

REGION H

Water Planning Group

POPULATION DEMANDS COMMITTEE MEETING MATERIALS

July 31, 2017

**Freese and Nichols, Inc.
Houston Office**

**Region H Water Planning Group
Population Demands Committee
2:00 PM Monday
July 31, 2017
Freese and Nichols Houston Office
10497 Town and Country Way, Suite 600, Houston, TX 77024**

AGENDA

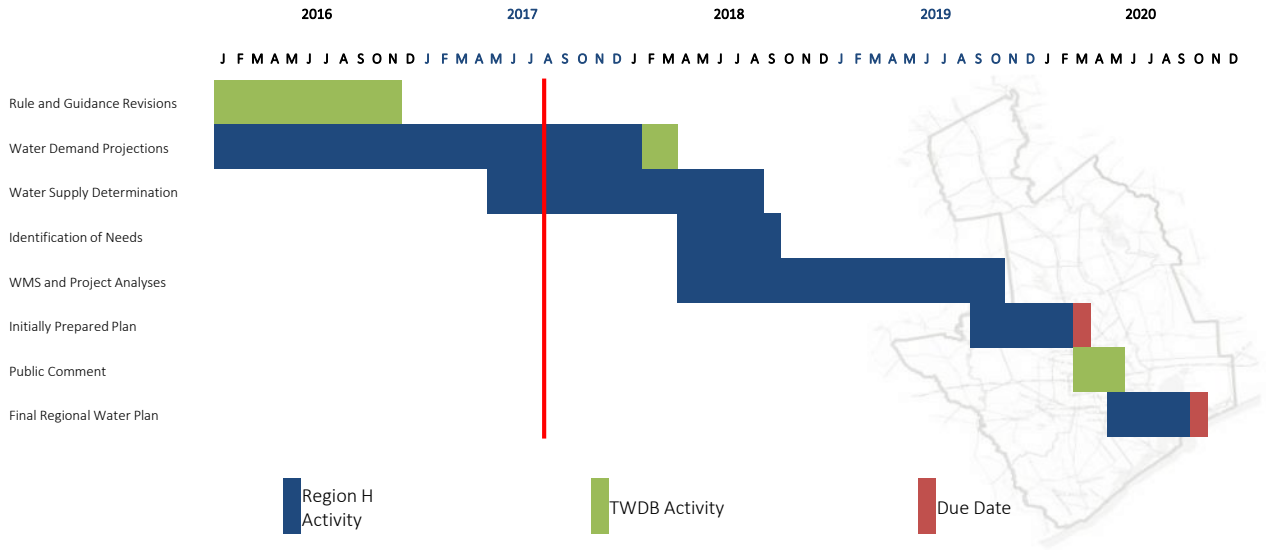
1. Introductions.
2. **Receive public comments on specific issues related to agenda items 3 through 7.** (Public comments limited to 3 minutes per speaker)
3. Discuss Committee activities and schedule.
4. Receive presentation regarding the sub-WUG planning option and take action on use of the option for Region H and directing the Consultant Team to coordinate with TWDB regarding any recommendations.
5. Receive presentation on and discuss the Region H WUG survey.
6. Receive presentation on and discuss TWDB data, projections, and the process for requesting revised projections and make recommendations regarding revised projections.
7. Receive presentation on identification of Major Water Providers for Region H and consider recommendations to the Region H Planning group.
8. **Receive public comments.** (Public comments limited to 3 minutes per speaker)
9. Adjourn

Persons with disabilities who plan to attend this meeting and would like to request auxiliary aids or services are requested to contact Philip Taucer at (713) 600-6835 at least three business days prior to the meeting so that appropriate arrangements can be made.

Agenda Item 3

Discuss Committee activities and schedule.

Agenda Item 3 Committee Activities and Schedule



Agenda Item 3 Committee Activities and Schedule

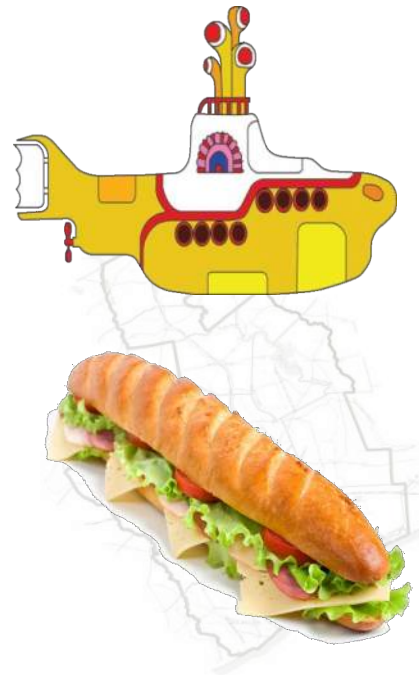
Date	Scheduled Events/Tasks
07/2017	Population Demands Committee Meeting
09/2017	Due date to submit requests for sub-WUGs
01/2018	Due date for adjustment requests to TWDB
03/2018	Estimated adoption date for projections
09/2018	DUE DATE: Technical Memorandum
03/2020	DUE DATE: Initially Prepared Plan
10/2020	DUE DATE: FINAL RWP

Agenda Item 4

Receive presentation regarding the sub-WUG planning option and take action on use of the option for Region H and directing the Consultant Team to coordinate with TWDB regarding any recommendations.

Agenda Item 4 Sub-WUG Option

- Primarily for rural
 - Small entities
 - Buried in County-Other
- Mainly database
- Any Region can utilize, but...
- Regions develop data
- Discussed at last Region H meeting
- Committee authorized to decide.



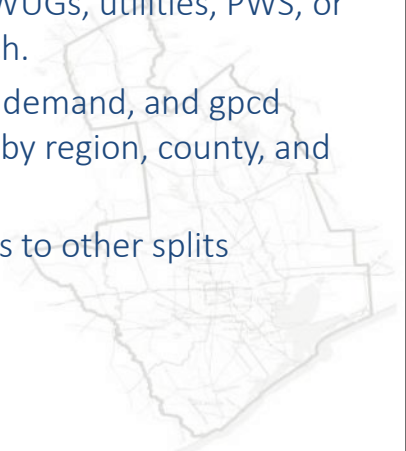
Agenda Item 4 Sub-WUG Option

Criteria for Adjustment

- Due 09/01/2017
- Existing utility, PWS, or area
- RWPG develops projections, supplies, needs, WMS volumes, etc.
- Splits must roll up to WUG
- Adjustment other splits

Data Required

- List of sub-WUGs, utilities, PWS, or areas in each.
- Population, demand, and gpcd projections by region, county, and basin
- Adjustments to other splits



Agenda Item 4 Sub-WUG Option

- Should Region H utilize?
 - Increased detail
 - Data and schedule challenges
- Potential applications
 - Rural – less of an issue for Region H
 - GRPs in CO – planned for by sponsor
 - Annexations/future developments – data availability



Agenda Item 4 Sub-WUG Option

Action:

Direct the Consultant Team regarding which areas if any to analyze as sub-WUGs and authorize the Consultant Team to coordinate with TWDB regarding sub-WUG requests.

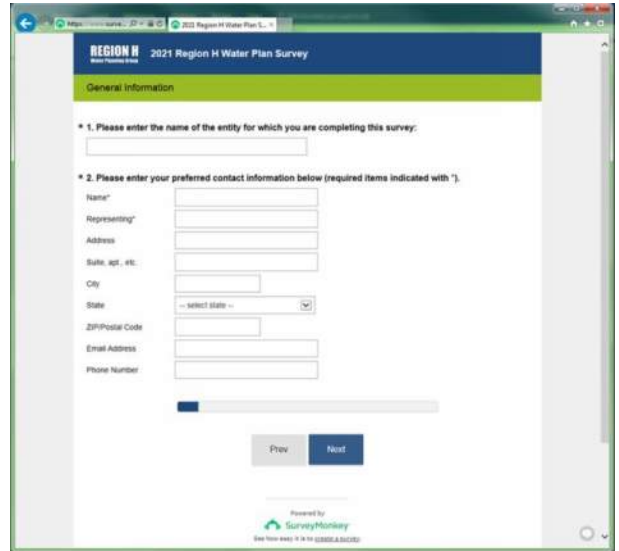


Agenda Item 5

Receive presentation on and discuss the Region H WUG survey.

Agenda Item 5 WUG Survey

- Regular part of planning process
- Gather information from WUGs:
 - Projections
 - Existing supplies and infrastructure
 - Interconnect facilities
 - Future projects
 - Conservation and Drought Contingency
- **New and Improved!**
 - WUG-centric
 - Half the questions
 - Hip, stylish Region H theme



The screenshot shows a web browser displaying the "2021 Region H Water Plan Survey" form. The form is titled "General Information" and contains two main sections. Section 1 asks for the name of the entity completing the survey. Section 2 asks for preferred contact information, including fields for Name, Representing, Address, State, apt, etc., City, State (a dropdown menu), ZIP/Postal Code, Email Address, and Phone Number. There are "Prev" and "Next" buttons at the bottom of the form. The browser's address bar shows "Region H Water Plan Survey".

Agenda Item 5 WUG Survey

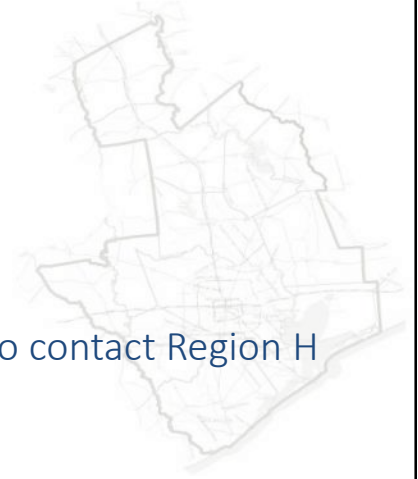


- Distributed July 19th/20th
 - Survey link
 - Entity-specific data
- Emailed to 342 WUGs
 - Small number of redo mails
 - Only a few without known email address.
- Initial response is encouraging
 - 20+ online responses in first week
 - Multiple confirmation messages and questions
 - Several requests for revision

Agenda Item 5

WUG Survey

- August 21st if possible
- Next Steps
 - Continued follow-up with respondents
 - Examining revision requests
 - Reminders to non-respondents
- Thanks to those spreading the word
- And to those who received multiple surveys
- Strongly encourage those who want revisions to contact Region H early.



TO: John Doe Water System

FROM: Philip I. Taucer, P.E.

SUBJECT: Region H Water Planning Survey – Reference Data

DATE: July 17, 2017

Introduction:

You were recently contacted regarding an online survey on behalf of the Region H Water Planning Group. Freese and Nichols is the lead consultant for the Planning Group, which is currently engaged in the process of preparing the 2021 Regional Water Plan (RWP) for the region. This plan is submitted to the Texas Water Development Board (TWDB) and will be used to compile the 2022 State Water Plan (SWP). Region H is working with local stakeholders like the John Doe Water System to facilitate accurate reflection of current and future water supply plans for water users in the 2021 Regional Water Plan. Therefore, your input in this matter is critical to the planning process and any assistance you may be able to provide would be appreciated. This document is intended to provide you with an overview of the regional water planning process, summarize available planning data for your entity, and provide references to additional sources of information.

Process Overview:

Region H is tasked with assessing water supplies and demands for Water User Groups (WUGs) in Region H to determine projected future water shortages. A WUG consists of a demand center to which water resources can be allocated. Municipal WUGs are associated with populations, and the projections of these populations are used to estimate future water demands. The development of demand projections is a crucial first step for the planning process. These demands are compared to available water supplies to generate an overview of expected shortages for the future. Once these shortages are identified, projects are recommended to meet future needs. The projects from the RWP will eventually be written into the SWP. This is important to WUGs because proposed water projects must be consistent with the SWP to be eligible for State funding.

Population and Demand Projections:

For the 2021 Regional Water Plan, draft population and water demand projections have been provided by TWDB. Please note that these projections are intended to represent the population within your entity's water utility service area and may not align with city, town, or district boundaries. If you sell water on a wholesale basis to other cities or districts, projections for those users are included under a different entity. References for additional information on TWDB's projection methodology can be found at the end of this memorandum. The table below shows the projected populations and projected water demands (acre-feet/yr) for your WUG through year 2070:

TWDB Draft Projections	2020	2030	2040	2050	2060	2070
WUG Projected Population:	22,042	23,835	25,579	27,338	29,132	30,998
WUG Projected Demand (acre-feet/yr):	4,465	4,725	4,991	5,291	5,628	5,986

We are asking that you review the population and demand projections for your WUG and determine if either:

1. The numbers represent reasonable projections and require no revision, or
2. You would like to revise your projections and can provide information to justify your request, such as a planning level study of your water system.

If you would like to propose revisions to population or water demand projections, you will have the opportunity to do so in the Region H online survey. Please note that TWDB has established criteria for allowable reasons for adjusting projections and acceptable forms of supporting data. If you would like to review these requirements, a link to additional information is provided at the end of this memorandum.

Projects:

Comparing projections of future water demand against existing supplies for each WUG reveals projected water need for that WUG. The planning process then considers and recommends projects that could potentially address projected shortages. These recommendations are intended for planning and guidance and do not mandate that projects must be implemented.

The following is a list of the projects proposed for your entity in the prior (2016) Region H Water Plan, along with the implementation decade (nearest value following implementation year). During the survey, you will be given the opportunity to provide input on these projects and recommend additional projects for your WUG for the 2021 Region H Water Plan.

- 2020 - Municipal water conservation
- 2020 - Water loss reduction

The regional water planning process considers a large number of potential project types including water conservation measures, contract expansions, contractual water transfers, reuse, desalination, major transmission pipelines and canals, reservoirs, and many other options. If you would like to propose additional projects for consideration for your entity, please note that TWDB does require projects to meet certain criteria in order to align with the planning process. For example, project supply volumes listed in the Regional Plan can only reflect the portion of supplies that would be fully reliable under a repeat of the drought of record. Additionally, the following items should not be included as proposed projects or as components of larger projects:

- New facilities associated with internal distribution networks, such as retail distribution within a WUG, that do not convey additional water supply volumes.
- Internal distribution facilities for direct reuse water.
- Wastewater collection systems associated with direct reuse projects.
- Replacement wells that are only required to replace aging wells.
- Other upgrades or maintenance for existing equipment or facilities that do not directly increase volumetric water supply.
- Preventative measures to protect or maintain infrastructure against future water loss or degradation.
- Water storage facilities directly associated with retail water distribution networks.

If you are not sure if a project qualifies for inclusion or have any other questions regarding the survey, please contact Philip Taucer at 713-600-6835 or philip.taucer@freeze.com for additional information.

Notes on Survey Navigation:

The online survey has been designed to be easily navigated by a wide variety of water users and providers. As you proceed through the survey, your responses will be used to guide you to relevant questions and allow you to bypass items not applicable to your entity. It is recommended that prior to accessing the online survey you review the blank survey available through the link at the end of this memorandum to assist in gathering relevant data and determining which portions of the survey will be applicable to your entity.

As you fill out the survey, if you wish to return to an earlier section please only use the “Prev” button imbedded in the survey. Please do NOT use the “Back” button on your browser. You can navigate back to previous sections at any time as long as you have not yet submitted the completed survey. You can also close your browser and return to your stopping point later, but to do so you MUST be on the same computer and allow your browser to store cookies.

Please note that if the person completing the survey for the John Doe Water System represents other surveyed entities as well, they will need to complete one survey at a time and clear cookies from their browser between surveys.

References:

- 2016 Regional Water Plans:
<http://www.twdb.texas.gov/waterplanning/rwp/plans/2016/index.asp>
- TWDB projection methodology:
http://www.twdb.texas.gov/waterplanning/rwp/planningdocu/2021/doc/current_docs/project_docs/20170405_pop_muni_proj_method_summ.pdf
- TWDB projection revision criteria:
http://www.regionhwater.org/documents/TWDB_ExhibitCSection2.pdf
- Blank survey form:
http://www.regionhwater.org/documents/2021_RegionH_Water_Plan_Survey.pdf

Introduction

Thank you for logging on to the Region H Water Plan Survey. Your entity was recently contacted regarding this survey because you have been identified by the Texas Water Development Board (TWDB) as a Water User Group, or WUG. A WUG consists of a demand center to which water resources can be allocated, such as a city, town, utility district, or other community.

Your input is requested for this survey on behalf of the Region H Planning Group. The Region H Planning Group is currently in the process of developing the 2021 Regional Water Plan (RWP). This plan is submitted to TWDB and will be used to compile the 2022 State Water Plan. Accurate representation of your water system in the Plan is essential to the securing of TWDB funding for water supply projects and is also necessary for any water rights applications that may be required as part of future supply strategies.

The regional water planning process is intended to be a ground-up, grassroots process, and is defined by the following primary questions:

- Water Demands - How much water is needed?**
- Water Supplies - How much water is available?**
- Water Shortages - What is the difference between how much water is available and needed?**
- Water Management Strategies - What can be done to meet shortages?**

The following questions are intended to collect information regarding your population and water demand projections, existing supplies and infrastructure, and plans for the future. Some of the questions will also reference summary data that was provided to you with the message requesting your completion of this survey. A response by August 21, 2017 would be appreciated to allow proper representation of your entity's water needs in the 2021 Region H Water Plan. If you have any questions, please contact Philip Taucer at philip.taucer@freese.com or by phone at 713-600-6835.

CAUTION: If you wish to return to an earlier portion of the survey to change an answer to a previous question, please use the navigation buttons at the bottom of the page. DO NOT use the "Back" button on your browser.

General Information

* 1. Please enter the name of the entity for which you are completing this survey:

* 2. Please enter your preferred contact information below (required items indicated with *).

Name*

Representing*

Address

Suite, apt., etc.

City

State

ZIP/Postal Code

Email Address

Phone Number

Section 1 – Population and Water Demand Projections

Estimation of future population and water demands is a crucial first step for the planning process. Before completing this section, please review the reference document provided to you with the survey request. The reference document includes TWDB population and water demand projections for your entity. Please note that these projections are intended to represent the population within your entity's WATER UTILITY SERVICE AREA and may not align with city, town, or district boundaries. If you sell water on a wholesale basis to other cities or districts, projections for those users are included elsewhere.

TWDB requires that you provide supporting documentation for proposed modifications to the population or water demand projections. If you indicate that you wish to modify the projections for your entity, we will contact you for additional information.

1. Do you have significant disagreement with and wish to make modifications to the projected population for the water users directly supplied by your entity?

Yes

No

2. If you answered "Yes" on the item above, please describe the primary reason(s) for the adjustments in population.

Study conducted by entity

Study conducted by other party

Other (please specify)

3. Do you have significant disagreement with and wish to make modifications to the projected water demand for the water users directly supplied by your entity?

Yes

No

4. If you answered "Yes" on the item above, please describe the primary reason(s) for the adjustments in water demand projections.

Study conducted by entity

Study conducted by other party

Other (please specify)

Section 2 – Wholesale Water Sales

* 1. Does your entity provide water to other entities on a wholesale basis (i.e. do you provide water to other water suppliers including cities, water supply corporations, water districts, etc.)? If you indicate below that you do not have wholesale customers, the survey will allow you to skip to the next section.

Yes

No

Section 2 – Wholesale Water Sales

If you indicated that you have wholesale water customers, the following items will enable you to enter additional information for up to five wholesale customers. If you indicated that you have more than five wholesale customers, please skip to the last question on this page. The Region H consultant staff will contact you for additional information.

1. The items below ask for contract amounts. Please select the units (millions of gallons, acre-feet, etc.) that you are using for these volumes.

- Thousand gallons (kgal)
- Million gallons (MG)
- Millions of gallons per day (mgd)
- Acre-feet (ac-ft)
- Other (please specify)

2. Please enter the following information for your first wholesale customer.

Customer name

Contract amount (annual)

3. Please enter the following information for your second wholesale customer.

Customer name

Contract amount (annual)

4. Please enter the following information for your third wholesale customer.

Customer name

Contract amount (annual)

5. Please enter the following information for your fourth wholesale customer.

Customer name

Contract amount (annual)

6. Please enter the following information for your fifth wholesale customer.

Customer name

Contract amount (annual)

7. If you indicated that you have more than five wholesale customers, please list the names of your wholesale customers.

Section 3 - Water Supply and Infrastructure

Assessing water supply availability serves as the second key step in the regional water planning process. This portion of the survey includes questions regarding your entity's water supply sources and infrastructure. Some of these items may not be relevant to your particular entity. As you proceed through this section, the survey will allow you to skip questions which are not applicable.

Please proceed to the following page.

Section 3a - Groundwater

* 1. Does your entity own or operate groundwater supply wells? If you select "No", you will be able to skip to the next subsection (Surface Water).

Yes

No

Section 3a - Groundwater

1. Which of following statements best describes the operation of your groundwater wells relative to other sources of water?

- We use groundwater to meet our demands, and we use other sources for emergencies only.
- We use groundwater to meet base demand, and we use other sources to meet peak demands.
- We use both our groundwater wells and our other water sources approximately equally.
- We use other sources to meet base demand, and we use groundwater to meet peak demands.
- We use other sources to meet our demands, and we use groundwater for emergencies only.

Other (please specify)

2. If known, please provide the production capacity of your groundwater system.

Production capacity

Units (gpm, mgd, ac-ft/yr, etc.)

3. If known, please select the aquifer(s) that your entity pumps groundwater from (select all that apply).

- Carrizo-Wilcox
- Gulf Coast (Including Chicot, Evangeline, Jasper, and Catahoula formations)
- Queen City
- Sparta
- Yegua-Jackson
- Not sure
- Other (please specify)

Section 3b - Surface Water

* 1. Does your entity hold any water right permits for surface water? If you select "No" you will be able to skip to the next subsection (Reclaimed Water).

Yes

No

Section 3b - Surface Water

1. Which of following statements best describes your use of surface water relative to other sources of water?

- We use surface water to meet our demands, and we use other sources for emergencies only.
- We use surface water to meet base demand, and we use other sources to meet peak demands.
- We use both our surface water and our other water sources approximately equally.
- We use other sources to meet base demand, and we use surface water to meet peak demands.
- We use other sources to meet our demands, and we use surface water for emergencies only.

Other (please specify)

2. If known, please provide the production capacity of your surface water system.

Production capacity

Units (gpm, mgd, ac-ft/yr, etc.)

3. Pleaser list the TCEQ water right numbers for any surface water rights that your entity owns.

Section 3c - Reclaimed Water

Reclaimed systems include direct reuse (conveyed directly from a treatment plant to points of use by pipeline) or indirect use (discharged to a stream or other conveyance and diverted at another location downstream).

* 1. Does your entity currently utilize reclaimed water for supply? If you select "No" you will be able to skip to the next subsection (Contracted/Purchased Supply).

Yes

No

Section 3c - Reclaimed Water

The following items will enable you to enter additional information on your reclaimed supplies. Reclaimed systems can include direct reuse (conveyed directly from treatment plant to use location by pipeline) or indirect use (discharged to a stream or other conveyance and diverted at another location downstream). The Region H consultant staff will contact you for additional information.

1. Please specify the type of reclaimed water that your entity utilizes.

- Direct reuse
- Indirect reuse
- Both

2. Does your entity sell (wholesale) reclaimed water to another entity?

- Yes
- No

3. Does your entity purchase reclaimed water from another entity?

- Yes
- No

4. If you utilize reclaimed supplies, please describe what water demands they are used to meet.

Section 3d – Contracted / Purchased Supply

Many entities purchase water from others. This section presents several questions regarding your purchase of raw or treated water from other entities.

* 1. Does your entity have existing contracts or agreements to purchase water from other entities (cities, regional water authorities, river authorities, water districts, etc.)? If you select "No" you will be able to skip to the next subsection (Water Treatment Plant Capacity).

Yes

No

Section 3d – Contracted / Purchased Supply

If you indicated that you have contracts or agreements to purchase supplies, the following items will enable you to enter additional information for up to five contracts. If you indicated that you have more than five contracts to purchase water, please skip to the end of the page and select "Next." The Region H consultant staff will contact you for additional information.

1. Please input the number of supply contracts and agreements to purchase water supplies that you have.

2. The items below ask for contract and deliverable (if infrastructure-limited) supply volumes. Please select the units (millions of gallons, acre-feet, etc.) that you are using for these volumes.

- Thousand gallons (kgal)
- Million gallons (MG)
- Millions of gallons per day (mgd)
- Acre-feet (ac-ft)
- Other (please specify)

3. Please enter the following information for your first supplier.

Supplier name

Contract amount (annual)

Deliverable amount

4. Please enter the following information for your second supplier.

Supplier name

Contract amount (annual)

Deliverable amount

5. Please enter the following information for your third supplier.

Supplier name

Contract amount (annual)

Deliverable amount

6. Please enter the following information for your fourth supplier.

Supplier name

Contract amount (annual)

Deliverable amount

7. Please enter the following information for your fifth supplier.

Supplier name

Contract amount (annual)

Deliverable amount

8. If you indicated that you have more than five suppliers, please list the names of your suppliers.

A large, empty rectangular box with a thin black border, intended for the user to list the names of their suppliers. The box is positioned in the upper left quadrant of the page.

Section 3e - Water Treatment Plant Capacity

* 1. Does your entity own and/or operate any water treatment plants (WTPs)? If you select "No" you will be able to skip to the next section (Emergency Interconnects).

Yes

No

Section 3e - Water Treatment Plant Capacity

1. Please enter the number of WTPs you own and/or operate.

2. If known, please provide the production capacity of your water treatment system.

Production capacity

Units (gpm, mgd, ac-ft/yr, etc.)

Section 4 - Emergency Interconnects

The Regional Water Planning Group is required by the TWDB to collect information on existing major water infrastructure facilities that may be used for emergency interconnects. Please note that this information is to be submitted to TWDB's Executive Administrator and will be kept confidential. This data will NOT be included in the Regional Water Plan. For additional information, please consult Texas Administrative Code Title 31, Part 10, Rule §357.42. If you indicate that your entity has emergency interconnects with other systems, the Region H consultant team will contact you for additional information.

* 1. Does your entity have existing emergency interconnect facilities either to supply your entity or provide emergency supply to another user?

Yes

No

Section 5 – Projects

The next key component of the water planning process is consideration of future projects. In the Regional Planning process, projects are activities with non-zero capital cost that would develop, deliver, treat, or conserve water for an entity. Comparing projections of future water demand against existing supplies for each WUG reveals the projected water need for that WUG and any other entity that supplies it. The planning process then considers and recommends projects that could potentially address projected shortages.

These recommendations are intended for planning and guidance and do not mandate that projects must be implemented. However, inclusion in the Regional Plan is essential to the securing of TWDB funding for water supply projects and is also necessary for any water rights applications that may be required as part of future supply strategies.

Before answering the questions in this section, please review the packet that was sent to you for information on any projects that were recommended for your entity in the 2016 Region H Water Plan. Note that if your entity was not previously listed as a WUG, there may not be specific project information in the 2016 Region H Water Plan.

Please proceed to the following page.

Section 5a – Projects from the 2016 Regional Water Plan

* 1. Do you agree with the recommended projects listed for your entity in the 2016 Regional Water Plan? If your answer is N/A, you may skip to the next subsection (Additional Projects).

- N/A – no projects listed in 2016 Regional Plan
- Yes
- No

If you answered "No", please list the projects that you disagree with.

Section 5a – Projects from the 2016 Regional Water Plan

1. Have you already implemented any of the recommended projects listed for your entity in the 2016 Regional Water Plan?

Yes

No

If you answered "Yes", please list the projects that you have implemented.

2. Are you currently in the process of implementing (permitting, design, or construction) any projects from the 2016 Regional Water Plan listed above?

Yes

No

If you answered "Yes", please list the projects that you are in the process of implementing along with the estimated implementation date.

3. Have the implementation (active use) dates of any of the projects recommended in the 2016 Regional Water Plan changed? Please note that the plan reflects data in ten year intervals, so dates are not shown for intermediate years. For example, projects starting in 2021 or 2029 would both be reflected in the Regional Plan under Year 2030.

Yes

No

If you answered "Yes", please list the projects that are expected to change in schedule along with the expected implementation date.

Section 5b – Additional Projects

Before answering the questions in this section, please review the packet that was sent to you for information on criteria for inclusion of projects.

* 1. Are there any projects which you would like to propose or add for consideration?

Yes

No

2. If you answered “Yes” to the item above, please list any projects you would like to propose. The Region H consultant team will contact you for more information.

Section 6 - Water Conservation

An understanding of local water conservation practices is a key component of the regional planning process. Municipal conservation in particular has been identified as a significant strategy for meeting projected shortages in prior Region H Water Plans.

* 1. Does your entity have a Water Conservation Plan? If so, more information on where to submit this data will be provided at the end of the survey.

- Yes
- No

The following item will ask for information on a number of common water conservation measures. Note that this section applies specifically to measures that are applied regularly or year-round. Temporary strategies such as those used for drought response will be discussed separately in a later section. Please indicate if you have implemented a measure in the past, if you are currently implementing the measure, and if you would consider implementing the measure in the future. Please select all that apply. For example, if your entity currently uses days per week watering restrictions and intends to continue applying this measure in the future, select both of the relevant checkboxes on the row for days per week watering restrictions.

2. Please provide input on potential water conservation measures.

	Past strategy?	Current Strategy?	Would continue / would consider in future?
System audits / leak detection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Residential watering audits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Industrial water audits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conservation pricing structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prohibition on wasting water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public and / or school education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time of day watering restriction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Days per week watering restriction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clothes washer incentive program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Athletic field / golf course conservation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Municipal landscape conservation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Connection metering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. If you have implemented or are considering any additional measures, please describe them below. If available, please note water savings, implementation date, and startup and annual costs.

A large, empty rectangular box with a thin black border, intended for the user to provide details about additional measures implemented or considered. The box is currently blank.

Section 7 - Drought Contingency

This section will ask a series of questions regarding your entity's plans for responding to drought conditions.

* 1. Does your entity have a Drought Contingency Plan? If so, more information on where to submit this data will be provided at the end of the survey.

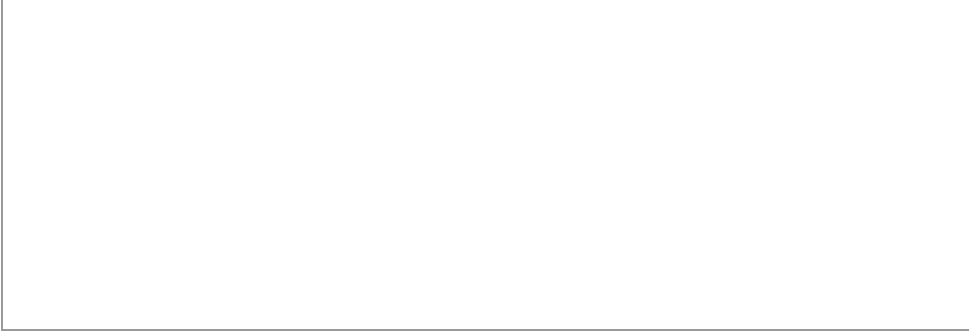
- Yes
- No

The following item will ask for information on a number of common drought contingency measures. Note that this section applies specifically to TEMPORARY measures enacted in response to drought conditions or other emergencies which reduce water supplies. Please indicate if you have implemented a measure in the previous five years and if you would consider implementing the measure in the future.

2. Please provide input on potential drought contingency measures.

	Implemented in previous 10 years?	Would consider implementing in future?
System audits / leak detection	<input type="checkbox"/>	<input type="checkbox"/>
Residential watering audits	<input type="checkbox"/>	<input type="checkbox"/>
Industrial water audits	<input type="checkbox"/>	<input type="checkbox"/>
Contingency pricing structure	<input type="checkbox"/>	<input type="checkbox"/>
Prohibition on wasting water	<input type="checkbox"/>	<input type="checkbox"/>
Public and / or school education	<input type="checkbox"/>	<input type="checkbox"/>
Time-of-day watering restriction	<input type="checkbox"/>	<input type="checkbox"/>
Days per week watering restriction	<input type="checkbox"/>	<input type="checkbox"/>
Water rationing	<input type="checkbox"/>	<input type="checkbox"/>
Athletic field / golf course watering limits	<input type="checkbox"/>	<input type="checkbox"/>
Municipal landscape watering limits	<input type="checkbox"/>	<input type="checkbox"/>
Pool / pond filling restrictions	<input type="checkbox"/>	<input type="checkbox"/>

3. If you have implemented or are considering any additional measures, please describe them below. If available, please note water savings, implementation date, and costs.

A large, empty rectangular box with a thin black border, intended for the user to describe any additional measures implemented or considered. The box is currently blank.

Supporting Documentation

Several of the items earlier in the survey indicated the need for supporting documentation. This documentation should be submitted to philip.taucer@freese.com. Please remember to include your entity name in the subject line of the e-mail.

If applicable to your entity, please include:

- Water Conservation Plans
- Drought Contingency Plans



Survey Completed

Thank you for your input. Your information will assist in the development of the 2021 Region H Water Plan. If you have any questions related to this survey or the regional planning process, please contact Philip Taucer by e-mail at philip.taucer@freese.com or at 713-600-6835.

Agenda Item 6

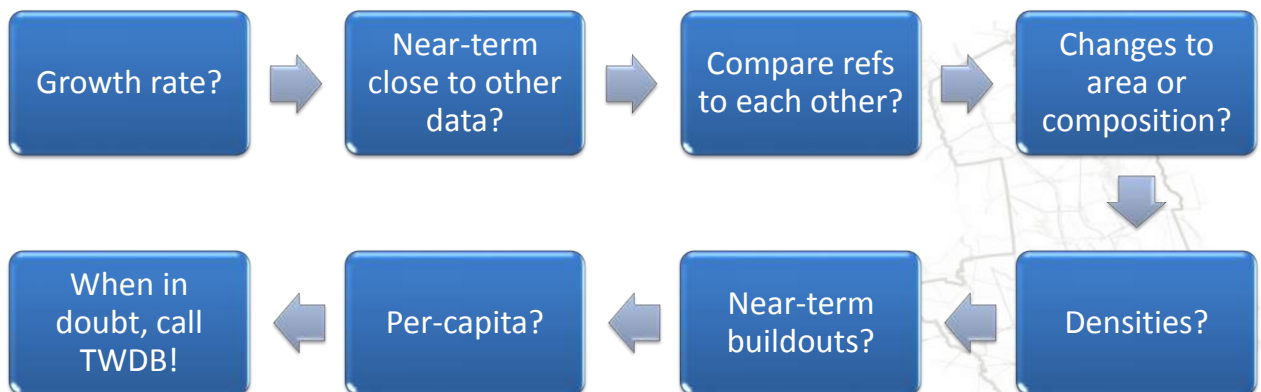
Receive presentation on and discuss TWDB data, projections, and the process for requesting revised projections and make recommendations regarding revised projections.

Agenda Item 6 Projections and Revision Process

- Projections developed by TWDB
- Adapted 2016 RWP values
 - New WUGs
 - New utility focus
- Major undertaking
 - Step 1 – Estimate Year 2010 population
 - Step 2 – Apply growth rate
 - Step 3 – Consider buildout
 - Step 4 – Calculate demands



Agenda Item 6 Projections and Revision Process



Agenda Item 6 Projections and Revision Process

- Process and projections appear reasonable
- Still likely to have revisions
 - Annexations
 - Requests from WUGs
 - Anomalies identified by RWPG
- Additional background data available
 - Historical data
 - Details behind gpcd
- Currently in review
- Support for revision requests



Agenda Item 6 Projections and Revision Process

Criteria for Adjustment

- 2010 pop. differs from baseline
- Growth rate difference
- Limitations or buildout
- Updated information or area

Data Required

- Connections or pop. number
- Estimates for cities by TDC or regional council
- Documentation from official of growth limits
- Documentation and maps for area changes
- Other data at RWPG discretion

Agenda Item 6

Projections and Revision Process

- TWDB projections and detailed data:

http://www.twdb.texas.gov/waterplanning/rwp/planningdocu/2021/current_docs.asp



TWDB Historical Population and GPCD Estimates for Utility WUGs:
WUG Summary

Austin County

WUG	Historical Population Estimates					Historical Net Use Estimates (ac-ft)					Base Dry GPCD	Historical GPCD Estimates							
	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013		2014	2015	2010	2011	2012	2013	2014	2015
	AUSTIN COUNTY WSC	1,447	1,476	1,229	1,266	1,528	1,581	198	235	209		207	185	202	140	122	142	152	146
BELLVILLE	3,794	3,794	4,097	4,097	4,097	4,097	899	1,216	888	914	788	772	257	211	286	194	199	172	168
SEALY	6,019	6,019	6,019	6,019	7,151	7,151	1,013	1,309	980	1,029	1,038	885	192	150	194	145	153	130	110
WALLIS	1,252	1,252	1,252	1,252	1,252	1,252	135	166	134	142	136	138	117	97	118	96	101	97	99
WEST END WSC	1,131	1,188	973	1,188	1,129	1,124	107	142	113	123	106	108	107	84	107	103	93	84	86

Brazoria County

WUG	Historical Population Estimates					Historical Net Use Estimates (ac-ft)					Base Dry GPCD	Historical GPCD Estimates							
	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013		2014	2015	2010	2011	2012	2013	2014	2015
	ALVIN	24,236	24,436	25,000	24,236	24,350	24,350	2,703	3,269	2,691		2,583	2,599	2,787	164	100	119	96	95
ANGLETON	18,431	19,455	19,455	19,455	19,443	19,437	1,971	2,180	2,005	1,927	2,094	2,116	101	95	100	92	88	96	97
BRAZORIA	3,019	3,036	3,008	3,008	3,016	3,016	294	346	312	328	308	308	100	87	102	92	97	91	91
BRAZORIA COUNTY MUD 2	3,807	3,804	3,810	3,807	3,786	3,786	1,312	1,589	1,305	1,325	682	234	373	308	373	306	311	161	55
BRAZORIA COUNTY MUD 21	3,648	3,592	4,179	3,957	4,329	4,617	425	565	556	549	507	529	137	104	140	119	124	105	102
BRAZORIA COUNTY MUD 25	3,282	3,434	3,784	3,853	3,682	3,941	259	370	321	361	359	376	96	71	96	76	84	87	85
BRAZORIA COUNTY MUD 29	2,022	2,067	2,222	2,317	2,551	2,570	195	232	222	194	197	236	100	86	100	89	75	69	82
BRAZORIA COUNTY MUD 3	4,230	4,230	4,230	4,230	4,476	5,082	453	687	522	504	471	436	145	96	145	110	106	94	77
BRAZORIA COUNTY MUD 31	786	924	1,359	1,686	2,103	2,493	252	252	188	226	202	232	243	286	243	123	120	86	83
BRAZORIA COUNTY MUD 6	5,877	5,877	6,859	6,859	7,054	7,054	937	1,306	1,056	1,014	988	910	198	142	198	138	132	125	115
CLUTE	11,277	10,854	10,485	10,485	11,277	11,277	1,505	1,612	1,372	1,428	1,289	1,280	124	119	133	117	122	102	101
DANBURY	1,715	1,735	1,676	1,725	1,725	1,725	181	197	159	164	152	156	100	94	102	85	85	79	81
FREEPORT	12,408	12,407	12,393	12,381	12,376	12,416	1,462	1,498	1,386	1,662	1,363	1,444	109	105	108	100	120	98	104
HILLCREST VILLAGE	743	743	746	746	684	684	106	128	94	85	92	86	153	127	154	113	101	120	112
LAKE JACKSON	26,495	26,495	26,495	27,631	27,631	27,631	4,459	5,615	4,526	4,598	3,766	3,766	183	150	189	152	149	122	122
MANVEL	407	459	486	1,047	1,047	1,061	150	176	130	162	162	159	139	329	343	240	138	133	133
OYSTER CREEK	1,149	1,149	1,149	1,071	1,071	1,071	225	263	249	259	204	238	206	175	204	194	216	170	198
PEARLAND	83,299	83,299	83,299	80,345	84,492	90,225	8,719	12,612	12,612	11,815	12,249	12,606	135	93	135	135	131	129	125
QUADVEST	479	546	548	593	625	688	79	125	95	98	90	92	207	147	204	155	147	128	120
RICHWOOD	3,643	3,686	3,785	3,785	3,785	3,785	419	405	343	352	145	375	101	103	98	81	83	34	88
SEDONA LAKES MUD 1	384	0	606	738	1,035	1,193	0	0	126	147	166	205	144	0	0	186	178	144	153
SURFSIDE BEACH	565	565	565	565	565	565	164	164	164	164	164	179	258	258	258	258	258	258	282
SWEENEY	3,582	3,582	3,977	3,951	4,041	4,041	411	513	404	412	409	434	139	102	128	91	93	90	96
TDCJ RAMSEY AREA	1,863	1,863	2,139	2,139	2,139	2,139	1,478	1,591	1,558	1,558	1,558	1,558	763	708	763	650	650	650	650
VARNER CREEK UD	1,338	1,338	1,600	1,600	1,600	1,600	191	303	192	197	184	182	135	128	202	107	110	103	102
WEST COLUMBIA	3,929	3,929	3,929	3,606	3,606	3,606	420	492	492	419	419	411	109	95	112	112	104	104	102

Chambers

WUG	Historical Population Estimates					Historical Net Use Estimates (ac-ft)					Base Dry GPCD	Historical GPCD Estimates							
	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013		2014	2015	2010	2011	2012	2013	2014	2015
	ANAHUAC	2,363	2,363	2,095	2,095	2,095	2,095	289	289	243		186	216	206	114	109	109	103	79
BAYTOWN	4,608	4,648	4,514	5,081	4,593	4,452	662	707	603	574	685	679	129	128	136	119	101	133	136
CHAMBERS COUNTY MUD 1	2,748	2,748	2,748	2,754	2,754	2,694	226	252	252	208	208	208	82	73	82	82	67	67	69
MONT BELVIEU	4,738	4,738	4,830	4,830	5,549	5,695	1,711	1,727	1,269	1,299	1,282	1,363	397	322	325	234	240	206	214
TRINITY BAY CONSERVATION DISTRICT	9,818	10,116	10,426	10,808	10,900	11,427	1,168	1,639	1,455	1,450	1,440	1,471	167	106	145	125	120	118	115

TWDB Historical Population and GPCD Estimates for Utility WUGs:
WUG Summary

Harris County (cont.)

WUG	Historical Population Estimates					Historical Net Use Estimates (ac-ft)					Historical GPCD Estimates										
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2015
	3,100	3,100	3,100	3,100	3,100	338	460	351	386	339	348	339	348	339	348	133	133	101	111	98	96
NORTHWEST HARRIS COUNTY MUD 16	3,100	3,100	3,100	3,100	3,100	338	460	351	386	339	348	339	348	133	133	101	111	98	96		
PARKWAY MUD	5,633	5,894	6,316	6,420	6,594	490	584	516	545	527	545	527	545	85	88	73	76	71	77		
PASADENA	143,237	145,254	144,246	144,246	144,478	18,189	21,772	19,807	18,997	18,419	17,322	18,419	17,322	141	113	134	123	118	114	107	
PEARLAND	12,064	12,064	12,064	11,636	12,237	1,263	1,827	1,827	1,711	1,774	1,826	1,774	1,826	135	93	135	135	131	129	125	
PINE VILLAGE PUD	1,409	1,400	1,403	1,430	1,583	129	155	165	125	138	173	138	173	99	82	99	105	78	78	87	
PINEWOOD COMMUNITY	1,044	1,044	1,050	1,044	1,044	84	108	97	107	106	118	106	118	93	72	93	83	91	91	101	
QUADVEST	547	624	626	678	714	90	142	109	112	103	105	103	105	207	147	204	155	147	128	120	
ROLLING FORK PUD	2,282	2,282	2,608	2,619	2,622	274	421	332	340	284	274	284	274	165	107	165	114	116	97	93	
SAGEMEADOW UD	6,273	6,305	6,658	6,753	6,784	693	820	680	743	612	576	612	576	111	99	116	91	98	81	83	
SEABROOK	11,778	11,180	11,180	11,180	11,180	1,657	1,864	1,585	1,574	1,492	1,485	1,492	1,485	138	126	149	127	126	119	117	
SEQUOIA IMPROVEMENT DISTRICT	843	856	966	966	971	123	144	138	111	96	101	96	101	151	130	151	127	103	88	93	
SHOREACRES	1,496	1,142	1,074	1,145	1,145	240	355	285	237	175	149	175	149	207	143	278	237	185	136	116	
SOUTH HOUSTON	16,774	17,265	17,265	17,265	17,686	1,989	2,174	1,983	2,020	1,784	1,853	1,784	1,853	111	106	112	103	104	90	94	
SOUTHERN WATER	3,795	3,933	3,933	3,900	3,933	331	453	381	395	372	415	372	415	103	78	103	86	90	84	94	
SOUTHSIDE PLACE	2,193	2,193	2,193	2,193	2,193	283	283	283	283	283	283	283	283	144	115	115	115	115	115	115	
SOUTHWEST HARRIS COUNTY MUD 1	1,616	1,595	1,595	1,616	1,619	125	135	135	146	112	113	112	113	74	69	75	75	81	62	77	
SPRING MEADOWS MUD	3,383	3,575	3,701	3,994	3,771	259	324	291	268	296	304	296	304	81	68	81	70	60	70	72	
SPRING VALLEY	3,715	3,715	3,715	3,822	3,822	829	1,067	941	890	792	774	792	774	251	199	257	226	208	185	181	
SUBURBAN UTILITY	3,016	3,016	3,016	3,016	3,016	326	326	326	326	326	429	326	429	96	96	96	96	96	96	117	
SUNBELT FWSD	27,285	26,740	26,382	27,300	25,463	2,701	3,024	2,811	2,637	2,307	2,337	2,307	2,337	101	88	101	95	86	81	80	
THE COMMONS WATER SUPPLY	2,337	2,337	2,337	2,337	2,337	302	302	302	302	302	302	302	302	115	115	115	115	115	115	115	
THE WOODLANDS CRU	13,073	13,395	13,594	13,865	13,865	2,459	3,139	2,867	2,448	2,305	2,179	2,305	2,179	222	168	209	188	158	148	138	
TOMBALL	10,753	10,753	11,563	11,563	12,019	2,335	2,838	2,533	2,443	2,387	2,323	2,387	2,323	234	194	236	196	189	177	169	
TRAIL OF THE LAKES MUD	6,908	6,988	7,488	7,690	8,049	718	907	901	751	705	730	705	730	111	93	116	107	87	78	78	
WALLER	443	443	452	452	452	72	84	75	78	82	91	82	91	165	144	169	147	155	162	189	
WEBSTER	10,390	11,143	10,832	11,140	10,702	1,989	2,129	1,972	1,971	1,961	1,844	1,961	1,844	238	171	171	163	158	164	154	
WEST HARRIS COUNTY MUD 6	2,478	2,313	2,488	2,512	2,491	315	389	306	300	291	299	291	299	129	113	150	110	107	104	97	
WHCRWA CRU ²	405,994	425,173	443,036	461,175	474,120	49,067	57,981	53,443	54,880	50,532	52,403	50,532	52,403	123	108	122	108	106	95	98	
WEST UNIVERSITY PLACE	15,001	15,001	15,001	15,001	15,001	2,645	3,125	2,655	2,582	2,304	2,302	2,304	2,302	181	157	186	158	154	137	137	
WOODCREEK MUD	2,975	2,978	2,975	2,975	2,975	417	426	437	444	318	330	318	330	118	125	128	131	133	95	99	

Leon County

WUG	Historical Population Estimates					Historical Net Use Estimates (ac-ft)					Historical GPCD Estimates										
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2015
	1,918	1,918	1,827	1,735	1,735	327	357	326	341	362	384	384	384	384	384	184	152	166	159	175	186
BUFFALO	1,918	1,918	1,827	1,735	1,735	327	357	326	341	362	384	362	384	184	152	166	159	175	186	197	
CENTERVILLE	1,005	1,005	1,005	1,005	1,005	148	177	166	165	156	152	156	152	176	131	157	147	146	139	135	
CONCORD-ROBBINS WSC	2,685	2,831	2,786	2,821	2,867	270	335	319	332	285	290	285	290	76	90	106	102	105	89	88	
FLO COMMUNITY WSC	3,762	4,326	3,762	4,377	4,683	476	330	340	320	359	380	359	380	76	113	68	81	65	68	72	
HILLTOP LAKES WSC	1,047	1,045	1,039	1,039	1,039	200	212	167	186	164	164	164	164	181	170	181	144	160	141	150	
JEWETT	1,350	1,330	1,296	1,257	1,257	174	203	173	158	153	153	153	153	154	115	137	119	112	108	108	
NORMANGEE	609	625	625	492	590	116	107	107	83	88	104	88	104	155	171	152	152	150	133	166	
SOUTHEAST WSC	1,862	1,961	2,099	2,117	1,992	225	270	229	273	246	263	246	263	126	108	123	98	115	110	94	

TWDB Historical Population and GPCD Estimates for Utility WUGs:
WUG Summary

Liberty County

WUG	Historical Population Estimates					Historical Net Use Estimates (ac-ft)					Base								
	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015	Dry	2010	2011	2012	2013	2014	2015
CLEVELAND	7,591	7,651	7,651	7,698	7,698	7,693	1,362	1,604	1,118	1,143	1,120	1,301	187	160	187	130	132	130	151
DAISETTA	966	905	905	905	905	905	108	124	119	102	104	103	114	100	123	118	101	103	101
DAYTON	7,624	7,662	7,824	7,931	7,856	8,169	1,694	1,692	1,503	1,492	1,443	1,623	209	198	197	172	168	164	177
DEVERS	666	666	666	666	666	666	155	155	155	155	155	155	208	208	208	208	208	208	208
HARDIN WSC	3,750	3,750	3,956	4,114	4,092	3,845	445	526	438	439	408	409	99	106	125	99	95	89	95
LAKE LIVINGSTON WS AND SS ⁵	1,183	1,158	1,187	1,246	1,187	1,224	147	143	120	123	123	134	70	111	110	91	88	93	98
LIBERTY	8,550	8,550	8,999	8,999	8,999	8,999	1,498	1,498	1,552	1,589	1,454	1,413	161	156	156	154	158	144	140
LIBERTY COUNTY FWSD 1 HULL	680	1,241	1,241	1,241	1,241	1,241	104	108	104	84	75	75	144	136	77	75	61	54	54
MERCY WSC	197	188	197	197	197	217	20	22	21	22	20	27	96	90	106	95	98	90	109
SOUTH CLEVELAND WSC	1,960	1,960	2,700	2,000	2,748	2,748	167	188	158	148	140	162	86	76	86	52	66	46	53
T & W WATER SERVICE	1,069	1,166	1,207	1,279	1,351	1,404	0	278	214	210	196	195	232	0	213	158	146	129	124
TARKINGTON SUD	3,308	3,506	3,665	3,703	3,830	3,919	335	378	330	346	335	337	104	90	96	80	83	78	77
WEST HARDIN WSC	307	328	328	307	307	241	27	28	26	21	21	25	68	80	76	72	60	60	94
WOODCREEK WATER OF LIBERTY	170	225	200	200	2,567	2,669	21	24	24	24	278	272	97	110	96	108	108	97	91

Madison County

WUG	Historical Population Estimates					Historical Net Use Estimates (ac-ft)					Base								
	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015	Dry	2010	2011	2012	2013	2014	2015
MADISON COUNTY WSC	1,008	1,031	1,162	1,190	1,210	1,210	131	163	123	125	110	116	141	116	141	94	94	81	85
MADISONVILLE	4,871	4,408	4,352	4,412	4,412	4,412	785	956	775	858	868	860	173	144	194	159	174	176	174
NORMANGEE	76	78	78	61	74	70	15	13	13	10	11	13	155	171	152	152	150	133	166
NORTH ZULCH MUD	1,468	1,468	1,468	1,468	1,709	1,832	167	214	164	164	124	158	130	102	130	100	100	65	77

Montgomery County

WUG	Historical Population Estimates					Historical Net Use Estimates (ac-ft)					Base								
	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015	Dry	2010	2011	2012	2013	2014	2015
CHATEAU WOODS MUD	1,748	1,813	1,900	1,925	1,931	1,948	167	223	198	201	175	174	110	86	110	93	93	81	80
CLEVELAND	29	29	29	29	29	29	5	6	4	4	4	5	187	160	187	130	132	130	151
CONROE	54,067	54,526	55,837	58,229	65,995	67,508	9,041	10,649	8,773	9,161	9,295	9,178	162	149	174	140	140	126	121
CORINTHIAN POINT MUD 2	570	646	634	631	729	692	140	195	131	127	114	109	269	219	269	185	180	140	141
CUT & SHOOT	3,383	3,964	3,859	4,440	4,440	4,087	324	362	304	313	331	326	90	85	82	70	63	67	71
DOBBS PLANTERSVILLE WSC	4,515	4,515	4,515	4,174	4,174	4,174	344	343	344	381	381	381	76	68	68	68	82	82	82
DOMESTIC WATER	1,324	1,419	1,419	1,513	1,513	1,541	124	138	101	112	123	104	93	84	87	63	66	73	60
EAST PLANTATION UD	1,338	1,387	1,338	1,411	1,406	1,474	263	355	268	261	229	241	185	176	229	179	165	145	146
FAR HILLS UD	892	966	966	966	1,000	1,259	164	241	241	241	143	87	242	165	223	223	223	128	62
GULF UTILITY	4,509	4,695	4,695	4,695	4,695	5,049	618	834	834	836	836	532	159	122	159	159	159	159	94
HARRIS COUNTY MUD 386	2,485	0	0	0	2,118	1,941	0	0	0	0	313	287	132	0	0	0	0	132	132
HMW SUD	7,810	8,577	8,648	8,718	8,853	8,907	801	1,219	907	899	828	795	127	92	127	94	92	83	80
HOUSTON CRU	4,416	4,440	4,506	4,610	4,677	4,785	667	1,015	761	749	631	750	190	135	204	151	145	120	140
JOHNSTON WATER UTILITY	1,707	1,830	1,500	1,580	1,670	1,790	503	747	404	441	467	378	364	263	364	240	249	249	188
KINGS MANOR MUD	2,264	2,977	3,065	3,063	3,047	2,802	282	371	310	309	257	254	112	111	111	90	90	75	81
LAKE BONANZA WSC	1,696	1,725	1,786	1,820	1,844	1,852	143	190	151	140	142	135	98	76	98	76	69	69	65
LAKE CONROE HILLS MUD	1,428	1,436	1,365	1,403	1,596	1,654	145	182	139	140	133	147	113	91	113	91	89	74	79
LAZY RIVER IMPROVEMENT DISTRICT	645	618	618	620	623	727	119	152	109	104	93	85	220	165	220	158	149	133	105

TWDB Historical Population and GPCD Estimates for Utility WUGs:
WUG Summary

Montgomery County (cont.)

WUG	Historical Population Estimates					Historical Net Use Estimates (ac-ft)					Base		Historical GPCD Estimates						
	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015	Dry	2010	2011	2012	2013	2014	2015
MAGNOLIA	2,449	2,449	2,449	2,458	2,458	2,545	427	427	427	436	405	478	212	156	156	156	158	147	168
MONTGOMERY	786	786	1,259	1,259	1,259	1,259	161	161	226	230	234	297	224	183	183	160	163	166	211
MONTGOMERY COUNTY MUD 112	827	1,101	1,424	2,160	2,774	2,888	179	284	275	324	412	564	230	193	230	172	134	133	174
MONTGOMERY COUNTY MUD 115	858	1,100	1,555	2,102	3,046	3,166	144	202	218	296	349	429	164	150	164	125	126	102	121
MONTGOMERY COUNTY MUD 119	313	426	426	839	1,573	2,204	65	126	126	137	227	390	252	185	263	263	145	129	158
MONTGOMERY COUNTY MUD 15	3,844	4,236	4,236	4,236	4,917	5,073	0	382	335	397	430	434	126	0	81	71	84	78	76
MONTGOMERY COUNTY MUD 18	4,998	5,455	5,254	5,380	5,515	5,794	1,255	1,557	1,358	1,278	1,267	1,229	255	224	255	231	212	205	189
MONTGOMERY COUNTY MUD 19	3,134	3,134	3,134	3,134	3,134	3,134	577	673	623	593	581	603	126	164	192	177	169	166	172
MONTGOMERY COUNTY MUD 56	957	957	957	957	957	948	94	113	90	87	83	89	105	88	105	84	81	77	84
MONTGOMERY COUNTY MUD 8	5,649	5,772	5,715	5,715	6,015	6,015	730	934	694	694	694	694	144	115	144	108	108	103	103
MONTGOMERY COUNTY MUD 83	2,046	2,094	2,244	2,292	2,280	2,106	333	407	356	327	303	292	173	145	173	142	127	119	124
MONTGOMERY COUNTY MUD 84	1,471	1,733	2,244	2,398	2,459	2,287	226	399	373	391	346	430	205	137	205	148	145	126	168
MONTGOMERY COUNTY MUD 88	356	470	652	1,150	1,383	1,378	70	90	104	131	144	200	172	175	172	142	102	93	129
MONTGOMERY COUNTY MUD 89	4,401	4,503	4,719	4,857	4,992	4,764	630	802	240	240	560	548	75	128	159	45	44	100	103
MONTGOMERY COUNTY MUD 9	5,403	5,523	5,415	6,028	6,204	6,204	702	912	804	1,469	1,393	1,387	147	116	147	133	218	200	200
MONTGOMERY COUNTY MUD 95	184	204	495	987	1,128	1,290	0	19	66	123	147	135	84	0	84	118	111	116	93
MONTGOMERY COUNTY MUD 98	1,023	1,173	1,299	1,527	1,794	1,869	103	144	144	156	163	182	110	90	110	99	91	81	87
MONTGOMERY COUNTY MUD 99	641	672	689	709	866	778	86	154	108	108	158	161	205	119	205	140	136	163	184
MONTGOMERY COUNTY UD 2	1,882	1,882	1,882	1,882	1,844	1,905	384	384	384	384	281	275	120	182	182	182	182	136	129
MONTGOMERY COUNTY UD 3	3,624	3,624	3,489	3,798	4,110	4,421	409	576	754	1,009	968	1,019	142	101	142	193	237	210	206
MONTGOMERY COUNTY UD 4	4,758	4,767	4,917	4,917	4,917	4,917	725	851	390	390	390	390	159	136	159	71	71	71	71
MONTGOMERY COUNTY WCID 1	3,303	3,303	2,832	2,832	2,832	2,911	372	372	331	323	307	324	86	101	101	104	102	97	100
MSEC ENTERPRISES	4,908	4,908	6,768	7,884	10,191	10,938	0	1,229	1,096	1,340	1,497	1,912	224	0	224	145	152	131	156
NEW CANEY MUD	8,516	8,636	8,620	8,981	8,603	8,693	942	1,038	943	950	947	1,000	84	99	107	98	94	98	103
OAK RIDGE NORTH	3,077	3,077	3,077	3,077	3,633	3,633	449	608	493	466	464	460	169	130	176	143	135	114	113
PANORAMA VILLAGE	2,085	2,294	2,241	2,137	2,554	2,606	426	538	426	408	397	393	214	182	210	170	170	139	135
PINEHURST DECKER PRAIRIE WSC	1,215	1,200	1,200	1,194	1,194	1,233	0	93	93	104	104	95	69	0	69	69	78	78	68
POINT AQUARIUS MUD	2,018	2,174	2,229	2,249	2,333	2,367	446	561	419	400	379	379	190	197	230	168	159	145	143
PORTER SUD	15,146	15,146	15,146	15,146	15,146	15,146	1,289	1,351	1,356	1,367	1,602	1,676	60	76	80	80	81	94	99
QUADVEST	15,578	17,769	17,817	19,298	20,327	22,371	2,568	4,056	3,090	3,185	2,922	2,995	207	147	204	155	147	128	120
RANCH UTILITIES	1,106	1,094	1,129	1,135	1,169	1,192	105	117	93	97	114	96	95	85	95	74	76	87	72
RAYFORD ROAD MUD	10,825	10,917	10,940	10,960	10,550	10,400	1,485	1,798	1,594	1,518	1,307	1,232	120	123	147	130	124	111	106
RIVER PLANTATION MUD	2,418	2,401	2,401	2,401	2,401	2,469	537	714	501	512	460	417	228	198	265	186	190	171	151
ROMAN FOREST CONSOLIDATED MUD	1,674	1,674	1,674	1,674	1,674	1,674	253	253	253	254	254	225	136	135	135	135	135	135	120
SHENANDOAH	2,162	2,162	2,883	2,883	3,074	3,074	948	1,191	1,107	1,042	1,044	1,147	400	391	492	343	323	303	333
SOUTHERN MONTGOMERY COUNTY MUD	11,019	11,699	10,370	10,477	10,542	10,556	1,377	1,651	1,447	1,426	1,337	1,284	111	112	126	125	121	113	109
SPLENDORA	7,060	6,962	7,022	7,172	7,080	7,218	795	818	694	762	683	738	96	101	105	88	95	86	91
SPRING CREEK UD	9,236	9,594	9,837	10,125	10,352	10,364	942	1,163	800	926	851	880	86	91	108	73	82	73	76
STANLEY LAKE MUD	2,815	2,576	2,576	2,905	2,905	2,956	513	692	596	593	549	539	204	163	240	207	182	169	163
T & W WATER SERVICE	4,656	5,080	5,255	5,573	5,885	6,117	0	1,211	933	913	852	851	232	0	213	158	146	129	124
THE WOODLANDS CRU	80,982	82,978	84,209	85,891	85,891	87,462	15,231	19,448	17,757	15,161	14,279	13,501	222	168	209	188	158	148	138
VALLEY RANCH MUD 1	1,117	1,104	1,104	1,975	1,524	1,650	0	65	65	53	181	188	106	0	52	52	24	106	101
WESTWOOD NORTH WSC	2,481	2,375	2,489	2,584	2,584	2,697	298	458	313	316	287	294	165	107	172	112	109	99	97
WHITE OAK UTILITIES	851	834	758	856	1,118	1,140	77	119	71	87	101	119	95	81	98	84	91	81	93
WHITE OAK WSC	1,023	0	1,023	1,026	1,023	732	0	0	130	121	102	112	89	0	0	113	105	89	137
WILLIS	6,264	6,140	6,673	6,851	6,239	6,264	712	749	669	752	756	740	120	101	109	89	98	108	105
WOOD BRANCH VILLAGE	1,102	1,102	1,102	1,269	1,269	1,390	110	115	115	145	151	61	78	89	93	93	102	106	39

TWDB Historical Population and GPCD Estimates for Utility WUGs:
WUG Summary

Polk County

WUG	Historical Population Estimates					Historical Net Use Estimates (ac-ft)					Historical GPCD Estimates								
	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015	
LAKE LIVINGSTON WS AND SS ⁵	7,753	7,587	7,780	8,167	7,776	8,019	963	936	789	808	806	877	70	111	110	91	88	93	98
LEGGETT WSC	1,584	1,584	1,584	1,584	1,584	1,584	264	278	242	283	289	312	157	149	157	136	159	163	176
LIVINGSTON	5,414	5,316	5,316	5,316	5,316	5,316	2,166	2,378	2,161	2,164	2,076	2,081	385	357	399	363	363	349	349
MEMORIAL POINT UD	887	720	720	795	636	638	110	137	137	66	97	106	154	111	170	170	74	137	149
MOSCOW WSC	97	94	153	141	415	370	0	15	15	50	87	82	141	0	141	86	315	187	197
ONALASKA WSC	3,159	3,190	3,260	3,268	3,312	3,388	307	360	317	304	281	296	101	87	101	87	83	76	78
PROVIDENCE WSC	1,858	1,096	1,096	1,096	1,195	1,726	156	156	176	195	172	184	75	75	127	144	159	128	95
SODA WSC	1,649	1,649	1,627	1,627	1,627	1,627	156	156	175	175	175	175	84	84	84	96	96	96	96
TEMPE WSC 1	1,912	1,912	1,849	1,849	1,849	1,849	192	192	189	189	189	189	90	90	90	91	91	91	91

San Jacinto County

WUG	Historical Population Estimates					Historical Net Use Estimates (ac-ft)					Historical GPCD Estimates								
	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015	
CAPE ROYALE UD	925	1,200	850	850	1,000	1,000	178	254	183	179	176	166	241	171	189	192	188	157	148
DODGE OAKHURST WSC	402	402	365	365	365	365	39	51	41	41	40	40	113	87	113	100	100	98	98
LAKE LIVINGSTON WS AND SS ⁵	2,416	2,364	2,424	2,545	2,423	2,499	300	292	246	252	251	273	70	111	110	91	88	93	98
MERCY WSC	1,557	1,483	1,557	1,557	1,557	1,715	157	175	165	170	158	209	96	90	106	95	98	90	109
ONE FIVE O WSC	2,068	2,068	2,068	2,068	2,068	2,206	244	244	244	244	244	219	105	105	105	105	105	105	89
P B & S WSC	1,478	1,505	1,690	1,659	1,703	1,703	166	216	179	159	184	262	129	100	128	95	86	96	137
RIVERSIDE WSC	450	377	376	437	538	538	30	32	34	43	36	36	64	59	76	80	89	60	60
SAN JACINTO SUD	2,441	2,318	3,132	3,132	2,425	2,601	255	310	251	237	233	266	92	93	119	71	68	86	91
SHEPHERD	2,314	2,759	2,759	2,129	2,133	2,349	0	308	308	257	341	328	117	0	100	100	108	143	125
WATERWOOD MUD 1	402	402	402	402	402	402	88	117	88	88	88	115	261	194	261	196	196	196	256

Trinity County

WUG	Historical Population Estimates					Historical Net Use Estimates (ac-ft)					Historical GPCD Estimates								
	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015	
GLENDALE WSC	738	696	699	699	699	702	56	105	86	86	86	63	135	68	135	109	109	109	80
GROVETON	544	519	519	519	519	519	67	65	56	60	69	69	105	109	112	96	103	118	118
LAKE LIVINGSTON WS AND SS ⁵	623	610	625	656	625	644	77	75	63	65	65	70	70	111	110	91	88	93	98
PENNINGTON WSC	1,159	1,172	1,172	1,172	1,180	1,193	112	122	95	64	102	103	94	86	93	72	48	77	77
TRINITY	3,469	3,469	3,469	3,540	3,540	3,529	454	424	734	244	252	454	109	117	109	189	62	63	115
TRINITY RURAL WSC	3,067	3,067	2,990	3,067	3,043	3,113	364	387	327	332	295	294	114	106	113	98	97	86	84
WESTWOOD SHORES MUD	984	1,109	1,061	1,109	1,109	1,109	157	156	141	142	142	142	125	142	125	119	114	114	114

Walker County

WUG	Historical Population Estimates					Historical Net Use Estimates (ac-ft)					Historical GPCD Estimates								
	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015	
DODGE OAKHURST WSC	938	938	853	853	853	853	91	118	95	95	94	94	113	87	113	100	100	98	98
HUNTSVILLE	38,375	39,145	39,145	39,145	39,145	41,061	7,159	7,501	11,437	13,365	11,663	14,416	182	167	171	261	305	266	313
LAKE LIVINGSTON WS AND SS ⁵	165	161	166	174	165	171	20	20	17	17	17	19	70	111	110	91	88	93	98
NEW WAVERLY	1,084	1,086	1,090	1,090	1,090	1,086	158	194	147	149	145	152	158	130	160	120	122	119	125
PHELPS SUD	1,223	0	0	1,800	1,824	1,824	0	0	0	209	194	194	95	0	0	0	104	95	95
RIVERSIDE WSC	4,265	3,575	3,564	4,140	5,095	5,095	281	305	318	412	341	341	64	59	76	80	89	60	60
THE CONSOLIDATED WSC	97	99	99	99	99	99	13	16	13	13	13	13	110	119	146	121	121	121	121
TRINITY RURAL WSC	274	274	267	274	272	278	33	35	29	30	26	26	114	106	113	98	97	86	84
WALKER COUNTY RURAL SUD	6,947	7,021	7,070	7,070	7,275	7,372	869	955	1,041	1,001	877	1,011	127	112	121	131	126	108	122

TWDB Historical Population and GPCD Estimates for Utility WUGs:
WUG Summary

Waller County

WUG	Historical Population Estimates					Historical Net Use Estimates (ac-ft)					Base Dry	Historical GPCD Estimates							
	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013		2014	2015	2010	2011	2012	2013	2014	2015
BROOKSHIRE MWD	4,000	4,403	4,702	4,702	4,702	4,232	521	594	578	535	493	592	111	116	121	110	102	94	125
G & W WSC	2,446	1,865	1,865	1,865	2,930	3,073	160	245	196	204	215	204	112	58	117	94	98	65	59
HEMPSTEAD	5,770	5,770	5,770	5,770	5,770	5,770	801	1,199	805	812	715	921	182	124	186	125	126	111	143
KATY	954	979	979	987	1,051	1,051	177	247	190	208	196	209	226	166	225	173	188	167	178
OAK HOLLOW UTILITY	1,620	1,470	1,458	1,553	1,481	1,604	148	206	151	159	146	154	113	82	125	92	91	88	86
PATTISON WSC	1,304	1,226	1,287	1,304	1,304	1,304	221	211	154	168	162	177	147	151	153	107	115	111	121
PRAIRIE VIEW	2,610	2,610	2,646	2,646	2,646	2,646	684	684	684	296	328	328	221	234	234	231	100	111	111
PRAIRIE VIEW A&M UNIVERSITY	3,209	3,209	3,209	3,209	3,209	3,209	711	711	711	711	733	664	66	198	198	198	198	204	185
QUADVEST	84	96	96	104	110	121	14	22	17	17	16	16	207	147	204	155	147	128	120
WALLER	1,886	1,886	1,925	1,925	1,925	1,828	305	356	317	334	350	387	165	144	169	147	155	162	189
WHITE OAK UTILITIES	42	41	37	42	55	56	4	5	4	4	5	6	95	81	98	84	91	81	93

Notes:

1. North Fort Bend Water Authority
2. West Harris County Regional Water Authority
3. Central Harris County Regional Water Authority
4. North Harris County Regional Water Authority
5. Lake Livingston Water Supply and Sewer Service

Agenda Item 7

Receive presentation on identification of Major Water Providers for Region H and consider recommendations to the Region H Planning group.

Agenda Item 7 Major Water Providers



- New concept
- Largely replaces WWP role
- Broader category
- Key significance to Region's supplies
- Determined by RWPG
- At prior RWPG meeting, discussion of need for consistent and clear definition
- Not necessarily just adjust old WWP list

Agenda Item 7 Major Water Providers

- Supply volume most viable metric
- More than single year sales
- Not just existing contracts
- Legacy WWPs and municipal WUGs
 - 2016 RWP data
 - Post-WMS self-supply and transfers
- New municipal WUGs
 - Draft TWDB projections
 - Maximum demand
- Look for break points



Agenda Item 7 Major Water Providers

Break Point (ac-ft)	Entity	Type	Max. Allocation or Proj. Demand (ac-ft)
100,000+ (11 MWP)	HOUSTON	WWP	2,087,181
	DOW CHEMICAL USA	WWP	313,183
	TRINITY RIVER AUTHORITY	WWP	287,045
	BRAZOS RIVER AUTHORITY	WWP	279,369
	SAN JACINTO RIVER AUTHORITY	WWP	269,371
	GULF COAST WATER AUTHORITY	WWP	249,484
	NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY	WWP	223,624
	NRG	WWP	205,639
	WEST HARRIS COUNTY REGIONAL WATER AUTHORITY	WWP	144,406
	NORTH FORT BEND WATER AUTHORITY	WWP	138,175
	LOWER NECHES VALLEY AUTHORITY	WWP	123,262

Agenda Item 7 Major Water Providers

Range (ac-ft)	Entity	Type	Max. Allocation or Proj. Demand (ac-ft)
40,000 (15 MWP)	SUGAR LAND	WWP	57,818
	PASADENA	WWP	55,781
	THE WOODLANDS	Legacy WUG	44,033
	CHAMBERS-LIBERTY COUNTIES NAVIGATION DISTRICT	WWP	42,826
35,000 (17 MWP)	PEARLAND	Legacy WUG	38,714
	BRAZOSPORT WATER AUTHORITY	WWP	37,307
30,000 (21 MWP)	MISSOURI CITY	WWP	31,863
	CONROE	Legacy WUG	31,410
	HUNTSVILLE	WWP	30,474
25,000 (23 MWP)	LEAGUE CITY	Legacy WUG	30,332
	GALVESTON	WWP	27,105
	CLEAR LAKE CITY WATER AUTHORITY	WWP	26,880

Agenda Item 7

Major Water Providers

Range (ac-ft)	Entity	Type	Max. Allocation or Proj. Demand (ac-ft)
15,000 (30 MWP)	BAYTOWN AREA WATER AUTHORITY	WWP	18,536
	<i>BAYTOWN</i>	<i>Legacy WUG</i>	<i>18,013</i>
	QUADVEST	New WUG	17,520
	<i>STAFFORD</i>	<i>Legacy WUG</i>	<i>17,340</i>
	CLEAR LAKE CITY WATER AUTHORITY	New WUG	16,326
	SIENNA PLANTATION	Legacy WUG	15,821
	FRIENDSWOOD	Legacy WUG	15,197
10,000 (34 MWP)	NORTH CHANNEL WATER AUTHORITY	WWP	13,123
	TEXAS CITY	Legacy WUG	13,077
	<i>FORT BEND COUNTY WCID #2</i>	<i>WWP</i>	<i>10,634</i>
	CENTRAL HARRIS COUNTY REGIONAL WATER AUTHORITY	WWP	10,446

