 5th Cycle Working Documents webpage. Some of the important items covered in the webinar include the following:

1. All contract-related question emails should be sent to the TWDB's Contracts Department (contracts@twdb.texas.gov) with the appropriate regional water planning project manager copied on the email.
2. All subcontracts must be submitted to the TWDB for review and acceptance prior to submitting invoices for reimbursement. Complete subcontracting guidelines are available on the TWDB website.
3. Consultant procurement and the COP form.
    - Every contractor and subcontractor must be listed on the COP.
    - COP responsibility resides with the entity that procures the subcontract.
    - COP forms must be submitted to the TWDB for review and acceptance prior to submitting subcontracts for review and acceptance, and invoices for reimbursement.
4. Payment request submittals, including the associated but separate task progress reports, are due on a minimum quarterly basis as part of the payment request as specified in the TWDB/political subdivision contract.
    - Advance/reimbursement request packets should be emailed to invoice@twdb.texas.gov and include copies of invoices, receipts, and statements. Provide details of travel information and proof of payment to subcontractors.
    - The TWDB will provide a payment request checklist to the political subdivision (a checklist template is available online).
    - If the political subdivision chose the "advance" method of distributing RWP funds, then these advances must be deposited into a separate interest bearing account and the "interest earned" amount must be recorded on the payment request checklist.
    - Advance requests may be submitted once 90 percent of the previous advance has been expensed.
    - Advances are distributed on a 20 percent maximum of total committed funds basis.
5. Adjustments may be applied to the TWDB/political subdivision contract task or expense budget, in line with the following contract requirements:
    - If the requested adjustment is less than 35 percent of either a task's total budget or expense line amount, there is flexibility to do so informally by notifying the TWDB of this change in writing via email to contracts@twdb.texas.gov and the region's project manager.

- If the requested adjustment exceeds the 35 percent threshold of either a task's total budget or expense line amount, the political subdivision must submit a request for a Budget Memorandum and obtain approval from the TWDB. The request must be approved by the RWPG at a regular RWPG meeting provides approval to the political subdivision to request adjustments to the TWDB/political subdivision contract task or expense budgets, then the political subdivision may send the request by email to contracts@twdb.texas.gov and the region's project manager. The request should include a written documentation of why the revision is necessary, the date the planning group approved the budget memorandum request, and a table showing the current budget and the proposed revision (contact the regional project manager, or contracts@twdb.texas.gov for a budget memorandum template).
- Please note that the TWDB considers subcontractor budgets as "working budgets" only and if revisions are needed, the political subdivision simply needs to send an email request to the TWDB contracts department providing the revised subcontract budget information. It is the discretion of the political subdivision whether subcontracts are amended following budget memorandums. Additionally, subcontracts should reflect the estimated total study cost allocated for tasks, as applicable; however, contractors are responsible for managing expenses within the committed amount. Clauses may be added to subcontracts limiting reimbursement up to committed amounts.

Please refer to the online TWDB contracts webinar for additional contract information.

It is also important to note that some task budgets may require scoping and a written "Notice to Proceed" prior to commencing reimbursable work, as noted in the contract.

3 Recommended Best Practices for Political Subdivisions

This section includes recommendations and information for political subdivisions related to communication, new member orientations, administrative costs, and web posting and newsletter distribution.

3.1 Communication with RWPG members

1. Request updated planning group member contact information at each RWPG meeting.
2. Forward all TWDB communications and data provided in emails to planning group members (the TWDB provides information to chairs, political subdivisions, and technical consultants) with the intent of creating more interest from the members and facilitating their engagement in the planning process by receiving these informational emails directly from the planning group's representative. The TWDB website has a location where all important RWPG communications are posted.
3. Forward meeting notices and agendas to neighboring planning groups via their liaisons. Liaisons should then pass along this information to their respective RWPGs.
4. During development of the draft RWPG meeting agenda, it is recommended that the political subdivision solicit comments from planning group chair and/or officers, consultants, and the TWDB project manager in order to ensure that the final agenda will meet necessary action item requirements.
    - Include a standing agenda item for updates from groundwater management area representatives, liaisons, and other non-voting members.
    - Include a standing agenda item to receive public input.

- Encourage the technical consultant to provide a planning process recap and next steps during each full RWPG meeting.

5. The Excel template on the TWDB's RWP Fifth Cycle Working Documents webpage may be used for calculating public notice deadlines for various types of meeting requirements, comment period requirements, and for scheduling political subdivision tasks prior to an RWPG meeting.
6. Encourage technical consultants to provide meeting materials to members as far in advance as possible to allow for additional time for members to review and digest the material and make informed decisions.
    - It is recommended for this to occur at least one week before the meeting via email attachments or email links to the RWPG's website.
7. Communicate with the membership to encourage meeting materials to be reviewed prior the scheduled meetings.
8. Encourage appropriate time for agenda item discussion.
9. Survey RWPG members occasionally to determine how frequently they feel the group should meet, within budget limitations, in order to effectively develop their regional water plan.
10. Survey RWPG members occasionally to determine the preferred location, acknowledging facility constraints, to hold planning group meetings.
11. Ensure that the RWPG's required website is kept up to date and that members are able to successfully navigate the website and access documents. Some RWPGs have the political subdivision directly perform the ongoing maintenance of the planning group's website while others delegate the maintenance to the consultants.
12. Ensure that planning group members are aware of how they can access the groups bylaws.
13. Ensure that planning group members are aware of the RWPG's terms of office and process for selecting new members. Note that groundwater management area representation should be appointed in accordance with the 2011 TWDB letter to RWPGs regarding Senate Bill 660. This information will be reviewed following each Legislative Session to determine if there are new districts. Table 1 in the letter is correct as of 8/16/18.
14. Encourage all planning group members to attend committee meetings to assist with informed decision making.
15. Facilitate interregional cooperation as appropriate.

3.2 New member orientation

Planning groups have different methods of orienting new members. Many political subdivisions either call or hold meetings with new members to provide such orientations. Orientations may occur during planning group meetings, or held separately for the new members. Examples of topics covered by political subdivisions to new members include an overview of the state and regional water planning process, planning group history, open meetings requirements, groundwater and surface water law, and environmental flows. Examples of documents provided to new members include a copy of the region's bylaws, previous meeting packages or presentations, a copy of the current plan or plan summary (available online), a list of members and consultants, a map of the region, and the TWDB regional water planning rules pamphlet.

A new member guide under development by the TWDB and will include information on the regional water planning process, key roles and responsibilities, funding the planning process, required planning considerations, plan contents, and TWDB resources. The TWDB website includes a dedicated new RWPG member page, and additionally, TWDB staff is available to present regional water planning 101 as requested.

3.3 Paying for administrative costs

The TWDB RWP contracts contain Task 10 funding to cover eligible RWPG public participation activities as defined in the TWDB/political subdivision contracts. Eligible expenses are direct non-labor administrative costs as well as certain travel costs for voting members to attend RWPG meetings, if approved under §355.92(b)(1). These activities and the associated funds are reimbursable to the political subdivision and the technical consultants. As an example of the amount of time a political subdivision spends in their RWPG administrative role, Region N's political subdivision estimates 240 hours and $60,000 per year was required to cover their administrative expenses for the previous 4th cycle of planning and this cost was paid for 100% with local funds.

For planning group administrative costs that are not eligible for reimbursement with the TWDB's funds, some RWPG's (A, C, I, O, M, N, L) have obtained additional local funds that may be necessary to support the administrative work performed by the political subdivisions.

Examples of how political subdivisions account for ineligible administrative expenses include the following:

- Some political subdivisions pass through all Task 10 funds for eligible reimbursable activities to the consultant, and the political subdivision volunteers all of its time and resources that are necessary to sufficiently perform contract administrative duties that are not eligible reimbursable activities.
- Some political subdivisions pass through all Task 10 funds for eligible reimbursable activities to the consultant and the political subdivision is authorized by the planning group to solicit local funds from RWPA stakeholders to cover their ineligible administrative expenses.
- Some political subdivisions split Task 10 funds for eligible reimbursable activities with the technical consultants, and the political subdivision is also authorized by the planning group to solicit additional local funds to cover the remaining ineligible administrative activities.
- Historically, most voting members have not requested to be reimbursed with RWP funds for their meeting travel expenses. Some of these members are reimbursed by their employers while others cover these costs themselves. Reimbursement of travel expenses to an RWPG member requires RWPG approval under §355.92(b)(1) and must meet the specifications listed in the contract expense budget.

3.4 Web posting and newsletter distribution

New for the Fifth Cycle of RWP is the requirement that all RWPGs have either an external website or an RWPG-dedicated webpage on the RWPG administrator's website. The required RWPG external website content includes RWPG meeting notices, agendas, materials, and plan information. Materials could include presentations and handouts, and meeting minutes can also be posted on the RWPG website. The RWPG could post additional links to relevant materials available on the TWDB website to save the planning group time and storage space, such as links to the current adopted regional water plans, the 2017 State Water Plan, Interactive State Water Plan, current planning cycle information, and water planning data.

Also new for the Fifth Cycle of RWP is the eligibility of expenses incurred in the development, production, and distribution of an RWPG newsletter. The maximum amount of eligible expenses that can be reimbursed as stated in the contract is up to 3% of Task 10 funds, not to exceed $5,000.00.

4 Open Meetings Act and Public Information Act

Effective September 1, 2017, SB 347, 85th Legislative Session, requires that, in addition to RWPG meetings and hearings, RWPG committee and subcommittee meetings are subject to the Texas Government Code (Gov't Code) §§ 551 and 552 (Texas Open Meetings Act and the Public Information Act).

Although the TWDB is not in a position to provide legal advice to the RWPGs, an interpretation of Texas Water Code (TWC) §16.053(h)(12) (as added by SB 347) is described below. RWPG members may wish to consult with attorneys for their organizations to analyze the legislation themselves, rather than solely relying on the TWDB's interpretation. Members who would like a more in-depth understanding of the Open Meetings Act or Public Information Act will find the Attorney General's (AG's) handbooks on the Open Meetings Act and Public Information Act helpful resources:

https://www.texasattorneygeneral.gov/sites/default/files/2018-06/OMA_handbook_2018.pdf

https://www.texasattorneygeneral.gov/sites/default/files/2018-06/PIA_handbook_2018_0.pdf

4.1 Training requirements

It is the TWDB's interpretation of TWC §16.053(h)(12) (as added by SB 347) that RWPG members must complete the Open Meetings Act training required by Texas Government Code (Gov't Code) §551.005 and the Public Information Act training required by Gov't Code §552.012. TWC §16.053(h)(12) states that the RWPGs themselves, not just their meetings, are "subject to" the Open Meetings Act. Gov't Code §551.005 applies to all elected or appointed officials who are members of a governmental body "subject to" the Open Meetings Act. Furthermore, TWC §16.053(h)(12) states that the RWPGs are subject to the Public Information Act. The Public Information Act applies to all elected or appointed officials who are members of a multimember governmental body. The AG's Public Information Act Handbook further explains that Public Information Act requirements apply to all governmental bodies "subject to" the Public Information Act.

The Open Meetings Act and Public Information Act both state that completing the training in one capacity satisfies the requirement in all capacities, so RWPG members who have completed these trainings as part of their outside employment with cities, water supply corporations receiving TWDB funds, groundwater conservation districts, etc., would not need to complete them again as RWPG members.

Additionally, for the Public Information Act training, the members of a governmental body may appoint a "public information coordinator" to attend training in their place so long as the designee is the person primarily responsible for the processing of open records requests for the governmental body.

It is the TWDB's interpretation that these training requirements only apply to voting members of the RWPGs and their alternates. However, the RWPGs may wish to require all members of the RWPGs and their alternates to attend or watch the training. The RWPGs may wish to consult with the attorneys for their organizations to discuss this question further. Each RWPG may have different rules and customs regarding non-voting members. Any individual who wishes to take the training may do so.

Because SB 347 becomes effective on September 1, 2017, it is the TWDB's interpretation that RWPG members have 90 days from that date to complete the Open Meetings Act and Public Information Act trainings. Individuals may comply with the requirements by watching training videos on the AG's website and printing completion certificates:

https://www.texasattorneygeneral.gov/open-government/governmental-bodies/pia-and-oma-training-resources/open-meetings-act-training

https://www.texasattorneygeneral.gov/open-government/governmental-bodies/pia-and-oma-training-resources/public-information-act-training

RWPGs shall maintain and make available for public inspection the record of its members' completion of training.

4.2 Meeting minutes and committee quorums

It is the TWDB's interpretation of TWC §16.053(h)(12) (as added by SB 347) that the RWPGs are required to either keep minutes or make a recording of each open meeting of the RWPG or its committees and subcommittees, in accordance with Gov't Code §551.021. According to Gov't Code §551.022, the minutes or recordings are public records, and the RWPGs would be required to keep these minutes or recordings available for public inspection. It does not appear that the Open Meetings Act requires the RWPGs to post these minutes or recordings anywhere; they are simply required to keep them and make them available for inspection if requested. The Open Meetings Act does not require minutes or recordings of closed (executive) sessions, but rather requires a certified agenda of those meetings. Please keep in mind that the regional water planning contracts also require contractors to "develop, provide, and archive minutes."

With regards to whether committees and subcommittees must keep minutes, note that meetings of less than a quorum of a governmental body are not subject to the Open Meetings Act. However, when a governmental body appoints a committee that includes less than a quorum of the parent body and grants it authority to supervise or control public business or public policy, the committee may itself be a governmental body subject to the Open Meetings Act. In other words, if a committee or subcommittee meets and this group constitutes less than a quorum of the RWPG as a whole, the meeting could still be subject to the Open Meetings Act if the committee or subcommittee has authority to supervise or control public business or public policy. If that is the case, a quorum is determined based on a quorum of the committee or subcommittee, not a quorum of the RWPG as a whole.

Furthermore, TWC §16.053(h)(12) (as added by SB 347) states that each RWPG and any committee or subcommittee of a RWPG are subject to the Open Meetings Act. Therefore, quorums should be calculated based on the membership of the committee or subcommittee, **not the RWPG as a whole**.

For example, an RWPG has 30 members and a committee has 5 members. The committee has control over the public business or public policy of the RWPG. For a deliberation of committee to constitute a "meeting" under the Open Meetings Act, a quorum of 3 people must be present (not the RWPG quorum of 16).

Please see Section V(D) of the AG's Open Meetings Act Handbook for more information on this subject.

4.3 Additional guidance

The following information is based on questions TWDB staff has received.

1. Would a conference call (generally to discuss agenda setting) with Executive Committee members be subject to the Open Meetings Act?
    - According to Gov't Code §551.125, an RWPG may not conduct meetings subject to the Open Meetings Act by telephone conference unless a statute expressly authorizes it to do so. The TWDB knows of no statute that would expressly authorize a RWPG to meet by telephone or

conference. The RWPGs may wish to consult with attorneys for their organizations on this question. If the call constitutes a "meeting" subject to the Open Meetings Act, it can only be held by telephone conference call in limited circumstances (such as an emergency) and subject to procedures that may include special requirements for notice, record-keeping, and two-way communication between meeting locations. Video conference calls are addressed in a different section of the Open Meetings Act than telephone conference calls. These requirements are included in §551.127 and allow video conference calls in certain situations. Please see Section VI(G) of the AG's Open Meetings Act Handbook for more information on the issue of both telephone and video conference calls, including references to cases and AG Opinions that may be helpful.

- A call would be a meeting subject to the Open Meetings Act if it meets the definition of "meeting" in Gov't Code §551.001(4). This analysis also requires an analysis of the definition of "deliberation" in Gov't Code §551.001(2). Please see Section VI of the AG's Open Meetings Act Handbook and the cases and AG Opinions cited in that section for more information on this issue. Section VI(E) provides important information on "walking quorums," which are serial meetings of less than a quorum.

2. Is having a pre-meeting "huddle" with Executive Committee members to discuss how the meeting will be run subject to the Open Meetings Act?

    - A pre-meeting "huddle" with Executive Committee members to discuss how the meeting will be run is subject to the Open Meetings Act if it meets the definition of "meeting" in Gov't Code §551.001(4). This analysis also requires an analysis of the definition of "deliberation" in Gov't Code §551.001(2). Please see Section VI of the AG's Open Meetings Act Handbook and the cases and AG Opinions cited in that section for more information in this issue. Section VI(E) provides important information on "walking quorums," which are serial meetings of less than a quorum.

3. Are email discussions subject to the Open Meetings Act, if all member emails are visible in the "to" or "cc" fields?

    - An email discussion is subject to the Open Meetings Act if it meets the definition of "meeting" in Gov't Code §551.001(4). This analysis also requires an analysis of the definition of "deliberation" in Gov't Code §551.001(2). The Open Meetings Act does not provide that the words exchanged must be spoken in person; members of a governmental body need not be in each other's physical presence to constitute a quorum. A deliberation may include an exchange of written materials or electronic mail. The definition of meeting reaches gatherings of a quorum of a governmental body even when the members of the quorum do not participate in deliberations among themselves or third parties; the governmental body may be subject to the Open Meetings Act when it merely listens to a third party speak at a gathering the governmental body conducts or for which the governmental body is responsible. An email discussion could be a meeting subject to the Open Meetings Act if a quorum of the RWPG (or committee/subcommittee) were in the to, cc, or bcc fields. Please see Section VI of the AG's Open Meetings Act Handbook and the cases and AG Opinions cited in that section for more information in this issue. Section VI(E) provides important information on "walking quorums," which are serial meetings of less than a quorum.
    - Note: Attorney General Opinion GA-0896 specifically discusses questions regarding email exchanges.

4. What are record-keeping expectations for RWPGs now that they are fully subject to the Public Information Act?

    - The Public Information Act states that "a governmental body… may determine a time for which information that is not currently in use will be preserved, subject to any applicable rule or law governing the destruction and other disposition of state and local government records or public information" (Gov't Code §552.004). The Public Information Act goes on to state that except for social security numbers, "the confidentiality provisions of [the PIA], or other law, information that is not confidential but is excepted from required disclosure under Subchapter C is public information and is available to the public on or after the 75th anniversary of the date the information was originally created or received by the governmental body" (Gov't Code §552.0215). The RWPGs should consult with the attorneys for their organizations to determine whether any other laws or rules governing the preservation of records would apply to the RWPG. Please see Section IX of the AG's Public Information Act Handbook and the cases and AG Opinions cited in that section for more information on this issue.

5. Can staff from the RWPG's designated political subdivision be appointed as the Public Information Act public information coordinator?

    - The Public Information Act states that "A public official may designate a public information coordinator to satisfy the training requirements of this section for the public official if the public information coordinator is primarily responsible for administering the responsibilities of the public official or governmental body under this chapter…" (Gov't Code §552.012). It is the discretion of the RWPG who they choose to be the designated coordinator, if one is designated. It is also up to the RWPGs if they desire additional individuals to complete the training than required by the Public Information Act.

6. Can older training certificates be accepted for maintaining the record of members' completion of training?
    - The Open Meetings Act and Public Information Act both state that completing the training in one capacity satisfies the requirement in all capacities, so RWPG members who have completed these trainings as part of their outside employment with cities, water supply corporations receiving TWDB funds, groundwater conservation districts, etc., would not need to complete them again as RWPG members. The Acts simply require public officials to complete the training within 90 days of taking office/assuming responsibilities as a member of the governmental body; it does not specify repeat training requirements.

7. Would a notarized statement affirming training completion be acceptable if a member has taken the training but cannot locate the completion certificate?

    - It will be up to the RWPGs to prove compliance with the Act if they're questioned on it. It is up to the RWPG to prove compliance however they see fit.

8. May RWPGs meet via telephone conference calls?

    - A governmental body may only hold a meeting by telephone conference call if (1) an emergency or public necessity exists within the meaning of Gov't Code §551.045; and (2) the convening at one location of a quorum of the governmental body is difficult or impossible; or (3) the meeting is held by an advisory board (Gov't Code §551.125(b)). If an

entity holds an emergency meeting pursuant to §551.125, and a quorum is physically present at the meeting place, other members may not telephone in (Tex. Att'y Gen. Op. No. JC-0352 (2001)). "Difficult or impossible" contemplates meetings by telephone conference call in extraordinary circumstances and not merely when attending a meeting at short notice would inconvenience members of the governmental body.

- https://www2.texasattorneygeneral.gov/opinions/opinions/49cornyn/op/2001/pdf/jc0352.pdf

9. Are "workgroups" formed by the RWPG subject to the Open Meetings Act?
    - The AG's Open Meetings Act Handbook states that when a governmental body appoints a committee that includes less than a quorum of the parent body and grants it authority to supervise or control public business or public policy, the committee may itself be a governmental body subject to the Act (see Section V(D) and (E) of the AG's Open Meetings Act Handbook). It further states that the fact that a committee is called an advisory committee does not necessarily mean it is considered an advisory committee under the Act. Based on the language in the AG's Open Meetings Act Handbook, the TWDB believes the more conservative interpretation would be to treat a workgroup in the same way as a committee.

Below are informational resources for the AG and links to the Open Meetings Act and Public Information Act.

- Texas Open Meetings Act
- Texas Public Information Act
- Public Information Act and Open Meetings Act Training Resources

5 Contacts

Below is a list of RWPG political subdivision administrator contacts and the associated TWDB project managers.

Region	Political Subdivision Point of Contact	TWDB Project Manager
A	Dustin Meyer (PRPC) dmeyer@theprpc.org	William Alfaro william.alfaro@twdb.texas.gov
B	Randy Whiteman (RRA) randy.whiteman@rra.texas.gov	Temple McKinnon (Director) temple.mckinnon@twdb.texas.gov
C	Howard Slobodin (TRA) slobodinh@trainityra.org	Sarah Backhouse (Manager) sarah.backhouse@twdb.texas.gov
D	Walt Sears (NETMWD) netmwd@aol.com	Ron Ellis (Team Lead) ron.ellis@twdb.texas.gov
E	Annette Gutierrez (RGCOG) annetteg@riocog.org	Aaron Waters aaron.waters@twdb.texas.gov
F	Kevin Krueger (CRMWD) kwkrueger@crmwd.org	Elizabeth McCoy elizabeth.mccoy@twdb.texas.gov
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K	David Wheelock (LCRA) david.wheelock@lcra.org	Lann Bookout lann.bookout@twdb.texas.gov
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O	Kelly Davila (SPAG) Kdavila@spag.org	Aaron Waters aaron.waters@twdb.texas.gov
P	Karen Gregory (LNRA) kgregory@lnra.org	Elizabeth McCoy elizabeth.mccoy@twdb.texas.gov

6 Useful TWDB webpage and document links

Rules and contract related links

- 31 Texas Administrative Code (TAC) §355, Subchapter C
- 31 Texas Administrative Code §357
- Water Planning Rules and Texas Statute Reference Pamphlet
- Regional Water Planning Public Notification Quick-Reference Document
- TWDB Subcontracting Guidelines
- Certification of Procurement Form
- Regional Water Planning Advance Request Checklist
- TWDB Regional Water Planning Contracts Webinar

State and regional water planning related links

- Fifth Cycle of Regional Water Planning homepage
- Fifth Cycle Working Documents Page
- Planning Group Communications page
- 2016 Approved Regional Water Plans
- 2017 State Water Plan
- Interactive State Water Plan
- Water Planning Data
- Water Supply & Infrastructure Staff Contact List
- Regional Water Planning Groups
- New RWPG Member page