



## **MEETING MATERIALS**

**July 3, 2013**

**San Jacinto River Authority**



**Region H Water Planning Group**  
**10:00 AM Wednesday**  
**July 3, 2013**  
**San Jacinto River Authority Office**  
**1577 Dam Site Rd, Conroe, Texas**

**AGENDA**

1. Introductions.
2. Review and approve minutes of April 3, 2013 meeting.
3. **Receive public comments on specific issues related to agenda items 4 through 12.** (Public comments limited to 3 minutes per speaker)
4. Discuss and consider action to approve support for a consistency waiver for the City of Groveton's project related to groundwater infrastructure.
5. Receive update from Consultant Team regarding the schedule and milestones for the development of the 2016 Region H Regional Water Plan.
6. Receive update from Consultant Team and Non-Population Demands Committee regarding demands for use in development of the 2016 Region H Regional Water Plan and consider approval.
7. Receive update from Consultant Team and Population Demands Committee regarding demands for use in development of the 2016 Region H Regional Water Plan and consider approval.
8. Receive update from Consultant Team and Water Management Strategies Committee regarding status of investigation of water supply alternatives for the 2016 Region H Regional Water Plan and consider authorizing the request of additional funding for the study of strategies from the Texas Water Development Board.
9. Receive report regarding recent and upcoming activities related to communications and outreach efforts on behalf of the Region H Planning Group.
10. Receive presentation from Texas Water Development Board regarding and discuss new requirements for development of Regional Water Plans for the 2016 planning cycle including House Bill 3, Senate Joint Resolution 1, and House Bill 1025.
11. Discuss schedule for planning group efforts and meetings for 2013-2014.
12. Agency communications and general information.
13. **Receive public comments.** (Public comments limited to 3 minutes per speaker)
14. Next Meeting: September 4, 2013.
15. Adjourn

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



## Agenda Item 2

Review and approve minutes of April 3, 2013 meeting.



**MINUTES**  
**REGION H WATER PLANNING GROUP MEETING**  
**10:00 A.M.**  
**April 3, 2013**  
**SAN JACINTO RIVER AUTHORITY**  
**GENERAL AND ADMINISTRATION BUILDING**  
**1577 DAM SITE ROAD**  
**CONROE, TEXAS**

**MEMBERS PRESENT:** David Bailey, John Bartos, Robert Bruner, Jun Chang, Mark Evans, Art Henson, John Hofmann, Jace Houston, John Howard, Robert Istre, Kathy Jones, Gena Leathers, Ted Long, Carl Masterson, Ron Neighbors, Jimmie Schindewolf, William Teer, Steve Tyler, J. Kevin Ward, and Pudge Willcox

**DESIGNATED ALTERNATES:** Charles Dean for John Blount, Michael O'Connell for Bob Hebert, Robert Thompson for Marvin Marcell, and Tom Michel for C. Harold Wallace

**MEMBERS ABSENT:** Glynn Leiper and James Morrison

**NON-VOTING MEMBERS PRESENT:** Lann Bookout (for Temple McKinnon) and Melinda Silva

**PRESIDING:** Mark Evans, Chair

**CALL TO ORDER REGULAR MEETING AT 10:09 A.M.**

A quorum was present.

**INTRODUCTIONS**

Mr. Evans welcomed everyone and alternates were announced.

**REVIEW AND APPROVE MINUTES OF DECEMBER 5, 2012 MEETING**

The minutes for the December 5, 2012, meeting were presented. Motion was made by Mr. Neighbors, seconded by Mr. Henson, to approve the minutes. The motion carried unanimously.

**RECEIVE PUBLIC COMMENTS ON SPECIFIC ISSUES RELATED TO AGENDA ITEMS 4 THROUGH 12**

Zach Holland, General Manager of the Bluebonnet Groundwater Conservation District, discussed Electro Purification, LLC's application. He stated that the application was filed before the Bluebonnet Groundwater Conservation District. Mr. Holland further discussed the process, procedure, and additional application information. Discussion ensued regarding geographic location of the wells.

Ken Parker, Woodlands homeowner, mentioned possible sites for additional water supply and flood control reservoirs. Specifically, he discussed a piece of property where the San Jacinto River meets Lake Creek.

**RECEIVE REPORT ON RENEWAL OF ERRORS AND OMISSIONS POLICY FOR REGION H PLANNING GROUP MEMBERS**

Mr. Houston updated the group on the insurance policy. He stated that this is the policy the group has maintained since the beginning and that the policy had been renewed.

**RECEIVE PRESENTATION FROM SALT OF THE EARTH ENERGY REGARDING DESALINATION TECHNOLOGY AND POTENTIAL WATER MANAGEMENT STRATEGY**

Joe Veytia, Salt of the Earth Energy LLC Senior VP, and Todd Kinsey, League City-City Council Position 4, gave the presentation on desalination technology and potential water management strategies. Mr. Veytia discussed the development of a desalination plant in Galveston County, while Mr. Kinsey mentioned League City's extreme water shortage and strategies to address that issue. Discussion ensued regarding the salinity in the area, overall price, and amount of fresh water produced.

**RECEIVE REQUEST FOR AN AMENDMENT TO THE 2011 REGION H WATER PLAN AND CONSIDER TAKING ACTION TO INITIATE A REQUEST TO THE TEXAS WATER DEVELOPMENT BOARD FOR A PLAN AMENDMENT**

Mr. Kinsey presented the planning group with a letter requesting that Region H add desalination as a water source to meet the future water needs for League City. Discussion ensued on the formal process to add desalination as a management strategy and an amendment to the regional water plan.

Mr. Houston stated that he believes that the request does meet the qualifications for a minor amendment due to the fact that it is sea water based. Discussion ensued regarding criteria, population demands, and if the request is minor or major.

Motion was made by Mr. Neighbors to authorize that the application be submitted to the Texas Water Development Board to determine if the amendment is minor or major, contingent on League City entering into a contract with Freese and Nichols to put together the application packet. Mr. Bruner seconded the motion. The motion carried unanimously.

**RECEIVE UPDATE FROM CONSULTANT TEAM REGARDING THE SCHEDULE AND MILESTONES FOR THE DEVELOPMENT OF THE 2016 REGION H REGIONAL WATER PLAN**

Mr. Afinowicz updated the group on the schedule and milestones. He gave the status of the Accelerated Studies and Phase 2 Planning.

**RECEIVE UPDATE FROM CONSULTANT TEAM AND NON-POPULATION DEMANDS COMMITTEE REGARDING REVISED MINING PROJECTS FOR USE IN DEVELOPMENT OF THE 2016 REGION H REGIONAL WATER PLAN AND CONSIDER APPROVAL**

Mr. Afinowicz presented progress since September 2012 on non-population demands regarding mining projections. He explained that a follow-up study of mining demands was commissioned



by TWDB and that these projections represent the new recommended projections with the exception of Chambers County, which the committee had previously elected to revise. Discussion ensued regarding the demands of several counties based on the revised projections by the Bureau of Economic Geology. The committee will follow up with additional information at the next meeting prior to approval. Projections must be approved at the next meeting in order to meet TWDB schedule.

#### **RECEIVE UPDATE FROM CONSULTANT TEAM AND POPULATION DEMANDS COMMITTEE REGARDING DRAFT POPULATION AND DEMAND PROJECTIONS FOR USE IN DEVELOPMENT OF THE 2016 REGION H REGIONAL WATER PLAN**

Mr. Afinowicz discussed the comparison of where we were in 2011 and where we are now. Discussion ensued regarding the per capita demands graph and WUG survey. The consultant team will be conducting a survey of Water User Groups and solicit requests for population and demand revisions. These results as well as the detailed projections will be presented to the committee and brought before the Planning Group at the next meeting in order to meet the TWDB schedule.

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

Mr. Afinowicz discussed recent community outreach activities. He indicated that the consultant team will speak at the *City of Conroe* (12/18), *Houston Gulf Coast Irrigation Association* (02/12), and *Texas Chemical Council* (02/14).

#### **CONSIDER ADOPTION OF A RESOLUTION OF SUPPORT FOR INFRASTRUCTURE FINANCING LEGISLATION**

Discussion ensued regarding the infrastructure financing legislation.

Motion was made by Mr. Neighbors to adopt a resolution of support for infrastructure financing legislation. Mr. Ward seconded the motion. Mr. Tyler opposed. The motion carried.

#### **AGENCY COMMUNICATIONS AND GENERAL INFORMATION**

Mr. Bookout stated that Ms. McKinnon would be making a presentation at a future meeting on the recent TWDB rule changes.

Discussion ensued regarding Allen's Creek Reservoir and private vs. state water regulations.

#### **RECEIVE PUBLIC COMMENTS**

No public comments were received.

#### **NEXT MEETING**

July 3, 2013  
San Jacinto River Authority  
General and Administration Building  
1577 Dam Site Road  
Conroe, Texas 77304

**ADJOURNED AT 11:51 A.M.**

## Agenda Item 4

Discuss and consider action to approve support for a consistency waiver for the City of Groveton's project related to groundwater infrastructure.



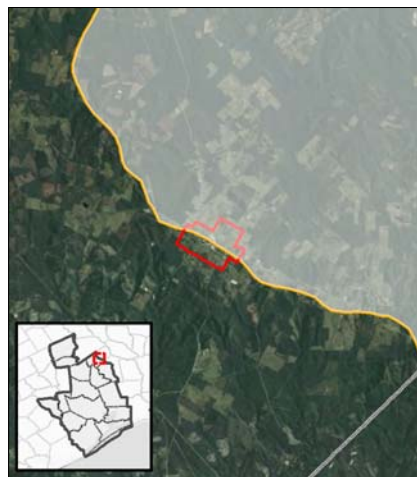
Agenda Item 4  
City of Groveton



Discuss and consider action to approve support for a consistency waiver for the City of Groveton's project related to groundwater infrastructure.



Agenda Item 4  
City of Groveton



- Project to blend surface and groundwater
- Requested waiver in 2011 process
  - Letter of support November 2007
- Conducted studies and design
- Seek funds for construction





City of Groveton  
115 East Front Street  
P.O. Box 37  
Groveton, Texas 75845  
Telephone (936) 642-1122 - FAX (936) 642-2211

May 13, 2013

Mr. Jace Houston  
San Jacinto River Authority  
PO Box 329  
Conroe, Texas 77305

**Re: City of Groveton  
Waiver Request from Region H Plan**

Dear Mr. Houston:

The City of Groveton is making application for funding from the Economically Disadvantage Area Program (EDAP) and the Texas Water Development Board Development Fund for a water supply project. The City has been notified that, since a part of the funding is for a new well, the project is not consistent with the current Region H Regional Water Plan. This plan calls for the Trinity River Authority (TRA) to supply surface water from Lake Livingston through water treatment and transmission facilities known as the Trinity County Regional Water Supply System (TCRWSS) and provides for no alternative.

The City of Groveton requests a waiver from the Region H Plan to allow for approximately 50 percent of its water supply to come from groundwater. This would give the City a conjunctive use of surface water from Lake Livingston and ground water from the Jackson-Yegua formations. It should be noted that a waiver was originally requested and granted in 2007 when the funding process began. Since that time, a well project has been scoped, designed and environmentally cleared. The City is now seeking funding for construction.

Attached is a copy of the letter being sent to the Texas Water Development Board requesting a waiver from both the Region H Plan and Region I Plan. This is the same basic data that was submitted in 2007 and still accurate. TWDB has informed us that we will need a letter from the Region H Planning Group in support of the waiver before our funding application will be accepted. Please place us on your agenda for your July 2013 meeting. The City of Groveton respectfully requests Region H's written support of our requested waiver.

If you have any questions, please contact me or our engineer. He is Alan Draper, P.E. with KSA Engineers, Inc. His phone number is 936-637-6061. His email is [adraper@ksaeng.com](mailto:adraper@ksaeng.com).

Sincerely,

**City of Groveton**

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Byron Richards  
Mayor



City of Groveton  
115 East Front Street  
P.O. Box 37  
Groveton, Texas 75845  
Telephone (936) 642-1122 - FAX (936) 642-2211

May 13, 2013

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

**Re: City of Groveton  
Request for Amendment to Planning Grant  
TWDB Contract No. G080003, Project No. 61314**

Dear Mr. Walker:

The City of Groveton is making application for funding for a water supply project to TWDB. The City has been notified that, since a part of the funding is for a new well, the project is not in compliance with the current Region H and Region I Regional Water Plans. These plans call for the Trinity River Authority (TRA) to supply surface water from Lake Livingston through water treatment and transmission facility known as the Trinity County Regional Water Supply System (TCRWSS). The City of Groveton respectfully requests a waiver from these plans to allow for approximately 50 percent of the City's water supply to come from ground water. This would give the City a conjunctive use of surface water from Lake Livingston and ground water from the Jackson-Yegua formations. The reasons for the requested waiver are:

The City currently is supplied surface water from Lake Livingston by the Trinity River Authority. TRA during drought periods cannot provide the City with current needed capacities, required capacities, or contracted capacities. The current planning grant assumed that the City would drill one well in town to supplement TRA capacity to provided needed capacities. However ground water is limited and exceeds TCEQ total dissolved solids (tds) limits.

1. TRA is unable to deliver the needed water by the City much less the contracted amount. It is well documented that due to inadequate plant capacity during dry conditions that the TRA is unable to provide Groveton and the other 5 WUG's who purchasing water from the TRA their minimum needed capacity, much less their contracted capacity. Attached is a copy of the water supply section of the feasibility study done by KSA Engineers, Inc. This study was done as a part of our application to the TWDB for DWSRF funds. This study finds that during dry periods that the TRA is unable to produce the amount of water currently required by the State. I will only summarize the report and add additional information. Please read the report for additional details.



The City's contract with TRA is for 0.250 mgd or 173.6 gpm. The City's current required peak day demand by TCEQ is 157 gpm. This capacity is based upon an alternative capacity requirement of 0.35 gpm/tap which was recently approved by the TCEQ in May of 2007. Prior to that approval the requirement was for 0.6 gpm/tap or 269 gpm. However, TRA has been able to supply as little as 544,000 gallons per week or 77,714 gallons per day or 54 gpm. Attached is a copy of a chart provided by the TRA of their weekly allotment to each of the users in the Trinity County Rural Water System from May 2006 to December 2006. For more than 6 months, the City only received from 34% to 50% of its required capacity, and average only 41% of the required capacity. The first half of that period was due to Hurricane Rita. The second half was due to extended dry weather. Also the years of 1996 and 1998 had similar restrictions on water. Since the water treatment and transmission facilities were installed, the worse drought of record was in the 1988. However, daily water used data and lake level data are not available for that year.

2. Another reason why TRA is unable to deliver the required volume is that it can not get all users of the TCRWSS to agree to pay for a plant expansion. The contract with TRA states that all participants have to agree for the TRA to expand the plant. Because of TRA has not been able to provide their contracted amounts, few if any of the members are willing to enter into another contract to expand the facilities. To supplement their current water supply and meet their required capacities, most users have already found other sources of water or are currently making plans for another source. The City of Trinity and City of Riverside have drilled more wells. The Trinity County Rural Water Supply Corporation will start construction on a surface water treatment plant soon. The Glendale WSC is planning to drill a new well. Therefore, additional water from the TRA is not an option for the City of Groveton. Current capacity from TRA is inadequate. There is no hope for the participants to agree to expand the capacity.
3. A relatively inexpensive source of ground water is currently available. The Region H report in Table 3G.1 identifies an undifferentiated source of available ground water. In the past the City has had water wells. Capacities were limited and total dissolved solids (tds) were at or near the 1,000 mg/l limit. It is proposed to drill a well on the City's current ground storage tank and high service pump station site. The abandoned water well #2 was on this site and produced approximately the same capacity of 100 gpm that the City needs. This ground water will be mixed with the water from TRA and tds will be well within the TCEQ tds limit of 1,000 mg/l.
4. Having a new ground water supply will improve the reliability of the City's water supply. Currently, the City is solely served through a pipe line approximately 30

miles in length. There are a few major leaks each year. Leaks are expected to increase as the pipeline ages. When the pipeline is down, the City is without water. Having a second water supply will greatly improve the reliability of the City's water supply.

For the reasons stated above, the City of Groveton respectfully requests a waiver from the Region H and Region I Regional Water Plans which state that the City is to get their water from the TRA and Lake Livingston. The City proposes to obtain the needed water from the Yequa/Jackson aquifer by a well to be drilled at the current ground storage tank site on the west side of the City. This site is owned by the City. This site is located in the Trinity River water shed.

Please let us know if any additional information is needed.

Sincerely,

**City of Groveton**



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Byron Richards  
Mayor

**KSA Engineers, Inc.**

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Alan Draper, P.E.  
Senior Project Manager



**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

July 3, 2013

**Agricultural**

Robert Bruner  
Pudge Wilcox

**Counties**

John Blount  
Mark Evans, Chair  
Judge Art Henson

**Electric Generating Utilities**

Ted Long

**Environmental**

John R. Bartos,  
Executive Committee

**Groundwater Management Areas**

David Bailey  
Kathy Jones

**Industries**

Gená Leathers  
Glynn Leiper

**Municipalities**

Jun Chang  
Robert Istre

**Public**

Carl Masterson

**River Authorities**

John Hofmann  
Jace Houston, Secretary  
Kevin Ward

**Small Businesses**

Judge Bob Hebert  
John Howard  
Steve Tyler

**Water Districts**

Marvin Marcell  
Ron Neighbors, Vice-Chair  
Jimmy Schindewolf

**Water Utilities**

James Morrison  
William Teer  
C. Harold Wallace,  
Executive Committee

Ms. Melanie Callahan  
Executive Administrator  
Texas Water Development Board  
1700 North Congress Avenue  
Austin, TX 78711-3231

**Subject: Groundwater Development Project for the City of Groveton**  
Support for Consistency Waiver from Region H Water Planning Group

Dear Ms. Callahan:

The Region H Water Planning Group (RHWP), at a public meeting on July 3, 2013, approved a motion supporting the City of Groveton's request for a consistency waiver related to its plans to develop a groundwater well in the Yegua-Jackson formation. A similar variance was previously granted for the planning and design phases of the project. Granting of this waiver will allow the city to develop a reliable water supply based on the blend of both groundwater and treated surface water.

The proposed alternative will not place an undue burden upon the identified groundwater resources of the region based on the adopted Region H Regional Water Plan (RWP) as well as the State Water Plan (SWP). The Yegua-Jackson formation is identified in Trinity as an available water source in Trinity County based on Desired Future Conditions (DFCs) adopted by Groundwater Management Area (GMA) 11 and corresponding estimates of Modeled Available Groundwater (MAG) developed by the Texas Water Development Board (TWDB). The existing surface water resources in the SWP dedicated to Groveton will continue to serve the City alongside the newly developed groundwater supply.

Please feel free to contact me or the Region H consultant, Jason Afinowicz at 713.600.6841, if you have any questions regarding this request. Thank you for your consideration on this matter.

Sincerely,

Mark Evans  
Region H Chair

cc: Temple McKinnon, TWDB

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**TWDB Liaison**

Temple McKinnon



## Agenda Item 5

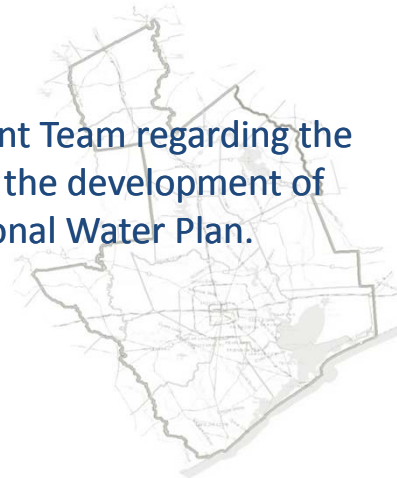
Receive update from Consultant Team regarding the schedule and milestones for the development of the 2016 Region H Regional Water Plan.



Agenda Item 5  
2016 RWP Schedule and Milestones



Receive update from Consultant Team regarding the schedule and milestones for the development of the 2016 Region H Regional Water Plan.



2016 RWP Schedule and Milestones



Date	Scheduled Events/Tasks
April, 2013	Detailed WUG Population and Demands
<b>July, 2013</b>	<b>Submittal of WUG Projections and Demands Task 4D Funding Request</b>
August 13, 2013	DUE DATE: Population and water demand projections to TWDB
Q3/2013	Brazos Basin Supplies WUG and WWP Shortages WMS Studies
05/01/2014	DUE DATE: Technical Memorandum to TWDB
05/01/2015	DUE DATE: Initially Prepared Plan to TWDB
11/02/2015	DUE DATE: Final Adopted Plan to TWDB





## Agenda Item 6

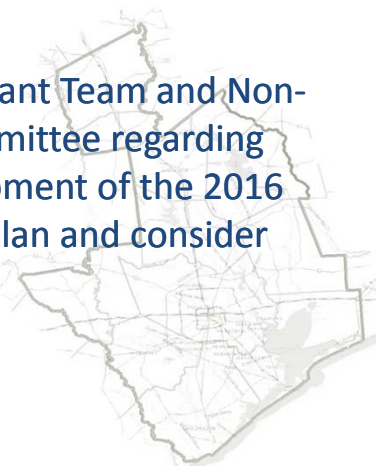
Receive update from Consultant Team and Non-Population Demands Committee regarding demands for use in development of the 2016 Region H Regional Water Plan and consider approval.



## Agenda Item 6 Non-Population Demands



Receive update from Consultant Team and Non-Population Demands Committee regarding demands for use in development of the 2016 Region H Regional Water Plan and consider approval.

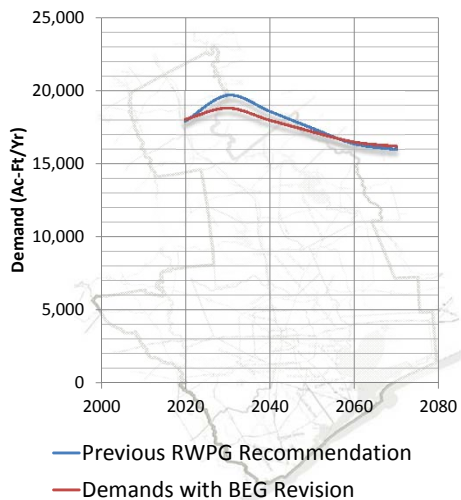


## Updates Last Meeting



- Comprehensive study of oil and gas water use
- Notable revisions for some counties
  - Austin (-)
  - Leon (-)
  - Madison (-)
  - Polk (+++)

Mining Demand Projections



## Action Last Meeting

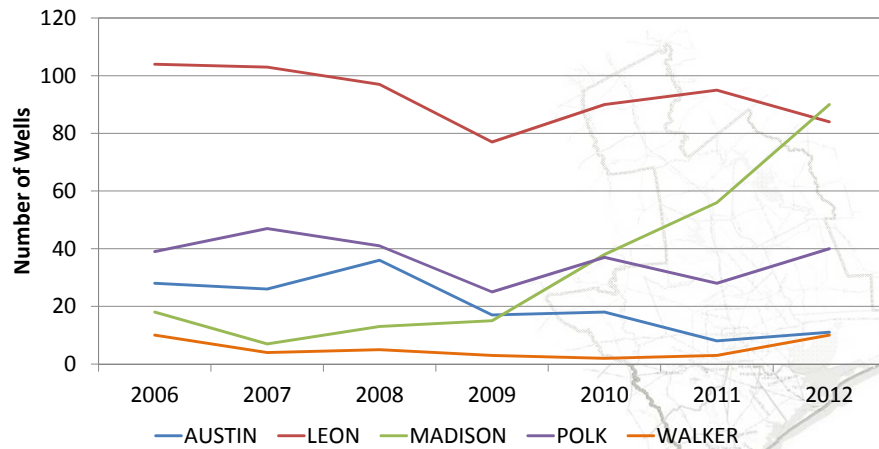
- ~~Recommend approval of revisions~~
  - All counties except for Chambers

Request to revisit mining (oil and gas) projections for:

- Austin
- Leon
- Madison
- Polk
- Walker

## Further Review

New Well Permits Approved by County

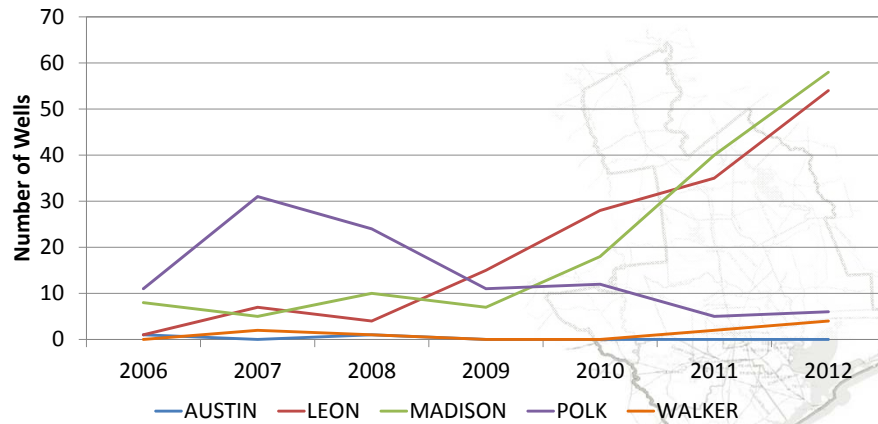


**#1: Madison County has experienced a major increase in permitted oil and gas wells.**

## Further Review



### New Horizontal Well Permits Approved by County



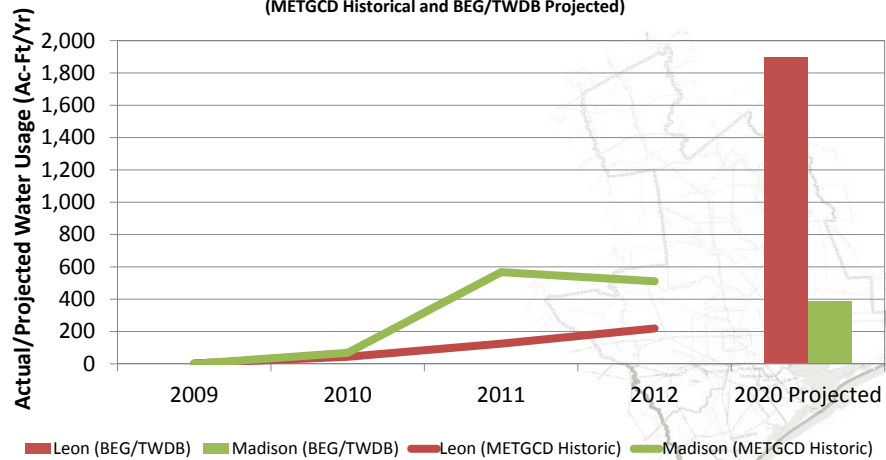
Source: Texas Railroad Commission

- #2: Leon and Madison Counties have experience growth in number of horizontal wells.**
- #3: There has not been similar level of activity in Walker County.**

## Further Review



### Water Usage for O&G Exploration (METGCD Historical and BEG/TWDB Projected)



- #4: Projected demands exist for current and projected levels of use.**

## Further Review

- Advise adoption of amended BEG demands



## Further Revision

***BUT WAIT... THERE'S MORE!!!***

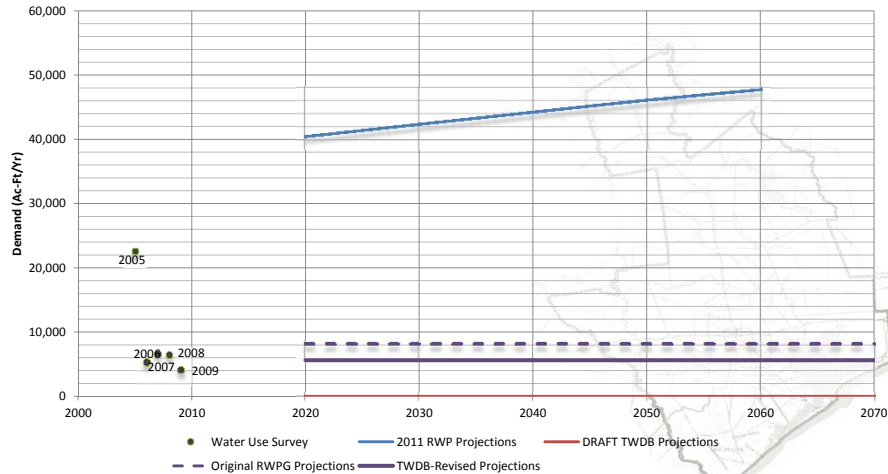
- TWDB has conducted review of non-municipal demands
- Do not recommend RWPG value for Chambers County
- Based on 2005-2009 historical usage
  - Pre-2006 estimates called into question



## Further Revision



### Chambers County Mining Demand Projections

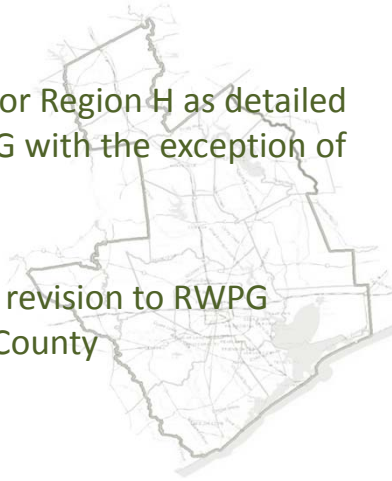


## In Conclusion...



### Final Recommendations:

- Adopt revised mining demands for Region H as detailed in TWDB-sponsored study by BEG with the exception of Chambers County projections
- Adopt the TWDB-recommended revision to RWPG recommendation for Chambers County







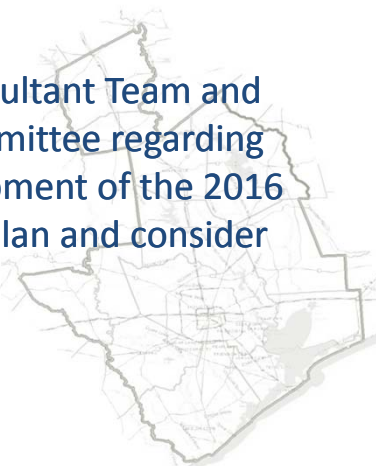
## Agenda Item 7

Receive update from Consultant Team and Population Demands Committee regarding demands for use in development of the 2016 Region H Regional Water Plan and consider approval.



## Agenda Item 7 Population Demands

Receive update from Consultant Team and Population Demands Committee regarding demands for use in development of the 2016 Region H Regional Water Plan and consider approval.



## Timeline

April 3 – Present population and demand projections

April 11 – Mail out WUG/WWP survey

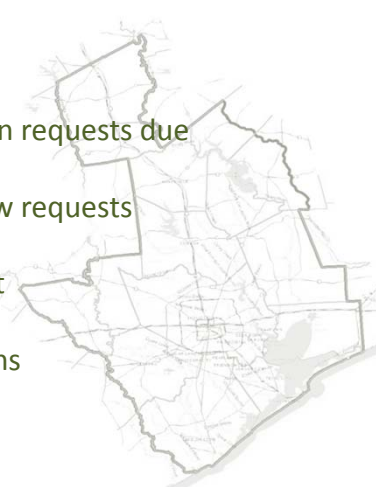
May 15 – Survey responses and revision requests due

June 24 – Committee meeting to review requests

June 27 – Receive final revision request

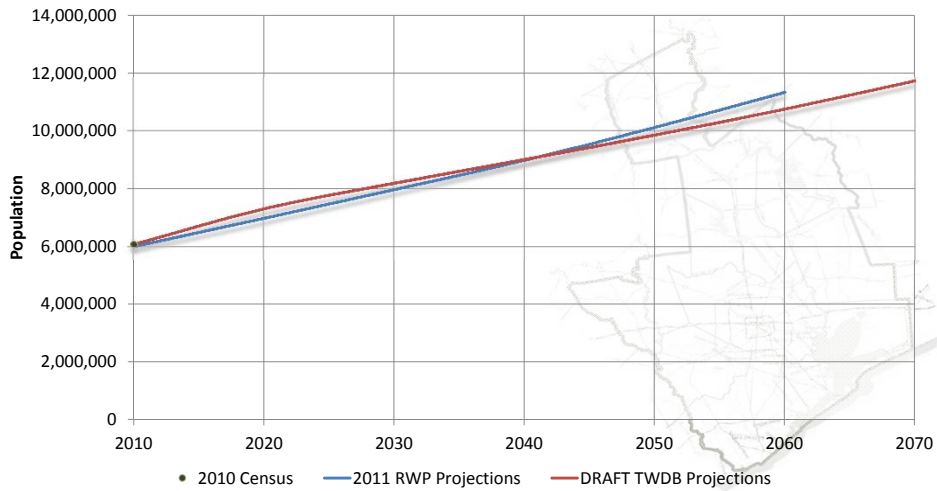
July 3 – Present and approve projections

August 16 – Projections due to TWDB



## WUG Populations

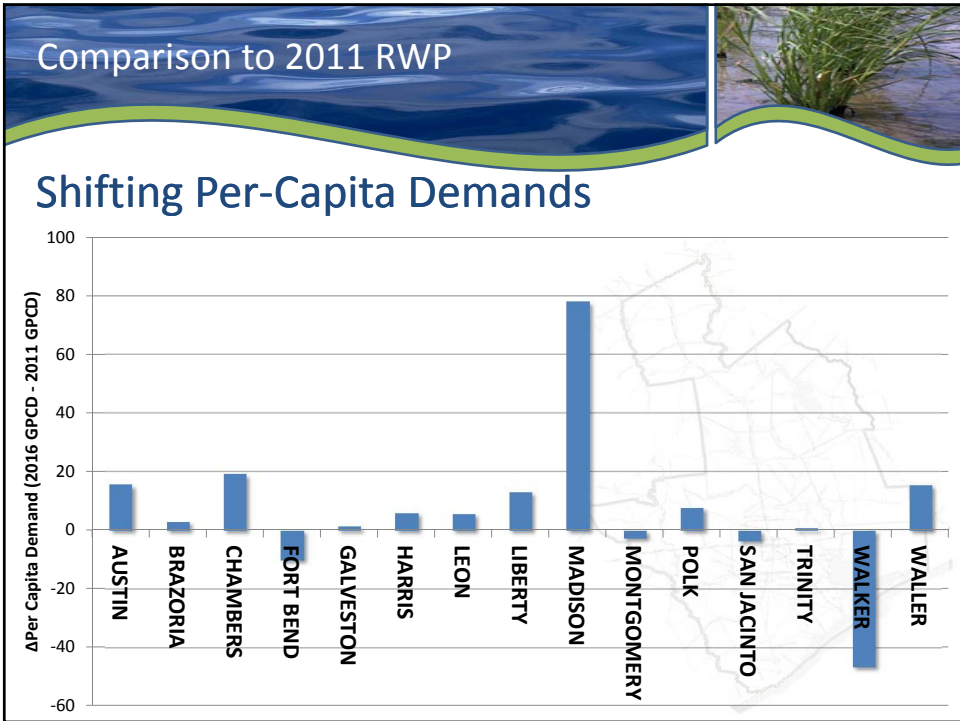
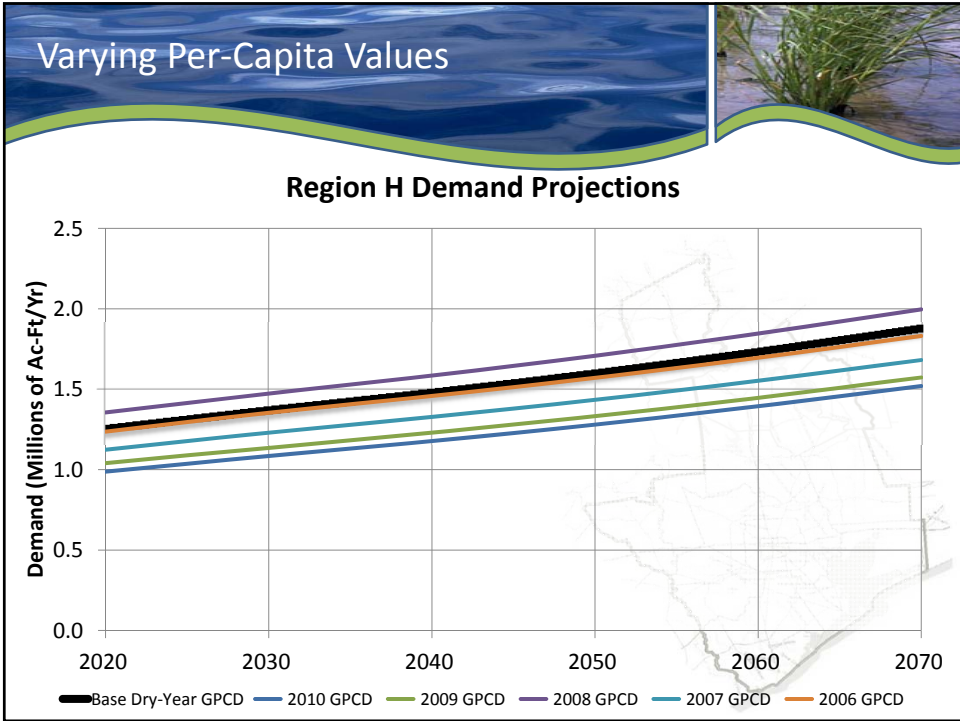
### Region H Population



## TWDB Per-Capita Demand Estimates

- Year 2011 baseline
  - 2011 net use
  - 2011 pop. estimate
- 60 gpcd minimum
- Plumbing code savings
  - Type of fixture
  - Replacement rate





## Questions from RWPG Meeting



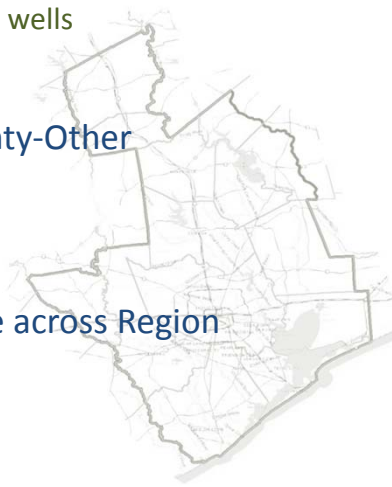
WUG	County	2011 RWP GPCD	2016 RWP GPCD
County-Other	Madison	99	172
Madisonville	Madison	161	173
Normangee	Madison	175	155
Consolidated WSC	Walker	75	110
County-Other	Walker	498	196
Huntsville	Walker	161	182
LLWSC	Walker	62	70
New Waverly	Walker	183	158
Riverside	Walker	N/A	96
Riverside WSC	Walker	69	64
Trinity Rural WSC	Walker	78	114
Walker County Rural WSC	Walker	106	127



## Revisions to Original Estimates



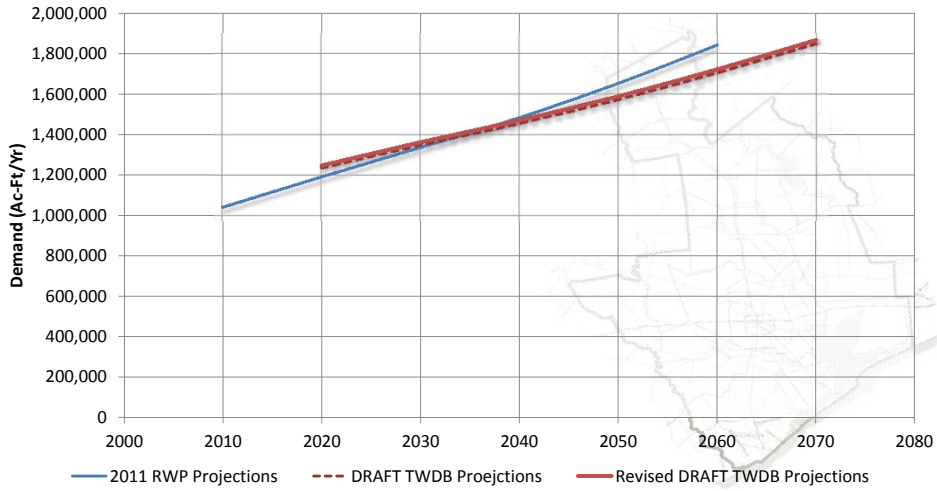
- Adjustments for:
  - Municipal residents with private wells
  - Pop served for some systems
- Primarily small cities and County-Other
- 34 WUGs in Region H
- Less than 2% demand increase across Region



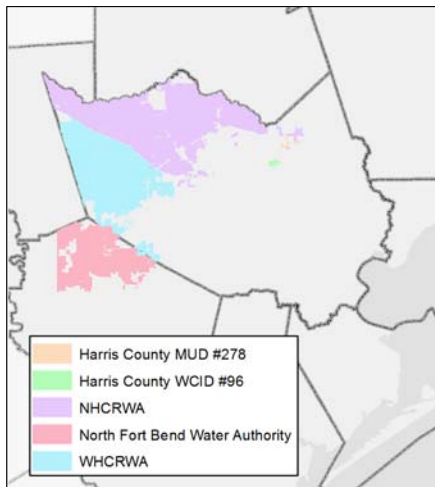
## WUG Demands



### Region H Demands



## Requested Revisions

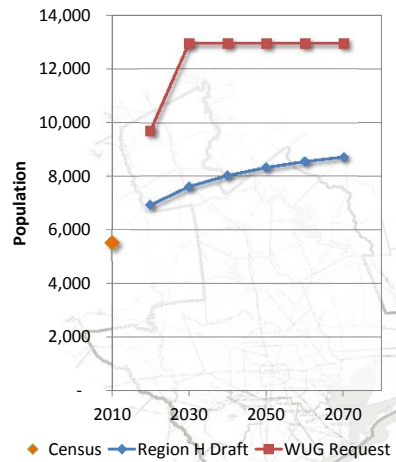


- Harris County MUD 278
- Harris County WCID 96
- NFBWA
- NHCRWA
- WHCRWA
- County-Other

## Harris County MUD 278



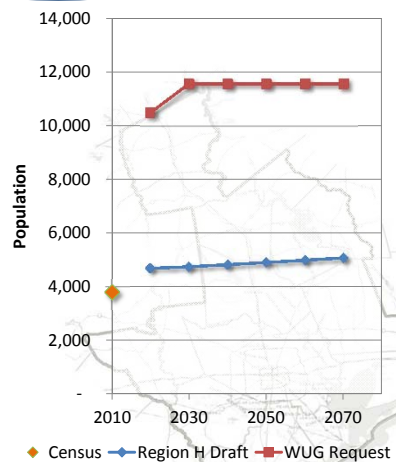
- Population only
- Growth potential not captured in scale of projections
- Land plan and population per connection
- Recommend for consideration



## Harris County WCID 96



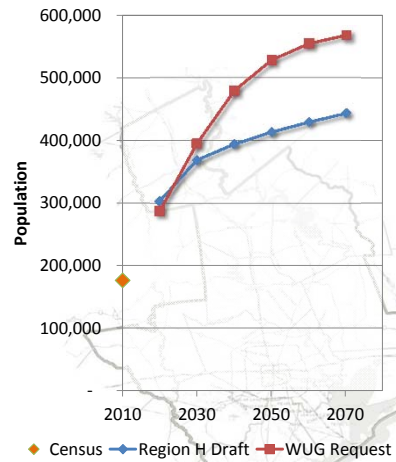
- Population only
- Growth potential not captured in scale of projections
- Land plan and population per connection
- Recommend for consideration





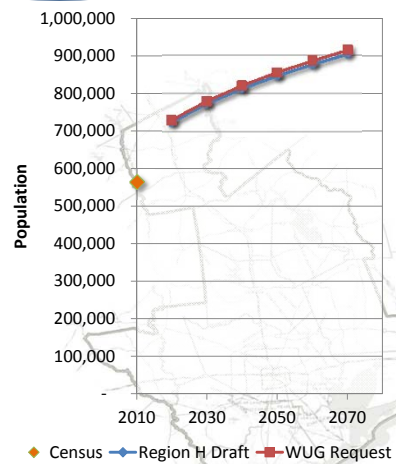
## NFBWA

- Population and per capita demand
  - 179 gpcd to 210 gpcd
- Adjusted based on study by Authority
- Pending TWDB Review



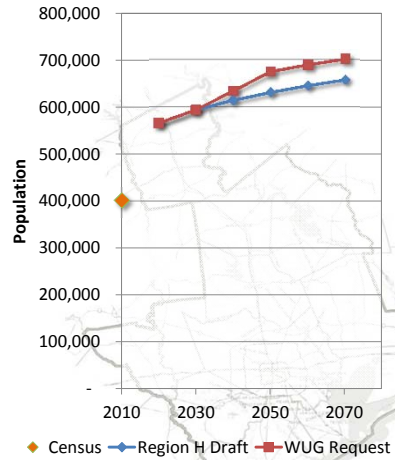
## NHCRWA

- Population only
- Slight adjustment to match regional study
- Adapted from Regional Groundwater Update
- Recommend for consideration



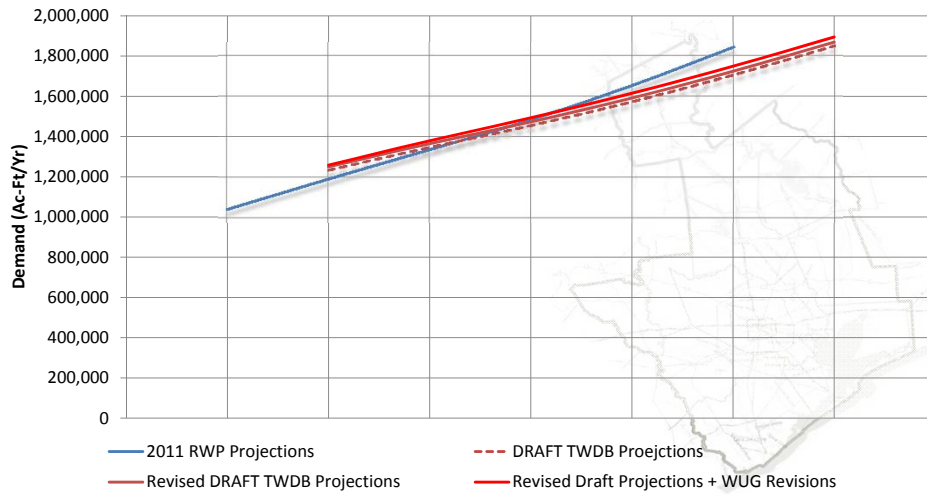
## WHCRWA

- Population only
- Growth outpacing prior RWP projections
- Detailed projections at member district level
- **Recommend for consideration**



## Estimated Final WUG Demands

### Region H Demands



## Recommendations

- Adopt the population projections and per capita estimates as reviewed by the Population Committee on June 24<sup>th</sup> including WUG requests by:
  - Harris County MUD 278
  - Harris County WCID 96
  - NHCRWA
  - WHCRWA
- Consider projections and per capita estimates by NFBWA contingent upon TWDB review and approval





Region H Regional Water Planning Group  
**DRAFT** Water User Group (WUG) Projections  
 Austin County

WUG	County	Census 2010 Population	Population Projections						Baseline GPCD	Water Demand Projections (ac-ft)					
			2020	2030	2040	2050	2060	2070		2020	2030	2040	2050	2060	2070
Bellville	Austin	4,097	4,386	4,716	5,070	5,485	5,940	6,445	257	1,217	1,286	1,366	1,468	1,588	1,722
County-Other	Austin	16,302	19,677	23,527	27,660	32,504	37,820	43,721	115	2,332	2,695	3,103	3,610	4,190	4,839
San Felipe	Austin	747	868	1,006	1,154	1,328	1,518	1,729	248	231	263	298	341	389	443
Sealy	Austin	6,019	6,754	7,592	8,492	9,546	10,703	11,987	192	1,380	1,517	1,671	1,863	2,086	2,334
Wallis	Austin	1,252	1,329	1,416	1,510	1,620	1,740	1,874	117	161	165	171	180	193	207
<b>Austin County Total</b>		<b>28,417</b>	<b>33,014</b>	<b>38,257</b>	<b>43,886</b>	<b>50,483</b>	<b>57,721</b>	<b>65,756</b>	<b>N/A</b>	<b>5,321</b>	<b>5,926</b>	<b>6,609</b>	<b>7,462</b>	<b>8,446</b>	<b>9,545</b>

Region H Regional Water Planning Group  
**DRAFT** Water User Group (WUG) Projections  
 Brazoria County

WUG	County	Census 2010 Population	Population Projections						Baseline GPCD	Water Demand Projections (ac-ft)					
			2020	2030	2040	2050	2060	2070		2020	2030	2040	2050	2060	2070
Alvin	Brazoria	24,236	26,830	28,832	31,157	34,065	37,803	42,709	164	4,644	4,866	5,161	5,587	6,186	6,983
Angleton	Brazoria	18,862	19,064	19,208	19,342	19,482	19,629	19,785	101	1,964	1,893	1,835	1,810	1,816	1,830
Bailey'S Prairie	Brazoria	727	748	786	804	824	842	861	115	89	90	89	90	92	94
Brazoria	Brazoria	3,019	3,121	3,212	3,285	3,347	3,400	3,448	100	318	313	309	308	312	316
Brazoria County Mud #2	Brazoria	5,341	5,348	5,348	5,351	5,355	5,359	5,363	373	2,199	2,190	2,185	2,183	2,183	2,184
Brazoria County MUD #21	Brazoria	3,094	3,707	3,867	4,168	4,469	4,770	4,968	137	549	568	610	653	695	724
Brazoria County MUD #3	Brazoria	3,652	3,653	3,659	3,717	3,775	3,833	3,911	145	566	558	560	565	572	584
Brazoria County MUD #4	Brazoria	1,997	2,002	2,004	2,019	2,034	2,050	2,059	147	308	298	293	294	296	297
Brazoria County MUD #6	Brazoria	3,156	3,158	3,158	3,169	3,180	3,192	3,207	198	681	676	676	676	677	680
Brookside Village	Brazoria	1,523	1,691	1,849	2,373	3,006	3,769	4,689	115	198	207	258	325	406	504
Clute	Brazoria	11,211	11,440	11,830	12,255	12,706	13,189	13,705	124	1,476	1,475	1,486	1,518	1,570	1,631
County-Other	Brazoria	85,152	109,994	142,514	173,919	206,396	241,565	279,432	146	16,734	21,064	25,319	29,841	34,866	40,306
Danbury	Brazoria	1,715	1,722	1,722	1,722	1,723	1,723	1,724	100	176	169	163	160	159	159
Freeport	Brazoria	12,049	12,863	13,645	14,356	15,019	15,661	16,299	109	1,429	1,449	1,472	1,512	1,571	1,634
Hillcrest	Brazoria	730	730	731	733	734	736	737	153	118	115	112	111	111	111
Holiday Lakes	Brazoria	1,107	1,109	1,110	1,112	1,115	1,117	1,119	60	75	75	75	75	76	76
Iowa Colony	Brazoria	1,170	2,312	2,635	3,115	3,546	3,941	4,187	124	292	326	381	431	479	508
Jones Creek	Brazoria	2,020	2,042	2,068	2,088	2,102	2,113	2,121	100	207	200	193	192	192	193
Lake Jackson	Brazoria	26,849	27,308	28,096	28,933	29,843	30,833	31,914	183	5,320	5,346	5,401	5,514	5,685	5,883
Manvel	Brazoria	5,179	11,619	18,954	25,612	33,127	41,930	52,829	139	1,658	2,645	3,548	4,575	5,786	7,286
Oyster Creek	Brazoria	1,111	1,131	1,154	1,182	1,217	1,259	1,310	206	250	250	251	256	265	275
Pearland	Brazoria	86,811	95,540	102,021	110,302	119,256	129,061	138,361	135	13,713	14,426	15,463	16,637	17,966	19,248
Richwood	Brazoria	3,510	3,647	3,797	3,948	4,109	4,282	4,467	101	377	377	380	388	403	420
Sweeny	Brazoria	3,684	3,704	3,716	3,731	3,747	3,765	3,785	139	540	525	513	508	509	511
Varner Creek UD	Brazoria	1,356	1,529	1,532	1,534	1,536	1,537	1,539	135	213	207	201	201	201	201
West Columbia	Brazoria	3,905	3,923	3,939	3,959	3,983	4,009	4,039	109	437	419	404	405	406	409
<b>Brazoria County Total</b>		<b>313,166</b>	<b>359,935</b>	<b>411,387</b>	<b>463,886</b>	<b>519,696</b>	<b>581,368</b>	<b>648,568</b>	<b>N/A</b>	<b>54,531</b>	<b>60,727</b>	<b>67,338</b>	<b>74,815</b>	<b>83,480</b>	<b>93,047</b>

Region H Regional Water Planning Group  
**DRAFT** Water User Group (WUG) Projections  
 Chambers County

WUG	County	Census 2010 Population	Population Projections						Baseline GPCD	Water Demand Projections (ac-ft)					
			2020	2030	2040	2050	2060	2070		2020	2030	2040	2050	2060	2070
Anahuac	Chambers	2,243	2,269	2,300	2,332	2,366	2,403	2,442	114	267	260	255	254	257	261
Baytown	Chambers	4,116	4,866	5,756	6,676	7,667	8,726	9,839	129	653	747	844	955	1,083	1,221
Beach City	Chambers	2,198	2,630	3,142	3,671	4,241	4,850	5,490	115	315	365	420	481	549	621
County-Other	Chambers	10,355	12,504	15,056	17,694	20,533	23,570	26,759	109	1,422	1,665	1,926	2,217	2,539	2,879
Cove	Chambers	510	656	829	1,008	1,201	1,407	1,624	116	79	96	114	134	157	181
Mont Belvieu	Chambers	3,835	5,013	6,410	7,855	9,411	11,075	12,822	397	2,185	2,775	3,389	4,053	4,767	5,518
Old River-Winfree	Chambers	1,104	1,327	1,590	1,863	2,157	2,470	2,800	98	130	147	166	190	217	246
Trinity Bay Conservation District	Chambers	10,735	12,897	15,460	18,111	20,965	24,018	27,223	167	2,262	2,637	3,037	3,488	3,988	4,518
<b>Chambers County Total</b>		<b>35,096</b>	<b>42,162</b>	<b>50,543</b>	<b>59,210</b>	<b>68,541</b>	<b>78,519</b>	<b>88,999</b>	<b>N/A</b>	<b>7,313</b>	<b>8,692</b>	<b>10,151</b>	<b>11,772</b>	<b>13,557</b>	<b>15,445</b>

Region H Regional Water Planning Group  
**DRAFT** Water User Group (WUG) Projections  
Fort Bend County

WUG	County	Census 2010 Population	Population Projections						Baseline GPCD	Water Demand Projections (ac-ft)					
			2020	2030	2040	2050	2060	2070		2020	2030	2040	2050	2060	2070
Arcola	Fort Bend	1,642	1,874	2,848	3,748	4,605	5,302	5,999	115	226	330	428	523	601	680
Beasley	Fort Bend	641	666	727	847	1,013	1,240	1,551	113	78	82	93	109	133	166
County-Other	Fort Bend	67,197	184,306	235,839	269,995	340,568	440,230	568,474	138	25,896	32,467	36,913	46,427	59,969	77,394
Fairchilds	Fort Bend	763	783	915	1,026	1,186	1,422	1,778	115	94	106	116	132	157	196
Fort Bend County MUD #116	Fort Bend	2,298	2,505	2,843	3,340	3,729	4,118	4,506	212	580	654	767	854	942	1,031
Fort Bend County MUD #121	Fort Bend	2,702	3,188	3,461	4,094	4,741	5,389	6,037	115	394	423	498	575	652	730
Fort Bend County MUD #129	Fort Bend	2,249	2,680	3,848	4,933	5,838	6,471	6,475	226	664	947	1,211	1,432	1,586	1,587
Fort Bend County MUD #23	Fort Bend	10,276	11,693	12,464	12,884	13,305	13,725	14,145	106	1,318	1,387	1,428	1,469	1,511	1,556
Fort Bend County MUD #25	Fort Bend	9,246	9,412	9,502	9,649	9,822	10,000	10,181	122	1,212	1,199	1,200	1,210	1,228	1,250
Fulshear	Fort Bend	1,134	12,106	13,755	14,932	15,925	16,784	17,543	115	1,378	1,549	1,679	1,788	1,884	1,967
Greatwood	Fort Bend	11,538	12,140	12,601	12,669	12,736	12,803	12,870	115	1,469	1,491	1,477	1,471	1,475	1,482
Houston	Fort Bend	38,157	41,589	44,084	46,095	47,876	49,329	50,432	190	8,426	8,739	8,994	9,266	9,530	9,739
Katy	Fort Bend	1,677	6,908	16,048	16,136	16,205	16,259	16,302	226	1,664	3,798	3,796	3,800	3,810	3,819
Meadows Place	Fort Bend	4,660	4,669	4,761	4,856	4,953	5,052	5,153	157	773	765	761	767	780	796
Missouri City	Fort Bend	61,752	75,849	93,347	110,720	125,923	135,484	141,294	149	11,858	14,199	16,577	18,715	20,104	20,959
Needville	Fort Bend	2,823	2,836	2,874	2,922	2,995	3,104	3,267	103	300	292	287	289	298	313
North Fort Bend Water Authority	Fort Bend	167,669	279,197	386,813	471,003	519,828	545,856	559,135	210	63,141	86,696	105,273	115,982	121,667	124,575
Pearland	Fort Bend	720	3,495	3,766	4,691	5,615	6,543	7,621	135	502	533	658	784	911	1,061
Pecan Grove MUD #1	Fort Bend	11,376	11,510	11,535	11,581	11,620	11,653	11,683	166	2,016	1,963	1,922	1,922	1,923	1,928
Plantation MUD	Fort Bend	3,948	3,948	3,948	3,948	3,948	3,948	3,948	103	417	399	385	377	376	376
Pleak	Fort Bend	1,044	1,350	1,580	1,691	1,797	1,907	2,034	115	158	179	187	197	208	222
Richmond	Fort Bend	11,679	12,400	12,890	13,510	14,375	15,236	16,093	155	2,023	2,046	2,098	2,207	2,333	2,463
Rosenberg	Fort Bend	30,618	40,384	42,560	44,928	47,378	50,227	53,654	114	4,707	4,823	4,989	5,205	5,503	5,873
Sienna Plantation	Fort Bend	13,721	18,447	23,593	32,113	40,633	49,154	57,016	218	4,395	5,584	7,581	9,578	11,576	13,423
Simonton	Fort Bend	814	884	1,047	1,369	1,623	1,826	1,992	115	105	119	151	176	198	216
Stafford	Fort Bend	17,383	17,761	18,241	18,845	19,518	20,271	21,115	221	4,238	4,290	4,383	4,512	4,678	4,872
Sugar Land	Fort Bend	94,037	105,510	114,908	122,172	129,275	135,224	139,312	246	28,173	30,347	32,045	33,780	35,292	36,352
Weston Lakes	Fort Bend	2,482	2,621	2,791	3,019	3,247	3,475	3,704	570	1,657	1,758	1,899	2,039	2,181	2,325
WHCRWA	Fort Bend	11,129	11,255	11,534	11,591	11,656	11,750	11,850	123	1,441	1,449	1,439	1,437	1,446	1,457
<b>Fort Bend County Total</b>		<b>585,375</b>	<b>881,966</b>	<b>1,095,123</b>	<b>1,259,307</b>	<b>1,421,933</b>	<b>1,583,782</b>	<b>1,755,164</b>	<b>N/A</b>	<b>169,303</b>	<b>208,614</b>	<b>239,235</b>	<b>267,023</b>	<b>292,952</b>	<b>318,808</b>



Region H Regional Water Planning Group  
**DRAFT** Water User Group (WUG) Projections  
Galveston County

WUG	County	Census 2010 Population	Population Projections						Baseline GPCD	Water Demand Projections (ac-ft)					
			2020	2030	2040	2050	2060	2070		2020	2030	2040	2050	2060	2070
Bacliff MUD	Galveston	7,034	7,310	7,416	7,524	7,633	7,742	7,850	75	539	516	506	514	521	528
Bayou Vista	Galveston	1,537	1,538	1,541	1,544	1,546	1,548	1,549	169	276	270	265	262	262	262
Bolivar Peninsula SUD	Galveston	2,394	2,943	3,480	4,118	4,875	5,771	6,835	68	198	234	277	328	388	460
Clear Lake Shores	Galveston	1,063	1,525	1,579	1,579	1,579	1,579	1,579	341	562	575	571	571	570	570
County-Other	Galveston	17,946	20,602	22,972	24,891	26,696	28,435	30,106	120	2,559	2,762	2,928	3,105	3,298	3,490
Dickinson	Galveston	18,680	19,103	20,048	21,121	22,176	23,223	24,269	122	2,435	2,480	2,554	2,649	2,766	2,889
Friendswood	Galveston	25,497	27,724	29,656	31,856	34,254	36,885	39,790	166	4,882	5,104	5,399	5,759	6,189	6,673
Galveston	Galveston	47,743	51,260	54,643	57,846	60,955	63,941	67,085	300	16,623	17,422	18,285	19,244	20,165	21,152
Hitchcock	Galveston	6,961	8,604	10,217	11,248	12,053	12,692	13,205	109	949	1,079	1,157	1,224	1,285	1,337
Jamaica Beach	Galveston	983	989	998	1,007	1,017	1,030	1,044	243	261	259	259	260	263	266
Kemah	Galveston	1,773	4,685	6,166	6,392	6,572	6,719	6,842	239	1,181	1,538	1,588	1,629	1,665	1,695
La Marque	Galveston	14,509	20,111	21,970	22,429	22,810	23,133	23,414	151	3,137	3,339	3,351	3,376	3,419	3,459
League City	Galveston	81,988	106,764	120,273	130,742	139,323	144,257	147,634	127	14,194	15,650	16,806	17,792	18,386	18,808
San Leon MUD	Galveston	4,912	5,547	6,066	6,466	6,866	7,266	7,667	63	373	408	435	462	489	516
Santa Fe	Galveston	12,222	12,524	12,895	13,356	13,825	14,300	14,783	129	1,695	1,696	1,717	1,755	1,810	1,870
Texas City	Galveston	45,099	51,369	56,474	60,714	64,373	67,607	70,539	133	7,077	7,522	7,896	8,270	8,665	9,037
Tiki Island	Galveston	968	972	979	987	994	998	1,002	231	243	241	240	241	241	242
<b>Galveston County Total</b>		<b>291,309</b>	<b>343,570</b>	<b>377,373</b>	<b>403,820</b>	<b>427,547</b>	<b>447,126</b>	<b>465,193</b>	<b>N/A</b>	<b>57,184</b>	<b>61,095</b>	<b>64,234</b>	<b>67,441</b>	<b>70,382</b>	<b>73,254</b>

Region H Regional Water Planning Group  
**DRAFT** Water User Group (WUG) Projections  
Harris County

WUG	County	Census 2010 Population	Population Projections						Baseline GPCD	Water Demand Projections (ac-ft)					
			2020	2030	2040	2050	2060	2070		2020	2030	2040	2050	2060	2070
Baytown	Harris	67,686	70,823	71,910	73,138	74,384	75,647	76,926	129	9,497	9,330	9,238	9,258	9,388	9,544
Bellaire	Harris	16,855	17,135	18,622	20,250	22,020	23,952	26,059	207	3,804	4,045	4,329	4,669	5,070	5,514
Blue Bell Manor Utility Company	Harris	2,879	2,879	2,982	3,152	3,336	3,525	3,689	209	646	656	681	715	754	788
Bunker Hill Village	Harris	3,633	3,803	4,105	4,431	4,784	5,164	5,575	391	1,626	1,734	1,856	1,995	2,152	2,323
Central Harris County Regional Water Authority	Harris	44,672	50,418	55,097	58,372	61,420	64,232	67,191	92	4,789	5,082	5,288	5,507	5,738	5,998
Chimney Hill MUD	Harris	5,504	5,504	5,589	5,665	5,750	5,843	5,946	103	583	569	559	557	564	573
Clear Brook City MUD	Harris	15,665	17,670	18,631	20,075	21,345	22,532	23,648	91	1,649	1,683	1,772	1,861	1,957	2,052
County-Other	Harris	185,548	245,944	291,438	311,968	324,239	357,632	389,485	133	33,991	39,044	41,029	42,266	46,522	50,635
Crosby MUD	Harris	2,517	2,603	2,768	2,823	2,877	2,932	2,988	118	313	317	322	327	332	338
Deer Park	Harris	32,010	34,255	35,974	37,482	38,853	40,131	41,355	121	4,288	4,347	4,408	4,503	4,637	4,776
El Dorado UD	Harris	2,738	2,807	2,930	3,057	3,184	3,233	3,233	92	260	257	256	261	264	264
El Lago	Harris	2,706	2,733	2,750	2,762	2,773	2,785	2,797	115	322	310	301	302	302	303
Fountainview Subdivision	Harris	1,928	1,929	1,941	1,953	1,966	1,980	1,995	91	176	168	160	160	161	162
Friendswood	Harris	10,308	11,925	14,393	16,073	17,783	19,431	21,257	166	2,100	2,477	2,724	2,990	3,261	3,565
Galena Park	Harris	10,887	10,887	11,092	11,303	11,520	11,742	11,969	78	842	806	779	775	790	805
Green Trails MUD	Harris	1,743	1,820	1,828	1,846	1,860	1,870	1,877	282	555	548	547	550	553	555
Greenwood UD	Harris	4,107	4,741	5,452	5,518	5,586	5,654	5,725	75	359	398	395	395	399	403
Harris County MUD #106	Harris	3,447	4,655	4,725	4,912	5,046	5,145	5,219	255	1,301	1,315	1,364	1,399	1,425	1,445
Harris County MUD #11	Harris	2,775	3,203	3,293	3,411	3,537	3,673	3,819	102	332	330	332	339	351	364
Harris County MUD #119	Harris	5,923	5,927	6,119	6,346	6,590	6,758	6,908	85	504	491	484	490	500	510
Harris County MUD #132	Harris	4,795	5,006	5,079	5,122	5,154	5,177	5,195	170	898	885	873	876	878	881
Harris County MUD #148 - Kingslake	Harris	3,052	3,615	3,809	3,842	3,877	3,913	3,950	73	269	276	274	274	276	278
Harris County MUD #151	Harris	5,874	5,990	6,051	6,101	6,138	6,165	6,185	158	1,012	1,006	1,003	1,002	1,004	1,007
Harris County MUD #152	Harris	7,566	8,154	8,360	8,658	8,890	9,063	9,191	128	1,107	1,114	1,140	1,162	1,182	1,198
Harris County MUD #153	Harris	6,843	7,027	7,031	7,053	7,069	7,081	7,090	159	1,200	1,185	1,177	1,174	1,173	1,174
Harris County MUD #154	Harris	5,635	5,851	5,917	6,072	6,238	6,416	6,607	122	746	735	737	748	767	790
Harris County MUD #158	Harris	4,951	4,992	4,992	4,992	4,992	4,992	4,992	103	534	518	505	498	497	497
Harris County MUD #180	Harris	5,033	5,788	6,279	6,651	6,715	6,715	6,715	88	514	536	553	550	548	548
Harris County MUD #189	Harris	2,615	3,982	4,224	4,383	4,552	4,729	4,916	93	357	362	375	388	402	417
Harris County MUD #221	Harris	3,785	4,043	4,398	4,563	4,720	4,873	5,025	93	399	428	443	456	469	484
Harris County MUD #278	Harris	5,522	9,718	12,958	12,958	12,958	12,958	12,958	95	975	1,280	1,273	1,269	1,265	1,264
Harris County MUD #290	Harris	3,703	4,944	5,166	5,403	5,579	5,709	5,806	115	609	630	658	677	692	703
Harris County MUD #345	Harris	3,072	3,476	3,504	3,535	3,559	3,576	3,589	211	786	781	779	779	781	784
Harris County MUD #400 - West	Harris	2,575	4,817	5,183	5,476	5,729	5,868	5,931	151	785	839	885	925	946	956
Harris County MUD #46	Harris	3,822	4,017	4,025	4,028	4,030	4,031	4,032	156	664	651	640	634	633	633
Harris County MUD #49	Harris	3,676	4,676	4,866	5,008	5,118	5,205	5,275	94	456	465	472	479	486	492
Harris County MUD #5	Harris	6,091	6,280	6,599	7,023	7,477	7,965	8,489	80	508	509	522	544	577	614
Harris County MUD #50	Harris	2,176	2,177	2,199	2,245	2,277	2,284	2,292	122	273	263	265	267	267	268
Harris County MUD #55	Harris	14,011	14,071	14,923	15,664	16,582	18,055	19,802	100	1,442	1,461	1,480	1,537	1,666	1,825
Harris County MUD #8	Harris	4,486	4,595	4,596	4,597	4,598	4,598	4,600	104	485	462	443	442	440	440
Harris County MUD #96	Harris	5,100	6,782	7,032	7,495	8,043	8,568	8,957	83	582	592	625	666	707	738
Harris County UD #14	Harris	1,829	3,025	3,311	3,603	3,944	4,364	5,005	60	204	223	243	266	294	337
Harris County UD #15	Harris	3,523	3,603	3,926	4,364	4,797	5,258	5,612	137	521	552	601	654	715	763
Harris County WCID #1	Harris	5,840	5,916	6,110	6,359	6,609	6,859	7,108	100	597	583	587	607	627	650
Harris County WCID #133	Harris	5,323	5,324	5,375	5,614	6,056	6,533	7,047	119	658	641	648	687	738	796
Harris County WCID #74	Harris	5,043	5,045	5,264	5,518	5,721	5,887	6,065	148	785	792	809	827	849	874
Harris County WCID #96	Harris	3,804	10,500	11,550	11,550	11,550	11,550	11,550	171	1,954	2,137	2,134	2,130	2,127	2,127
Hedwig Village	Harris	2,557	2,580	2,771	2,975	3,194	3,429	3,683	520	1,477	1,572	1,677	1,794	1,925	2,067

Region H Regional Water Planning Group  
**DRAFT** Water User Group (WUG) Projections  
Harris County

WUG	County	Census 2010 Population	Population Projections						Baseline GPCD	Water Demand Projections (ac-ft)					
			2020	2030	2040	2050	2060	2070		2020	2030	2040	2050	2060	2070
Hilshire Village	Harris	746	749	791	857	951	1,051	1,160	242	196	203	217	239	263	291
Houston	Harris	2,058,056	2,201,986	2,377,662	2,550,707	2,724,216	2,902,574	3,090,056	190	446,074	471,302	497,689	527,211	560,720	596,695
Humble	Harris	15,133	17,243	20,928	23,603	25,590	27,068	28,170	149	2,687	3,157	3,493	3,753	3,962	4,122
Hunters Creek Village	Harris	4,367	4,461	4,817	5,202	5,619	6,068	6,553	480	2,353	2,516	2,698	2,904	3,134	3,384
Jacinto City	Harris	10,553	10,603	10,908	11,224	11,546	11,879	12,222	74	774	747	755	776	799	822
Jersey Village	Harris	7,620	7,723	7,790	7,936	8,096	8,272	8,465	210	1,746	1,733	1,742	1,764	1,799	1,841
Katy	Harris	11,269	13,337	14,032	14,556	15,018	15,438	15,830	226	3,212	3,321	3,425	3,522	3,618	3,709
Kings Manor MUD	Harris	870	895	906	926	940	951	959	112	105	104	104	104	105	106
Kirkmont MUD	Harris	2,316	2,323	2,548	2,759	2,982	3,223	3,483	154	378	401	425	453	489	528
La Porte	Harris	33,800	34,345	34,774	35,292	35,785	36,261	36,729	134	4,809	4,715	4,659	4,654	4,702	4,762
League City	Harris	1,572	2,919	3,304	3,542	3,720	3,849	3,944	127	389	430	456	476	491	503
Longhorn Town UD	Harris	923	1,273	1,292	1,302	1,309	1,315	1,319	209	287	288	289	290	291	292
Mason Creek UD	Harris	6,609	6,610	6,610	6,610	6,610	6,610	6,610	181	1,268	1,232	1,211	1,208	1,206	1,206
Missouri City	Harris	5,606	5,650	6,439	7,082	7,773	8,529	9,352	149	884	980	1,061	1,156	1,266	1,388
Mount Houston Road MUD	Harris	3,382	5,017	6,179	7,015	7,637	8,101	8,442	95	496	599	676	733	775	807
Nassau Bay	Harris	4,002	4,091	4,149	4,202	4,256	4,310	4,366	242	1,065	1,060	1,057	1,065	1,077	1,091
Newport MUD	Harris	7,661	8,780	9,074	9,302	9,531	9,759	9,988	103	945	956	967	983	1,003	1,027
NHCRWA	Harris	582,646	731,265	780,933	821,599	856,170	886,651	914,489	160	123,639	129,710	134,881	139,665	144,388	148,861
North Belt UD	Harris	1,676	1,788	1,799	1,846	1,897	1,952	2,011	180	341	335	337	343	352	363
North Channel Water Authority	Harris	78,823	82,326	84,755	86,983	89,193	91,387	93,192	119	10,216	10,207	10,237	10,364	10,586	10,792
North Fort Bend Water Authority	Harris	8,539	8,697	8,748	8,790	8,831	8,873	8,914	210	1,967	1,962	1,965	1,971	1,978	1,986
North Green MUD	Harris	2,971	4,072	4,127	4,181	4,241	4,300	4,355	116	476	468	462	463	468	474
Northwest Park MUD	Harris	16,570	16,782	17,493	18,300	19,114	19,950	20,824	171	3,080	3,154	3,257	3,378	3,518	3,671
Parkway UD	Harris	5,633	5,970	6,282	6,328	6,375	6,421	6,468	85	520	528	520	516	518	521
Pasadena	Harris	149,043	154,441	158,841	163,121	167,450	171,877	176,448	141	22,829	22,798	22,864	23,169	23,720	24,343
Pearland	Harris	3,721	14,127	17,440	20,943	23,539	25,464	26,892	135	2,028	2,466	2,936	3,284	3,545	3,741
Piney Point Village	Harris	3,125	3,178	3,495	3,847	4,234	4,659	5,127	499	1,743	1,898	2,073	2,277	2,504	2,754
Sagemeadow UD	Harris	6,234	6,352	6,801	7,367	7,921	8,476	9,043	111	727	745	780	825	879	937
Seabrook	Harris	11,952	12,797	13,005	13,238	13,476	13,717	13,963	138	1,857	1,842	1,839	1,852	1,880	1,913
Shoreacres	Harris	1,493	1,493	1,505	1,527	1,550	1,573	1,596	207	332	327	327	328	333	337
South Houston	Harris	16,983	16,983	17,562	18,161	18,782	19,425	20,088	111	1,945	1,932	1,933	1,963	2,023	2,091
Southside Place	Harris	1,715	1,734	1,865	2,007	2,159	2,323	2,500	144	263	274	288	306	329	353
Spring Valley	Harris	3,715	3,870	4,202	4,541	4,885	5,258	5,660	251	1,048	1,117	1,191	1,272	1,368	1,472
Stafford	Harris	310	310	333	342	351	361	372	221	74	79	80	82	84	86
Sunbelt FWSD	Harris	16,280	16,510	17,366	18,196	19,148	20,247	21,453	101	1,693	1,692	1,701	1,760	1,854	1,963
Taylor Lake Village	Harris	3,544	3,557	3,618	3,654	3,690	3,727	3,765	174	657	651	643	642	647	653
The Commons Water Supply Inc	Harris	2,082	2,981	3,143	3,273	3,370	3,442	3,494	115	359	373	385	394	401	407
The Woodlands	Harris	2,384	16,144	17,484	19,174	20,436	21,378	22,083	222	3,873	4,150	4,520	4,800	5,014	5,177
Tomball	Harris	10,753	12,742	13,457	14,110	14,677	15,182	15,644	234	3,210	3,345	3,474	3,595	3,714	3,826
Trail Of The Lakes MUD	Harris	6,908	9,058	9,453	9,578	9,671	9,740	9,791	111	1,043	1,066	1,066	1,068	1,073	1,078
Waller	Harris	446	478	492	513	540	574	617	165	84	84	87	90	96	103
Webster	Harris	10,400	15,071	16,187	17,079	17,776	18,329	18,773	238	3,860	4,104	4,305	4,466	4,601	4,711
West Harris County MUD #6	Harris	2,213	2,428	2,628	2,750	2,841	2,909	2,959	129	327	344	352	360	368	374
West University Place	Harris	14,787	14,972	16,123	17,377	18,728	20,185	21,758	181	2,885	3,029	3,202	3,416	3,674	3,959
WHCRWA	Harris	390,700	555,456	583,011	623,082	663,886	678,007	690,322	123	71,086	73,202	77,318	81,831	83,405	84,866
Windfern Forest UD	Harris	4,163	4,288	4,302	4,311	4,317	4,321	4,324	183	843	830	819	813	812	812
Woodcreek MUD	Harris	2,332	2,340	2,354	2,375	2,396	2,420	2,445	118	288	282	277	276	278	281
<b>Harris County Total</b>		<b>4,092,459</b>	<b>4,707,870</b>	<b>5,058,144</b>	<b>5,376,099</b>	<b>5,678,242</b>	<b>5,974,068</b>	<b>6,272,346</b>	<b>N/A</b>	<b>819,695</b>	<b>862,123</b>	<b>903,688</b>	<b>948,491</b>	<b>998,161</b>	<b>1,050,001</b>

Region H Regional Water Planning Group  
**DRAFT** Water User Group (WUG) Projections  
Leon County

WUG	County	Census 2010 Population	Population Projections						Baseline GPCD	Water Demand Projections (ac-ft)					
			2020	2030	2040	2050	2060	2070		2020	2030	2040	2050	2060	2070
Buffalo	Leon	1,856	1,907	1,954	1,992	2,045	2,091	2,136	184	374	375	375	381	389	397
Centerville	Leon	892	967	1,038	1,094	1,172	1,240	1,306	176	180	189	195	207	218	230
Concord-Robbins WSC	Leon	2,627	2,832	3,025	3,181	3,395	3,580	3,761	76	213	215	216	229	241	253
County-Other	Leon	5,327	5,991	6,616	7,120	7,810	8,408	8,993	112	681	716	753	822	883	943
Flo Community WSC	Leon	3,850	3,916	3,978	4,028	4,097	4,156	4,214	76	297	286	278	276	280	284
Jewett	Leon	1,167	1,462	1,739	1,962	2,269	2,534	2,794	154	238	276	307	353	393	433
Normangee	Leon	609	661	709	747	801	847	892	155	108	112	115	122	129	136
Oakwood	Leon	473	475	477	479	482	484	486	147	74	71	70	70	70	70
<b>Leon County Total</b>		<b>16,801</b>	<b>18,211</b>	<b>19,536</b>	<b>20,603</b>	<b>22,071</b>	<b>23,340</b>	<b>24,582</b>	<b>N/A</b>	<b>2,165</b>	<b>2,240</b>	<b>2,309</b>	<b>2,460</b>	<b>2,603</b>	<b>2,746</b>

Region H Regional Water Planning Group  
**DRAFT** Water User Group (WUG) Projections  
 Liberty County

WUG	County	Census 2010 Population	Population Projections						Baseline GPCD	Water Demand Projections (ac-ft)					
			2020	2030	2040	2050	2060	2070		2020	2030	2040	2050	2060	2070
Ames	Liberty	1,003	1,145	1,290	1,427	1,566	1,698	1,824	88	100	106	112	121	131	140
Cleveland	Liberty	7,666	7,785	7,907	8,023	8,139	8,250	8,356	187	1,551	1,539	1,531	1,537	1,555	1,575
County-Other	Liberty	35,397	36,449	37,531	38,560	39,591	40,580	41,522	118	4,437	4,393	4,371	4,410	4,505	4,608
Daisetta	Liberty	966	1,103	1,242	1,375	1,508	1,635	1,757	114	128	138	148	160	173	186
Dayton	Liberty	7,242	10,220	13,271	16,174	19,087	21,875	24,538	209	2,273	2,898	3,500	4,113	4,709	5,280
Hardin	Liberty	819	944	1,072	1,194	1,316	1,433	1,545	124	122	134	146	160	173	187
Hardin WSC	Liberty	3,214	4,407	5,629	6,792	7,959	9,076	10,143	99	440	541	640	743	845	943
Kenefick	Liberty	563	643	724	801	879	953	1,024	115	76	83	89	97	104	112
LLWS	Liberty	1,956	2,883	3,833	4,736	5,643	6,511	7,340	70	196	258	319	380	438	494
Liberty	Liberty	8,397	9,104	9,829	10,519	11,211	11,873	12,506	161	1,543	1,620	1,698	1,790	1,892	1,992
Old River-Winfree	Liberty	141	161	182	201	221	239	257	98	16	17	18	20	21	23
Plum Grove	Liberty	600	685	772	854	937	1,016	1,092	115	81	87	94	102	110	118
Tarkington SUD	Liberty	3,243	3,910	4,593	5,243	5,895	6,519	7,115	104	416	472	528	587	648	706
West Hardin WSC	Liberty	320	357	395	431	468	503	536	68	24	27	29	32	34	37
Woodland Hills Water Company	Liberty	4,116	6,507	8,957	11,288	13,628	15,867	18,005	78	500	661	818	980	1,138	1,290
<b>Liberty County Total</b>		<b>75,643</b>	<b>86,303</b>	<b>97,227</b>	<b>107,618</b>	<b>118,048</b>	<b>128,028</b>	<b>137,560</b>	<b>N/A</b>	<b>11,903</b>	<b>12,974</b>	<b>14,041</b>	<b>15,232</b>	<b>16,476</b>	<b>17,691</b>

Region H Regional Water Planning Group  
**DRAFT** Water User Group (WUG) Projections  
 Madison County

WUG	County	Census 2010 Population	Population Projections						Baseline GPCD	Water Demand Projections (ac-ft)					
			2020	2030	2040	2050	2060	2070		2020	2030	2040	2050	2060	2070
County-Other	Madison	9,192	9,923	10,640	11,291	12,022	12,703	13,371	172	1,808	1,892	1,972	2,079	2,193	2,307
Madisonville	Madison	4,396	4,747	5,089	5,401	5,750	6,077	6,395	173	870	909	947	998	1,053	1,107
Normangee	Madison	76	83	88	94	100	106	111	155	14	14	15	16	17	17
<b>Madison County Total</b>		<b>13,664</b>	<b>14,753</b>	<b>15,817</b>	<b>16,786</b>	<b>17,872</b>	<b>18,886</b>	<b>19,877</b>	<b>N/A</b>	<b>2,692</b>	<b>2,815</b>	<b>2,934</b>	<b>3,093</b>	<b>3,263</b>	<b>3,431</b>

Region H Regional Water Planning Group  
**DRAFT** Water User Group (WUG) Projections  
Montgomery County

WUG	County	Census 2010 Population	Population Projections						Baseline GPCD	Water Demand Projections (ac-ft)					
			2020	2030	2040	2050	2060	2070		2020	2030	2040	2050	2060	2070
Benders Landing Water System	Montgomery	1,660	5,094	8,091	11,167	14,243	17,304	17,304	395	2,188	3,456	4,762	6,070	7,373	7,372
Cleveland	Montgomery	9	30	36	51	69	92	120	187	6	8	10	14	18	23
Conroe	Montgomery	56,207	77,926	93,516	107,457	120,314	134,086	148,830	162	13,336	15,705	17,863	19,899	22,144	24,564
County-Other	Montgomery	185,829	293,282	427,682	585,027	777,715	1,018,645	1,313,625	118	35,816	50,901	68,894	91,167	119,227	153,649
Cut And Shoot	Montgomery	1,070	1,311	1,421	1,666	1,990	2,419	2,986	90	116	120	134	158	190	235
Dobbin-Plantersville WSC	Montgomery	5,656	8,335	11,255	15,183	20,335	27,097	35,974	76	642	840	1,117	1,485	1,972	2,614
East Plantation UD	Montgomery	1,061	1,074	1,105	1,300	1,495	1,723	1,783	185	212	213	244	278	320	331
Houston	Montgomery	4,050	4,839	6,934	9,275	11,538	13,736	14,375	190	981	1,375	1,810	2,233	2,654	2,776
Indigo Lake Water System	Montgomery	2,129	2,934	4,050	5,820	8,319	11,846	17,602	354	1,133	1,548	2,212	3,156	4,491	6,671
Kings Manor MUD	Montgomery	1,856	1,909	1,963	2,061	2,133	2,187	2,227	112	224	225	231	236	242	246
Lake Windcrest Water System	Montgomery	2,172	2,544	2,868	3,645	4,731	6,250	8,377	328	916	1,026	1,298	1,681	2,219	2,972
Magnolia	Montgomery	1,393	3,105	3,729	4,545	5,740	7,492	10,211	212	694	823	997	1,256	1,637	2,230
Montgomery	Montgomery	621	2,676	4,985	6,185	7,393	8,625	10,565	224	631	1,164	1,442	1,722	2,008	2,459
Montgomery County MUD #15	Montgomery	2,434	3,792	4,082	4,708	5,534	6,747	8,466	126	497	525	598	699	850	1,065
Montgomery County MUD #18	Montgomery	2,838	4,676	6,041	6,868	7,695	8,522	10,527	255	1,285	1,644	1,861	2,080	2,302	2,842
Montgomery County MUD #19	Montgomery	1,991	1,996	2,009	2,023	2,039	2,057	2,076	126	261	253	247	245	247	249
Montgomery County MUD #8	Montgomery	2,656	2,963	3,173	3,560	3,947	4,334	5,205	144	445	462	506	554	607	728
Montgomery County MUD #83	Montgomery	1,120	1,494	1,544	1,595	1,646	1,698	1,734	173	281	289	298	307	316	323
Montgomery County MUD #89	Montgomery	3,669	4,254	4,346	4,413	4,761	5,261	5,429	75	335	337	341	366	402	415
Montgomery County MUD #9	Montgomery	2,961	3,240	3,377	3,849	4,320	4,792	5,744	147	507	520	584	651	720	862
Montgomery County MUD #94	Montgomery	2,407	3,441	3,480	3,857	4,234	4,609	4,609	159	592	595	657	720	783	782
Montgomery County UD #2	Montgomery	1,363	1,391	1,423	1,498	1,598	1,732	1,910	120	172	168	172	183	197	217
Montgomery County UD #3	Montgomery	1,790	1,825	2,134	2,154	2,459	3,114	3,967	142	267	303	305	347	438	557
Montgomery County UD #4	Montgomery	2,555	3,069	4,004	4,037	4,634	5,924	7,607	159	509	642	637	724	923	1,184
Montgomery County WCID #1	Montgomery	2,895	2,989	3,279	3,602	3,960	4,360	4,805	86	255	262	274	299	328	361
New Caney MUD	Montgomery	8,126	8,923	9,867	10,884	12,099	13,563	15,342	84	742	774	818	889	992	1,120
Oak Ridge North	Montgomery	3,049	3,121	3,265	3,485	3,610	3,655	3,670	169	559	569	595	609	616	618
Panorama Village	Montgomery	2,170	2,557	2,601	2,773	3,002	3,309	3,718	214	585	586	617	663	730	819
Patton Village	Montgomery	1,557	2,175	2,363	2,624	2,955	3,375	3,908	73	151	159	177	199	227	263
Point Aquarius MUD	Montgomery	1,633	1,655	1,663	1,779	1,935	2,143	2,420	190	339	336	355	383	424	478
Porter SUD	Montgomery	15,147	25,185	31,483	37,835	44,073	50,332	55,511	60	1,693	2,116	2,543	2,963	3,383	3,731
Rayford Road MUD	Montgomery	7,719	7,878	8,217	8,878	9,615	10,395	10,672	120	994	1,015	1,080	1,159	1,249	1,282
River Plantation MUD	Montgomery	1,905	2,107	2,244	2,742	3,239	3,786	3,994	228	511	534	651	767	895	944
Roman Forest	Montgomery	1,538	1,553	1,571	1,755	1,991	2,291	2,674	192	320	317	348	391	449	524
Shenandoah	Montgomery	2,134	2,959	3,854	4,226	4,476	4,764	5,130	400	1,292	1,667	1,820	1,923	2,046	2,203
Southern Montgomery County MUD	Montgomery	7,214	7,488	7,767	7,960	8,115	8,239	8,369	111	861	865	865	870	880	894
Splendor	Montgomery	1,615	1,821	1,989	2,381	2,878	3,506	4,300	96	180	190	222	265	322	394
Spring Creek UD	Montgomery	6,248	7,307	8,058	8,502	9,295	10,279	10,600	86	645	689	715	773	851	877
Stagecoach	Montgomery	538	541	645	1,049	1,632	2,553	4,142	63	37	44	71	110	172	279
Stanley Lake MUD	Montgomery	2,425	2,586	2,906	3,766	4,910	6,413	8,295	204	569	630	807	1,047	1,365	1,765
The Woodlands	Montgomery	91,462	100,003	105,894	111,674	118,464	128,339	140,330	222	23,987	25,132	26,326	27,820	30,098	32,896
Westwood North WSC	Montgomery	1,930	1,967	2,083	2,322	2,561	2,801	3,143	165	351	369	410	451	492	551
Willis	Montgomery	5,662	6,533	6,768	7,296	8,025	9,036	10,442	120	817	826	874	951	1,068	1,232
Woodbranch	Montgomery	1,282	1,369	1,487	1,801	2,199	2,704	3,345	78	105	106	122	148	182	225
<b>Montgomery County Total</b>		<b>455,746</b>	<b>627,917</b>	<b>811,252</b>	<b>1,019,278</b>	<b>1,267,916</b>	<b>1,576,135</b>	<b>1,946,063</b>	<b>N/A</b>	<b>97,039</b>	<b>120,328</b>	<b>146,910</b>	<b>178,911</b>	<b>219,049</b>	<b>266,822</b>

Region H Regional Water Planning Group  
**DRAFT** Water User Group (WUG) Projections  
 Polk County

WUG	County	Census 2010 Population	Population Projections						Baseline GPCD	Water Demand Projections (ac-ft)					
			2020	2030	2040	2050	2060	2070		2020	2030	2040	2050	2060	2070
County-Other	Polk	16,745	18,673	20,485	21,912	23,129	24,122	24,922	102	1,942	2,047	2,131	2,218	2,305	2,381
LLWS	Polk	13,725	15,677	17,513	18,957	20,188	21,192	22,002	70	1,066	1,178	1,275	1,357	1,425	1,479
Livingston	Polk	5,335	6,093	6,807	7,368	7,847	8,237	8,552	385	2,557	2,823	3,032	3,216	3,374	3,502
Onalaska	Polk	1,764	2,468	3,130	3,651	4,095	4,457	4,749	123	316	390	449	501	544	579
<b>Polk County Total</b>		<b>37,569</b>	<b>42,911</b>	<b>47,935</b>	<b>51,888</b>	<b>55,259</b>	<b>58,008</b>	<b>60,225</b>	<b>N/A</b>	<b>5,881</b>	<b>6,438</b>	<b>6,887</b>	<b>7,292</b>	<b>7,648</b>	<b>7,941</b>



Region H Regional Water Planning Group  
**DRAFT** Water User Group (WUG) Projections  
 San Jacinto County

WUG	County	Census 2010 Population	Population Projections						Baseline GPCD	Water Demand Projections (ac-ft)					
			2020	2030	2040	2050	2060	2070		2020	2030	2040	2050	2060	2070
Coldspring	San Jacinto	853	958	1,055	1,132	1,217	1,287	1,349	118	118	126	132	141	148	155
County-Other	San Jacinto	16,173	18,148	19,998	21,450	23,054	24,387	25,568	110	2,075	2,225	2,346	2,498	2,634	2,760
LLWS	San Jacinto	3,540	3,973	4,378	4,696	5,047	5,339	5,597	70	271	295	316	340	359	377
Point Blank	San Jacinto	688	773	851	913	981	1,038	1,088	111	89	95	99	105	111	116
Riverside WSC	San Jacinto	505	567	625	670	720	762	799	64	39	43	46	49	52	54
San Jacinto SUD	San Jacinto	2,306	2,588	2,852	3,059	3,288	3,478	3,646	92	237	247	254	269	284	297
Shepherd	San Jacinto	2,319	2,603	2,868	3,076	3,307	3,498	3,667	117	314	334	349	370	390	409
<b>San Jacinto County Total</b>		<b>26,384</b>	<b>29,610</b>	<b>32,627</b>	<b>34,996</b>	<b>37,614</b>	<b>39,789</b>	<b>41,714</b>	<b>N/A</b>	<b>3,143</b>	<b>3,365</b>	<b>3,542</b>	<b>3,772</b>	<b>3,978</b>	<b>4,168</b>

Region H Regional Water Planning Group  
**DRAFT** Water User Group (WUG) Projections  
 Trinity County

WUG	County	Census 2010 Population	Population Projections						Baseline GPCD	Water Demand Projections (ac-ft)					
			2020	2030	2040	2050	2060	2070		2020	2030	2040	2050	2060	2070
County-Other	Trinity	2,627	2,974	3,216	3,241	3,149	3,295	3,447	74	214	217	218	212	222	232
Groveton	Trinity	579	655	708	713	693	725	759	105	70	72	70	67	70	73
LLWS	Trinity	1,428	1,615	1,747	1,760	1,710	1,790	1,873	70	110	118	119	115	121	126
Trinity County Total	Trinity	2,697	3,051	3,300	3,325	3,231	3,380	3,537	109	337	349	341	326	340	355
Trinity Rural WSC	Trinity	3,941	4,459	4,822	4,858	4,721	4,940	5,169	114	528	555	550	529	551	577
<b>Trinity County Total</b>		<b>11,272</b>	<b>12,754</b>	<b>13,793</b>	<b>13,897</b>	<b>13,504</b>	<b>14,130</b>	<b>14,785</b>	<b>N/A</b>	<b>1,259</b>	<b>1,311</b>	<b>1,298</b>	<b>1,249</b>	<b>1,304</b>	<b>1,363</b>

Region H Regional Water Planning Group  
**DRAFT** Water User Group (WUG) Projections  
 Walker County

WUG	County	Census 2010 Population	Population Projections						Baseline GPCD	Water Demand Projections (ac-ft)					
			2020	2030	2040	2050	2060	2070		2020	2030	2040	2050	2060	2070
County-Other	Walker	15,085	15,412	15,697	15,902	16,092	16,240	16,360	196	3,232	3,226	3,216	3,226	3,250	3,274
Huntsville	Walker	38,548	40,788	42,746	44,157	45,480	46,509	47,342	182	7,897	8,091	8,214	8,382	8,556	8,707
LLWS	Walker	369	391	410	423	436	446	454	70	27	28	29	30	30	31
New Waverly	Walker	1,032	1,085	1,132	1,166	1,198	1,223	1,243	158	181	184	185	188	192	195
Riverside	Walker	510	565	613	648	681	707	728	96	55	57	58	60	62	63
Riverside WSC	Walker	4,598	5,206	5,738	6,121	6,481	6,761	6,988	64	350	386	412	436	455	470
The Consolidated WSC	Walker	120	142	161	175	188	198	206	110	17	18	19	20	21	22
Trinity Rural WSC	Walker	297	339	376	403	428	447	463	114	41	44	46	48	50	52
Walker County SUD	Walker	7,302	7,872	8,370	8,729	9,066	9,328	9,540	127	1,043	1,076	1,097	1,126	1,156	1,182
<b>Walker County Total</b>		<b>67,861</b>	<b>71,800</b>	<b>75,243</b>	<b>77,724</b>	<b>80,050</b>	<b>81,859</b>	<b>83,324</b>	<b>N/A</b>	<b>12,843</b>	<b>13,110</b>	<b>13,276</b>	<b>13,516</b>	<b>13,772</b>	<b>13,996</b>

Region H Regional Water Planning Group  
**DRAFT** Water User Group (WUG) Projections  
Waller County

WUG	County	Census 2010 Population	Population Projections						Baseline GPCD	Water Demand Projections (ac-ft)					
			2020	2030	2040	2050	2060	2070		2020	2030	2040	2050	2060	2070
Brookshire	Waller	4,702	5,811	7,107	8,544	10,112	11,844	13,722	111	663	782	921	1,080	1,262	1,460
County-Other	Waller	20,439	24,898	30,107	35,886	42,194	49,161	56,718	118	3,045	3,573	4,184	4,878	5,669	6,534
G & W WSC	Waller	2,694	3,878	5,262	6,796	8,471	10,320	12,325	104	415	547	697	864	1,050	1,253
Hempstead	Waller	5,770	6,726	7,843	9,081	10,433	11,926	13,544	182	1,304	1,490	1,703	1,944	2,218	2,518
Katy	Waller	1,156	1,468	1,833	2,237	2,678	3,165	3,693	226	354	434	527	628	742	866
Pine Island	Waller	988	1,112	1,256	1,416	1,591	1,784	1,993	130	152	167	184	205	230	256
Prairie View	Waller	5,576	6,609	7,816	9,154	10,615	12,228	13,977	221	1,567	1,821	2,110	2,434	2,800	3,199
Waller	Waller	1,880	2,036	2,219	2,421	2,642	2,886	3,150	165	356	379	407	440	479	523
<b>Waller County Total</b>		<b>43,205</b>	<b>52,538</b>	<b>63,443</b>	<b>75,535</b>	<b>88,736</b>	<b>103,314</b>	<b>119,122</b>	<b>N/A</b>	<b>7,856</b>	<b>9,193</b>	<b>10,733</b>	<b>12,473</b>	<b>14,450</b>	<b>16,609</b>

## Agenda Item 8

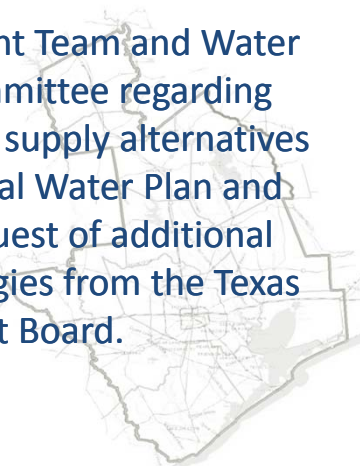
Receive update from Consultant Team and Water Management Strategies Committee regarding status of investigation of water supply alternatives for the 2016 Region H Regional Water Plan and consider authorizing the request of additional funding for the study of strategies from the Texas Water Development Board.



## Agenda Item 8 Water Management Strategies



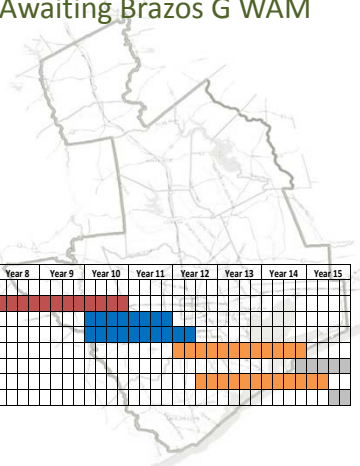
Receive update from Consultant Team and Water Management Strategies Committee regarding status of investigation of water supply alternatives for the 2016 Region H Regional Water Plan and consider authorizing the request of additional funding for the study of strategies from the Texas Water Development Board.



## Accelerated WMS Studies 4D-1: Allens Creek



- Identified basin needs
  - 55,000 – 238,000 ac-ft/yr in 2011 RWP
- Will reevaluate yield
  - Awaiting Brazos G WAM
- Reviewed development timeline
  - Estimated 15 years
  - 10 years for permitting



Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15
Project Assessment	Phase I														
Environmental Studies and Permitting	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II
Dam and Reservoir Design											Phase IV	Phase IV	Phase IV	Phase IV	Phase IV
Pipeline and Pump Station Design											Phase IV	Phase IV	Phase IV	Phase IV	Phase IV
Dam and Reservoir Construction												Phase V	Phase V	Phase V	Phase V
Reservoir Impoundment													Phase V	Phase V	Phase V
Pipeline and Pump Station Construction													Phase V	Phase V	Phase V
Initial Operation															

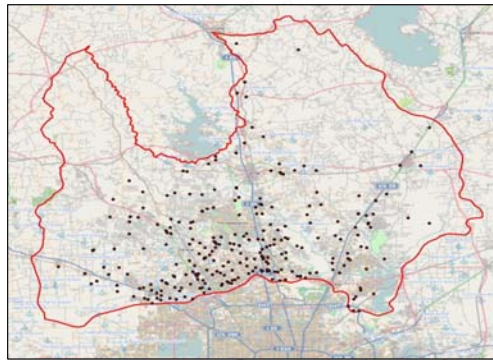
Phase I (Project Assessment)  
Phase II (Permit Applications)  
Phase III (Additional Permitting)

Phase IV (Design)  
Phase V (Construction)  
Other Key Activities

## Accelerated WMS Studies 4D-2: Regional Return Flows



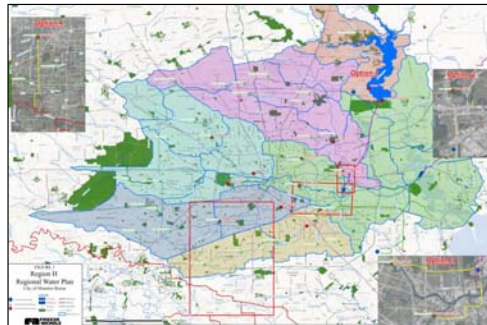
- Identifying capturable return flows
- GIS analysis of current and future return flows between Lake Conroe, lake Houston
- Awaiting San Jacinto WAM release



## Accelerated WMS Studies 4D-3: Houston Indirect Reuse



- Identified opportunities for use of permitted flows:
  - Irrigation
  - Indirect or blended potable
  - Supply to other users
- Continued coordination with Houston





## Accelerated WMS Studies 4D-4: Brackish Groundwater



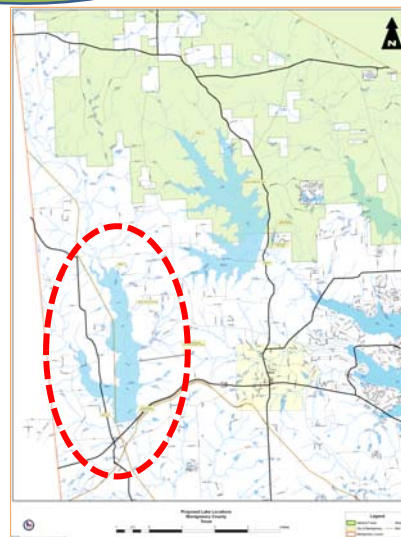
- Identifying areas containing brackish supplies
- Will develop estimated costs for supply development



## Accelerated WMS Studies 4D-5: Lone Star Lake



- Details obtained for Lone Star Lake
- Stage-storage curve
- Preliminary WAM code
- Remaining analysis pending TCEQ update of WAM



## WMS Analysis Funding to Date

- 1<sup>st</sup> biennium funding of \$225,604 for Task 4D authorized by TWDB in July 2012
- 2<sup>nd</sup> biennium funding of \$800,407 - must be requested by RWPG and authorized by TWDB
- Option to request a portion or entirety of funds
- Recommend focusing on select projects to facilitate review and approval

## Suggested for Near-Term Funding

Update and Reallocation of Strategies to WUGs

Expanded Use of Groundwater

Continuation of Accelerated Task 4D Effort

Interbasin Transfers

Municipal Conservation

DOW Off-Channel Reservoir

Industrial Conservation

Other Brazos Basin Storage Projects

Irrigation Conservation

Seawater Desalination

## Update and Reallocation of Strategies to WUGs



### Scope and Budget

- Evaluate WMS based on tech studies / matrix
- Process documentation
- Strategy allocations
- Database efforts
- Develop RWP Chapter
- Budget: \$99,307

### Key Considerations

- Overlaps all WMS studies
- Key component of Plan development



## Continuation of Accelerated Task 4D Effort

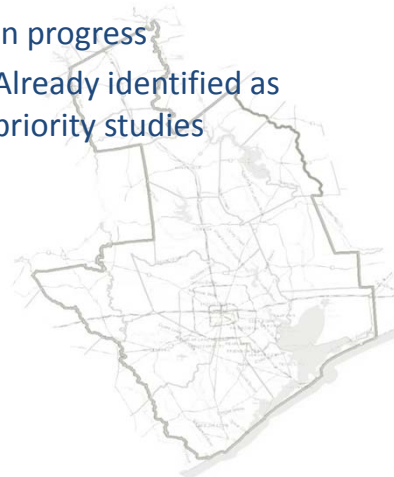


### Scope and Budget

- Continue tech studies
- Prepare summary docs
- Budget: \$47,700

### Key Considerations

- In progress
- Already identified as priority studies



## Municipal Conservation



### Scope and Budget

- Review available data (survey, 2011 RWP, outside reports)
- Determine est. practicable savings based on WUG size, etc.
- Coordination with WUGs
- Update yield, cost, etc.
- Budget: \$44,700

### Key Considerations

- Region H - conservation first approach
- Public and industry interest
- Increasing information resources



## Industrial Conservation

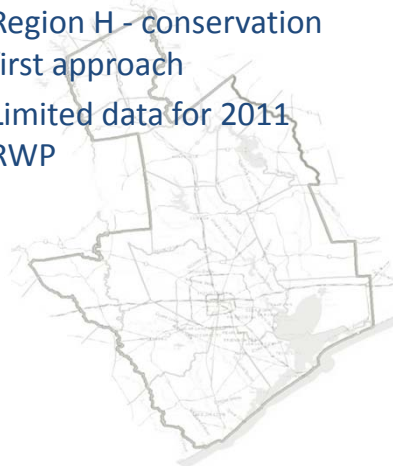


### Scope and Budget

- Correspondence with industrial users
- Characterize potential savings from entity-specific data
- Update yield, cost, etc.
- Budget: \$25,900

### Key Considerations

- Region H - conservation first approach
- Limited data for 2011 RWP



## Irrigation Conservation

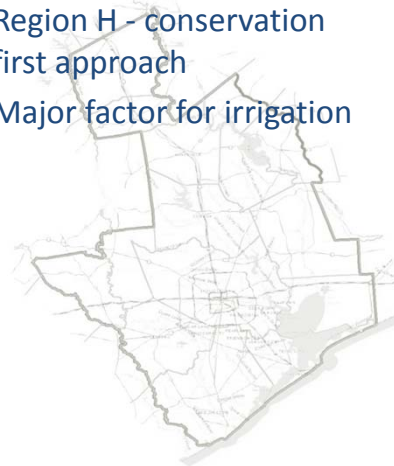


### Scope and Budget

- Review prior RWP
- Revise analysis with updated acreage and usage data
- Update yield, cost, etc.
- Budget: \$15,500

### Key Considerations

- Region H - conservation first approach
- Major factor for irrigation



## Expanded Use of Groundwater



### Scope and Budget

- Coordinate with RGU sponsors
- Identify users and compare against remaining MAG
- Allocate supply within regulatory limits
- Update yield, cost, etc.
- Budget: \$77,900

### Key Considerations

- Major supply
- Considered early in allocation process
- Ties in to ongoing groundwater process



## Interbasin Transfers

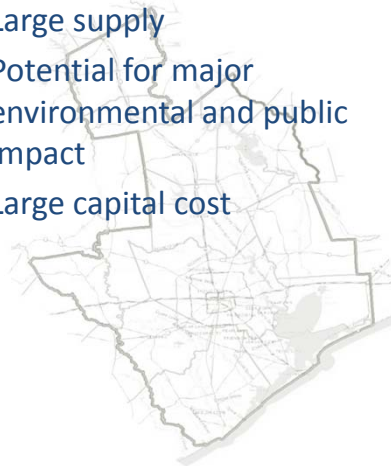


### Scope and Budget

- Examine available data on potential transfers
- Examination locations / volumes of need
- Identify significant changes needed to facilitate implementation
- Update yield, cost, etc.
- Budget: \$70,200

### Key Considerations

- Large supply
- Potential for major environmental and public impact
- Large capital cost



## Dow Off-Channel Reservoir



### Scope and Budget

- Coordinate with Dow on status
- Update tech memo
- Update yield, cost, etc.
- Budget: \$11,600



### Key Considerations

- High needs in lower Brazos
- Known sponsor – actively investigating



## Other Brazos Basin Storage Projects



### Scope and Budget

- Coordinate with BRA and others
- Opportunities for new storage concepts
- Yield modeling in WAM
- Cost estimation and impacts analysis
- Budget: \$41,400

### Key Considerations

- Substantial needs



## Seawater Desalination



### Scope and Budget

- Review available data on Texas pilot projects
- Revise tech assessment
- Update yield, cost, etc.
- Budget: \$14,600

### Key Considerations

- Large potential supply
- Strong public interests
- Growing knowledge base
- Industry activity



## Recommendations Phase 2 WMS Studies



- Authorize  
submittal of SOW  
and budget  
request to TWDB  
for approval to  
proceed

Task	Budget
Update and Reallocation of Strategies to WUGs	\$99,307
Continuation of Accelerated Task 4D Effort	\$47,700
Municipal Conservation	\$44,700
Industrial Conservation	\$25,900
Irrigation Conservation	\$15,500
Expanded Use of Groundwater	\$77,900
Interbasin Transfers	\$70,200
Dow Off-Channel Reservoir	\$11,600
Other Brazos Basin Storage Projects	\$41,400
Seawater Desalination	\$14,600
<b>Total</b>	<b>\$448,807</b>



## Agenda Item 10

Receive presentation from Texas Water Development Board regarding and discuss new requirements for development of Regional Water Plans for the 2016 planning cycle including House Bill 3, Senate Joint Resolution 1, and House Bill 1025..



# Review of Revised Regional Water Planning Requirements

---

March 2013 | Lann Bookout  
Regional Water Planning

**Texas Water**  
**Development Board**



## Outline

- i. Background on planning requirements**
- ii. Purpose and nature of rule changes**
- iii. Summary of specific rule changes**

## Background

### ***BASIC PLANNING PARAMETERS:***

- water supply plan to meet DOR needs
- 50-year planning horizon
- 5-year planning cycle
- categories of water use:
  - municipal    -manufacturing
  - irrigation    -mining
  - livestock    -steam-electric power

## Background

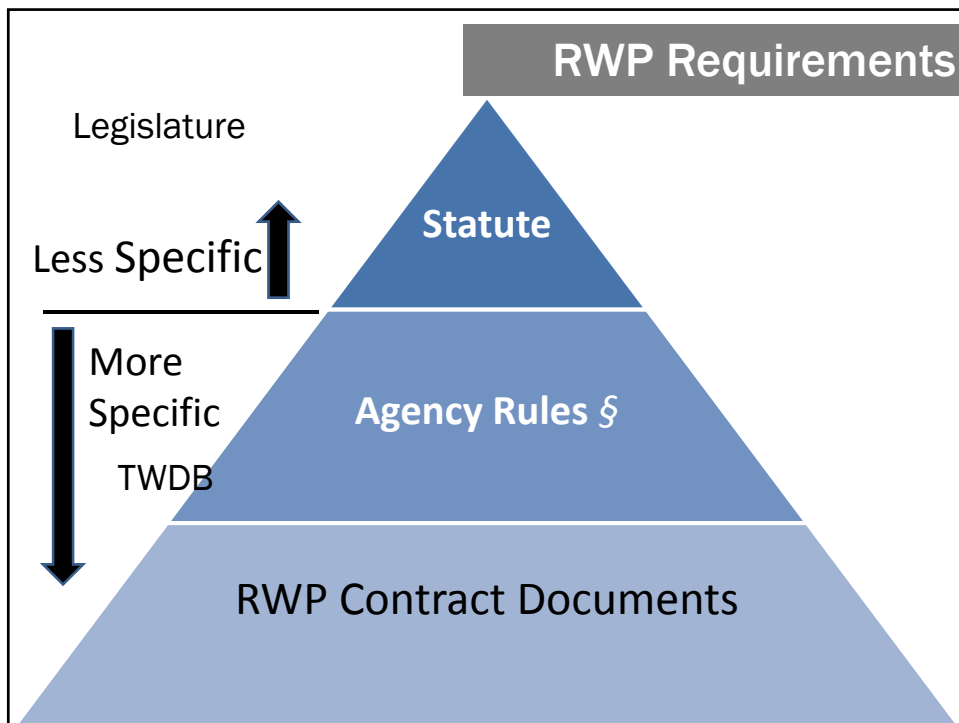
**“The state water plan shall provide for the preparation for and response to drought conditions.”**

*- Guidance Principles for the State Water Plan Development §358.3(1)*

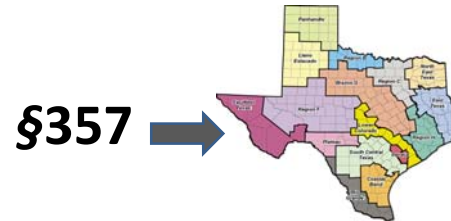
## Background

**“The state drought manager [TDEM] is responsible for managing and coordinating the drought response component of the state water plan.”**

- Texas Water Code, Sec. 16.055.  
*Drought Response Plan*



## Planning Rules



## Types of Rule Revisions

new rules for new statutes

new rules for new requirements

reorganized rules for existing content

emphasized rules for existing content

## Purpose & Nature of Rule Changes

- **statutory changes**
- **problems encountered during 2011 drought**
- **outcomes from agency coordination**

## Impact of Changes

**Rule changes will require RWPGs to:**

- a) report additional (existing) information in plans**
- b) collect, analyze, and consider additional information**
- c) make additional recommendations**

## Rule changes

### **REGIONAL WATER PLAN CHAPTERS:**

- |                    |                           |
|--------------------|---------------------------|
| 1. description     | 7. drought response       |
| 2. demands         | 8. policy recommendations |
| 3. supply          | 9. financing of WMSs      |
| 4. needs           | 10. plan adoption         |
| 5. WMS evaluations | 11. implementation &      |
| 6. plan impacts    | comparison                |

## Rule changes

### **Chapter with Revised Requirements:**

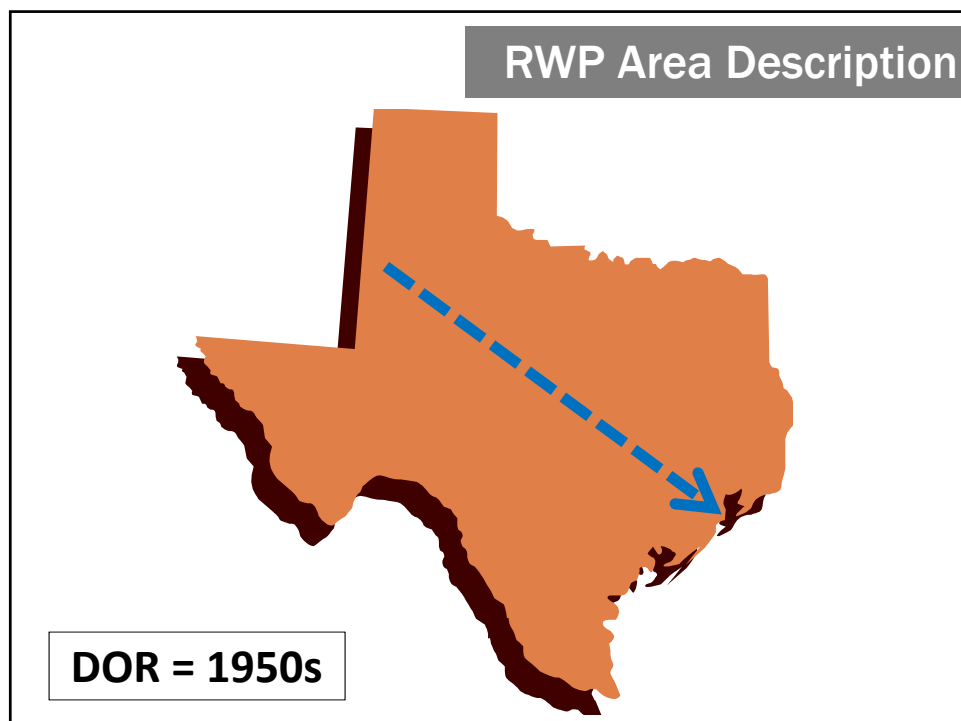
- |                    |                                |
|--------------------|--------------------------------|
| 1. description     | 7. drought response <b>NEW</b> |
| 2. demands         | 8. policy recommendations      |
| 3. supply          | 9. financing of WMSs           |
| 4. needs           | 10. plan adoption              |
| 5. WMS evaluations | 11. implementation &           |
| 6. plan impacts    | comparison <b>NEW</b>          |

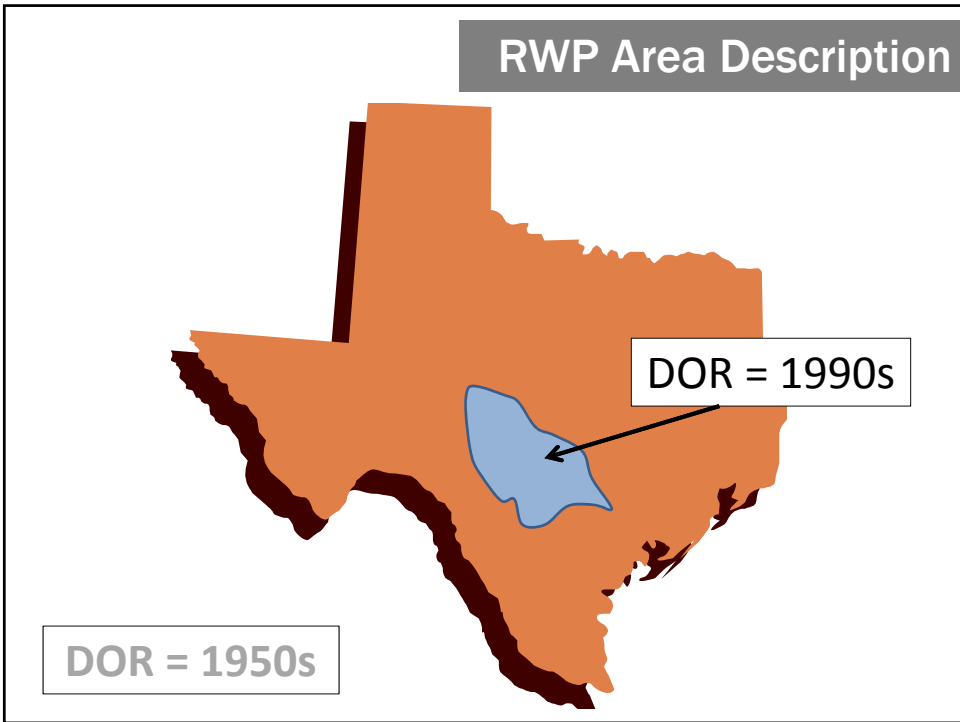
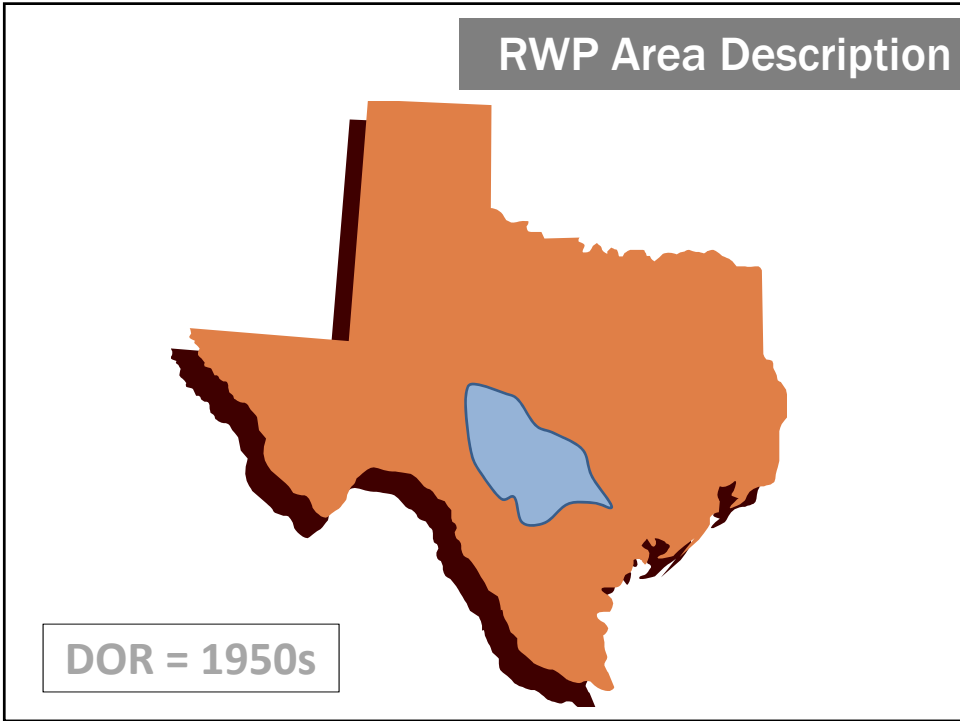


## Chapter 1: RWP Area Description

Identify in the plan multiple historic droughts of record (DOR), if applicable

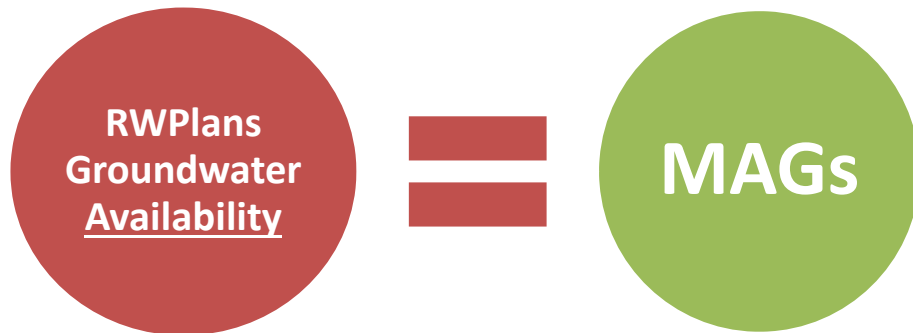
- §357.30(9)





## CHAPTER 3: Existing Water Supplies

Where a DFC has been established...



## CHAPTER 4: ID of Water Needs

Secondary needs analysis to be performed  
after recommending conservation and reuse

- §357.33 (e)

**New REPORTING REQUIREMENT**  
**based on data already developed by RWPG**  
**- no new data or work required**

## Secondary Needs Analysis

**Total  
Water  
Needs**



## Secondary Needs Analysis

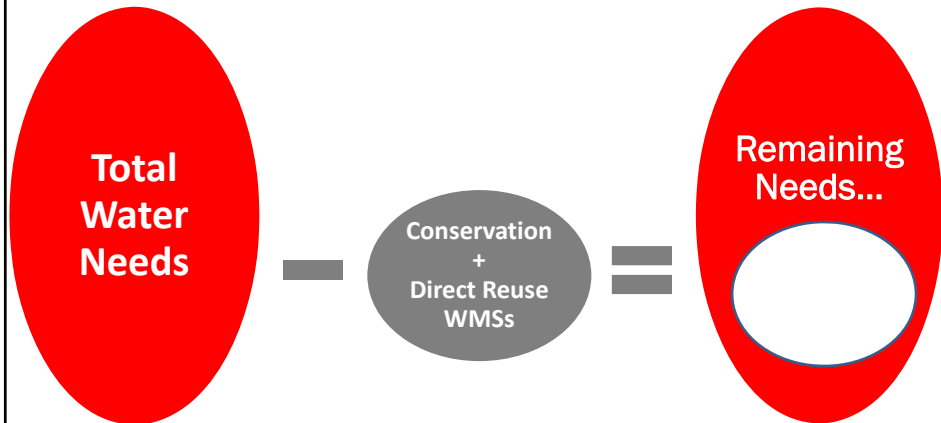
**Total  
Water  
Needs**



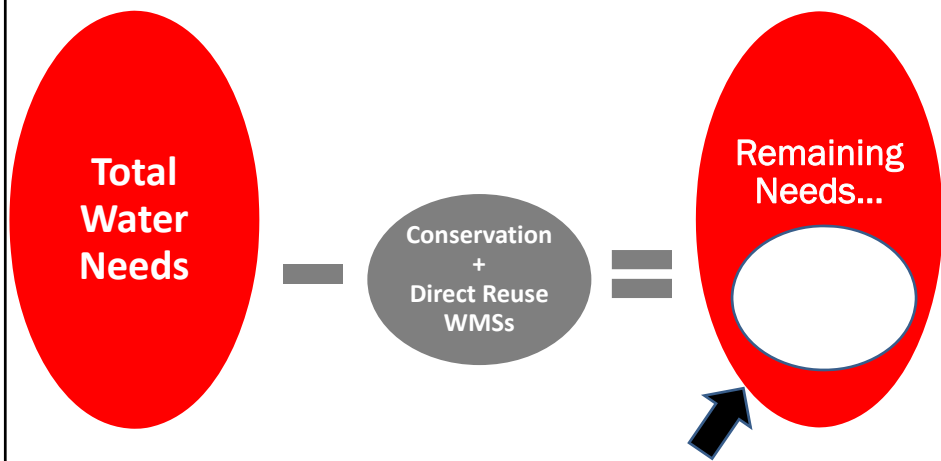
Conservation  
+  
Direct Reuse  
WMSs



## Secondary Needs Analysis



## Secondary Needs Analysis



**calculated by TWDB & presented in plans**

**Potentially Feasible, Evaluated,  
Recommended WMSs**

- a) TCEQ Environmental Flow Standards**
- b) potentially applicable BMPs**
- c) conservation sub-chapter**
- d) management supply factor (MSF)**
- e) other**

## Environmental Flow Stds

**a.) All WMSs must adhere to relevant adopted environmental flow standards**

*§357.34(d)(3)(B)*



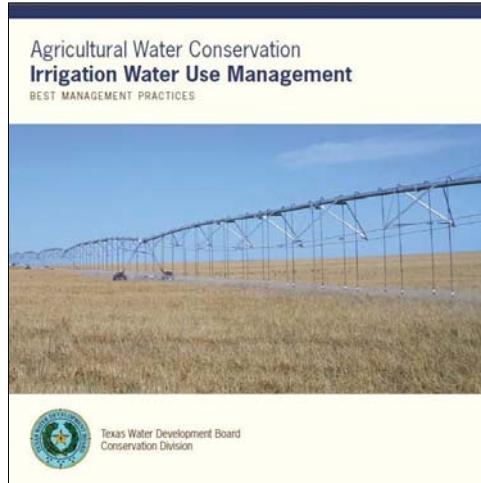
## Environmental Flow Stds



**site specific studies  
(when available)**

**apply the 1997 "Consensus  
Criteria for Environmental Flow  
Needs"**

## Consider BMPs



**b.) Shall consider potentially applicable BMPs**

*§357.34(f)(2)*

## Conservation Sub-Chapter

**c.) All Conservation recommendations  
will be gathered into a Sub-Chapter**

*§357.34(g)*

**REORGANIZATION OF EXISTING PLAN  
CONTENT ONLY**

**- no new data or work required**



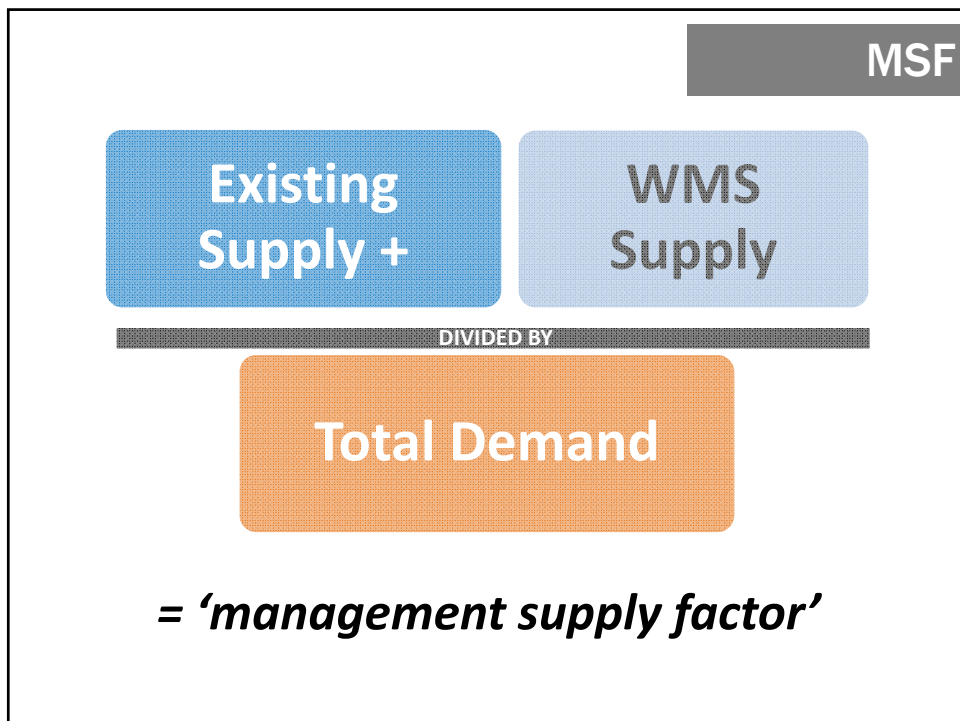
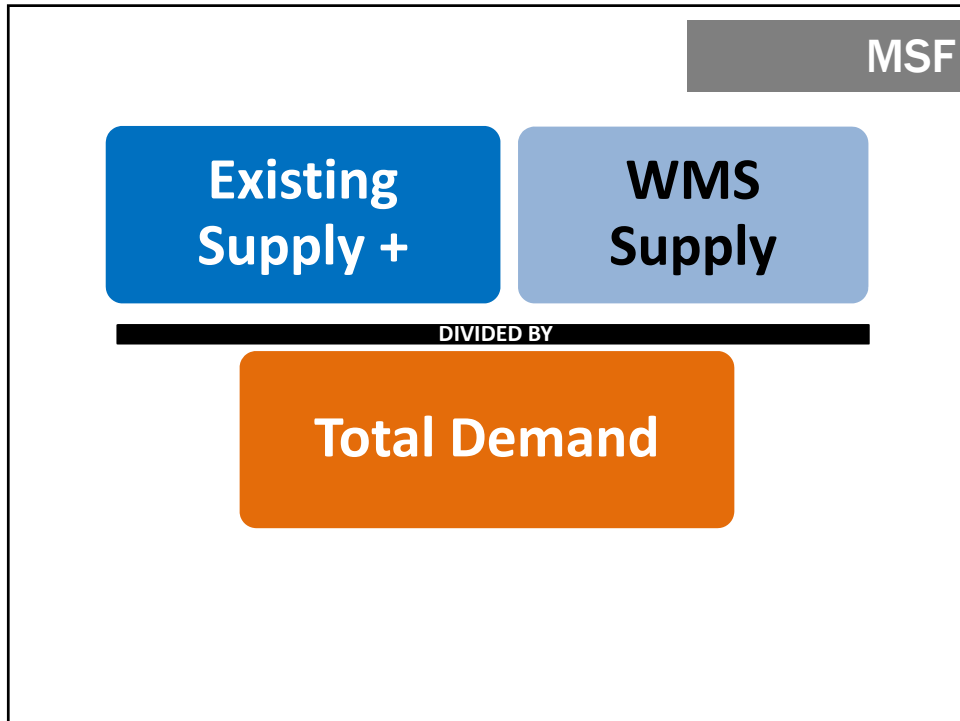
d.) Report calculated planning  
'MSFs' - assuming all recommended  
WMSs are implemented.

*§357.35(g)(2)*

**NEW REPORTING REQUIREMENT**  
**based on data already developed by RWPG**  
**- no new data or work required**

**Existing  
Supply +**

**WMS  
Supply**



MSF

Existing  
Supply +

WMS  
Supply

DIVIDED BY

Total Demand

- *for each WUG*

MSF

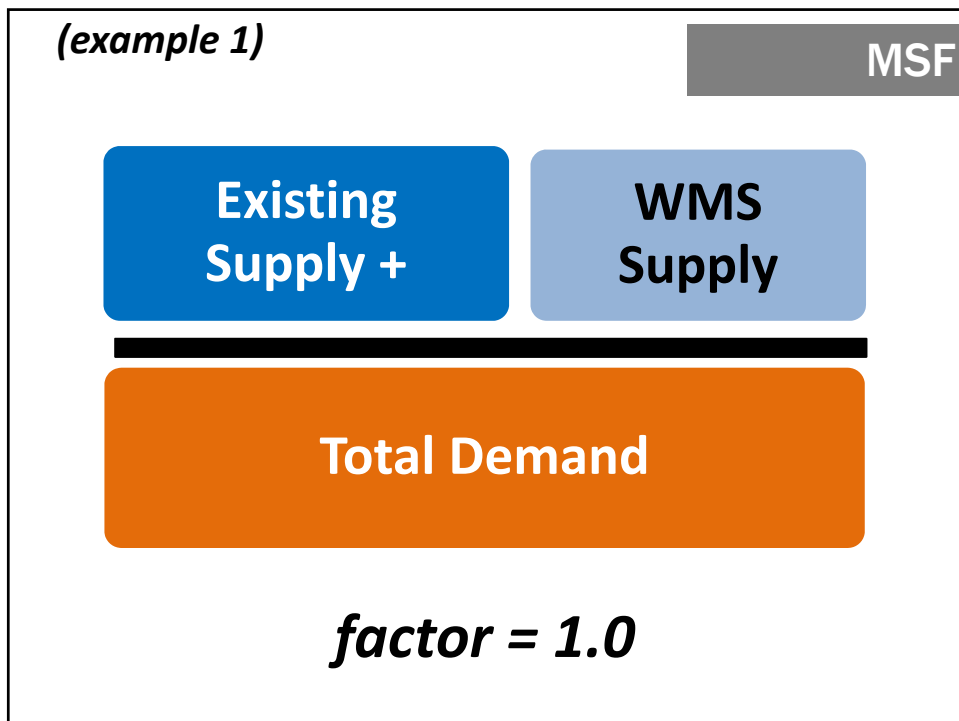
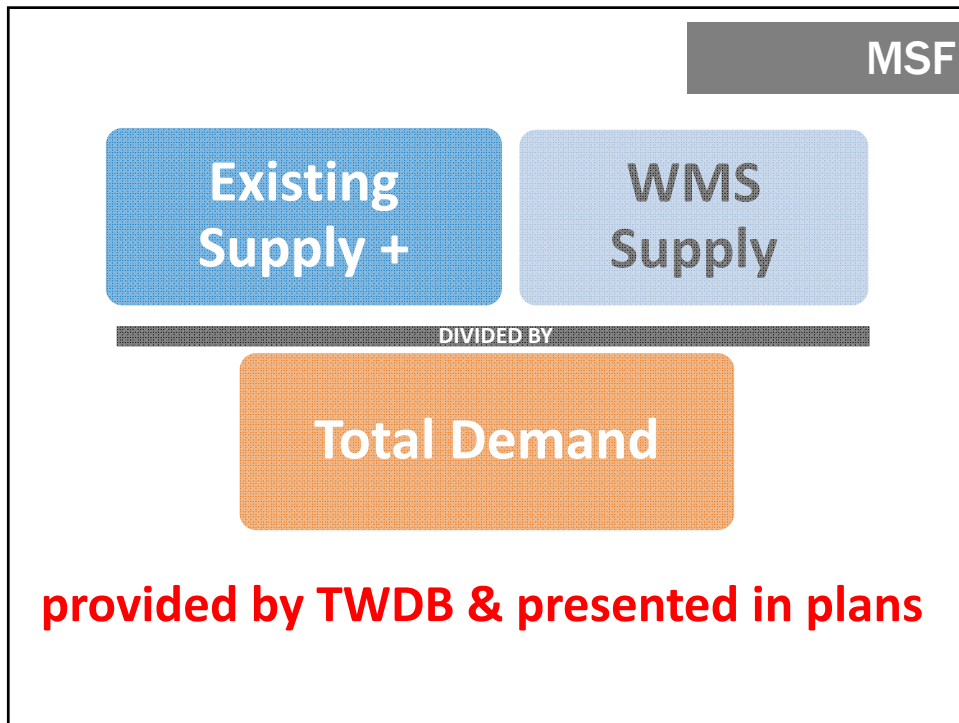
Existing  
Supply +

WMS  
Supply

DIVIDED BY

Total Demand

- *for each WUG*
- *in each decade*



(example 2)

MSF

Existing Supply  
+

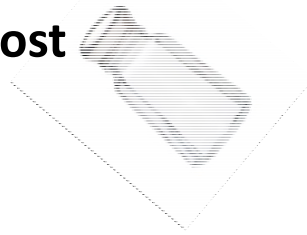
WMS  
Supply

Total Demand

*factor > 1.0*

brackish desal  
WMSs must fit  
within most  
MAGs

Other Requirements

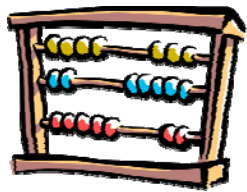


NO GW  
overdrafts  
esp. MAGs



## Other Requirements

**All WMS supply volumes must be firm during DOR**



**Costing tool for all WMSs**



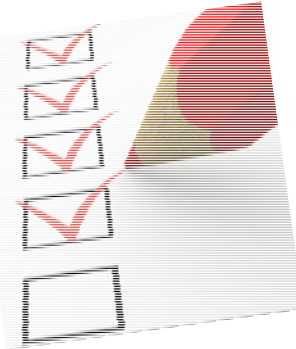
## Other Requirements

- ✓ must include more details that go into WMS cost estimates
- ✓ must include estimate of anticipated water loss in WMS technical evaluations

## Other Requirements

more detailed documentation  
of all WMS categories that  
were considered §357.34(c)

*reuse*  
*desalination*  
*reallocation*  
*emergency transfers*  
*conjunctive use*



## CHAPTER 6: Plan Impacts & Consistency

RWPs shall include a summary of the  
identified remaining unmet needs

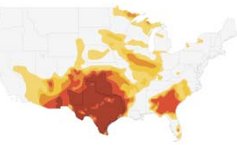
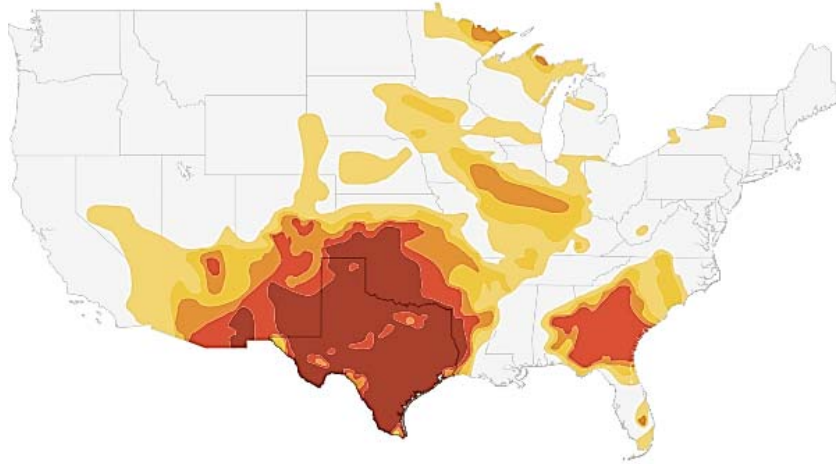
§357.40(c)

### ***New REPORTING REQUIREMENT ONLY***

- TWDB to calculate & provide***
- By WUG category & decade***
- Municipal WUGs individually***

## Chapter 7: Drought Response Information, Activities, and Recommendations

### **A *NEW* CHAPTER IN ALL PLANS**



### Ch. 7 – Background

As a result of the 2011 drought, TCEQ and TDEM provided input on rules based on:

- **number of water systems in danger of running out of water**
- **lack of implementation of DCPs**
- **lack of information on local options for water in emergency situation**
- **poor local coordination**

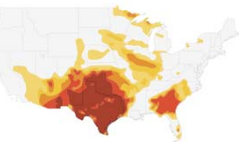




## Ch. 7 – Background

Rule changes in response to the 2011 drought will require RWPGs to:

- **collect, analyze, & consider additional information**
- **make additional recommendations**



## Ch. 7 – New Requirements

- a) recommendations for each existing source**  
- §357.42(c),(i)(2) (triggers and responses)
- b) emergency responses to local conditions**  
- §357.42(g) (7,500 population or less; single source)
- c) develop region-specific model DCPs -§357.42(j)**
- d) recommendations to the State Drought Preparedness Council - §357.42(i)**

*more later.....*

## Ch. 11: Implementation & Comparison

### A **NEW** CHAPTER IN ALL PLANS

- i. progress on 2011 plan WMSs
- ii. comparison to the previous regional water plan



## Implementation

- i. Determine level of implementation of 2011 plans

§357.45(a)

- *survey of sponsors of 2011 WMSs*
- *survey tool to be provided by TWDB*

### **STATUS:**

***under study?***  
***land acquired?***  
***permitted?***  
***constructed?***



## Comparison

### ii. Comparison to previous plan §357.45(b)

2011 plan



- *projections*
- *water availability*
- *existing supplies*
- *needs*
- *recommended WMSs*

2016 plan



## New Regional Plan Content

- electronic appendices to include **full WAM input files** used to determine SW availability including dates of model runs
- technical memorandum prior to draft plan

## New Regional Plan Content

### 2016 plans to incorporate several standardized database reports

- *reduce costs*
- *consistently report required data*
- *facilitate compliance with rules*
- *facilitate reviews and SWPlan development*
- *comply with agency audit finding*

**compiled by TWDB – presented in plans**

## Funding for SWP Projects

- 2013 Legislative session authorized \$2 billion to be withdrawn from Economic Stabilization Fund and deposited in State Water Implementation Fund for Texas – if the creation of that fund is approved by voters in November.
- The fund will provide bond and credit enhancements to help make loans for State Water Plan projects more affordable.

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## Prioritization of SWP Projects

- Projects will be prioritized in each regional water plan and in the State Water Plan
- Regional prioritization based on:
  - Decade of need
  - Feasibility, including availability of water rights
  - Viability, including whether the project is a “comprehensive solution”
  - Sustainability
  - Cost effectiveness
- TWDB will convene stakeholders committee in September to determine standards

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## Prioritization of SWP Projects

- State Water Plan prioritization based on:
  - Serving a large population
  - Serving a diverse urban and rural population
  - Provide regionalization
  - Meet high percentage of water needs
  - Also consider: local contributions, repayment capacity, emergency needs, ready to proceed, demonstrated or projected impact on conservation

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## SWIFT Operations

- 20% of loan funds to target conservation and reuse projects
- 10% of loan funds to target rural and irrigation conservation projects
- Rules for disbursement of loans from the fund will be finalized in March 2015

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## Questions?

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Lann Bookout

[Lann.bookout@twdb.texas.gov](mailto:Lann.bookout@twdb.texas.gov)

[www.twdb.texas.gov](http://www.twdb.texas.gov)

**Texas Water**  
**Development Board**



## Agenda Item 11

Discuss schedule for planning group efforts and meetings for  
2013-2014.





# Agenda Item 11 Schedule for 2013-2014



Discuss schedule for planning group efforts and meetings for 2013-2014.



# 2013-2014 Meeting Schedule



## 2013

July	August	September
Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 8 ● 15 ● 22 ○ 29 ●	Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 6 ● 14 ● 20 ○ 28 ●	Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 5 ● 12 ● 19 ○ 26 ●
October	November	December
Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 4 ● 11 ● 18 ○ 26 ●	Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 3 ● 10 ● 17 ○ 25 ●	Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 2 ● 9 ● 17 ○ 25 ●

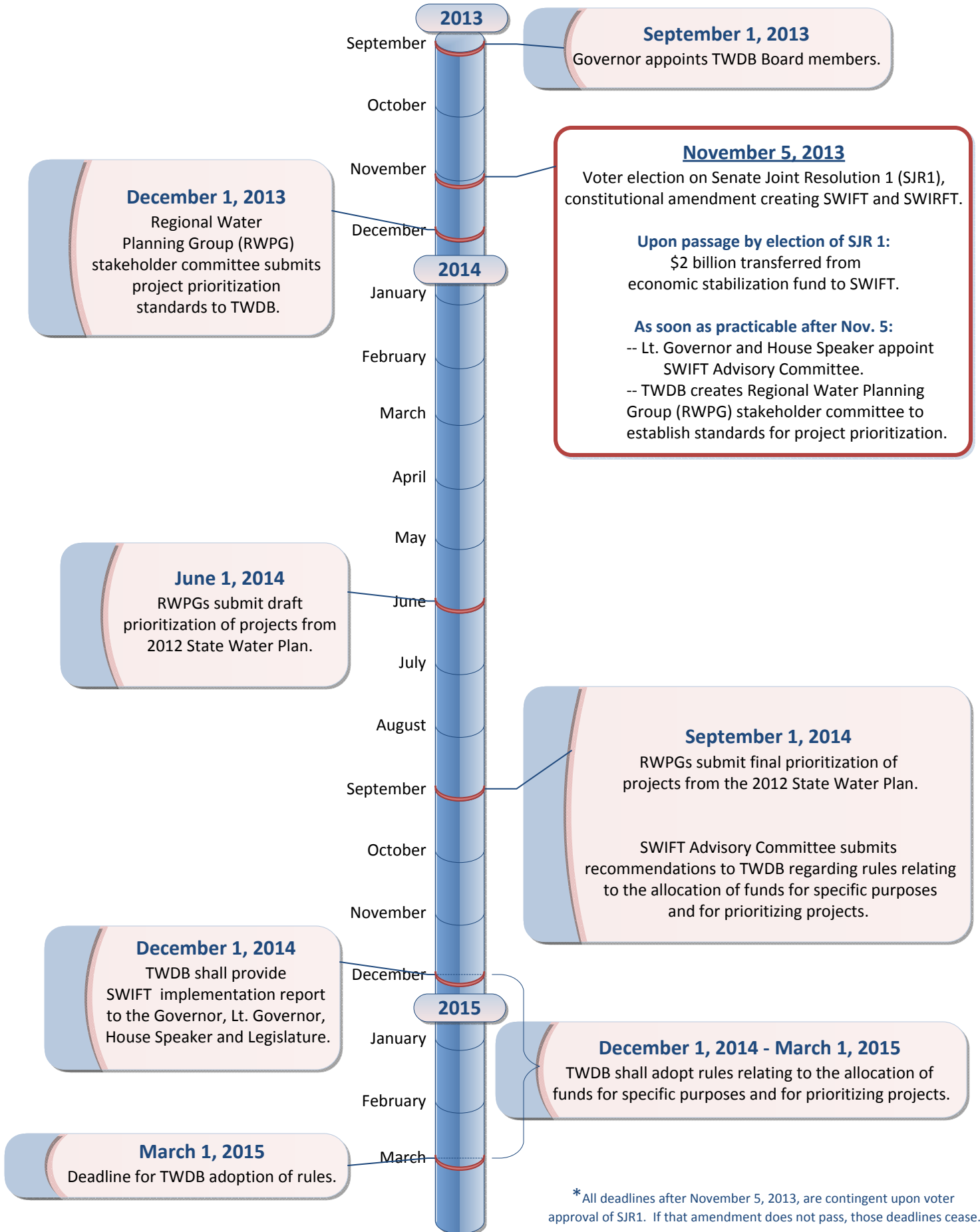
January	February	March
Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 ● 7 ● 15 ○ 24 ● 30 ●	Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 6 ● 14 ○ 22 ●	Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 ● 8 ● 16 ○ 23 ● 30 ●
April	May	June
Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 7 ● 15 ○ 22 ● 29 ●	Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 6 ● 14 ○ 21 ● 28 ●	Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 5 ● 13 ○ 19 ● 27 ●

## 2014





## SWIFT Implementation Timeline September 1, 2013 through March 1, 2015\*



\* All deadlines after November 5, 2013, are contingent upon voter approval of SJR1. If that amendment does not pass, those deadlines cease.

