MEETING MATERIALS

April 8, 2015

San Jacinto River Authority

Region H Water Planning Group
10:00 AM Wednesday
April 8, 2015
San Jacinto River Authority Office
1577 Dam Site Rd, Conroe, Texas 77304

AGENDA

1. Introductions.
2. Review and approve minutes of March 11, 2015 meeting.
3. Review and approve minutes of April 1, 2015 meeting.
4. **Receive public comments on specific issues related to agenda items 5 through 12**. (Public comments limited to 3 minutes per speaker)
5. Receive presentation from Consultant Team regarding the proposed application by Central Harris County Regional Water Authority to amend the 2011 Region H Regional Water Plan and consider approving the submittal of the application package to TWDB for the determination of minor amendment status.
6. Receive update from Consultant Team regarding the schedule and milestones for the development of the 2016 Region H Regional Water Plan.
7. Receive update from Consultant Team regarding the schedule of public hearings related to the 2016 Region H Initially Prepared Regional Water Plan.
8. Review comments received and revisions made to draft Initially Prepared Plan.
9. Consider and approve the consultant team to prepare final copies of the revised Initially Prepared Plan and submit to Texas Water Development Board no later than May 1, 2015.
10. Consider authorizing the request of additional funding for the study of water management strategies from the Texas Water Development Board.
11. Receive report regarding recent and upcoming activities related to communications and outreach efforts on behalf of the Region H Planning Group.
12. Agency communications and general information.
13. **Receive public comments**. (Public comments limited to 3 minutes per speaker)
14. Next Meeting: July 1, 2015.
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 March 11, 2015 meeting.

REGION H
Water Planning Group

MINUTES
REGION H WATER PLANNING GROUP
MARCH 11, 2015
SAN JACINTO RIVER AUTHORITY
GENERAL AND ADMINISTRATION BUILDING
1577 DAM SITE ROAD
CONROE, TEXAS

MEMBERS PRESENT: David Bailey, John Bartos, John Blount, Jun Chang, James Comin, Mark Evans, Gene Fisseler, Judge Art Henson, Jace Houston, John Howard, Lisa Lattu, Robert Istre, Glenn Lord, Jimmie Schindewolf, J. Kevin Ward and Pudge Willcox.

DESIGNATED ALTERNATES: Zach Holland for James Morrison, Mike O'Connell for Judge Hebert, Robert Thompson for Ron Neighbors and Marvin Marcel, Ken Cramer for Carl Masterson, Paul Nelson for Kathy Jones, Tom Michel for William Teer and Brad Brunette for David Collinsworth.

MEMBERS ABSENT:

NON-VOTING MEMBERS PRESENT: Sarah Backhouse for Lann Bookout

CALL TO ORDER
The meeting was called to order at 10:03 a.m.

1. **INTRODUCTIONS**
   Mr. Evans welcomed Louine Hancock from Senator Nichols Office as well as alternate voting members present.

2. **REVIEW AND APPROVE MINUTES OF NOVEMBER 5, 2014 MEETING**
   Mr. Ward made a motion to approve the minutes of November 5, 2014, with one correction to members absent as stated. The motion was seconded by Mr. Chang and carried unanimously.

3. **REVIEW AND APPROVE MINUTES OF FEBRUARY 4, 2015 MEETING.**
   Mr. Henson made a motion to approve the minutes of February 4, 2015. The motion was seconded by Mr. Bartos and carried unanimously.

4. **RECEIVE PUBLIC COMMENTS ON SPECIFIC ISSUES RELATED TO AGENDA ITEMS 5 THROUGH 18. (PUBLIC COMMENTS LIMITED TO 3 MINUTES PER SPEAKER)**
   There were no comments.

5. **CONSIDER AUTHORIZING THE SAN JACINTO RIVER AUTHORITY TO SERVE AS THE POLITICAL SUBDIVISION FOR THE FIFTH CYCLE OF REGIONAL WATER PLANNING.**
   Mr. Houston explained that each planning cycle, the Board must re-designate an administrative agency of the Regional Water Planning Group. Mr. Howard made a motion to authorize the San Jacinto River Authority to

serve as administrative agency for the fifth cycle of regional water planning. The motion was seconded by Mr. Fisseler and carried unanimously.

6. **CONSIDER AUTHORIZING THE SAN JACINTO RIVER AUTHORITY TO USE FUNDS FROM THE REGION H LOCAL CONTRIBUTION ACCOUNT TO PAY FOR PUBLIC NOTICE ACTIVITIES FOR THE FIFTH ROUND OF REGIONAL WATER PLANNING TO BE REIMBURSED BY THE TEXAS WATER DEVELOPMENT BOARD.**
   Mr. Bailey made a motion to authorize the San Jacinto River Authority to use funds from the Region H local contribution account to pay for public notice activities for the fifth round of Regional Water Planning to be reimbursed by the Texas Water Development Board. The motion was seconded by Mr. Bartos and carried unanimously.

7. **RECEIVE UPDATE FROM CONSULTANT TEAM REGARDING THE SCHEDULE AND MILESTONES FOR THE DEVELOPMENT OF THE 2016 REGION H REGIONAL WATER PLAN.**
   Mr. Jason Afinowicz gave a brief overview of the draft of the Initially Prepared Plan, explaining that it is currently in the review stages until the next meeting. He further explained May 1, 2015, is the date in which the IPP will be submitted to the Texas Water Development Board (TWDB). At that time, the public process will begin. Public hearings will take place in the upcoming months. Mr. Afinowicz went on to state that comments would be provided at the October meeting, a final draft of the IPP would be presented at the November meeting with submission of the final plan taking place by December 1, 2015.

8. **RECEIVE UPDATE FROM CONSULTANT TEAM AND WATER MANAGEMENT STRATEGIES COMMITTEE REGARDING STATUS OF THE IDENTIFICATION OF POTENIAL STRATEGIES FOR THE 2016 REGION H REGIONAL WATER PLAN.**
   Mr. Afinowicz explained that the WMS Committee met on February 9, 2015, and discussed the initial needs identified, the location of needs, and the approach which will be used in meeting each of those needs.

9. **RECEIVE PRESNETATION FROM THE CONSULTATN TEAM REGARDING THE DRAFT COPY OF CHAPTER 5: WATER MANAGEMENT STRATEGIES.**
   Mr. Afinowicz introduced Chapter 5 which now only addresses Water Management Strategies, which includes requirements, Strategy Evaluation Methodology, Potential WMS and Projects, Recommended WMS, Alternative WMS and Remaining Unmet Needs. Mr. Ward had questions regarding Table 5.5, and it was stated that it would be updated prior to the April meeting.

10. **RECEIVE PRESENTATION FROM THE CONSULTANT TEAM REGARDING THE DRAFT COPY OF CHAPTER 5B: CONSERVATION RECOMMENDATIONS.**
    Mr. Afinowicz introduced Chapter 5B which now addresses conservation recommendations in Region H and the Goldwater Project.

11. **RECEIVE PRESENTATION FROM THE CONSULTATN TEAM REGARDING THE DRAFT COPY OF CHAPTER 6: IMPACTS OF THE REGIONAL WATER PLAN.**
    Mr. Afinowicz explained that Chapter 6 focuses on key strategies and projects, potential water quality impacts, summary of water resources, threatened and endangered species, impacts to unique stream segments, and freshwater inflows.

12. **RECEIVE PRESENTATION FROM THE CONSULTANT TEAM REGARDING THE DRAFT COPY OF CHAPTER 8: UNIQUE STREAM SEGMENTS, RESERVOIR SITES, AND OTHER RECOMMENDATIONS.**

    Mr. Afinowicz gave a brief overview of Chapter 8 which includes recommendations on Unique Reservoir Sites, unique stream segments and other regulatory, administrative and legislative recommendations. He stated that this will solidify what has been discussed before and puts it in to text. Mr. Afinowicz briefly discussed Allens Creek Reservoir being designated as a unique reservoir site and explained why it is being carried forward.

13. **RECEIVE PRESENTATION FROM CONSULTANT TEAM REGARDING THE DRAFT COPY OF CHAPTER 9: REPORTING OF FINANCIAL MECHANISM FOR WATER MANAGEMENT STRATEGIES.**

    Mr. Afinowicz explained that an infrastructure finance survey will be sent out to wholesale providers to identify their potential needs for state funding. He also explained that this chapter will give more information on capital costs for the 2016 Region H Water Plan.

14. **RECEIVE PRESENTATION FROM THE CONSULTANT TEAM REGARDING THE DRAFT COPY OF CHAPTER 10: ADOPTION OF PLAN AND PUBLIC PARTICIPATION.**

    Mr. Afinowicz explained that this chapter includes summaries of Regional Planning Group meetings, summaries of Technical Committee meetings, public review and comments of Initially Prepared Plan, and a summary of public hearings, public meetings, and written comments.

15. **RECEIVE PRESENTATION FROM THE CONSULTANT TEAM REGARDING THE DRAFT COPY OF CHAPTER 11: IMPLEMENTATION AND COMPARISION TO PREVIOUS REGIONAL WATER PLAN.**

    Mr. Afinowicz stated that this chapter has not been included in the past. He explained that it will include the implementation of the previously recommended Water Management Strategies, and a comparison to previous Regional Water Plans, focusing largely on what has been implemented.

16. **CONSIDER AND APPROVE THE TWDB TO CONDUCT AN ANALYSIS OF SOCIOECONOMIC IMPACTS OF UNMET WATER NEEDS IN THE REGION H WATER PLANNING AREA.**

    Mr. Afinowicz stated that a socioeconomic report is required to show the impact of unmet needs and that there is potential to have the Board develop this report. It requires requests by the Planning Group to execute this report. Mr. Houston made a motion to approve the TWDB to conduct an analysis of socioeconomic impacts of unmet water needs in the Region H Water Planning area. The motion was seconded by Mr. Blount and carried unanimously.

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

    Mr. Afinowicz gave a brief update that there have been presentations to the HGAC Natural Resources Committee as well as the Lone Star Groundwater Conservation District.

18. AGENCY COMMUNICATIONS AND GENERAL INFORMATION.

Sarah Backhouse with the Texas Water Development Board gave a brief update regarding applications submitted from all sixteen Planning Groups, which will be going before the TWDB Board on April 9, 2015, for authorization to enter into contracts. She explained that these contracts need to be executed by political subdivisions by August 31, 2015. Ms. Backhouse also reminded everyone that before proceeding with any technical work on the fifth cycle, that a pre-planning public input meeting needs to take place as well as the re-procurement process of consultants.

19. RECEIVE PUBLIC COMMENTS

Marcel Khouw with IDS Engineering, on behalf of the Central Harris County Regional Water Authority, was present to notify the group that they will be working with Freese and Nichols to request an amendment to their current Region H plan, primarily for the central to update the cost associated with the internal distribution water systems.

20. NEXT MEETING

Mr. Evans announced that the next meeting will be a Public Hearing on April 1, 2015.

21. ADJOURN

Without objection, the meeting was adjourned at 11: 21 a.m.

Agenda Item 3

Review and approve minutes of April 1, 2015 meeting.

MINUTES
REGION H WATER PLANNING GROUP
APRIL 1, 2015
SAN JACINTO RIVER AUTHORITY
GENERAL AND ADMINISTRATION BUILDING
1577 DAM SITE ROAD
CONROE, TEXAS 77304

MEMBERS PRESENT: Mark Evans, Gene Fisseler, Glenn Lord

NON-VOTING MEMBERS PRESENT: Temple McKinnon

PRESIDING: Judge Mark Evans, Chair

CALL TO ORDER
The meeting was called to order at 10:01 a.m. A quorum was not present.

1. INTRODUCTIONS

Mr. Evans welcomed Temple McKinnon from the Texas Water Development Board, and thanked Mr. Fisseler and Mr. Lord, who are relatively new members of the Planning Group, for attending today.

2. RECEIVE PRESENTATION ON THE SUBMITTAL OF AN APPLICATION FOR FUNDING AND THE SCOPE OF WORK FOR THE FIFTH CYCLE OF REGIONAL WATER PLANNING (2017-2021)

Mr. Taucer, consultant with Freese and Nichols, Inc., gave a brief overview of Region H and explained that Region H is entering into the fifth cycle of Regional Water Planning. He noted that an application for funding of initial tasks has recently been submitted for approval to the Texas Water Development Board (TWDB). He briefly described the process and initial tasks. Ms. McKinnon added that there are 11 tasks in the whole plan development cycle, and that this meeting was to get any comments from the public regarding these tasks or any of the other tasks the public would like the planning group to address when developing the 2021 plan.

3. RECEIVE PUBLIC COMMENTS ON THE SCOPE OF PLANNING ACTIVITIES TO BE CONSIDERED DURING THE FIFTH CYCLE OF REGIONAL WATER PLANNING (2017-2021).

Mr. Evans opened the public hearing at 10:13 a.m.

Katie Anderson, CEO and founder of Save Water Co, spoke about her company's experience with reducing water loss. She estimates that close to one billion gallons of water lost due to infrastructure

failure could be saved. She stated that Save Water Co has good data points and assets they can bring to Region H.

Mr. Evans thanked Ms. Anderson for her comments and encouraged her to engage Mr. Taucer, Mr. Reedy or Mr. Afinowicz of the consulting team in further discussion. No other requests to speak were received.

The public hearing closed at 10:17 a.m.

4. NEXT MEETING

The next meeting will be a regular meeting held on April 8, 2015.

5. ADJOURN

Without objection, the meeting was adjourned at 10:18 a.m.

Agenda Item 5

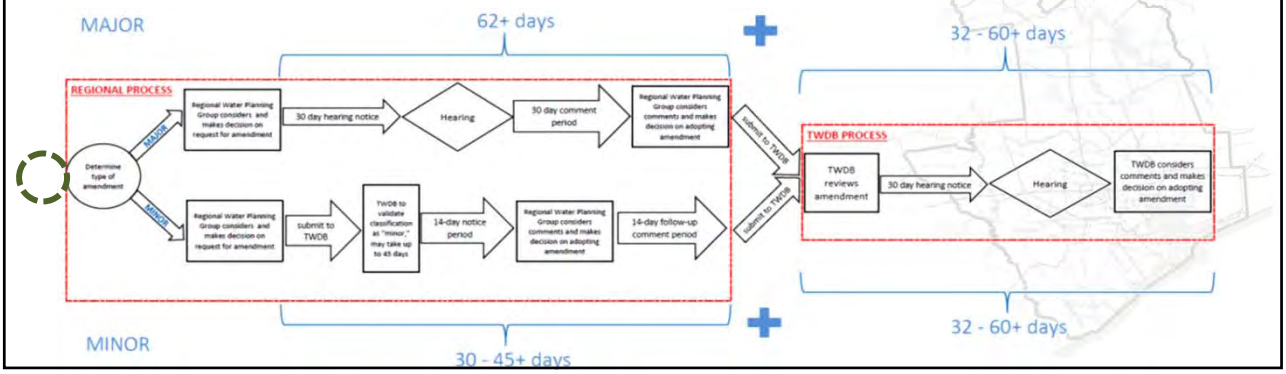
Receive presentation from Consultant Team regarding the proposed application by Central Harris County Regional Water Authority to amend the 2011 Region H Regional Water Plan and consider approving the submittal of the application package to TWDB for the determination of minor amendment status.

Agenda Item 5
CHCRWA Amendment

Receive presentation from Consultant Team regarding the proposed application by Central Harris County Regional Water Authority to amend the 2011 Region H Regional Water Plan and consider approving the submittal of the application package to TWDB for the determination of minor amendment status.

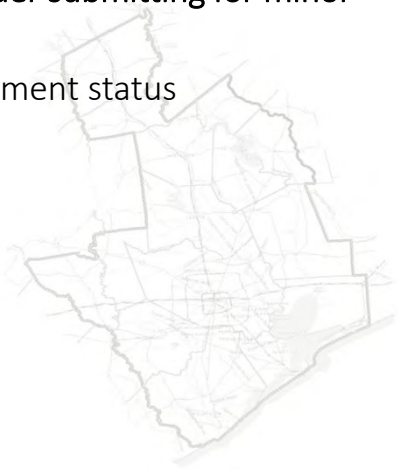
Agenda Item 5
CHCRWA Amendment

- Since March
  - Prepared draft amendment package for review by TWDB
  - Require RWPG approval to submit for determination of minor status



Agenda Item 5
CHCRWA Amendment

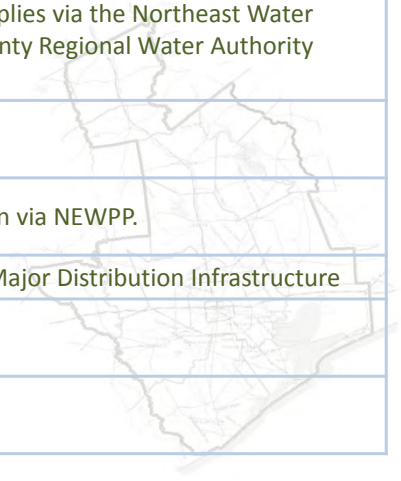
- Amendment process
  - TODAY: Review draft amendment package and consider submitting for minor amendment determination by TWDB
  - Submit to TWDB for determination of minor amendment status
  - Assuming minor determination
    - Provide 14-day notice
    - Consider action on amending 2011 RWP
    - 14-day comment period
    - Submit amendment package and comments to TWDB



Agenda Item 5
CHCRWA Amendment

- Transmission Line to CHCRWA Municipal WUG and WWP

Description	The transmission of Lake Houston surface water supplies via the Northeast Water Purification Plant (NEWPP) to the Central Harris County Regional Water Authority (CHCRWA) to meet projected shortages.
Quantity	Approximately 4,800 acre-feet per year.
Source	Surface water from Lake Houston and Lake Livingston via NEWPP.
Decade	2010 – Greens Road Transmission line, Phase I and Major Distribution Infrastructure
Total Cost	$8,737,162 capital cost, transmission $11,283,234 capital cost, distribution
Unit Cost	$78 per acre-foot for transmission $101 per acre-foot for distribution



Agenda Item 5
CHCRWA Amendment

- 2011 RWP amendment package
  - Revisions to Executive Summary
  - Revisions to Chapter 4
    - Chapter text
    - Appendix 4A supply allocation tables
    - Appendix 4C cost tables
  - Amended tech memorandum
    - Transmission Line to CHCRWA Municipal
    - Includes Internal Distribution
  - DB12 database entries

Agenda Item 5
CHCRWA Amendment

Action:

Approve the submittal of the application package to TWDB for the determination of minor amendment status

PROPOSED AMENDMENT TO THE 2011 REGION H REGIONAL WATER PLAN

Central Harris County Regional Water Authority

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Attachment	Description
A	Amended excerpt from Executive Summary Table ES-7
B	Amended excerpts from Chapter 4: Identification, Evaluation and Selection of Water Management Strategies Based on Needs
C	Amended Table 4A-3: Water Management Strategy Screening
D	Amended Table 4A-6: Decadal WMS Summary
E	Amended Technical Memorandum 4B17: Transmission Line to CHCRWA Municipal WUG and WWP
F	Amended Table 4C-1: WWP-Level Project Costs
G	Summary of database entries anticipated for DB12

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Attachment A:

Amended excerpts from Executive Summary Table ES-7

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Table ES-7
Recommended Water Management Strategies

WMS	Max Project Volume (ac-ft/yr)	WWP Capital Cost $	WUG Capital Cost $	Starting Decade
Conservation Strategies:				
Industrial Conservation	TBD	$0	TBD	2010
Irrigation Conservation	77,881	$0	$757,436	2010
Municipal Conservation	105,494	$0	$0	2010
Contractual Strategies:				
Expand/Increase Current Contracts	142,599	$0	See Contracts	2010
New Contracts from Existing Supplies	83,558	$0	See Contracts	2010
Reallocation of Existing Supplies	N/A	$0	See Contracts	2010
TRA to SJRA Contract	76,476	$302,781,597	See Contracts	2040
TRA to Houston Contract	123,524	See Luce Bayou	See Contracts	2030
WUG-Level Contracts[1]	N/A	$0	$2,390,273,157	2010
WWP Contracts	N/A	$0	$0	2010
Groundwater Strategies:				
Expanded Use of Groundwater	90,617	$0	$165,928,999	2010
Interim Strategies	45,512	$0	$86,701,535	2010
New Groundwater Wells for Livestock	41	$0	$18,635	2020
Groundwater Reduction Plans:				
CHCRWA GRP	4,806	See CHCRWA Trans.	$0	2010
COH GRP	TBD	See COH Treatment	$58,235,873	2010
City of Missouri City GRP	17,562	$92,070,990	$6,618,706	2010
Fort Bend MUD 25 GRP	589	$0	$776,145	2020
Fort Bend WCID 2 GRP	5,753	$24,828,857	$0	2020
NFBWA GRP[2]	106,402	See NFBWA Trans.	$1,638,063	2020
NHCRWA GRP[2]	117,755	See NHCRWA Trans.	$17,814,585	2010
Pecan Grove GRP	1,700	$0	$15,960,000	2020
Richmond/Rosenberg GRP	7,500	$117,220,150	$0	2020
River Plantation GRP	368	$0	$484,926	2010
SJRA WRAP[3]	129,010	$900,000,000	$217,856,853	2020
Sugar Land GRP	9,796	$161,360,049	$6,360,101	2020
WHCRWA GRP[2]	78,839	See WHCRWA Trans	$35,268,970	2010
Infrastructure Strategies:				
BWA Brackish Groundwater	3,136	$30,570,395	See Contracts	2020
BWA Plant Expansion	8,400	$14,359,419	N/A	2020
CHCRWA Transmission Line	4,806	$8,737,162	N/A	2010
CHCRWA Internal Distribution	4,806	$11,283,234	N/A	2010
CLCND West Chambers System	2,800	$20,380,000	See Contracts	2020
COH Distribution Expansion	TBD	$261,040,000	N/A	2010
COH Treatment Expansion	Varies by decade	$2,045,672,161	N/A	2010
Harris County MUD 50 WTP	632	$0	$6,131,600	2020
Huntsville WTP	11,200	$61,023,906	$0	2010
LLWSSSC Surface Water Project	954	$0	$3,087,974	2010
Luce Bayou Transfer	450,000	$253,916,914	$0	2020

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Attachment B:

Amended excerpts from Chapter 4: Identification, Evaluation and Selection of Water Management Strategies Based on Needs

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Table 4-4
Recommended Water Management Strategies

WMS	Max Project Volume (ac-ft/yr)	WWP Capital Cost $	WUG Capital Cost $	Starting Decade
Conservation Strategies:				
Industrial Conservation	TBD	$0	TBD	2010
Irrigation Conservation	77,881	$0	$757,436	2010
Municipal Conservation	105,494	$0	$0	2010
Contractual Strategies:				
Expand/Increase Current Contracts	142,599	$0	See Contracts	2010
New Contracts from Existing Supplies	83,558	$0	See Contracts	2010
Reallocation of Existing Supplies	N/A	$0	See Contracts	2010
TRA to SJRA Contract	76,476	$302,781,597	See Contracts	2040
TRA to Houston Contract	123,524	See Luce Bayou	See Contracts	2030
WUG-Level Contracts[1]	N/A	$0	$2,390,273,157	2010
WWP Contracts	N/A	$0	$0	2010
Groundwater Strategies:				
Expanded Use of Groundwater	90,617	$0	$165,928,999	2010
Interim Strategies	45,512	$0	$86,701,535	2010
New Groundwater Wells for Livestock	41	$0	$18,635	2020
Groundwater Reduction Plans:				
CHCRWA GRP	4,806	See CHCRWA Trans.	$0	2010
COH GRP	TBD	See COH Treatment	$58,235,873	2010
City of Missouri City GRP	17,562	$92,070,990	$6,618,706	2010
Fort Bend MUD 25 GRP	589	$0	$776,145	2020
Fort Bend WCID 2 GRP	5,753	$24,828,857	$0	2020
NFBWA GRP[2]	106,402	See NFBWA Trans.	$1,638,063	2020
NHCRWA GRP[2]	117,755	See NHCRWA Trans.	$17,814,585	2010
Pecan Grove GRP	1,700	$0	$15,960,000	2020
Richmond/Rosenberg GRP	7,500	$117,220,150	$0	2020
River Plantation GRP	368	$0	$484,926	2010
SJRA WRAP[3]	129,010	$900,000,000	$217,856,853	2020
Sugar Land GRP	9,796	$161,360,049	$6,360,101	2020
WHCRWA GRP[2]	78,839	See WHCRWA Trans	$35,268,970	2010
Infrastructure Strategies:				
BWA Brackish Groundwater	3,136	$30,570,395	See Contracts	2020
BWA Plant Expansion	8,400	$14,359,419	N/A	2020
CHCRWA Transmission Line	4,806	$8,737,162	N/A	2010
CHCRWA Internal Distribution	4,806	$11,283,234	N/A	2010
CLCND West Chambers System	2,800	$20,380,000	See Contracts	2020
COH Distribution Expansion	TBD	$261,040,000	N/A	2010
COH Treatment Expansion	Varies by decade	$2,045,672,161	N/A	2010
Harris County MUD 50 WTP	632	$0	$6,131,600	2020

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Attachment C:

Amended Table 4A-3: Water Management Strategy Screening

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Region H
Table 4A-3: Water Management Strategy Screening

Water Management Strategy	Water User Group or Wholesale Provider	Strategy Description	Strategy Capital Cost ($)	Average Annual Cost of Water ($/ac-ft)	Major WMS	Earliest Potential Starting Decade	Firm Yield (ac-ft/yr)	Basin	Interbasin Transfer (Yes/No)	Impacts on Habitat / Stream / B&E Flows	Impacts on Landform	Decision Matrix Factors (High, Medium, Low): Cost	Yield	Location	Water Quality	Environment	Local Preference	Institutional Constraints / Risk of Implementability	Impacts on Water Resources	Impacts on Other Management Strategies		Total of Screening Factors	Selected as Part of 2001 Plan	Selected as Part of 2006 Plan
Screening Factor Weight:												1	1	1	1	1	1	1	1	1				
Conservation Strategies																								
Industrial Conservation	Manufacturing	Reduce water demand through selected BMPs	TBD	TBD		2010	TBD	All	No	No impact	None	0	0	1	0	0	0	1	0	1		3	No	No
Irrigation Conservation																								
Brazoria County	Irrigation	Reduce irrigation losses through land leveling, point irrigation and canal lining	$1,850,200 annual cost, on-farm methods $198,200 capital cost, canal lining	$99		2010	18,792	Brazos, Brazos-Colorado	No	Reduces losses that feed small streams	None	1	1	1	0	0	0	1	0	1		5	Yes	Yes
Chambers County	Irrigation	Reduce irrigation losses through land leveling, point irrigation and canal lining	$2,336,300 annual cost, on-farm methods $279,200 capital cost, canal lining	$98		2010	24,018	Trinity	No	Reduces losses that feed small streams	None	1	1	1	0	0	0	1	0	1		5	Yes	Yes
Fort Bend County	Irrigation	Reduce irrigation losses through land leveling, point irrigation and canal lining	$509,900 annual cost, on-farm methods $56,500 capital cost, canal lining	$99		2010	5,198	Brazos, Brazos-Colorado, San Jacinto-Brazos	No	Reduces losses that feed small streams	None	1	1	1	0	0	0	1	0	1		5	Yes	Yes
Galveston County	Irrigation	Reduce irrigation losses through land leveling, point irrigation and canal lining	$231,100 annual cost, on-farm methods $29,400 capital cost, canal lining	$98		2010	2,392	San Jacinto - Brazos	No	Reduces losses that feed small streams	None	1	1	1	0	0	0	1	0	1		5	Yes	Yes
Liberty County	Irrigation	Reduce irrigation losses through land leveling, point irrigation and canal lining	$2,089,800 annual cost, on-farm methods i $188,700 capital cost, canal lining	$100		2010	20,877	Trinity	No	Reduces losses that feed small streams	None	1	1	1	0	0	0	1	0	1		5	Yes	Yes
Waller County	Irrigation	Reduce irrigation losses through land leveling, point irrigation	$726,700 annual cost, on-farm methods	$110		2050	6,606	San Jacinto	No	Reduces losses that feed small streams	None	1	1	1	0	0	0	1	0	1		5	Yes	Yes
Municipal Conservation	Multiple	Reduce demand through various methods	From $9.9 to $22.8 million for allWUGs collectively	$202 (Sm Sys) $311 (Med Sys) $213 (Lg Sys)		2010	From 45,605 to 105,494	All	No	No impact	None	0	1	1	0	0	1	1	0	1		5	Yes	Yes
Contractual Strategies																								
Expand/ Increase Current Contracts	Multiple	Increase existing contracts to meet customer demands	At WUG level	System Rate		2010	Varies by contract. No new supply created	Multiple	Yes	Reduced streamflows due to use of currently unused supplies	None	1	0	1	0	0	1	1	0	1		5	Yes	Yes
New Contracts from Existing Supply	Multiple	Create new contracts from existing unallocated supplies	At WUG level	System Rate		2010	Varies by contract. No new supply created	Multiple	Yes	Reduced streamflows due to use of currently unused supplies	None	1	0	1	0	0	1	1	0	1		5		Yes
Reallocation of Existing Supply	Multiple	Reallocate surplus water to WUGs with shortages	At WUG level	System Rate		2010	Varies by contract. No new supply created	Multiple	Yes	Altered location of return flows	None	1	0	1	0	0	1	1	0	1		5	No	No
TRA to SJRA contract	TRA / SJRA	Sell uncommitted supply to SJRA.	$302,781,597	$687	Y	2040	76,476	Trinity to San Jacinto	Yes	Potential introduction of invasive species	Requires construction of new conveyance	0	1	0	0	0	0	0	-1	0		0	No	Yes
TRA to Houston Contract	TRA / Houston	Sell uncommitted supply to Houston	None - Infrastructure cost already reflected under Luce Bayou WMS	None - Infrastructure cost already reflected under Luce Bayou WMS	Y	2030	123,524	Trinity to San Jacinto	Yes	Potential introduction of invasive species via Luce Bayou conveyance.	Unknown	1	1	0	0	0	1	1	-1	0		3	Yes	Yes
WUG Level Contracts	Multiple WUGs	Contracts from WWPs to WUGs. Includes contracts for volumes created under other yield-producing WMS	WUG-specific infrastructure	Contract Rate		2010	Varies by contract. No new supply created	All	Yes (source-dependent)	None - impacts associated with yield-creating WMS or infrastructure	None	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA
WWP Contracts	Multiple WWPs	Contracts between WWPs. Includes contracts for volumes created under other yield-producing WMS	N/A - cost associated with WWP infrastructure projects	Contract Rate		2010	Varies by contract. No new supply created	All	Yes (source-dependent)	None - impacts associated with yield-creating WMS or infrastructure	None	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA
Groundwater Strategies																								
Expanded Use of Groundwater	Multiple	Increase groundwater use, to the sustainable or permitted yield.	$589,500 per 1 mgd well, $165,928,999 total capital cost for WUG infrastructure	$205		2010	90,617	All	No	Uses existing supply, return flows remain in basin of origin.	New wells may require some land clearing.	0	1	1	1	0	1	0	0	0		4	Yes	
Interim Strategies	Brazoria, Chambers, Galveston, Harris, and Montgomery Counties	Temporary groundwater use in excess of available supply	$589,500 per 1 mgd well, $86,701,535 total capital cost for WUG infrastructure	$788	Y	2010	NA - temporary use of 45,512 ac-fy/yr	Multiple	No	Potential for subsidence and excess drawdown	New wells may require some land clearing.	1	1	1	0	-1	1	0	1	0		4	No	No
New Groundwater Wells for Livestock	Multiple	Added well capacity to facilitate expaned pumping or interim groundwater use	$18,635	$37		2010	41	San Jacinto-Brazos, Neches-Trinity	No	None - impacts associated with yield-creating WMS or infrastructure	New wells may require some land clearing.	0	NA	1	1	0	1	0	0	0		3	No	Yes
Groundwater Reduction Plans																								
CHCRWA GRP	CHCRWA	Conversion of CHCRWA to surface water.	See CHCRWA Treatment and Distribution WMS entries.	See CHCRWA Treatment and Distribution WMS entries.		2010	NA	Multiple	Yes (previously permitted)	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant construction/expansion		0	1	0	0	1	0	0			2	No	No
COH GRP	COH	Conversion of portions of COH service area to surface water	See COH Treatment Expansion and Distribution Expansion	See COH Treatment Expansion and Distribution Expansion		2010	NA	Multiple		Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant construction/expansion		0	1	0	0	1	0	0				No	No

Region H
Table 4A-3: Water Management Strategy Screening

Water Management Strategy	Water User Group or Wholesale Provider	Strategy Description	Strategy Capital Cost ($)	Average Annual Cost of Water ($/ac-ft)	Major WMS	Earliest Potential Starting Decade	Firm Yield (ac-ft/yr)	Basin	Interbasin Transfer (Yes/No)	Impacts on Habitat / Stream / B&E Flows	Impacts on Landform	Decision Matrix Factors (High, Medium, Low): Cost	Yield	Location	Water Quality	Environment	Local Preference	Institutional Constraints / Risk of Implementability	Impacts on Water Resources	Impacts on Other Management Strategies		Total of Screening Factors	Selected as Part of 2001 Plan	Selected as Part of 2006 Plan
Screening Factor Weight:												1	1	1	1	1	1	1	1	1				
Missouri City GRP	Missouri City	Conversion of Missouri City and surrounding area to surface water. Also includes Aquifer Storage and Recovery.	$92,070,990 capital cost to WWP, $8,397,800 infrastructure cost to participating WUGs.	$378 per ac-ft (WWP cost only - excludes infrastructure cost of customer WUGs / GRP participation)		2020 (2013)	4,790 (new supply from reuse + ASR)	Brazos, San Jacinto-Brazos	No	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant construction/expansion	-1	0	1	0	0	1	0	0			1	No	No
Fort Bend County MUD 25 GRP	Fort Bend MUD 25	A combination of reuse and surface water to allow for groundwater reduction.	$766,100 capital cost (estimated as $564 per acre-foot construction cost based on Wastewater Reuse for Municipal Irrigation WMS).	$499 for infrastructure - does not include customer contract rate		2020 (2013)	589 (Reuse)	Brazos	No	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant construction/expansion	-1	0	1	0	0	1	0	0			1	No	No
Fort Bend County WCID No. 2 GRP	Fort Bend County WCID No. 2	Surface water conversion	$24,828,857	$353		2020 (2013)	NA	San Jacinto, San Jacinto-Brazos	No	Potential disturbance due to construction.	due to transmission line construction. Land required for plant	-1	0	1	0	0	1	0	0			1	No	No
NFBWA GRP	NFBWA	Conversion of NFBWA to surface water. Also includes reuse and major water supply infrastructure.	$1,638,000 infrastructure cost to WUGS. WWP infrastructure detailed seperately.	See inf. Cost		2020 (2013)	NA	Multiple	Yes (previously permitted)	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant construction/expansion		0	1	0	0	1	0	0	0		2	No	No
NHCRWA GRP	NHCRWA	Conversion of NHCRWA to surface water. Also includes major water supply infrastructure.	$17,814,600 infrastructure cost to WUGS. WWP infrastructure detailed seperately.	See inf. Cost		2010	NA	Multiple	Yes (previously permitted)	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant construction/expansion		0	1	0	0	1	0	0	0		2	No	Yes
Pecan Grove GRP	Pecan Grove	Conversion of Pecan Grove to surface water. Also includes reuse	$15,960,000	$865		2020 (2013)	NA	Brazos, San Jacinto-Brazos	No	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant construction/expansion	-1	0	1	0	0	1	0	0			1	No	No
Richmond-Rosenberg GRP	Richmond, Rosenberg	Conversion of Richmond-Rosenberg to surface water.	$117,220,150 capital cost for WWP	NA - existing contract		2020 (2015)	NA	Brazos	No	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant construction/expansion		0	1	0	0	1	0	0			2	No	No
River Plantation GRP	River Plantation	Entering into GRP with River Plantation CC golf course to provide additional WWTP effluent for irrigation purposes	$484,926	495		2010	NA	San Jacinto	No	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant construction/expansion	0	0	1	0	0	1	0	0			2	No	No
SJRA WRAP	Montgomery County	Conversion of Montgomery County to surface water. Also includes reuse and major water supply infrastructure.	$900,000,000 capital cost for WWP, $217,856,853 infrastructure cost for participating WUGs.	$649. (WWP cost only - excludes infrastructure cost of customer WUGs / GRP participation)		2020 (2015)	NA	San Jacinto	No	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant construction/expansion	-1	0	1	0	0	1	0	0	0		1	No	No
Sugar Land GRP	Sugar Land	Conversion of Sugar Land and surrounding area to surface water. Also includes reuse.	$161,360,000 capital cost for WWP. $6,360,100 infrastructure cost for participating WUGs.	$1,234. (WWP cost only - excludes infrastructure cost of customer WUGs / GRP participation)		2020 (2013)	NA	Brazos, San Jacinto-Brazos	No	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant construction/expansion	-1	0	1	0	0	1	0	0	0		1	No	No
WHCRWA GRP	WHCRWA	Conversion of WHCRWA to surface water. Also includes reuse and major water supply infrastructure.	$35,269,000 infrastructure cost for participating WUGs. WWP infrastructure detailed seperately.	See WHCRWA Transmission and WHCRWA Internal Distribution.		2010	NA	Multiple	Yes (previously permitted)	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant construction/expansion		0	1	0	0	1	0	0	0		2		Yes
Infrastructure Strategies																								
BWA Brackish Groundwater	BWA	Desalinate of brackish groundwater from Gulf Coast Aquifer to enhance the yield of surface water sources in use in the lower Brazos River Basin.	$30,570,395	$390-594		2020	3,136	Multiple	No	Increased return flows form groundwater development and RO concentrate.	Limited disturbance outside of existing plant area.	-1	0	1	0	0	1	0	1	0		2	No	No
BWA Plant Expansion	BWA	Expansion of BWAS conventional SWTP to enhance the yield of surface water sources in use in the lower Brazos River Basin.	$14,359,419	$432		2020	NA	Multiple	No	Potential disturbance due to construction.	No disturbance outside of existing plant area.	-1	0	1	0	0	1	1	0	0		2	No	No
CHCRWA Transmission	CHCRWA	Transmission capacity development	$8,737,162	$78		2010	NA	Multiple	Yes (previously permitted)	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant	1	0	1	0	0	1	0	0	0		3	No	No
CHCRWA Distribution	CHCRWA	Distribution capacity development	$11,283,234	$101		2010	NA	Multiple	Yes (previously permitted)	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant	0	0	1	0	0	1	0	0	0		2	No	No
NFBWA Shared Transmission Line	NFBWA	Transmission capacity development	$213,000,000 capital cost	$150		2020 (2013)	NA	Multiple	Yes (previously permitted)	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant construction/expansion	0	0	1	0	0	1	0	0	0		2	No	No
NFBWA Internal Distribution	NFBWA	Distribution capacity development	$225,000,000 capital cost	$85		2020 (2013)	NA	Multiple	Yes (previously permitted)	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant construction/expansion	1	0	1	0	0	1	0	0	0		3	No	No
NHCRWA Transmission	NHCRWA	Transmission capacity development	$253,249,100 capital cost	$106		2010	NA	Multiple	Yes (previously permitted)	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant	0	0	1	0	0	1	0	0	0		2	No	No

Region H
Table 4A-3: Water Management Strategy Screening

Water Management Strategy	Water User Group or Wholesale Provider	Strategy Description	Strategy Capital Cost ($)	Average Annual Cost of Water ($/ac-ft)	Mjr or WHS	Earliest Potential Starting Decade	Firm Yield (ac-ft/yr)	Basin	Interbasin Transfer (Yes/No)	Impacts on Habitat / Stream / B&E Flows	Impacts on Landform	Decision Matrix Factors (High, Medium, Low): Cost	Yield	Location	Water Quality	Environment	Local Preference	Institutional Constraints / Risk of Implementability	Impacts on Water Resources	Impacts on Other Management Strategies		Total of Screening Factors	Selected as Part of 2001 Plan	Selected as Part of 2006 Plan
Screening Factor Weight:												1	1	1	1	1	1	1	1	1				
NHCRWA Internal Distribution	NHCRWA	Distribution capacity development	$535,881,400 capital cost	$222		2010	NA	Multiple	Yes (previously permitted)	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant	-1	0	1	0	0	1	0	0	0		1	No	No
WHCRWA Transmission	WHCRWA	Transmission capacity development	$290,084,200 capital cost	$178		2010	NA	Multiple	Yes (previously permitted)	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant	0	0	1	0	0	1	0	0	0		2	No	No
WHCRWA Internal Distribution	WHCRWA	Distribution capacity development	$552,472,000 capital cost	$338		2010	NA	Multiple	Yes (previously permitted)	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant	-1	0	1	0	0	1	0	0	0		1	No	No
West Chambers County Supply System	CLCND	Develop a surface water supply system to meet demands in western Chambers County with water from the Trinity basin.	$20,380,000	$408		2020	NA	Sabine to San Jacinto	Yes (previously permitted)	Potential introduction of invasive species		-1	0	1	0	0	1	0	0	0		1	No	No
COH Treatment Expansion	Houston	Increasing capacity in COH treatment facilities infrastructure.	$2,045,672,200 capital cost	$1,003		Various	NA	Trinity-San Jacinto, San Jacinto, San Jacinto-Brazos, Brazos	No	Footprint of facilities largely already developed.	Footprint of facilities largely already developed.	-1	1	1	0	0	1	0	0	1		3	No	No
COH Distribution Expansion	Houston	Distrubution expansion for WWP	$261,040,000	TBD		2010 (2011)	NA	San Jacinto	No	Footprint of facilities largely already developed.	largely already developed.		1	0	0	0	1	0	0	1		3	No	No
Huntsville WTP	Huntsville	WTP construction to utilize existing contracts	$61,023,900 capital cost (estimated using Region H standard cost assumptions).	$587		2010	NA	Trinity, San Jacinto	No	Potential disturbance due to construction.	Temporary disturbance due to transmission line construction. Land required for plant construction/expansion	-1	1	1	0	0	1	0	0	0		2	No	No
LLWSSSC Surface Water Project	Lake Livingston Water Supply and Sewer Service Company	Expansion of SWTP to meet municipal demands	$3,087,974	$373		2010	NA	Trinity	No	Potential disturbance due to construction.	Land required for facility construction	-1	1	1	0	0	1	0	-1	0		1	No	No
Harris County MUD 50 SWTP	Harris MUD 50	Treat surface water from SJRA for municipal use.	$6,131,600	$736		2020	NA	San Jacinto	No	Potential disturbance due to construction.	Land required for facility construction	-1	1	1	0	0	1	0	-1	0		1	No	No
Luce Bayou	COH	Development of a conveyance from the Trinity River to Lake Houston	$253,917,000 capital cost	$91		2020	NA	Trinity to San Jacinto	Yes (previously permitted)	Potential introduction of invasive species	Conveyance requires extensive canal construction	1	0	1	0	-1	1	-1	-1	0		0	Yes	Yes
Sealy GW Treatment Expansion	Sealy	Expansion of a SWTP	$6,450,000	$966		2020	NA	Brazos	No	Potential disturbance due to construction.	Land required for facility construction	-1	1	1	0	0	1	0	-1	0		1	No	No
Pearland SWTP	Pearland	Installation of a SWTP	$265,000,000	$848		2010	NA	San Jacinto - Brazos	No	Potential disturbance due to construction.	Land required for facility construction	-1	1	1	0	0	1	0	-1	0		1	No	No
Reservoir Strategies																								
Allens Creek Reservoir	BRA / Houston	New reservoir in Austin County	$222,752,400	$197	Y	2020	99,650	Brazos	No	Wetlands and bottomland hardwoods impacted	Innundates 7,000 acres	0	0	1	1	-1	1	0	-1	1		2	Yes	Yes
Bedias Reservoir	SJRA	New Reservoir in Madison/Grimes Counties	$247,241,628	$237	Y	2030	90,700	Trinity	No	7,300 acres of bottomland hardwoods	Innundates 27,400 acres	0	0	0	0	-1	0	-1	-1	-1		-4	Yes	No
Dow Off-Channel Reservoir and Pump Station Expansion	Dow / Brazosport Water Authority	Increase total raw water pumping and storage capacity	$226,837,000	$256	Y	2020	80,000	Brazos	No	Potential habitat impacts to 2,000 acres. Impacts potentially already incurred due to agricultural use.	Impacts to 2,00 acres of agricultural land.	-1	1	1	0	0	0	1	-1	0		1	No	No
Little River Reservoir	BRA / GCWA	New reservoir in Milam County	$556,520,000	$328	Y	2040	119,000	Brazos	No	Listed and endangered species habitat	Innundates 35,600 acres	-1	0	0	0	-1	-1	-1	-1	0		-5	Yes	No
Little River Off-Channel Reservoir	BRA	New reservoir in Milam County	$137,356,000	$436	Y	2040	27,255	Brazos	No	Potential impact on terrestrial species habitats	Innundates 4,400 acres	-1	-1	0	0	0	0	0	-1	1		-2	No	Yes
Brazoria Off-Channel Reservoir	Brazoria County	New reservoir in Brazoria County	$173,898,602	$1,206	Y	2030	24,000	San Jacinto - Brazos	No	Potential impact on terrestrial species habitats	Innundates 3,200 acres	-1	1	1	0	0	1	0	-1	0		1	No	No
Fort Bend Off-Channel Reservoir	Fort Bend County	New reservoir in Fort Bend County	$202,514,788	1893 (based on allocated volume)	Y	2030	46,000	San Jacinto - Brazos	No	Potential impact on terrestrial species habitats	Innundates 3,000 acres	-1	1	1	0	0	1	0	-1	0		1	No	No
GCWA Off-Channel Reservoirs	GCWA	Use storage to enhance the yield of existing GCWA rights	$197,448,012	$827	Y	2030	39,530	San Jacinto - Brazos	No	Potential impact on terrestrial species habitats	Innundates 4,000 acres	-1	1	1	0	0	1	0	-1	0		1	No	No
Lower Lake Creek Reservoir	SJRA	New reservoir in Montgomery County	$480,777,860	$583	Y	2040	67,200	San Jacinto	No	Innundates about 13,100 acres including 2,200 acres of bottomland hardwoods, 7,000 acres of oak, hickory, and pine forest, and 1,800 acres of shrubland and grasses. Some Endangered Species Identified	There are about 2,200 acres of bottomland hardwoods, 7,000 acres of oak, hickory, pine forest, and 1,800 acres of shrubland and grasses.	-1	1	0	0	-1	0	-1	-1	1		-2	No	No
Millican Reservoir (Panther Creek Dam)	BRA	New reservoir in Brazos, Madison, Leon, and Robertson Counties	$1,159,907,000	$1,241 (allocated portion only - for fully-utilized reservoir, unit cost is $424 per acre-foot)	Y	2040	194,500	Brazos	No	Some endangered species have been identified. Innundates 71,000 acres. Approximately 17,000 acres of mixed bottomland hardwods. Probable high environmental impacts.	Innundates 71,000 acres. Approximately 17,000 acres of mixed bottomland hardwoods.	-1	0	-1	0	-1	0	-1	-1	0		-5	No	No
Millican-Bundic Reservoir	BRA	New reservoir in Brazos, Madison, Leon, and Robertson Counties	$720,224,000	$1,431	Y	2030	36,990	Brazos		Avoids Manning and Yegua lignite, avoids Kurten oil and gas field, avoids the Wilcox lignite in the upper river reaches and avoids significant bottomland hardwood population. Size of lake would be constrained by the Wilcox lignite, and inundation of marsh area upstream of Old San Antonio Road. Probable moderate to high environmental and instream flows impacts.	The inundation area impacts approximately and 9,210 acres of mixed Bottomland Hardwood Forest, 4,086 acres of Grasses/Forbs, and 1,334 acres of Post Oak Woods.	-1	0	-1	0	-1	0	-1	-1	0		-5	No	No
Reuse Strategies																								

Region H
Table 4A-3: Water Management Strategy Screening

Water Management Strategy	Water User Group or Wholesale Provider	Strategy Description	Strategy Capital Cost ($)	Average Annual Cost of Water ($/ac-ft)	Major WMS	Earliest Potential Starting Decade	Firm Yield (ac-ft/yr)	Basin	Interbasin Transfer (Yes/No)	Impacts on Habitat / Stream / B&E Flows	Impacts on Landform	Decision Matrix Factors (High, Medium, Low): Cost	Yield	Location	Water Quality	Environment	Local Preference	Institutional Constraints / Risk of Implementability	Impacts on Water Resources	Impacts on Other Management Strategies		Total of Screening Factors	Selected as Part of 2001 Plan	Selected as Part of 2006 Plan
Screening Factor Weight:												1	1	1	1	1	1	1	1	1				
Fulshear Reuse	Fulshear	Development of a direct reuse system to provide reclaimed water to Fulshear and surrounding communities.	$566,600 capital cost (estimated as $564 per acre-foot construction cost based on Wastewater Reuse for Municipal Irrigation WMS).	$502		2020	430	Brazos, San Jacinto-Brazos	No	Reduces return flows to Upper Galveston Bay, offset by reduced diversions from the Trinity Basin.	None	-1	0	1	1	0	1	0	-1	0		1	No	No
GCWA Reclaimed Water from City of Houston	GCWA	Transfer of reclaimed water from COH SWWWTP and upstream plants.	$66,840,500	$80	Y	2020	56,896	Brazos, San Jacinto-Brazos	Yes	Reduces return flows to Upper Galveston Bay.	Primarily developed in existing corridor.	0	1	-1	0	1	0	0	-1	0		0	No	No
Houston Indirect Wastewater Reuse	Houston	Reuse wastewater from all city WWTP's in lieu of Trinity Supply.	$721,822,900 infrastructure cost for participating WUGs.	$402 to $1,232 per ac-ft ($777 average)	Y	2020	Up to 490,223	San Jacinto	No	Reduces return flows to Upper Galveston Bay, offset by reduced diversions from the Trinity Basin.	Size and location of diversion pump stations still TBD.	0	1	1	0	0	0	-1	-1	1		1	Yes	Yes
Montgomery County MUDs 8/9 Reuse	Montgomery MUDs 8/9	Reuse water from Montgomery County MUDs 8/9	$12,245,700	$878 per acre-foot (based on allocated volume)		2020 (2016)	1,120 (max)	San Jacinto	No	This WMS willnot be permitted to negatively impact downstream rights.	none	-1	1	1	0	1	1	0	0	0		3	No	No
NHCRWA Indirect Wastewater Reuse	NHCRWA	Reuse wastewater from member WWTP's in lieu of purchasing additional supply.	$66,778,694	$702 per acre-foot allocated	Y	2010	Up to 157,000	San Jacinto	No	Reduces return flows to Upper Galveston Bay, offset by reduced diversions from the Trinity Basin.	Size and location of diversion pump stations still TBD.	0	1	1	0	0	0	-1	-1	1		1	Yes	Yes
Wastewater Reclamation for Industry	Houston, Manufacturing	Deliver treated waterwater to industry for use in lieu of Trinity River supply.	$332,051,761	$893	Y	2010	67,200	San Jacinto	No	Minimal change in habitat	None	-1	1	1	1	0	1	0	1	1		5	Yes	Yes
Wastewater Reclamation for Municipal Irrigation	County-Other and Authorities in Brazoria, Fort Bend, Harris, and Montgomery Counties	Reuse for municipal irrigation	$48,043,200 infrastructure cost for participating WUGs.	$539 average		2030	36,388 (in 2060)	Multiple	No	Reduces return flows to Upper Galveston Bay, offset by reduced diversions from the Trinity Basin.	None	-1	0	1	1	0	1	0	-1	0		1	No	No
Permit Strategies																								
BRA System Operations Permit	BRA	Use peak flows, when available, and systems management to reduce the use of water stored under other permits.	TBD – based on system rate of $61 per acre-foot	TBD – based on system rate of $61 per acre-foot	Y	2020 (2015)	25,350 (Region H)	Brazos	No	Harvests peak flows through system management, positive affect on below-median flows	New pump stations may be required.	1	1	1	0	0	1	-1	0	0		3	Yes	Yes
Houston Bayous Permit	Houston	Use peak flows, when available, to reduce the use of water stored under other permits.	$20,956,000	System rate		NA	0	San Jacinto	No	Reduces return flows to Upper Galveston Bay, offset by reduced diversions from the Trinity Basin.	Size and location of diversion pump stations still TBD.	1	-1	1	0	-1	1	-1	0	0		0	Yes	Yes
Other Strategies																								
Brazoria County Interruptible Supplies for Irrigation	GCWA	Use of interruptible portion of GCWA water right for irrigation	NA	NA		2010	Non-firm 124,000 64,000 w/ GCWA off-channel)	Brazos, San Jacinto-Brazos	No	Reduced flows in Brazos River due to increased diversion	None	1	1	1	0	0	0	0	-1	0		2	NA	NA
Brazos Salt Water Barrier	BRA / DOW	Prevent the seasonal migration of the saltwater wedge upstream to protect existing diversion points.	$44,470,700	NA		2030	NA	Brazos	No	Will influence flood plain response to major storms.	New structure in river channel	0	-1	1	1	0	0	0	1	1		3	NA	Yes
Freeport Desalination	BRA / DOW	Desalinate seawater for industrial and municipal use.	$85,233,000 (11,200AF) - $255,699,000 (33,600AF)	$1,730 to $2,376	Y	2040	11,200 to 33,600	Brazos, San Jacinto-Brazos	No	Offsets some use of Brazos basin flows.	New facility may require some land clearing.	-1	1	1	1	0	0	0	0	0		2	No	Yes
Montgomery County MUD 8/9 Brackish Desal	Montgomery County MUDs 8 and 9	Development of a brackish groundwater desalination facility that would supplement existing wells, reducing dependence on fresh water formations of the Gulf Coast Aquifer.	TBD	TBD		2010 (2014)	Up to 2,240 acre-feet per year (average 2.0 MGD)	San Jacinto	No	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	No	No
Sabine to Region H Transfer	Harris / Montgomery Counties	Transfer existing supply from Toledo Bend Reservoir to Region H.	$760,813,320	Dependent on volume that would be allocated if selected as an alternative.	Y	2030	From 26,762 (2020) to 486,500 (2060)	Sabine to San Jacinto	Yes	Potential introduction of invasive species / Reduction of freshwater inflows to Sabine Lake	1398-acres	0	1	-1	0	-1	-1	-1	-1	1		-3	NA	No
Galveston County Desal	GCWA		TBD	TBD				San Jacinto-Brazos			Unknown	-1	0	1	1	0	0	0	0	0		1	No	No

Attachment D:

Amended Table 4A-6: Decadal WMS Summary

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Region H
Table 4A-6: Decadal WMS Summary

WMS	Starting Decade	Project Volume (ac-ft/yr)						WWP Capital Cost ($)						WUG Capital Cost ($)					
		2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060
Conservation Strategies:																			
Industrial Conservation	2010							$0	$0	$0	$0	$0	$0						
Irrigation Conservation	2010	71,275	71,275	71,275	71,275	77,881	77,881	$0	$0	$0	$0	$0	$0	$752,268	$0	$0	$0	$1,153	$4,015
Municipal Conservation	2010	45,605	65,318	75,696	84,503	94,392	105,494	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contractual Strategies:																			
Expand/Increase Current Contracts	2010	7,750	142,599	100,714	86,446	77,143	66,367	$0	$0	$0	$0	$0	$0			See WUG Contracts			
New Contracts from Existing Supplies	2010	36,847	48,370	58,730	77,694	80,570	83,558	$0	$0	$0	$0	$0	$0			See WUG Contracts			
Reallocation of Existing Supplies	2010							$0	$0	$0	$0	$0	$0			See WUG Contracts			
TRA to SJRA Contract	2040	0	0	0	7,935	39,096	76,476	$0	$0	$0	$302,781,597	$0	$0			See WUG Contracts			
TRA to Houston Contract	2030	0	0	116,738	123,524	123,524	123,524	See Luce Bayou								See WUG Contracts			
WUG-Level Contracts[1]	2010			N/A				$0	$0	$0	$0	$0	$0	$350,454,499	$671,560,117	$367,706,601	$368,720,609	$288,157,583	$343,673,748
WWP Contracts	2010			N/A				$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Groundwater Strategies:																			
Expanded Use of Groundwater	2010	0	40,159	62,297	68,916	80,337	90,617	$0	$0	$0	$0	$0	$0	$0	$59,415,362	$40,583,127	$21,583,224	$21,103,733	$23,243,553
Interim Strategies	2010	45,512	0	0	0	0	0	$0	$0	$0	$0	$0	$0	$86,701,535	$0	$0	$0	$0	$0
New Groundwater Wells for Livestock	2020	0	41	41	41	41	41	$0	$0	$0	$0	$0	$0	$0	$18,635	$0	$0	$0	$0
Groundwater Reduction Plans:																			
CHCRWA GRP	2010	2,375	4,146	4,789	4,806	4,806	4,806	See CHCRWA Trans.						$0	$0	$0	$0	$0	$0
COH GRP	2010			TBD				See COH Treatment						$8,836,520	$17,799,888	$12,253,354	$7,276,113	$6,014,466	$6,055,532
City of Missouri City GRP	2010	0	5,182	9,431	13,149	13,149	17,562	$0	$51,260,490	$40,810,500	$0	$0	$0	$0	$2,358,074	$2,025,087	$1,630,399	$544,508	$60,638
Fort Bend MUD 25 GRP	2020 (2013)	0	589	589	589	589	589	$0	$0	$0	$0	$0	$0	$0	$776,145	$0	$0	$0	$0
Fort Bend WCID 2 GRP	2020 (2013)	0	2,296	5,753	5,753	5,753	5,753	$0	$10,631,491	$7,098,683	$7,098,683	$0	$0	$0	$0	$0	$0	$0	$0
NFBWA GRP[2]	2020 (2013)	35,009	61,021	70,363	84,943	96,103	106,402	See NFBWA Trans.						$0	$249,735	$358,017	$87,191	$533,359	$409,761
NHCRWA GRP[2]	2010	34,714	91,167	117,755	99,625	81,126	117,755	See NHCRWA Trans.						$1,780,852	$4,837,262	$2,797,086	$2,909,781	$2,373,851	$3,115,753
Pecan Grove GRP	2020 (2013)	866	866	1,731	1,731	1,731	1,731	$0	$0	$0	$0	$0	$0	$15,960,000	$0	$0	$0	$0	$0
Richmond/Rosenberg GRP	2020 (2013)	7,500	7,500	7,500	7,500	7,500	7,500	$0	$43,205,325	$29,963,475	$29,897,900	$0	$14,153,450	$0	$0	$0	$0	$0	$0
River Plantation GRP	2010	168	368	368	368	368	368	$0	$0	$0	$0	$0	$0	$221,379	$263,547	$0	$0	$0	$0
SJRA WRAP[3]	2020 (2013)	0	36,377	55,538	62,517	92,677	129,010	$0	$380,000,000	$180,000,000	$200,000,000	$140,000,000	$0	$0	$67,254,547	$53,629,599	$33,814,326	$31,902,735	$31,255,646
Sugar Land GRP	2020 (2013)	0	1,587	7,987	8,656	8,915	9,796	$0	$82,825,000	$78,535,049	$0	$0	$0	$0	$1,130,682	$2,868,604	$1,726,810	$574,465	$59,540
WHCRWA GRP[2]	2010	21,678	52,274	66,761	73,196	75,985	78,839	See WHCRWA Trans						$5,832,511	$11,987,019	$5,649,170	$3,774,316	$3,888,105	$4,137,849
Infrastructure Strategies:																			
BWA Bracksh Groundwater	2020	0	3,136	3,136	3,136	3,136	3,136	$0	$30,570,395	$0	$0	$0	$0	N/A	N/A	N/A	N/A	N/A	N/A
BWA Plant Expansion	2020	0	8,400	8,400	8,400	8,400	8,400	$0	$14,359,419	$0	$0	$0	$0	N/A	N/A	N/A	N/A	N/A	N/A
CHCRWA Transmission Line	2010	2,375	4,146	4,789	4,806	4,806	4,806	$8,737,162	$0	$0	$0	$0	$0	N/A	N/A	N/A	N/A	N/A	N/A
CHCRWA Internal Distribution	2010	2,375	4,146	4,789	4,806	4,806	4,806	$11,283,234	$0	$0	$0	$0	$0	N/A	N/A	N/A	N/A	N/A	N/A
CLCND West Chambers System	2020 (2014)	0	1,700	2,000	2,200	2,500	2,800	$0	$20,380,000	$0	$0	$0	$0			See WUG Contracts			
COH Distribution Expansion	2010			TBD				$0	$229,390,000	$31,650,000	$0	$0	$0	N/A	N/A	N/A	N/A	N/A	N/A
COH Treatment Expansion	2010			Varies by decade				$66,895,529	$975,979,521	$446,248,855	$223,261,769	$166,643,243	$166,643,243	N/A	N/A	N/A	N/A	N/A	N/A
Harris County MUD 50 WTP	2020 (2013)	560	560	560	560	588	632	$0	$0	$0	$0	$0	$0	$6,131,600	$0	$0	$0	$0	$0
Huntsville WTP	2010	11,200	11,200	11,200	11,200	11,200	11,200	$61,023,906	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
LLWSSSC Surface Water Project	2010	954	954	954	954	954	954	$0	$0	$0	$0	$0	$0	$3,087,974	$0	$0	$0	$0	$0
Luce Bayou Transfer	2020	0	128,259	206,276	207,629	205,171	270,742	$0	$253,916,914	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NFBWA Internal Distribution	2020 (2013)	35,009	61,021	70,363	84,943	96,103	106,402	$74,000,000	$15,000,000	$106,000,000	$10,000,000	$10,000,000	$10,000,000	N/A	N/A	N/A	N/A	N/A	N/A
NFBWA Shared Transmission Line	2020 (2013)	0	21,878	39,405	52,595	62,606	71,876	$0	$14,000,000	$142,000,000	$57,000,000	$0	$0	N/A	N/A	N/A	N/A	N/A	N/A
NHCRWA Internal 2010 Distribution	2010	34,714	34,714	34,714	34,714	34,714	34,714	$153,149,640	$0	$0	$0	$0	$0	N/A	N/A	N/A	N/A	N/A	N/A
NHCRWA Internal 2020 Distribution	2020	0	91,167	91,167	91,167	91,167	91,167	$0	$345,292,192	$0	$0	$0	$0	N/A	N/A	N/A	N/A	N/A	N/A
NHCRWA Internal 2030 Distribution	2030	0	0	117,755	117,755	117,755	117,755	$0	$0	$37,439,584	$0	$0	$0	N/A	N/A	N/A	N/A	N/A	N/A
NHCRWA Transmission 2010	2010	34,714	34,714	34,714	34,714	34,714	34,714	$80,690,624	$0	$0	$0	$0	$0	N/A	N/A	N/A	N/A	N/A	N/A
NHCRWA Transmission 2020	2020	0	91,167	91,167	91,167	91,167	91,167	$0	$172,558,512	$0	$0	$0	$0	N/A	N/A	N/A	N/A	N/A	N/A
NHCRWA Transmission 2030	2030	0	0	117,755	117,755	117,755	117,755	$0	$0	$0	$0	$0	$0	N/A	N/A	N/A	N/A	N/A	N/A
Pearland SWTP	TBD	6,720	6,720	6,720	13,420	13,420	13,420	$0	$0	$0	$0	$0	$0	$46,500,000	$218,500,000	$0	$0	$0	$0
Sealy GW Treatment Expansion		0	360	360	360	360	888	$0	$0	$0	$0	$0	$0	$0	$6,450,000	$0	$0	$0	$0
WHCRWA Internal Distribution	2010	21,678	52,274	66,761	73,196	75,985	78,839	$135,309,000	$340,470,000	$76,693,000	$0	$0	$0	N/A	N/A	N/A	N/A	N/A	N/A
WHCRWA Transmission Line	2010	21,678	52,274	66,761	73,196	75,985	78,839	$45,110,193	$244,974,000	$0	$0	$0	$0	N/A	N/A	N/A	N/A	N/A	N/A
Reservoir Strategies:																			
Allens Creek Reservoir	2020	0	57,393	55,096	87,781	99,650	99,650	$0	$222,752,400	$0	$0	$0	$0			See WUG Contracts			
Brazoria County Off-channel Reservoir	2060	0	0	0	0	0	24,000	$0	$0	$0	$0	$0	$173,898,602			See WUG Contracts			
Dow OCR and PS Expansion	2020	0	80,000	80,000	80,000	80,000	80,000	$0	$226,837,000	$0	$0	$0	$0			See WUG Contracts			
Fort Bend County Off-channel Reservoir	2050	0	0	0	0	90	45,943	$0	$0	$0	$0	$202,514,788	$0			See WUG Contracts			
GCWA Off-channel Reservoir	2030	0	0	39,500	39,500	39,500	39,500	$0	$0	$197,448,012	$0	$0	$0			See WUG Contracts			
Reuse Strategies:																			
Fulshear Reuse	TBD	0	287	430	430	430	430	$0	$0	$0	$0	$0	$0	$0	$378,189	$188,436	$0	$0	$0
GCWA Reclaimed Water from COH	2018		56,896	56,896	56,896	56,896	56,896	$0	$66,840,500	$0	$0	$0	$0			See WUG Contracts			
Houston Indirect Reuse	2040	0	0	0	66,420	114,679	128,801	$0	$0	$0	$0	$0	$0	$0	$0	$0	$276,409,030	$239,326,921	$206,086,899
Montgomery MUD 8/9 Indirect Reuse	2016	0	657	816	1,120	1,120	1,120	$0	$0	$0	$0	$0	$0	$0	$7,171,477	$1,743,456	$3,330,754	$0	$0
NHCRWA Indirect Reuse	2040	0	0	0	7,300	16,300	16,300	$0	$0	$0	$0	$0	$0	$0	$0	$0	$32,223,510	$34,555,184	$0
Wastewater Reuse for Industry	2060	0	0	0	0	0	67,200	$0	$0	$0	$0	$0	$332,051,761	$0	$0	$0	$0	$0	$0
Wastewater Reclamation for Mun. Irrigation	2030	0	0	7,272	15,425	25,561	36,388	$0	$0	$0	$0	$0	$0	$0	$0	$9,582,558	$10,837,039	$13,363,138	$14,260,514
Permit Strategies:																			
BRA System Operations Permit	2020	0	6,621	18,870	25,350	25,350	25,350	TBD								See WUG Contracts			
Houston Bayous Permit*	2020	0	0	0	0	0	0	$0	$20,956,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other Strategies:																			
Brazoria Co. Interruptible Supplies for Irr.	2010	104,977	86,759	64,000	64,000	64,000	64,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Freeport Desalination Plant		0	0	0	0	33,600	33,600	$0	$0	$0	$255,699,000	$0	$0			See WUG Contracts			
Brazos Saltwater Barrier	2030			N/A				$0	$44,470,739	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Alternative Strategies:																			
Sabine to Region H Transfer	2030			N/A - Up to 486,500 ac-ft				$0	$0	$760,813,320	$0	$0	$0	N/A	N/A	N/A	N/A	N/A	N/A
Little-River Off-Channel Reservoir	2040			N/A - Up to 27,225 ac-ft				$0	$0	$0	$137,356,000	$0	$0	N/A	N/A	N/A	N/A	N/A	N/A
Montgomery Co. MUD 8/9 Brackish Desal	2010			N/A - Up to 2,240 ac-ft				N/A	N/A	N/A	N/A	N/A	N/A	$12,000,000	$0	$0	$0	$0	$0

Attachment E:

Amended Technical Memorandum 4B-17: Transmission Line to CHCRWA Municipal WUG and WWP

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REGION H WATER MANAGEMENT STRATEGY ANALYSIS TECHNICAL MEMORANDUM

STRATEGY TITLE: Transmission Line to CHCRWA Municipal WUG and WWP

DATE: September 3, 2009

SUMMARY

STRATEGY DESCRIPTION: The transmission of Lake Houston surface water supplies via the Northeast Water Purification Plant (NEWPP) to the Central Harris County Regional Water Authority (CHCRWA) to meet projected shortages.

SUPPLY QUANTITY: Approximately 4,800 acre-feet per year (CHCRWA Portion Only). Note that this is not a new supply but rather represents conveyance of a volume reflected under other WMS.

SUPPLY SOURCE: Surface water from Lake Houston and Lake Livingston via NEWPP.

IMPLEMENTATION DECADE: 2010 – Greens Road Transmission line, Phase I and Major Distribution Infrastructure

TOTAL STRATEGY COST: $8,737,162 capital cost, transmission
$11,283,234 capital cost, distribution

UNIT WATER COST: $78 per acre-foot for transmission
$101 per acre-foot for distribution

Water Management Strategy Analysis Description

Introduction:

The Authority was created in 2005 to prepare and implement a plan to construct and operate the necessary public water transmission facilities to convert an area in central Harris County, Texas, comprised of eleven (11) conservation and reclamation districts from groundwater to surface water. The Authority will wholesale treated surface water to connected participants. Surface water will be purchased from the City of Houston (COH) and is conveyed to participants' water plant facilities.

Analysis:

To meet the 2010 to 2019 water demands, the COH will provide a transmission line from the NEWPP to the intersection of the Sam Houston Toll Road (Beltway 8) and US 59 (Eastex Freeway). The North Harris County Regional Water Authority (NHCRWA) will connect at this point and construct its own transmission line. The transmission line will be a 60-inch diameter pipe traveling through easements north to Greens Road. At Greens Road, the pipeline will be constructed in the right-of-way of Greens Road. The pipeline would then turn north to meet the Spears Road Regional Pump Station, where the water will discharge into groundwater storage tanks at a proposed pump station. The 2020 through 2030 proposed transmission system, from the NEWPP to the proposed pump stations, will convey only water for wholesale customers within the NHCRWA.

CHCRWA is also responsible for the construction of a transmission line to the take point from the NHCRWA transmission line and secondary surface water transmission system to its member districts. In order to secure treated capacity, the CHCRWA will participate in the Northeast Water Purification Plant (NEWPP) for a portion equal to their need for treated surface water.

Water User Group Application:

The water conveyed into the San Jacinto River Basin through this strategy would meet all projected shortages in CHCRWA throughout the planning period. The Greens Road transmission line will be completed in a cost sharing program with North Harris County Regional Water Authority. The preliminary estimate of capital costs are shown in *Tables 1* and *2*. Costs for engineering, financial, and legal services, land acquisition, and environmental costs are assumed to be included in the capital cost provided by the strategy sponsor.

Table 1
CHCRWA Transmission Cost Summary

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
PROJECT COST SUMMARY					
1	CONSTRUCTION (CAPITAL) COST	1	LS	$8,030,000	$8,030,000
2	ENGINEERING, FINANCIAL, AND LEGAL SERVICES AND CONTINGENCIES	1	LS	$0	$0
3	LAND AND EASEMENTS	1	LS	$0	$0
4	ENVIRONMENTAL - STUDIES AND MITIGATION	1	LS	$0	$0
5	INTEREST DURING CONSTRUCTION	1	LS	$707,162	$707,162
	PROJECT COST				**$8,737,162**

ITEM	DESCRIPTION	ANNUAL TOTAL					
ANNUAL COST SUMMARY		**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
1	DEBT SERVICE	$761,746	$761,746	$0	$0	$0	$0
2	OPERATION AND MAINTENANCE (O&M)	$80,300	$80,300	$80,300	$80,300	$80,300	$80,300
3	PUMPING ENERGY COSTS	$0	$0	$0	$0	$0	$0
4	PURCHASE COST OF WATER	$0	$0	$0	$0	$0	$0
	TOTAL ANNUAL COST	**$842,046**	**$842,046**	**$80,300**	**$80,300**	**$80,300**	**$80,300**

ITEM	DESCRIPTION	ANNUAL TOTAL					
ANNUAL COST SUMMARY		**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
1	ANNUAL COST	$842,046	$842,046	$80,300	$80,300	$80,300	$80,300
2	YIELD	2,375	4,146	4,789	4,806	4,806	4,806
3	UNIT COST	$355	$203	$17	$17	$17	$17
	TOTAL UNIT COST						**$78**

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
CONSTRUCTION COST SUMMARY					
1	PIPELINES	1	LS	$8,030,000	$8,030,000
	PROJECT COST				**$8,030,000**

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
OPERATION AND MINTENANCE (O&M) COST SUMMARY					
1	PIPELINES	1.0	%	$8,030,000	$80,300
	ANNUAL OPERATION AND MAINTENANCE COST				**$80,300**

Table 2
CHCRWA Distribution Cost Summary

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
PROJECT COST SUMMARY					
1	CONSTRUCTION (CAPITAL) COST	1	LS	$10,370,000	$10,370,000
2	ENGINEERING, FINANCIAL, AND LEGAL SERVICES AND CONTINGENCIES	1	LS	$0	$0
3	LAND AND EASEMENTS	1	LS	$0	$0
4	ENVIRONMENTAL - STUDIES AND MITIGATION	1	LS	$0	$0
5	INTEREST DURING CONSTRUCTION	1	LS	$913,234	$913,234
	PROJECT COST				**$11,283,234**

ITEM	DESCRIPTION	ANNUAL TOTAL					
ANNUAL COST SUMMARY		**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
1	DEBT SERVICE	$983,724	$983,724	$0	$0	$0	$0
2	OPERATION AND MAINTENANCE (O&M)	$103,700	$103,700	$103,700	$103,700	$103,700	$103,700
3	PUMPING ENERGY COSTS	$0	$0	$0	$0	$0	$0
4	PURCHASE COST OF WATER	$0	$0	$0	$0	$0	$0
	TOTAL ANNUAL COST	**$1,087,424**	**$1,087,424**	**$103,700**	**$103,700**	**$103,700**	**$103,700**

ITEM	DESCRIPTION	ANNUAL TOTAL					
ANNUAL COST SUMMARY		**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
1	ANNUAL COST	$1,087,424	$1,087,424	$103,700	$103,700	$103,700	$103,700
2	YIELD	2,375	4,146	4,789	4,806	4,806	4,806
3	UNIT COST	$458	$262	$22	$22	$22	$22
	TOTAL UNIT COST						**$101**

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
CONSTRUCTION COST SUMMARY					
1	PIPELINES	1	LS	$10,370,000	$10,370,000
	PROJECT COST				**$10,370,000**

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
OPERATION AND MINTENANCE (O&M) COST SUMMARY					
1	PIPELINES	1.0	%	$10,370,000	$103,700
	ANNUAL OPERATION AND MAINTENANCE COST				**$103,700**

Issues and Considerations:

Although the supply infrastructure (Lake Houston via NEWPP) is in place, the conveyance required for this transfer is not. The NHCRWA transmission lines or similar transmission lines must be constructed to move this supply into the San Jacinto River Basin.

References:

North Harris County Regional Water Authority Groundwater Reduction Plan, Central Harris County Regional Water Authority, May 2003

"Texas Water Development Board Approves $22,050,000 Loan to the Central Harris County Regional Water Authority for Water Project Construction." TWDB Press Release, http://www.twdb.state.tx.us, March 25, 2008, accessed July 9, 2009.

Attachment F:

Amended Table 4C-1: WWP-Level Project Costs

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Region H
Table 4C-1: WWP-Level Project Cost

	Source Identifiers								Capital Costs ($)					
WMS	Source Name	Source RWPG	Source Basin	Source County	Source ID	Source Basin ID	ID + Basin	Sponsor / Purchaser WWP	2010	2020	2030	2040	2050	2060
Contractual Strategies														
BRA to Brazosport Water Authority Contract - Allens Creek	ALLENS CREEK LAKE/RESERVOIR	H	BRAZOS	RESERVOIR	12900	12	1290012	BRAZOSPORT WATER AUTHORITY	$0	$0	$0	$0	$0	$0
BRA to GCWA Contract - Allens Creek	ALLENS CREEK LAKE/RESERVOIR	H	BRAZOS	RESERVOIR	12900	12	1290012	GULF COAST WATER AUTHORITY	$0	$0	$0	$0	$0	$0
BRA to GCWA Contract - Brazos Main Stem System	BRAZOS RIVER AUTHORITY MAIN STEM STYSTEM	G	BRAZOS	RESERVOIR	120E0	12	120E012	GULF COAST WATER AUTHORITY	$0	$0	$0	$0	$0	$0
BRA to GCWA Contract - Fort Bend OCR	FORT BEND OCR	H	BRAZOS	RESERVOIR	FBCOCR	12	FBCOCR12	GULF COAST WATER AUTHORITY	$0	$0	$0	$0	$0	$0
BRA to GCWA Contract - SysOps Supply	BRA SYSTEM OPERATIONS PERMIT	H	BRAZOS	RESERVOIR	120B0	12	120B012	GULF COAST WATER AUTHORITY	$0	$0	$0	$0	$0	$0
BRA to NRG Contract - Fort Bend OCR	FORT BEND OCR	H	BRAZOS	RESERVOIR	FBCOCR	12	FBCOCR12	NRG	$0	$0	$0	$0	$0	$0
BRA to Richmond-Rosenberg Contract - Allens Creek	ALLENS CREEK LAKE/RESERVOIR	H	BRAZOS	RESERVOIR	12900	12	1290012	RICHMOND-ROSENBERG	$0	$0	$0	$0	$0	$0
BRA to Richmond-Rosenberg Contract - Fort Bend OCR	FORT BEND OCR	H	BRAZOS	RESERVOIR	FBCOCR	12	FBCOCR12	RICHMOND-ROSENBERG	$0	$0	$0	$0	$0	$0
BRA to Sugar Land -Allens Creek	ALLENS CREEK LAKE/RESERVOIR	H	BRAZOS	RESERVOIR	12900	12	1290012	SUGAR LAND	$0	$0	$0	$0	$0	$0
BRA to Sugar Land -Fort Bend OCR	FORT BEND OCR	H	BRAZOS	RESERVOIR	FBCOCR	12	FBCOCR12	SUGAR LAND	$0	$0	$0	$0	$0	$0
BRA to Sugar Land - SysOps Supply	BRA SYSTEM OPERATIONS PERMIT	H	BRAZOS	RESERVOIR	120B0	12	120B012	SUGAR LAND	$0	$0	$0	$0	$0	$0
COH to Baytown Area Water Authority - Lake Livingston	LIVINGSTON-WALLISVILLE SYSTEM	H	TRINITY	RESERVOIR	084H0	08	084H008	BAYTOWN AREA WATER AUTHORITY	$0	$0	$0	$0	$0	$0
COH to BRA Contract - Allens Creek	ALLENS CREEK LAKE/RESERVOIR	H	BRAZOS	RESERVOIR	12900	12	1290012	BRAZOS RIVER AUTHORITY	$0	$0	$0	$0	$0	$0
COH to CHCRWA Contract - Lake Houston	HOUSTON LAKE/RESERVOIR	H	SAN JACINTO	RESERVOIR	10030	10	1003010	CHCRWA	$0	$0	$0	$0	$0	$0
COH to CHCRWA Contract - Lake Livingston	LIVINGSTON-WALLISVILLE SYSTEM	H	TRINITY	RESERVOIR	084H0	08	084H008	CHCRWA	$0	$0	$0	$0	$0	$0
COH to City of Pasadena Contract - Lake Livingston	LIVINGSTON-WALLISVILLE SYSTEM	H	TRINITY	RESERVOIR	084H0	08	084H008	CITY OF PASADENA	$0	$0	$0	$0	$0	$0
COH to GCWA Contract	INDIRECT REUSE HARRIS COUNTY	H	SAN JACINTO	HARRIS	3510101	10	351010110	GULF COAST WATER AUTHORITY	$0	$0	$0	$0	$0	$0
COH to NFBWA Contract - Lake Livingston	LIVINGSTON-WALLISVILLE SYSTEM	H	TRINITY	RESERVOIR	084H0	08	084H008	NFBWA	$0	$0	$0	$0	$0	$0
COH to NHCRWA Contract - Houston Indirect Reuse	HOUSTON INDIRECT REUSE	H	SAN JACINTO	HARRIS	3510101	10	351010110	NHCRWA	$0	$0	$0	$0	$0	$0
COH to NHCRWA Contract - Lake Houston	HOUSTON LAKE/RESERVOIR	H	SAN JACINTO	RESERVOIR	10030	10	1003010	NHCRWA	$0	$0	$0	$0	$0	$0
COH to NHCRWA Contract - Lake Livingston	LIVINGSTON-WALLISVILLE SYSTEM	H	TRINITY	RESERVOIR	084H0	08	084H008	NHCRWA	$0	$0	$0	$0	$0	$0
COH to North Channel Water Authority Contract - Lake Livingston	LIVINGSTON-WALLISVILLE SYSTEM	H	TRINITY	RESERVOIR	084H0	08	084H008	NORTH CHANNEL WATER AUTHORITY	$0	$0	$0	$0	$0	$0
COH to SJRA Contract - Lake Conroe	CONROE LAKE/RESERVOIR	H	SAN JACINTO	RESERVOIR	10060	10	1006010	SAN JACINTO RIVER AUTHORITY	$0	$0	$0	$0	$0	$0
COH to WHCRWA Contract - Lake Livingston	LIVINGSTON-WALLISVILLE SYSTEM	H	TRINITY	RESERVOIR	084H0	08	084H008	WHCRWA	$0	$0	$0	$0	$0	$0
GCWA to City of Galveston Contract - Brazos Main Stem System	BRAZOS RIVER AUTHORITY MAIN STEM STYSTEM	G	BRAZOS	RESERVOIR	120E0	12	120E012	CITY OF GALVESTON	$0	$0	$0	$0	$0	$0
GCWA to City of Galveston Contract - Brazos Run-of-River	BRAZOS RIVER RUN-OF-RIVER	H	BRAZOS	FORT BEND	3461205322B	12	3461205322B12	CITY OF GALVESTON	$0	$0	$0	$0	$0	$0
GCWA to City of Galveston Contract - San Jacinto-Brazos Run-of-River	SAN JACINTO-BRAZOS RIVER RUN-OF-RIVER	H	SAN JACINTO-BRAZOS	BRAZORIA	3461105357A	11	3461105357A11	CITY OF GALVESTON	$0	$0	$0	$0	$0	$0
GCWA to Fort Bend County WCID #2 Contract - SysOps Supply	BRA SYSTEM OPERATIONS PERMIT	H	BRAZOS	RESERVOIR	120B0	12	120B012	FORT BEND COUNTY WCID #2	$0	$0	$0	$0	$0	$0
GCWA to Galveston County WCID #1 Contract - Allens Creek	ALLENS CREEK LAKE/RESERVOIR	H	BRAZOS	RESERVOIR	12900	12	1290012	GALVESTON COUNTY WCID #1	$0	$0	$0	$0	$0	$0
GCWA to Galveston County WCID #1 Contract - Brazos Main Stem System	BRAZOS RIVER AUTHORITY MAIN STEM STYSTEM	G	BRAZOS	RESERVOIR	120E0	12	120E012	GALVESTON COUNTY WCID #1	$0	$0	$0	$0	$0	$0
GCWA to Galveston County WCID #1 Contract - Brazos Run-of-River	BRAZOS RIVER RUN-OF-RIVER	H	BRAZOS	FORT BEND	3461205322B	12	3461205322B12	GALVESTON COUNTY WCID #1	$0	$0	$0	$0	$0	$0
GCWA to Galveston County WCID #1 Contract - San Jacinto-Brazos Run-of-River	SAN JACINTO-BRAZOS RIVER RUN-OF-RIVER	H	SAN JACINTO-BRAZOS	BRAZORIA	3461105357A	11	3461105357A11	GALVESTON COUNTY WCID #1	$0	$0	$0	$0	$0	$0
GCWA to Missouri City Contract - Allens Creek	ALLENS CREEK LAKE/RESERVOIR	H	BRAZOS	RESERVOIR	12900	12	1290012	MISSOURI CITY	$0	$0	$0	$0	$0	$0
GCWA to Missouri City Contract - Fort Bend OCR	FORT BEND OCR	H	BRAZOS	RESERVOIR	FBCOCR	12	FBCOCR12	MISSOURI CITY	$0	$0	$0	$0	$0	$0
GCWA to Missouri City Contract - SysOps Supply	BRA SYSTEM OPERATIONS PERMIT	H	BRAZOS	RESERVOIR	120B0	12	120B012	MISSOURI CITY	$0	$0	$0	$0	$0	$0
SJRA to COH Contract - Lake Houston	HOUSTON LAKE/RESERVOIR	H	SAN JACINTO	RESERVOIR	10030	10	1003010	SAN JACINTO RIVER AUTHORITY	$0	$0	$0	$0	$0	$0
TRA to Houston Transfer	LIVINGSTON-WALLISVILLE SYSTEM	H	TRINITY	RESERVOIR	084H0	08	084H008	CITY OF HOUSTON	$0	$0	$0	$0	$0	$0
TRA to SJRA Transfer	LIVINGSTON-WALLISVILLE SYSTEM	H	TRINITY	RESERVOIR	084H0	08	084H008	SAN JACINTO RIVER AUTHORITY	$0	$0	$0	$302,781,597	$0	$0
Groundwater Reduction Plans														
CHCRWA GRP	Multiple	H	Multiple	Multiple	Multiple	Multiple	Multiple	CHCRWA	$0	$0	$0	$0	$0	$0
COH GRP	Multiple	Multiple	Multiple	Multiple	Multiple	Multiple	Multiple	CITY OF HOUSTON	$0	$0	$0	$0	$0	$0
Fort Bend WCID #2 GRP	BRA SYSTEM OPERATIONS PERMIT	H	BRAZOS	RESERVOIR	120B0	12	120B012	FORT BEND COUNTY WCID #2	$0	$10,631,491	$7,098,683	$7,098,683	$0	$0
NFBWA GRP	LIVINGSTON-WALLISVILLE SYSTEM	H	TRINITY	RESERVOIR	084H0	08	084H008	NFBWA	$0	$0	$0	$0	$0	$0
NHCRWA GRP	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NHCRWA	$0	$0	$0	$0	$0	$0
Missouri City GRP	Multiple	Multiple	Multiple	Multiple	Multiple	Multiple	Multiple	MISSOURI CITY	$0	$51,260,490	$40,810,500	$0	$0	$0
Richmond Rosenberg GRP (WFB SWTP)	BRAZOS RIVER AUTHORITY MAIN STEM STYSTEM	G	BRAZOS	RESERVOIR	120E0	12	120E012	RICHMOND-ROSENBERG	$0	$43,205,325	$29,963,475	$29,897,900	$0	$14,153,450
SJRA WRAP	Multiple	H	Multiple	Multiple	Multiple	Multiple	Multiple	SAN JACINTO RIVER AUTHORITY	$0	$380,000,000	$180,000,000	$200,000,000	$140,000,000	$0
Sugar Land GRP	Multiple	Multiple	Multiple	Multiple	Multiple	Multiple	Multiple	SUGAR LAND	$0	$82,825,000	$78,535,049	$0	$0	$0
WHCRWA GRP	LIVINGSTON-WALLISVILLE SYSTEM	H	TRINITY	RESERVOIR	084H0	08	084H008	WHCRWA	$0	$0	$0	$0	$0	$0
Reservoir Strategies														
GCWA Reclaimed Water from COH	INDIRECT REUSE HARRIS COUNTY	H	SAN JACINTO	HARRIS	3510101	10	351010110	GULF COAST WATER AUTHORITY	$0	$66,840,044	$0	$0	$0	$0
Allens Creek Reservoir	ALLENS CREEK LAKE/RESERVOIR	H	BRAZOS	RESERVOIR	12900	12	1290012	BRAZOS RIVER AUTHORITY / CITY OF HOUSTON	$0	$222,752,400	$0	$0	$0	$0
Brazoria Off-Channel Reservoir	BRAZORIA OCR	H	BRAZOS	RESERVOIR	BRAOCR	12	BRAOCR12	BRAZOS RIVER AUTHORITY	$0	$0	$0	$0	$0	$173,898,602
Dow Off-Channel Reservoir and Pump Station Expansion	DOW OCR AND PS EXPANSION	H	BRAZOS	RESERVOIR	DOWOCR	12	DOWOCR12	THE DOW CHEMICAL CO.	$0	$226,837,000	$0	$0	$0	$0
Fort Bend Off-Channel Reservoir	FORT BEND OCR	H	BRAZOS	RESERVOIR	FBCOCR	12	FBCOCR12	BRAZOS RIVER AUTHORITY	$0	$0	$0	$0	$202,514,788	$0
GCWA Off-Channel Reservoir	GCWA OFFCHANNEL RESERVOIR	H	SAN JACINTO-BRAZOS	RESERVOIR	GCWAOC	11	GCWAOC11	GULF COAST WATER AUTHORITY	$0	$0	$197,448,012	$0	$0	$0
Reuse Strategies														
Wastewater Reuse for Industry	WASTEWATER REUSE FOR INDUSTRY	H	SAN JACINTO	HARRIS	3610101	10	361010110	CITY OF HOUSTON	$0	$0	$0	$0	$0	$332,051,761
Permit / Other Strategies														
BRA System Operations Permit	BRA SYSTEM OPERATIONS PERMIT	H	BRAZOS	RESERVOIR	120B0	12	120B012	BRAZOS RIVER AUTHORITY	$0	$0	$0	$0	$0	$0
Freeport Desalination	GULF OF MEXICO SEA WATER	H	GULF	RESERVOIR	4124999	24	412499924	BRAZOS RIVER AUTHORITY	$0	$0	$0	$255,699,000	$0	$0
Houston Bayous Permit	SAN JACINTO RUN-OF-RIVER HOUSTON BAYOUS	H	SAN JACINTO	HARRIS	34UNPERMITTED	10	34UNPERMITTED10	CITY OF HOUSTON	$0	$20,956,000	$0	$0	$0	$0
Infrastructure Strategies														
BWA Brackish Groundwater	GULF COAST AQUIFER	H	BRAZOS	BRAZORIA	2015	12	201512	BRAZOSPORT WATER AUTHORITY	$0	$30,570,395	$0	$0	$0	$0
BWA Plant Expansion	BRAZOS RIVER RUN-OF-RIVER	H	BRAZOS	BRAZORIA	3461205366	12	346120536612	BRAZOSPORT WATER AUTHORITY	$0	$14,359,419	$0	$0	$0	$0
Brazos Saltwater Barrier	BRAZOS RIVER AUTHORITY MAIN STEM STYSTEM	G	BRAZOS	RESERVOIR	120E0	12	120E012	BRAZOS RIVER AUTHORITY	$0	$44,470,739	$0	$0	$0	$0
CHCRWA Transmission	Multiple	H	Multiple	Multiple	Multiple	Multiple	Multiple	CHCRWA	$8,737,162	$0	$0	$0	$0	$0
CHCRWA Internal Distribution	Multiple	H	Multiple	Multiple	Multiple	Multiple	Multiple	CHCRWA	$11,283,234	$0	$0	$0	$0	$0
CLCND West Chambers County System	TRINITY RIVER RUN-OF-RIVER	H	TRINITY	CHAMBERS	3460804279B	08	3460804279B08	CHAMBERS LIBERTY COUNTIES NAVIGATIONAL DISTRICT	$0	$20,380,000	$0	$0	$0	$0
COH Treatment Expansion	N/A	N/A	N/A	N/A	N/A	N/A	N/A	CITY OF HOUSTON	$66,895,529	$975,979,521	$446,248,855	$223,261,769	$166,643,243	$166,643,243
COH Distribution Expansion	N/A	N/A	N/A	N/A	N/A	N/A	N/A	CITY OF HOUSTON	$0	$229,390,000	$31,650,000	$0	$0	$0
Huntsville WTP	N/A	N/A	N/A	N/A	N/A	N/A	N/A	CITY OF HUNTSVILLE	$61,023,906	$0	$0	$0	$0	$0
Luce Bayou	LIVINGSTON-WALLISVILLE SYSTEM	H	TRINITY	RESERVOIR	084H0	08	084H008	CITY OF HOUSTON	$0	$253,916,914	$0	$0	$0	$0
NFBWA 2025 Shared Transmission (w/ WHCRWA)	LIVINGSTON-WALLISVILLE SYSTEM	H	TRINITY	RESERVOIR	084H0	08	084H008	NFBWA	$0	$14,000,000	$142,000,000	$57,000,000	$0	$0
NFBWA Internal Distribution	LIVINGSTON-WALLISVILLE SYSTEM	H	TRINITY	RESERVOIR	084H0	08	084H008	NFBWA	$74,000,000	$15,000,000	$106,000,000	$10,000,000	$10,000,000	$10,000,000
NHCRWA Internal 2010 Distribution	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NHCRWA	$153,149,640	$0	$0	$0	$0	$0
NHCRWA Internal 2020 Distribution	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NHCRWA	$0	$345,292,192	$0	$0	$0	$0
NHCRWA Internal 2030 Distribution	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NHCRWA	$0	$0	$37,439,584	$0	$0	$0
NHCRWA Transmission 2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NHCRWA	$80,690,624	$0	$0	$0	$0	$0
NHCRWA Transmission 2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NHCRWA	$0	$172,558,512	$0	$0	$0	$0
NHCRWA Transmission 2030	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NHCRWA	$0	$0	$0	$0	$0	$0
WHCRWA Internal Distribution	LIVINGSTON-WALLISVILLE SYSTEM	H	TRINITY	RESERVOIR	084H0	08	084H008	WHCRWA	$135,309,000	$340,470,000	$76,693,000	$0	$0	$0
WHCRWA 2020 Shared Transmission (w/ NFBWA)	LIVINGSTON-WALLISVILLE SYSTEM	H	TRINITY	RESERVOIR	084H0	08	084H008	WHCRWA	$45,110,193	$244,974,000	$0	$0	$0	$0
Alternative Strategies														

Region H
Table 4C-1: WWP-Level Project Cost

WMS	Total Capital Cost	Total Annual Costs ($/year) 2010	2020	2030	2040	2050	2060	Source	Notes
Contractual Strategies									
BRA to Brazosport Water Authority Contract - Allens Creek	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
BRA to GCWA Contract - Allens Creek	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
BRA to GCWA Contract - Brazos Main Stem System	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
BRA to GCWA Contract - Fort Bend OCR	$0	$0	$0	$0	$0	$0	$0		
BRA to GCWA Contract - SysOps Supply	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
BRA to NRG Contract - Fort Bend OCR	$0	$0	$0	$0	$0	$0	$0		
BRA to Richmond-Rosenberg Contract - Allens Creek	$0	$0	$0	$0	$0	$0	$0		
BRA to Richmond-Rosenberg Contract - Fort Bend OCR	$0	$0	$0	$0	$0	$0	$0		
BRA to Sugar Land -Allens Creek	$0	$0	$0	$0	$0	$0	$0		
BRA to Sugar Land -Fort Bend OCR	$0	$0	$0	$0	$0	$0	$0		
BRA to Sugar Land - SysOps Supply	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
COH to Baytown Area Water Authority - Lake Livingston	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
COH to BRA Contract - Allens Creek	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
COH to CHCRWA Contract - Lake Houston	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
COH to CHCRWA Contract - Lake Livingston	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
COH to City of Pasadena Contract - Lake Livingston	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
COH to GCWA Contract	$0	$0	$0	$0	$0	$0	$0	Region H 2016 RWP analysis	Costs listed under GCWA Reclaimed Water from COH WMS.
COH to NFBWA Contract - Lake Livingston	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
COH to NHCRWA Contract - Houston Indirect Reuse	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
COH to NHCRWA Contract - Lake Houston	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
COH to NHCRWA Contract - Lake Livingston	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
COH to North Channel Water Authority Contract - Lake Livingston	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
COH to SJRA Contract - Lake Conroe	$0	$0	$0	$0	$0	$0	$0		
COH to WHCRWA Contract - Lake Livingston	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
GCWA to City of Galveston Contract - Brazos Main Stem System	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
GCWA to City of Galveston Contract - Brazos Run-of-River	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
GCWA to City of Galveston Contract - San Jacinto-Brazos Run-of-River	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
GCWA to Fort Bend County WCID #2 Contract - SysOps Supply	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
GCWA to Galveston County WCID #1 Contract - Allens Creek	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
GCWA to Galveston County WCID #1 Contract - Brazos Main Stem System	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
GCWA to Galveston County WCID #1 Contract - Brazos Run-of-River	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
GCWA to Galveston County WCID #1 Contract - San Jacinto-Brazos Run-of-River	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
GCWA to Missouri City Contract - Allens Creek	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
GCWA to Missouri City Contract - Fort Bend OCR	$0	$0	$0	$0	$0	$0	$0		
GCWA to Missouri City Contract - SysOps Supply	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
SJRA to COH Contract - Lake Houston	$0	$0	$0	$0	$0	$0	$0	Region H 2011 RWP	No cost as infrastructure reflected under other strategies. Raw water cost not assumed.
TRA to Houston Transfer	$0	$0	$0	$0	$0	$0	$0	Region H RWP Tech Memo	Strategy cost associated with Luce Bayou
TRA to SJRA Transfer	$302,781,597	$0	$0	$0	$37,101,862	$37,101,862	$10,703,983	Region H RWP Tech Memo	Cost associated with development of conveyance infrastructure.
Groundwater Reduction Plans									
CHCRWA GRP	$0	$0	$0	$0	$0	$0	$0	IDS Engineering Group	No cost as volume and treatment / distribution is associated with other strategies.
COH GRP	$0	$0	$0	$0	$0	$0	$0	Region H RWP Tech Memo - Treatment	No cost as volume and treatment / distribution is associated with other strategies.
Fort Bend WCID #2 GRP	$24,828,857	$0	$1,310,164	$2,312,320	$2,387,576	$1,768,681	$1,149,785	FBC WCID 2 GRP	Annual O&M includes electic cost
NFBWA GRP	$0	$0	$0	$0	$0	$0	$0	NFBWA GRP	No cost as volume and treatment / distribution is associated with other strategies.
NHCRWA GRP	$0	$0	$0	$0	$0	$0	$0	NHCRWA GRP	No cost as volume and treatment / distribution is associated with other strategies.
Missouri City GRP	$92,070,990	$0	$5,750,635	$10,328,943	$5,859,820	$2,301,775	$2,301,775	Missouri City GRP	Annual O&M cost assumed as 2.5% of project capital cost. No annual energy cost assumed due to limited information.
Richmond Rosenberg GRP (WFB SWTP)	$117,220,150	$0	$6,652,597	$13,441,309	$16,083,787	$13,471,435	$17,440,442	West FBC Regional SWTP PER	
SJRA WRAP	$900,000,000	$0	$42,630,132	$62,823,352	$52,130,132	$52,142,749	$34,705,838	SJRA WRAP Part 2	Annual costs beyond debt service estimated from SJRA WRAP Part II. O&M costs include electricity.
Sugar Land GRP	$161,360,049	$0	$17,561,104	$17,561,104	$3,493,000	$3,493,000	$3,493,000	Sugar Land CIP, Sugar Land GRP	Assuming O&M constant after 2014. No annual energy cost assumed due to limited information.
WHCRWA GRP	$0	$0	$0	$0	$0	$0	$0	WHCRWA Summary	No cost as volume and treatment / distribution is associated with other strategies.
Reservoir Strategies									
GCWA Reclaimed Water from COH	$66,840,044	$0	$7,912,181	$7,912,181	$2,319,051	$2,319,051	$2,319,051	Region H 2016 RWP analysis	
Allens Creek Reservoir	$222,752,400	$0	$18,706,144	$18,706,144	$18,706,144	$18,706,144	$3,901,678	Region H RWP Tech Memo	
Brazoria Off-Channel Reservoir	$173,898,602	$0	$0	$0	$0	$0	$28,951,707		
Dow Off-Channel Reservoir and Pump Station Expansion	$226,837,000	$0	$20,306,000	$20,306,000	$20,306,000	$14,405,000	$14,405,000	Dow and HDR, Inc.	
Fort Bend Off-Channel Reservoir	$202,514,788	$0	$0	$0	$0	$43,566,686	$43,566,686		
GCWA Off-Channel Reservoir	$197,448,012	$0	$0	$32,678,970	$32,678,970	$32,678,970	$32,678,970	Region H 2011 RWP	
Reuse Strategies									
Wastewater Reuse for Industry	$332,051,761	$0	$0	$0	$0	$0	$60,010,614	Region H RWP Tech Memo	
Permit / Other Strategies									
BRA System Operations Permit	$0	$0	$0	$0	$0	$0	$0	HDR, Inc.	
Freeport Desalination	$255,699,000	$0	$0	$0	$28,685,479	$28,685,479	$6,392,475	Region H 2011 RWP	Assuming O&M as 2.5 percent of capital cost. No annual energy cost assumed due to limited information.
Houston Bayous Permit	$20,956,000	$0	$1,827,040	$1,827,040	$0	$0	$0	Region H RWP Tech Memo	
Infrastructure Strategies									
BWA Brackish Groundwater	$30,570,395	$0	$5,735,790	$5,735,790	$3,177,681	$3,177,681	$3,177,681	CDM Smith	Based on anticipated operation.
BWA Plant Expansion	$14,359,419	$0	$3,274,279	$3,274,279	$2,072,693	$2,072,693	$2,072,693	SDM Smith	Based on peak capacity.
Brazos Saltwater Barrier	$44,470,739	$0	$4,988,930	$4,988,930	$1,111,768	$1,111,768	$1,111,768	Region H RWP Tech Memo	Annual O&M cost assumed as 2.5% of project capital cost. No annual energy cost assumed due to limited information.
CHCRWA Transmission	$0	$842,046	$842,046	$80,300	$80,300	$80,300	$80,300	IDS Engineering Group	Annual O&M cost assumed as 1.0% of project capital cost. No annual energy cost assumed due to limited information.
CHCRWA Internal Distribution	$0	$1,087,424	$1,087,424	$103,700	$103,700	$103,700	$103,700	IDS Engineering Group	Annual O&M cost assumed as 1.0% of project capital cost. No annual energy cost assumed due to limited information.
CLCND West Chambers County System	$20,380,000	$0	$1,980,621	$1,980,621	$203,800	$203,800	$203,800	CLCND Funding App	Annual O&M cost assumed as 1.0% of project capital cost. No annual energy cost assumed due to limited information.
COH Treatment Expansion	$2,045,672,161	$7,670,034	$121,707,226	$168,015,257	$109,009,300	$89,583,305	$89,598,340	Estimated using Reg H procedures	Energy costs not assumed due to limited data.
COH Distribution Expansion	$261,040,000	$0	$22,293,166	$25,369,057	$5,369,791	$2,610,400	$2,610,400	No data available	Not enough data available to estimate costs at this time.
Huntsville WTP	$61,023,906	$10,120,710	$10,120,710	$4,800,368	$4,800,368	$4,800,368	$4,800,368	Standard Region H assumptions	Annual O&M cost assumed as 2.5% of project capital cost. Assumes 10 MGD plant and pump station capacity.
Luce Bayou	$253,916,914	$0	$31,798,394	$31,798,394	$9,660,760	$9,660,760	$9,660,760	Luce Bayou Alternatives Analysis	O&M and electric scaled using CCI
NFBWA 2025 Shared Transmission (w/ WHCRWA)	$213,000,000	$0	$1,220,584	$13,600,791	$17,349,727	$4,969,520	$0	NFBWA Table from BGE	O&M costs not included as they include part of COH infrastructure O&M. No annual energy cost assumed due to limited information.
NFBWA Internal Distribution	$225,000,000	$6,451,657	$7,759,425	$10,549,331	$10,113,409	$1,743,692	$1,743,692	NFBWA Table from BGE	O&M costs not included as they include part of COH infrastructure O&M. No annual energy cost assumed due to limited information.
NHCRWA Internal 2010 Distribution	$153,149,640	$14,883,780	$14,883,780	$1,531,496	$1,531,496	$1,531,496	$1,531,496		
NHCRWA Internal 2020 Distribution	$345,292,192	$0	$33,557,069	$33,557,069	$3,452,922	$3,452,922	$3,452,922		
NHCRWA Internal 2030 Distribution	$37,439,584	$0	$0	$3,638,549	$3,638,549	$374,396	$374,396		
NHCRWA Transmission 2010	$80,690,624	$7,841,883	$7,841,883	$806,906	$806,906	$806,906	$806,906		
NHCRWA Transmission 2020	$172,558,512	$0	$16,770,023	$16,770,023	$1,725,585	$1,725,585	$1,725,585		
NHCRWA Transmission 2030	$0	$0	$0	$0	$0	$0	$0		
WHCRWA Internal Distribution	$552,472,000	$13,149,945	$46,238,371	$41,894,891	$12,211,165	$5,524,720	$5,524,720	WHCRWA Summary	Annual O&M cost assumed as 1.0% of project capital cost. No annual energy cost assumed due to limited information.
WHCRWA 2020 Shared Transmission (w/ NFBWA)	$290,084,193	$4,384,014	$28,191,704	$24,258,792	$2,900,842	$2,900,842	$2,900,842	WHCRWA Summary	Annual O&M cost assumed as 1.0% of project capital cost. No annual energy cost assumed due to limited information.
Alternative Strategies									

Attachment G:

Summary of database entries anticipated for DB12

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DB12 Entries: CHCRWA Transmission Line and CHCRWA Internal Distribution

WMS Project

Sponsor Region:	H
WMS Project ID:	H23-CHCTRN
WMS Project Name:	CHCRWA TRANSMISSION LINE
WMS Description:	CHCRWA transmission line
WMS Type:	E : EXISTING SOURCE OR EXPANDED USE OF AN EXISTING SOURCE (SURFACE WATER OR GROUNDWATER)
WMS Infrastructure:	PIPELINE
Additional RWPGs:	None
Inclued in State Water Plan:	Y

Source

Source Region	Source Name	County Name	Basin Name	Source ID	Source Type
H	HUSTON LAKE/RESERVO	RESERVOIR	SAN JACINTO	10030	SW
Is Source Supply selected for Rollup?			Y		
Is Source Cost selected for Rollup?			Y		

County Name:	RESERVOIR	**Water Quality Improvements**	A : NO WATER QUALITY IMPROVEME
County ID:	999	**Online Data**	2010
Basin Name:	SAN JACINTO	**WMS Funding Date**	2010
Basin ID:	10		
Include in State Water Plan?		Y	
Include WMS Source Total Yield numbers in WMS Project Total Yield Rollup?		Y	
Include WMS Source Cost numbers in WMS Project Cost Rollup?		Y	

1.

Sponsor Region:	WWP Name:					
H	CENTRAL HARRIS COUNTY REGIONAL WATER AUTHORITY					
	2010:	**2020:**	**2030:**	**2040:**	**2050:**	**2060:**
Total Strategy Supply Volume for this WWP:	2,375	3,352	3,237	3,095	3,006	2,921

Recommendation Type?	Is Used to Meet Need?				IBT?	
Recommended	N				N	
Include WWP WMS Cost numbers in WMS Source Cost Rollup?	Y					
	2010:	**2020:**	**2030:**	**2040:**	**2050:**	**2060:**
WWP WMS Annual Cost:	$842,046	$842,046	$80,300	$80,300	$80,300	$80,300
WWP Capital Costs:	$8,737,162					
Term of Debt Service:	20					

Source

Source Region	Source Name	County Name	Basin Name	Source ID	Source Type
H	WALLISVILLE LAKE/RESE	RESERVOIR	TRINITY	084H0	SW
Is Source Supply selected for Rollup?			Y		
Is Source Cost selected for Rollup?			Y		

County Name:	RESERVOIR	**Water Quality Improvements**	A : NO WATER QUALITY IMPROVEME
County ID:	999	**Online Data**	2020
Basin Name:	TRINITY	**WMS Funding Date**	2020
Basin ID:	08		
Include in State Water Plan?		Y	
Include WMS Source Total Yield numbers in WMS Project Total Yield Rollup?		Y	
Include WMS Source Cost numbers in WMS Project Cost Rollup?		Y	

Sponsor Region:	WWP Name:					
H	CENTRAL HARRIS COUNTY REGIONAL WATER AUTHORITY					
	2010:	**2020:**	**2030:**	**2040:**	**2050:**	**2060:**
Total Strategy Supply Volume for this WWP:	0	794	1,552	1,711	1,800	1,885

Recommendation Type?	Is Used to Meet Need?				IBT?	
Recommended	N				Y	
Include WWP WMS Cost numbers in WMS Source Cost Rollup?	Y					
	2010:	**2020:**	**2030:**	**2040:**	**2050:**	**2060:**
WWP WMS Annual Cost:	$0	$0	$0	$0	$0	$0
WWP Capital Costs:	$0					
Term of Debt Service:	20					

DB12 Entries: CHCRWA Transmission Line and CHCRWA Internal Distribution

WMS Project

Sponsor Region:	H
WMS Project ID:	H23-CHCDST
WMS Project Name:	CHCRWA INTERNAL DISTRIBUTION
WMS Description:	CHCRWA internal distribution
WMS Type:	E : EXISTING SOURCE OR EXPANDED USE OF AN EXISTING SOURCE (SURFACE WATER OR GROUNDWATER)
WMS Infrastructure:	PIPELINE
Additional RWPGs:	None
Inclued in State Water Plan:	Y

Source

Source Region	Source Name	County Name	Basin Name	Source ID	Source Type
H	HUSTON LAKE/RESERVO	RESERVOIR	SAN JACINTO	10030	SW
Is Source Supply selected for Rollup?			Y		
Is Source Cost selected for Rollup?			Y		

County Name:	RESERVOIR	**Water Quality Improvements**	A : NO WATER QUALITY IMPROVEME
County ID:	999	**Online Data**	2010
Basin Name:	SAN JACINTO	**WMS Funding Date**	2010
Basin ID:	10		
Include in State Water Plan?		Y	
Include WMS Source Total Yield numbers in WMS Project Total Yield Rollup?		Y	
Include WMS Source Cost numbers in WMS Project Cost Rollup?		Y	

Sponsor Region:	WWP Name:					
H	CENTRAL HARRIS COUNTY REGIONAL WATER AUTHORITY					
	2010:	**2020:**	**2030:**	**2040:**	**2050:**	**2060:**
Total Strategy Supply Volume for this WWP:	2,375	3,352	3,237	3,095	3,006	2,921

Recommendation Type?	Is Used to Meet Need?				IBT?	
Recommended	N				N	
Include WWP WMS Cost numbers in WMS Source Cost Rollup?	Y					
	2010:	**2020:**	**2030:**	**2040:**	**2050:**	**2060:**
WWP WMS Annual Cost:	$1,087,424	$1,087,424	$103,700	$103,700	$103,700	$103,700
WWP Capital Costs:	$11,283,234					
Term of Debt Service:	20					

Source

Source Region	Source Name	County Name	Basin Name	Source ID	Source Type
H	WALLISVILLE LAKE/RESE	RESERVOIR	TRINITY	084H0	SW
Is Source Supply selected for Rollup?			Y		
Is Source Cost selected for Rollup?			Y		

County Name:	RESERVOIR	**Water Quality Improvements**	A : NO WATER QUALITY IMPROVEME
County ID:	999	**Online Data**	2020
Basin Name:	TRINITY	**WMS Funding Date**	2020
Basin ID:	08		
Include in State Water Plan?		Y	
Include WMS Source Total Yield numbers in WMS Project Total Yield Rollup?		Y	
Include WMS Source Cost numbers in WMS Project Cost Rollup?		Y	

Sponsor Region:	WWP Name:					
H	CENTRAL HARRIS COUNTY REGIONAL WATER AUTHORITY					
	2010:	**2020:**	**2030:**	**2040:**	**2050:**	**2060:**
Total Strategy Supply Volume for this WWP:	0	794	1,552	1,711	1,800	1,885

Recommendation Type?	Is Used to Meet Need?				IBT?	
Recommended	N				Y	
Include WWP WMS Cost numbers in WMS Source Cost Rollup?	Y					
	2010:	**2020:**	**2030:**	**2040:**	**2050:**	**2060:**
WWP WMS Annual Cost:	$0	$0	$0	$0	$0	$0
WWP Capital Costs:	$0					
Term of Debt Service:	20					

Agenda Item 6

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

Agenda Item 6
2016 RWP Schedule

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

Agenda Item 6
2016 RWP Schedule

Date	Scheduled Events/Tasks
03/11/2015	RWPG Meeting: Review Chapters 5, 6, 8, 9, 10, and 11
04/01/2015	Public Hearing: Receive comments on Fifth Cycle Scope of Work.
04/08/2015	**RWPG Meeting: Review / Approve Initially Prepared Plan**
05/01/2015	DUE DATE: Initially Prepared Plan to TWDB
	PUBLIC PROCESS
07/01/2015	RWPG Meeting: Conclude public hearings on IPP
10/07/2015	RWPG Meeting: Discuss comments to IPP
11/04/2015	RWPG Meeting: Review / Approve Final Plan
12/01/2015	DUE DATE: Final Adopted Plan to TWDB

Agenda Item 6
2016 RWP Schedule

- Other Items
  - Database entry
    - Data deliverables due by July 1, 2015.
    - Final RWP may be adjusted to account for database structure.
  - Requests for inclusion in the RWP
    - Based on Uniform Standards
    - Has the project sponsor requested (***in writing for the 2016 Plan***) that the project be included in the Regional Water Plan?
    - Worth a ***free**** five points in project prioritization.

*Price based on electronic communication only. Cost of postage may incur additional charges. No purchase necessary. Void where prohibited. Do not pass Go. Do not collect $200.

Agenda Item 7

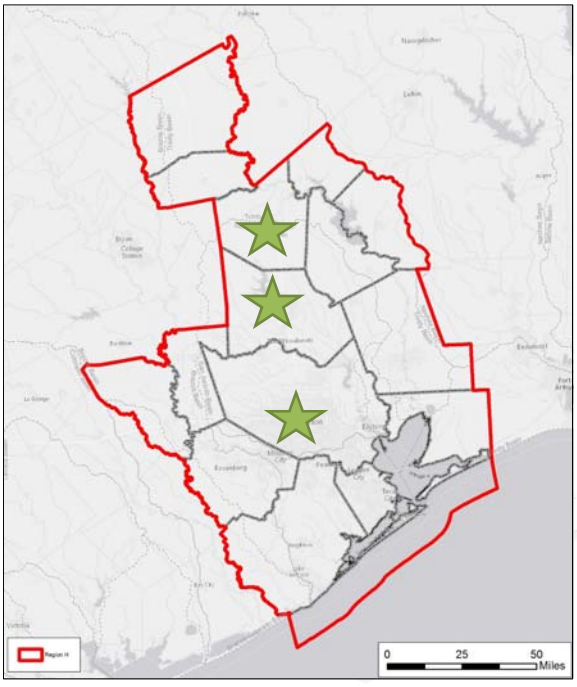
Receive update from Consultant Team regarding the schedule of public hearings related to the 2016 Region H Initially Prepared Regional Water Plan.

Agenda Item 7
Public Hearing Schedule

Receive update from Consultant Team regarding the schedule of public hearings related to the 2016 Region H Initially Prepared Regional Water Plan.

Agenda Item 7
Public Hearing Schedule

- Sam Houston Memorial Museum
  - June 16
- Houston-Galveston Area Council
  - June 23
- San Jacinto River Authority
  - July 1

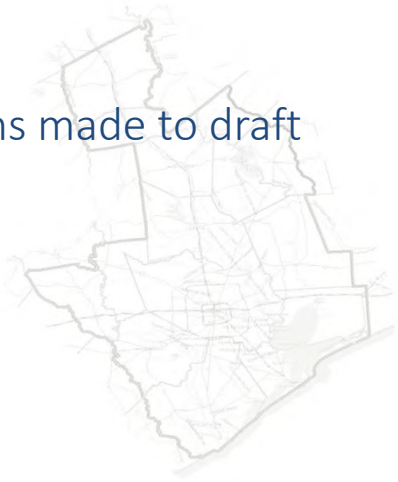


Agenda Item 8

Review comments received and revisions made to draft Initially Prepared Plan.

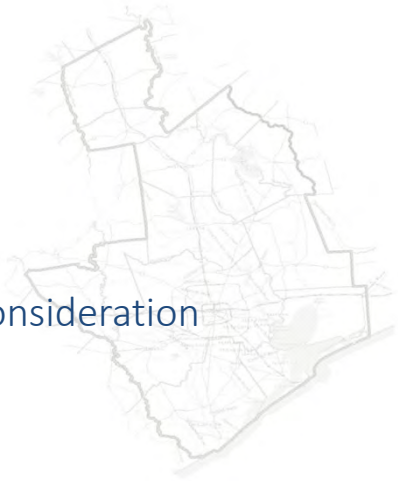
Agenda Item 8
Comments and Revisions to Draft IPP

Review comments received and revisions made to draft Initially Prepared Plan.



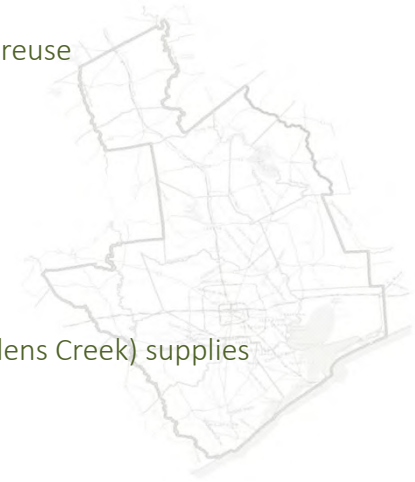
Agenda Item 8
Comments and Revisions to Draft IPP

- Comments from RWPG members
- Consultant team review
- To be included in submitted IPP
- Overview of comments and revisions prior to consideration



Agenda Item 8
Comments and Revisions to Draft IPP

- Revisions to Recommended Projects
  - Long-term Montgomery County supplies
    - Catahoula brackish groundwater and increased indirect reuse
  - Montgomery County MUDs 8 and 9 reuse
    - Indirect reuse project from 2011 RWP
  - SJRA surface water return flow reuse
    - Impacts to regional return flows
  - GCWA Reuse from COH and Brazos River Projects
    - Added blended sources from reuse and Brazos River (Allens Creek) supplies



Agenda Item 8
Comments and Revisions to Draft IPP

- Revisions to Recommended Projects
  - Water loss reduction
    - Potential BMPs for implementation; efforts by City of Houston
  - Freeport Desalination
    - Project sponsorship presented as in 2011 RWP
  - Region I supply to Chambers, Liberty Counties
    - Neches-Trinity Basin irrigation

Agenda Item 8
Comments and Revisions to Draft IPP

- Revisions to Projects Not Applied to Needs
  - Other Brazos Basin Storage Projects
    - Lake Somerville Augmentation

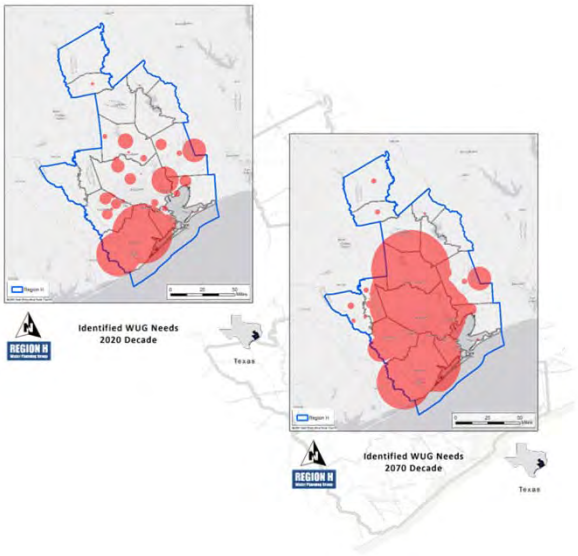
Agenda Item 8
Comments and Revisions to Draft IPP

- Clarifications
  - Overlapping nature of key projects
    - Contractual and infrastructure projects
    - Table 5-4: WMS and Key Project Relationships
  - Contractual cost of water
    - Not included for Region H projects
    - Added notation to appropriate projects

Water Management Strategy	WMS Project Name
Additional Supply From BRA	Allens Creek Reservoir
Additional Supply From CWA	GCWA Reclaimed Water from COH
Brazos Saltwater Barrier	Brazos Saltwater Barrier
CHCRWA GRP	CHCRWA GRP
	CHCRWA Transmission and Distribution Expansion
	COH Northeast Water Purification Plant Expansion
	COH/NHCRWA/CHCRWA Second Source Pipeline
	Lucie Bayou Transfer
	Regional Return Flows
City Of Houston GRP	City of Houston GRP
	City of Houston Treatment Expansion
	COH Northeast Water Purification Plant Expansion
	COH/NHCRWA/CHCRWA Second Source Pipeline
	Lucie Bayou Transfer
	Regional Return Flows
	TRA to COH Transfer

Agenda Item 8
Comments and Revisions to Draft IPP

- Content and Miscellaneous
  - Confirmed inclusion of DB17 tables
    - Chapters 2, 3, and 4
  - Maps of decadal needs
    - Included in Chapter 4
  - Chapter 10 meeting notes
    - March 11, April 1 and 8
  - Final decade unit costs in tables
    - Added in addition to initial decade costs
  - Various minor revisions

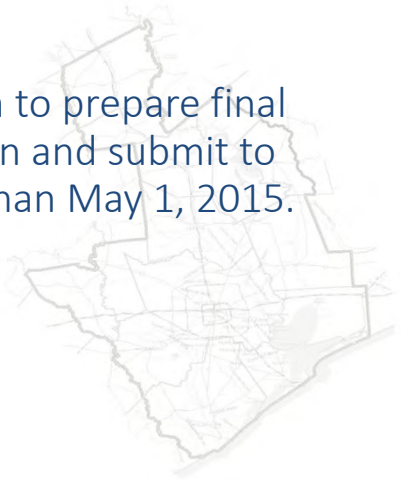


Agenda Item 9

Consider and approve the consultant team to prepare final copies of the revised Initially Prepared Plan and submit to Texas Water Development Board no later than May 1, 2015.

Agenda Item 9
IPP Submittal

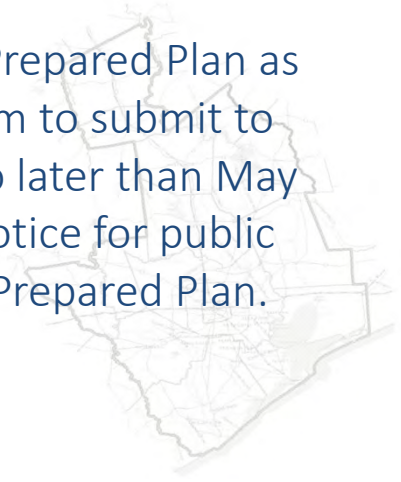
Consider and approve the consultant team to prepare final copies of the revised Initially Prepared Plan and submit to Texas Water Development Board no later than May 1, 2015.



Agenda Item 9
IPP Submittal

Action:

Move to adopt and certify the Initially Prepared Plan as amended, approve the consultant team to submit to the Texas Water Development Board no later than May 1, 2015, and approve the posting of notice for public hearings to take input on the Initially Prepared Plan.



Agenda Item 10

Consider authorizing the request of additional funding for the study of water management strategies from the Texas Water Development Board.

Agenda Item 10
Additional 4D Funding

Consider authorizing the request of additional funding for the study of water management strategies from the Texas Water Development Board.

Agenda Item 10
Additional 4D Funding

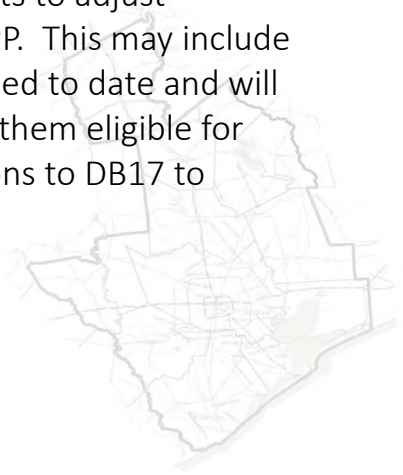
- Funds allocated in 2nd Biennium for effort related to Water Management Strategies

- $44,600 remaining
  - Allocated to Region H
  - Not yet authorized

1st Biennium Funding	$225,604
Accelerated 4D Items	($225,604)
2nd Biennium Funding	$800,407
4D Items Part 1	($448,807)
+ 4D Items Part 2	($307,000)
Remaining	$44,600

Agenda Item 10
Additional 4D Funding

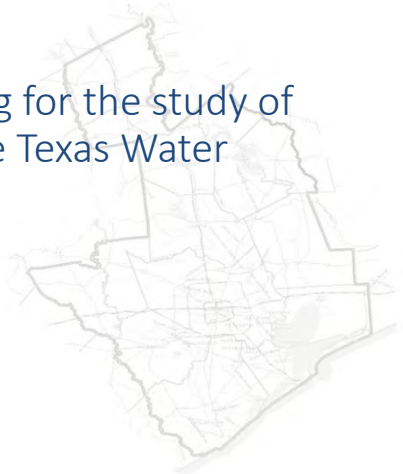
- Proposed scope item: Revisions to WMS Based on IPP Input
  - Review input from stakeholders and identify requests to adjust recommended WMS and projects included in the IPP. This may include addition of new projects that have not been identified to date and will require further analysis and study in order to make them eligible for inclusion in the Final RWP. Effort will include revisions to DB17 to incorporate new projects as necessary.



Agenda Item 10
Additional 4D Funding

Action:

Authorize the request of additional funding for the study of water management strategies from the Texas Water Development Board.



Agenda Item 11

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

Agenda Item 11
Community Outreach

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

Agenda Item 11
Community Outreach

- Association of Water Board Directors
  April 17

- Rotary Club of Brazos River
  April

Agenda Item 12

Agency communications and general information.

Texas Water Development Board

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

March 9, 2015

Mark Evans
Chair, Region H
c/o N. Harris Co. Regional Water Authority
3648 Cypress Creek Pkwy #110
Houston, Texas 77068

Re: Identification of Potential Interregional Conflicts in the 2016 Regional Water Plans

Dear Chairman Evans:

The 2017 regional water planning database application (DB17), currently under development by the Texas Water Development Board (TWDB), will contain the data from the 2016 regional water plans, and be a key tool for identifying potential conflicts, including those associated with over-allocations of sources. When data entry is complete, the TWDB staff will conduct final water source over-allocation analyses as part of the review of the regional water plans.

TWDB rules for regional water planning (31 TAC § 357.50(f)) require that the regional water planning groups (RWPGs) submit, in a timely manner to the Executive Administrator, information on any known interregional conflict between regional water plans. In advance of this TWDB data analysis, we are reminding RWPGs of the rule requirement above and ask that, as soon as possible, RWPGs submit in writing to the Executive Administrator notification of known or potential interregional conflicts identified during the development of their IPP.

In the meantime, I encourage all RWPGs to communicate, share information, and work together to identify and, when possible, resolve potential conflicts when they are identified. My staff and I are available upon request to provide information, technical support, facilitation and, if necessary, to assist in negotiations or to provide other support. Please notify your regional project manager if you need or think you may require such TWDB assistance.

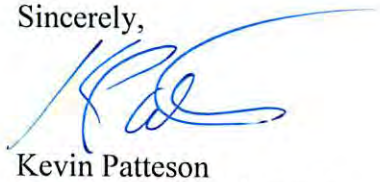
Recently, the Board directed the Executive Administrator to conduct a review of current rules and guidance pertaining to the development of regional water plans as well as an evaluation of Board Staff's review process, and to identify any opportunities for completing a more substantive review of the plans ensuring that future regional and state water planning efforts include all statutorily-required analyses.

Initially, there are a few simple opportunities for improving regional water planning documents that would not require any new information, data, or analyses. I encourage regional water planning groups that haven't already done so, to consider tabulating quantified information associated with evaluations of feasible (including recommended) water management strategies which is required under current rules (e.g., related to 31 TAC §357.34(d)(3)), in one place within the regional water plan. Although aggregating all this information is not mandatory under the current rules and planning grant contracts, I would prefer that, to the extent practicable, regional water planning groups gather and summarize such data in a single location in the plan to aid regional water planning group members, the public, and TWDB staff in understanding and reviewing regional water plans.

I welcome your input as our staff continues to review rules and guidance in order to improve the processes and quality of Water for Texas.

If you have any questions, please do not hesitate to contact your regional water planning project manager Lann Bookout at 512-936-9438.

Sincerely,



Kevin Patteson
Executive Administrator

cc: Mr. Jace Houston, San Jacinto River Authority, P.O. Box 329, Conroe, Texas 77305-0329

Texas Water Development Board

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

April 1, 2015

Re: Amendment No. 3 to the 2012 State Water Plan

To: Regional Water Planning Group Chairs

On April 29, 2015, the Texas Water Development Board will consider the following proposed amendments to the 2012 State Water Plan:

- 2011 Region C and Region D Regional Water Plans as relates to the resolution of an interregional conflict, and
- 2011 Region H Regional Water Plan for revisions to a recommended expansion of the Harris (Off-Channel) Reservoir and a purchase of treated effluent from the City of Houston.

Comments on these proposed amendments will be accepted at a public hearing on April 27, 2015 in Austin. The hearing will begin at 10:00 a.m., 1701 North Congress Ave, Stephen F. Austin Building, Room 170. Enclosed is a copy of the posted notice.

If you have any questions, please contact Temple McKinnon at 512-475-2057 or temple.mckinnon@twdb.texas.gov.

Sincerely,

Jeff Walker
Deputy Executive Administrator
Water Supply & Infrastructure

Enclosure

Notice of Public Hearing to Receive Public Comment on Proposed Amendments to the 2012 State Water Plan

The Texas Water Development Board (TWDB) will conduct a public hearing in accordance with Texas Water Code §§16.053(h)(6) and 16.053(r) and 31 Texas Administrative Code §§357.50(k), 357.51(f), and 358.4(a) on Monday, April 27, 2015 to receive public comment on proposed amendments to the 2012 State Water Plan, *Water for Texas 2012*. The public hearing will begin at 10:00 a.m. in Room 170, Stephen F. Austin Building, 1700 North Congress Avenue, Austin, Texas 78701.

The Board seeks to receive public comment related to the incorporation of changes adopted by the Region H regional water planning group to its adopted regional water plan on February 4, 2015. Specifically, Region H proposed to add a new, recommended water management strategy to its adopted 2011 plan for treated effluent from the City of Houston and to revise a previously recommended water management strategy for expansion of Harris Off-Channel Reservoir. On February 19, 2015, TWDB received the 2011 Region H regional water plan amendment materials and request for approval. These materials were reviewed by Board staff and the amendment to the regional water plan was approved by the Board on March 26, 2015.

Additionally, the Board seeks to receive public comment related to the incorporation of adopted 2011 plan revisions by Regions C and D as ordered by the Board to resolve an interregional conflict. By March 20, 2015, TWDB received the 2011 Region C and 2011 Region D regional water plan revision materials and requests for approval. These materials were reviewed by Board staff and the adoption of the regional water plan revisions was approved by the Board on March 26, 2015.

Interested persons are encouraged to attend the hearing to present comments concerning the proposed amendment. Those who cannot attend the hearing may provide written comments on or before April 27, 2015 to Mr. Les Trobman, General Counsel, Texas Water Development Board, P.O. Box 13231, Capitol Station, Austin, Texas 78711 or by email to rulescomments@twdb.texas.gov. The TWDB will receive public comment on the proposed amendments until close of business at 5 p.m. on April 27, 2015. Copies of the proposed amendment are available for inspection during regular business hours at the Stephen F. Austin Building from the Water Use, Projections, and Planning Division, Texas Water Development Board, 1700 North Congress Avenue, Austin, Texas 78701. If you want to view these documents, please call (512) 475-2057 for arrangements to view them. A copy of the proposed amendments will also be available on the Board's web site at http://www.twdb.texas.gov/waterplanning/swp/2012/index.asp.