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# Chapter 3 – Analysis of Current Water Supplies

# 3.1 Introduction

As presented in *Chapter 1*, groundwater resources in Region H consist of two major aquifers and four minor aquifers. The two major aquifers are the Gulf Coast aquifer and the Carrizo-Wilcox aquifer; four minor aquifers present are the Sparta, Queen City, Yegua-Jackson, and Brazos River alluvium aquifers.

Much of the regional water demand is supplied by surface water. Of the total year 2000 water demand over 70 percent, or 1,267,410 acre-feet, was supplied by surface water as found in the TWDB Year 2000 Water Use Survey. By 2004, surface water use reported to the TWDB increased to approximately 1,240,000 acre-feet, accounting for 70 percent of the total water used in Region H. Surface water supplies are obtained from the Lake Livingston-Wallisville Salt Water Barrier System on the Trinity River, Lake Conroe and Lake Houston on the San Jacinto River, the Brazos River Authority/U.S. Army Corps of Engineers (BRA/COE) System, ROR flows from the Trinity, Brazos, and San Jacinto Rivers, the corresponding coastal basins, and some smaller tributaries and reservoirs. Groundwater supplies the remaining 30 percent of the water.

This chapter summarizes the results of Task 3, and describes the resources available to the region and their allocation to Water User Groups (WUGs) throughout Region H. Also, to provide consistency and facilitate the compilation of the different regional plans, the Texas Water Development Board (TWDB) required the incorporation of this data into a standardized online database referred to as TWDB DB12. Tables that contain this information are identified below and are located in the appendices accompanying this chapter.

- Appendix 3A Current Water Supply Sources Available During Drought of Record Conditions
- Appendix 3H Current Water Supplies Available to Region H by City and Category
- Appendix 3I Current Water Supplies Available to Region H by Wholesale Water Provider

Some of the information contained within this chapter is based on information published in *Chapter 1 – Description of the Region*. For a complete and detailed list of sources, see *Appendix* 1A, references for *Chapter 1*.

# 3.2 Identification of Groundwater Sources<sup>1</sup>

# 3.2.1 Groundwater Aquifers

As presented in *Chapter 1*, groundwater resources in Region H consist of two major aquifers and four minor aquifers. The two major aquifers are the Gulf Coast aquifer and the Carrizo-Wilcox aquifer, with the Gulf Coast aquifer furnishing the majority of groundwater in the region south of and within Waller and Walker Counties. The four minor aquifers present are the Sparta, Queen City, Yegua-Jackson, and Brazos River alluvium.

<sup>&</sup>lt;sup>1</sup> The information contained in this portion of *Chapter 3* was provided by LBG-Guyton Associates.

The Carrizo-Wilcox is the main aquifer in the northern part of Region H in Leon County and the northern portion of Madison County. The aquifer is composed of, in ascending order, the Wilcox Group and the Carrizo Formation. Because they are weakly connected hydraulically, they are generally described as one major aquifer. However, for groundwater flow modeling purposes in the Central Queen City Sparta Groundwater Availability Model developed by TWDB, the Wilcox aquifer is modeled as three separate layers and the Carrizo as one layer. The Wilcox Group is composed of alternating beds of sand, sandy clay, and clay with locally interbedded gravel, silt, clay, and lignite. The Carrizo Formation is a uniform, well sorted sand that contains a few very thin beds of clay; the aquifer dips downward to the southeast at about 70 to 100 feet per mile. The Carrizo-Wilcox aquifer supplies groundwater for domestic, municipal, manufacturing, and agricultural uses in Leon and Madison Counties. *Figure 3-1*, Major Groundwater Aquifers, provides a map showing the location of the aquifer.

A groundwater availability model (GAM) was developed for the Carrizo-Wilcox, Queen City and Sparta aquifers in the area of Leon and Madison Counties, and the model is described in a report prepared by the TWDB entitled *Groundwater Availability Models for the Queen City and Sparta Aquifers*, October 2004. The model divides the Carrizo-Wilcox aquifer into four layers, which are the Carrizo Sand or Carrizo Formation and the Calvert Bluff, Simsboro and Hooper Formations of the Wilcox Group. The model also has layers for the Queen City aquifer and the Sparta aquifer. The main layers of the model that provide substantial amounts of water are the Carrizo Sand and the Simsboro, with a smaller amount of water provided by the Sparta aquifer. Utilization of the model provides an additional method to evaluate the groundwater resources in the northern part of Region H.

The Gulf Coast aquifer consists of four general water-producing units. The geologically youngest unit is the Chicot aguifer, followed by the Evangeline aguifer, the Jasper aguifer, and the Catahoula Formation. The Chicot and Evangeline aguifers are the more prolific water-producing units in the Gulf Coast aguifer followed by the Jasper aguifer and the Catahoula Formation. The Gulf Coast aguifer extends from the Gulf Coast to approximately 100 to 120 miles inland in Walker and Trinity Counties. The units are composed of alternating beds of sand, silt, and clay; shale can occur at deeper depths at and below the base of the Evangeline aquifer. Formation beds vary in thickness and composition and the areal extent of individual beds normally cannot be traced over extended distances. Total aguifer sand thickness varies and can be as great as several hundred feet. The Gulf Coast aguifer supplies groundwater for domestic, municipal, manufacturing, and agricultural uses in Austin, Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, Polk, San Jacinto, Trinity, Walker, and Waller Counties. The estimates of groundwater availability for Austin, Fort Bend, Galveston, Harris, Montgomery, Walker and Waller Counties are consistent with either groundwater management plans or groundwater management strategies developed by the groundwater conservation districts or subsidence districts that encompass the counties. The estimates of availability are the maximum amounts of groundwater that can be withdrawn in the future, based on the planning and rules and regulations of the districts. For Chambers, Liberty, Polk, San Jacinto and Trinity Counties that are not in groundwater conservation districts, the estimates of groundwater availability are the largest estimated amounts that can be pumped annually, based on previous regional water planning efforts including those performed by the TWDB.

Legend LIMESTONE Streams Cities Counties HOUSTON Region H Gulf Coast Aquifer Carrizo-Wilcox Aquifer Downdip Outcrop ROBERTSON **TYLER** 190 BRAZOS 190 GRIMES 150 150 146 URLESON HARDIN 105 105 321 WASHINGTON 59 90 290 195 146 COLORADO GALVESTO 02.55 10 15 20 25 30 RDA

Figure 3-1
Major Groundwater Aquifers

A groundwater flow model which includes the counties within Region H has been developed by the TWDB for the Gulf Coast aquifer and was released in February 2005. The model has four layers to represent the Gulf Coast aquifer (Layers 1, 2, 3, and 4), representing the Chicot aquifer, Evangeline aquifer, Burkeville confining unit, and Jasper aquifers, respectively. The model provides an additional tool for evaluating the groundwater resources within Region H.

The Queen City Formation is a minor aquifer that occurs in central and southeastern Leon County and in the northern part of Madison County. The Queen City Formation is composed of sand and loosely cemented sandstone with interbedded shale layers occurring throughout. The Queen City Formation ranges in thickness from 250 to 400 feet with approximately 60 to 70 percent of the total thickness being sand according to Texas Water Commission Bulletin 6513 (1965), "Availability and Quality of Ground Water in Leon County, Texas". The aquifer is further described in the 2004 GAM model report developed by the TWDB. Groundwater in small to moderate quantities is provided by the Queen City Formation for domestic, municipal, industrial, and agricultural uses in Leon and Madison Counties.

The Sparta Formation or Sparta Sand is another minor aquifer that occurs in southeastern Leon County, all of Madison County, northwestern Walker County and northeastern Trinity County. The Sparta Formation consists of sand and interbedded clay, with the lower portion of the aquifer containing massive unconsolidated sands with a few layers of shale. The Sparta Formation ranges in thickness from 150 to 300 feet in Leon County and Madison County (Texas Workforce Commission Bulletin 6513). Groundwater from the aquifer is provided for domestic, municipal, and agricultural uses in Leon County and for domestic, municipal, manufacturing, and agricultural uses in Madison County. The Sparta Formation is the groundwater source for the Town of Madisonville and for some water supply corporations in the area.

The Yegua Formation and Jackson Group make up a minor aquifer, designated as the Yegua-Jackson aquifer, which occurs within the region in parts of Madison, Walker, Trinity and Polk Counties. The Yegua Formation consists of sand, interbedded clay, and scattered lignite. The Jackson Group includes all strata between the Yegua Formation and the Catahoula Sandstone and consists of sand, clay, sandstone, and siltstone. The Yegua Formation ranges in thickness from 1,000 to 1,500 feet; the Jackson Group is approximately 1,100 feet thick, according to Texas Board of Water Engineers Bulletin 5003 (1950), "Geology and Ground-Water Resources of Walker County, Texas". Small to moderate quantities of groundwater are provided by the Yegua-Jackson aquifer for domestic, municipal, industrial, and agricultural uses.

The Brazos River alluvium is the fourth minor aquifer in the region. The Brazos River alluvium occurs in the floodplain and terrace deposits of the Brazos River in Austin, Fort Bend and Waller Counties as shown on *Figure 3-2*, Minor Groundwater Aquifers. The Quaternary alluvial sediments consist of clay, silt, sand, and gravel according to TWDB Report 345 (1995), *Aquifers of Texas*, with the more permeable sand and gravel present in the lower part of the aquifer. The saturated thickness of the sediments is as much as 85 feet and the width of the alluvium ranges from less than 1 mile to approximately 7 miles, with the Brazos River located within the width of the alluvial deposits. The Brazos River alluvium supplies groundwater for domestic and agricultural purposes in Fort Bend and Waller Counties. In Austin County, it supplies groundwater for domestic, manufacturing, and agricultural uses.

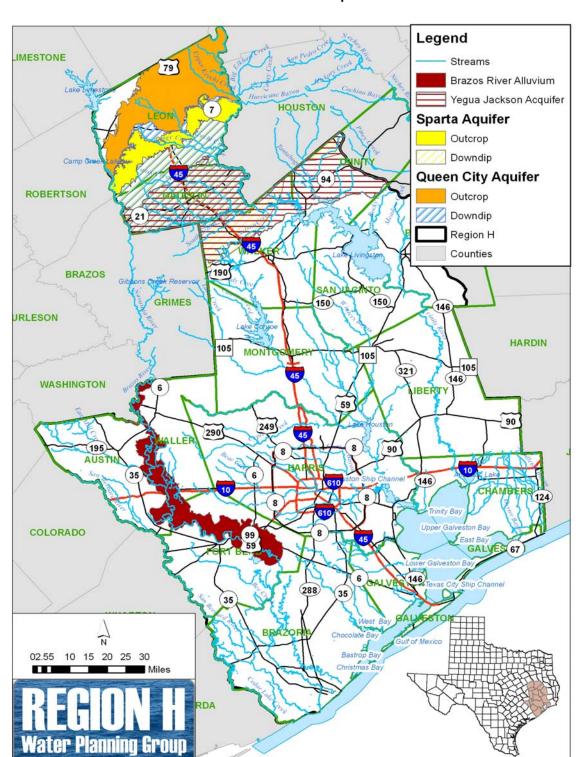


Figure 3-2
Minor Groundwater Aquifers

Recharge to the two major and four minor aquifers is principally from the infiltration of precipitation and streamflow on the outcrops, as shown in *Figure 3-3*, Aquifer Outcrop Areas. A portion of the water infiltrates to the zone of saturation and then moves downdip through the aquifers, while large amounts of precipitation on the outcrops are rejected recharge, and become surface water runoff to ponds, lakes, creeks, streams and rivers. Average annual precipitation in Region H ranges from about 40 inches per year in the northern area to about 50 to 54 per year inches in the southeastern area.

# 3.2.2 Groundwater Use Overview

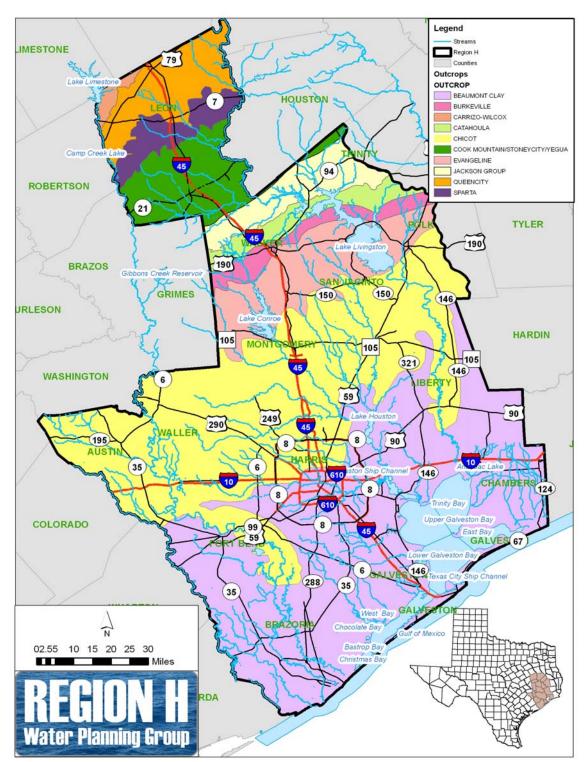
According to TWDB and Harris-Galveston Subsidence District (HGSD), Region H pumped approximately 643,175 acre-feet of groundwater in 2000. Groundwater in the region is used for domestic, municipal, manufacturing, steam-electric power cooling and agricultural purposes. The majority of the water is used for municipal purposes. Municipal usage accounts for approximately 78 percent or 501,626 acre-feet of the water pumped. Municipal pumpage consists of water used for cities and communities, parks, campgrounds and water districts serving principally residential developments. Agricultural usage accounts for approximately 14 percent or 90,084 acre-feet of the groundwater pumped. Major agricultural crops include rice, soybeans, corn, cotton and hay. Cattle are the principal livestock raised in the region. Finally, industrial usage represents approximately 8 percent or 51,454 acre-feet of the groundwater—water pumped for manufacturing, mining, steam-electric power, and other industrial needs. A majority of the overall groundwater usage is in the southern part of the region where more of the population, industrial, and agricultural demands exist and where the aquifer is capable of providing large quantities of water for the various uses. Providing pumping data for 2000 was chosen as it was a year with census data and it was a year with lower precipitation and somewhat higher pumping.

Groundwater pumping data for Region H in 2003, a year with higher overall average annual precipitation, was about 555,300 acre-feet. The year 2003 is the most recent year with groundwater pumping data available from TWDB.

# 3.2.3 Aquifer Conditions

Groundwater conditions within the region have been and should continue to be favorable for the pumping of substantial quantities of good quality water to help satisfy the multiple water needs of the region. The principal aquifers that will provide the water include the Carrizo-Wilcox in Leon and Madison Counties, the Sparta aquifer system in Madison, Walker and Trinity Counties, and the Gulf Coast aquifer system in the central and southern sections of the region. Smaller amounts of water can be provided by the Queen City, Sparta, Yegua-Jackson, and Brazos River alluvium aquifers, with the minor aquifers being particularly important in areas that do not require large quantities of water to reliably meet the demands.

Figure 3-3 Aquifer Outcrop Areas



# 3.2.3.1 Carrizo-Wilcox Aquifer

The Carrizo-Wilcox aquifer was deposited in a manner that resulted in a sequence of geologic formations of interbedded sand, silt, clay and shale having a thickness of about 2,000 feet in the northern part of the region. The Carrizo Sand is one of two principal water-producing units of the Carrizo-Wilcox aguifer and it is about 100 to 200 feet thick. The Simsboro Sand is the major waterproducing unit in the Wilcox and is about 200 to 400 feet thick. Currently, the overall availability of water from the Carrizo-Wilcox aquifer in Leon and Madison Counties is about 8,400 acre-feet per year based on the management plan adopted by the Mid-East Texas Groundwater Conservation District (METGCD) that includes Leon and Madison Counties. The estimate of groundwater availability for the two counties is under review by the METGCD and may be revised in the future. The current estimates of groundwater availability within the METGCD are consistent with the management plan adopted by the District. The METGCD is developing desired future conditions for the aquifers which will result in an estimate of managed available groundwater and those estimates may vary some from the current estimates of availability in Leon and Madison Counties. If that occurs, the revised estimates for groundwater availability in the two counties can be included in the next regional water planning effort. In 2000, about 4,030 acre-feet of groundwater was pumped from the aquifer in the two counties, based on data from TWDB. Conditions are favorable in the two counties to develop additional supplies from the Carrizo-Wilcox aguifer. The development should be done in a manner that will properly manage the aguifer and monitor its response to the stress of additional groundwater pumping. Water from the aquifer contains less than 1,000 milligrams per liter (mg/l) of total dissolved solids, but water from the Carrizo Sand can contain elevated levels of iron that require sequestering or treatment for removal for water used for most municipal and industrial purposes.

# 3.2.3.2 Gulf Coast Aquifer

The Gulf Coast aquifer was deposited in a manner that resulted in interbedded sand and clay layers with a substantial thickness of sand that contains water of good quality. The lower unit of the aquifer, the Catahoula Sandstone, is screened by wells for the City of Huntsville and other wells in Walker County. To the south, in Galveston County, the Chicot unit is screened in wells used by the City of Galveston. The aquifer is capable of yielding larger quantities of water in the central and southern parts of Region H and has been utilized over the past 100 years to provide part of the water supply. The Gulf Coast aquifer has sand thicknesses ranging from about 200 to 500 feet in the central and southern parts of the region with the sands containing freshwater decreasing in thickness as the aquifers approach within about 30 to 40 miles of the Gulf Coast.

The pumpage of large quantities of water in the southern part of the region has caused the aquifer's potentiometric head to decline from 50 to about 350 feet in parts of Harris County. Land subsidence of significant magnitude has occurred in parts of Harris and Galveston Counties, resulting in the gradual reduction and shift in areal extent of groundwater pumping to the west over the past 25 years. Subsidence is discussed in the next section of this report.

Digital groundwater flow models have been developed over the past 25 years for the Chicot and Evangeline aquifers in the southern part of Region H to help assess the groundwater resources. As mentioned previously, the most recent digital model was developed by the U. S. Geological Survey for the TWDB with a 2004 report regarding the model titled "Hydrogeology and Simulation of Ground-Water Flow and Land-Surface Subsidence in the Northern Part of the Gulf Coast Aquifer System, Texas."

# 3.2.3.3 Queen City and Sparta Aquifers

The Queen City and Sparta aquifers occur in the northern part of the region and are capable of providing some water in Leon, Madison and Trinity Counties, and the northern part of Walker County. Estimated overall availability from the aquifers is about 25,525 acre-feet per year based on groundwater supply data from TWDB. Water availability estimates from the Queen City and Sparta aquifers for the year 2000 are approximately 12,455, 10,790, 245, and 2,035 acre-feet per year in Leon, Madison, Trinity, and Walker Counties, respectively. The two aquifers are composed of sands that can provide small to moderate quantities of water to wells. The water-transmitting capabilities of the aquifers are limited but adequate for meeting smaller demands (pumping rates of 50 to 1,000 gallons per minute [gpm]). The aquifers contain water with less than 1,000 mg/l of total dissolved solids to depths that range from about 800 to 1,000 feet. Pumping from the two aquifers in Leon and Madison Counties in the year 2000 was about 3,500 acre-feet based on data from TWDB. No pumpage was recorded in the year 2000 TWDB data for either aquifer for Trinity and Walker Counties.

# 3.2.3.4 Yegua-Jackson Aquifer

The Yegua-Jackson aquifer is located in the northern part of the region and is capable of providing some water in Madison, Polk, Trinity, and Walker Counties. However, estimated usage specifically for the Yegua-Jackson aquifer has not yet been determined by TWDB for these counties. Each of these counties has data available for other-undifferentiated aquifers. According to the TWDB data, the total amount used in these four counties in this category was approximately 3,100 acre-feet in 2000.

The aquifer is composed of sands that can provide small to moderate quantities of water to wells. According to TWDB estimates in the 2002 Texas State Water Plan, yields of most wells completed in the Yegua-Jackson aquifer are small (less than 50 gpm) and net fresh water sands are generally less than 200 feet thick at any location within the aquifer. The quality of the water in the aquifer ranges from good to slightly saline. The 2002 plan also estimates that the entire Yegua-Jackson aquifer in the state produced about 11,000 acre-feet of water in 1997.

# 3.2.3.5 Brazos River Alluvium

The Brazos River alluvium is a shallow aquifer that is about one to seven miles wide in a corridor along the Brazos River in Waller, Austin, and Fort Bend Counties. The aquifer typically does not extend to a depth greater than 100 feet deep with wells mostly constructed to provide water for irrigation of row crops and hay. The aquifer may contain water with total dissolved solids that approach 1,000 mg/l and have a high total hardness due to the amounts of calcium, magnesium, and sulfate in the aquifer water. Based on estimates from TWDB, the overall availability of water from the Brazos River alluvium in Austin, Waller, and Fort Bend Counties is about 41,500 acre-feet per year with 2000 pumpage in Fort Bend County estimated at 8,737 acre-feet per year by TWDB. No pumpage was recorded in the 2000 TWDB data for either Austin or Waller Counties. The aquifer should continue to be able to provide water for various uses.

# 3.2.4 Subsidence Effects

Subsidence has occurred principally in Harris, Galveston, Brazoria, Fort Bend, and Chambers Counties, as the result of the withdrawal of large quantities of groundwater from the Chicot and Evangeline aquifers. Studies and reports prepared by the U. S. Geological Survey and the HGSD show that about 9-plus feet of land subsidence occurred in a small part of the Houston Ship Channel area with less subsidence further away from the ship channel area. In the City of Katy, total subsidence through the year 2005 is estimated to be about 1.7 feet. In the City of Rosenberg in Fort Bend County, estimated subsidence is less than 1 foot through 2005. HGSD has developed regulatory plans that have been updated through the years. Groundwater pumping in Harris and

Galveston Counties has decreased over the past 23 years as additional surface water has been utilized and less groundwater has been pumped.

A regulatory plan adopted by HGSD in 1999 prescribes general areal pumpage limits for Harris and Galveston Counties for the next three decades until 2030. The regulatory plan pumping requirements were used in estimating the availability of groundwater within the Harris and Galveston Counties area with the estimate of groundwater availability in 2010 being 351,959 acre-feet per year and decreasing to 273,628 acre-feet per year by 2030. HGSD regulatory plan essentially segments Harris and Galveston Counties into three geographic regulatory areas and mandates a reduction in groundwater pumpage per a scheduled reduction timeline. Water users located within the southeastern portion of Harris County and all of Galveston County currently must receive no more than 10 percent of their total water supply from groundwater. This limit or any updated limit adopted by HGSD will exist throughout the Region H planning period. The remainder of Harris County is segmented within two other regulatory areas. Water users within Regulatory Area 2, which comprises the central and east portion of the county, must receive no more than 20 percent of their water supply from groundwater as of year 2000. Groundwater users within the remainder of Harris County, within HGSD Regulatory Area 3, can receive no more than 70 percent of their water supplies from groundwater by year 2010, 30 percent of their water as groundwater by year 2020, and only 20 percent of their water supply from groundwater by year 2030. These regulatory limitations affect all of the WUGs (except irrigation for agricultural purposes and livestock uses) within Harris and Galveston Counties by year 2010, causing a continuing decrease in the allowable amount of groundwater that can be pumped in these two counties over time.

A regulatory plan adopted by the Fort Bend Subsidence District (FBSD) in 2003 also prescribes general areal pumpage limits for the next three decades until 2030 for Fort Bend County. The plan includes pumping limits to control subsidence within the District as needed. The FBSD regulatory plan essentially segments Fort Bend County into geographic regions and requires reductions of groundwater pumpage per a scheduled reduction timeline. Water users located within the northwestern portion of Fort Bend County (Area A) must receive no more than 70 percent of their total water supply from groundwater by 2013 and 40 percent of their water as groundwater by year 2025. This limit or a more stringent limit adopted by FBSD will exist throughout the Region H planning period. Water users within the Richmond/Rosenberg Sub Area, which comprises the central portion of the county, must receive no more than 70 percent of their water supply from groundwater as of year 2015 and 40 percent of their water as groundwater by year 2025. Groundwater users within the remainder of Fort Bend County, FBSD Regulatory Area B, must be permitted for increases in withdrawal but are not currently subject to groundwater reduction requirements. These regulatory limitations affect all of the WUGs (except irrigation for agricultural purposes) within Fort Bend County by year 2013 or 2015, creating a limit to the allowable amount of groundwater that can be pumped in the county over time.

# 3.2.5 Groundwater Availability in Fort Bend and Montgomery Counties

Groundwater pumpage in Fort Bend County has been increasing over the past years from approximately 69,000 acre-feet per year in 1990 to about 90,060 acre-feet per year in 2003 and 91,320 acre-feet per year in 2004, based on data provided by FBSD. Groundwater availability for the county was estimated by FBSD at about 168,025 acre-feet per year from the Gulf Coast aquifer in the year 2010 and reduced to 119,368 acre-feet per year in 2030. The estimates of groundwater availability are the largest amounts that can be considered, based on the Groundwater Reduction Plan that is a part of the rules and regulations of the FBSD. Over the past 10 years, static water levels within the county in observation wells completed in the Chicot and/or Evangeline aquifer have fluctuated some, but generally have been stable in east, west and central Fort Bend County. In the north part of Fort Bend County, there has been about 35 to 45 feet of water-level decline over the past 10 years in some wells that screen the sands in the Evangeline aquifer (refer to Figure 3-4 through Figure 3-7). There have been smaller amounts of static water-level decline in other areas of Fort Bend County as shown on Figures 3-4, 3-5 and 3-7. A study by the U.S. Geological Survey

(Scientific Investigation Map 3081) shows that from 2004 to 2009 static water-level change in the Chicot aquifer in Fort Bend County ranged from about 20 feet of decline in the most northeast part of the county to 20 feet of rise in the easternmost part of the county.

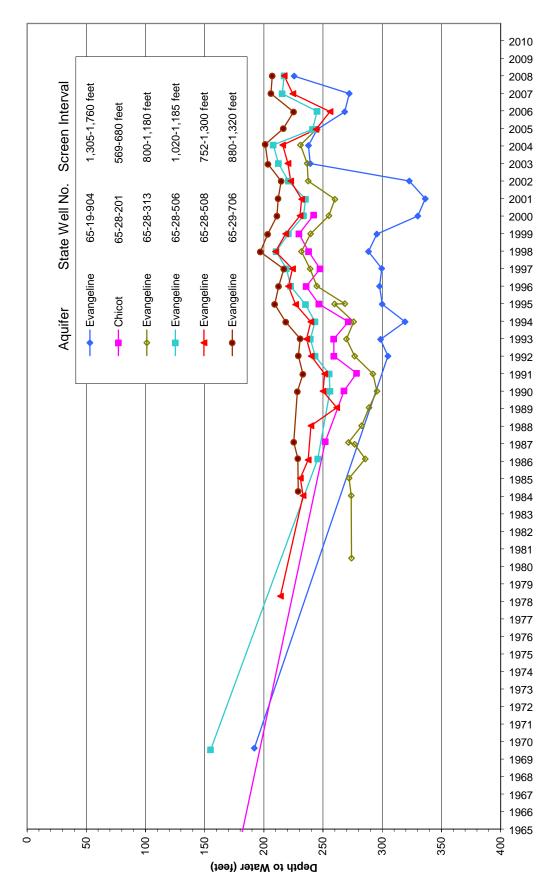
For the Evangeline aquifer, Scientific Investigation Map 3081 shows that from 2004 to 2009, static water-level declines ranged from zero to 40 feet in Fort Bend County with the largest amount of decline in the north part of the county. The southwest and west parts of the county showed essentially no static water-level decline from 2004 to 2009.

The Gulf Coast aquifer provides groundwater to Montgomery County, with the Jasper aquifer being the principal source for about two-thirds of the county, and the Chicot and Evangeline aquifers providing water in the south central and southeast parts of the county. The estimated groundwater availability from the Gulf Coast aquifer is about 64,000 acre-feet per year, based on the groundwater management plan adopted by the Lone Star Groundwater Conservation District. The estimate of groundwater availability is, for planning purposes, the largest amount of groundwater that can utilized based on the rules of the Lone Star GCD. The estimate of groundwater availability for the Lone Star GCD may change in the future, based on additional hydrogeologic and planning data that are developed by the District. Pumpage within the county was about 55,990 acre-feet in 2000 and 52,640 acre-feet in 2004, based on data from TWDB and the Lone Star GCD. Pumpage principally is in the central and southern parts of the county along the Interstate Highway 45 (IH 45) corridor, around Lake Conroe, and in the southeastern part of the county north of the City of Humble.

Past pumpage and subsequent aquifer response to pumpage show that the development of additional groundwater beyond the estimated availability within Montgomery County will cause further potentiometric head decline in wells. Groundwater pumpage should be spread throughout the county to take advantage of developing water in areas where aquifer conditions are favorable but where the demand has not developed for the water, which is principally in the western and eastern portions of the county away from the IH 45 corridor area.

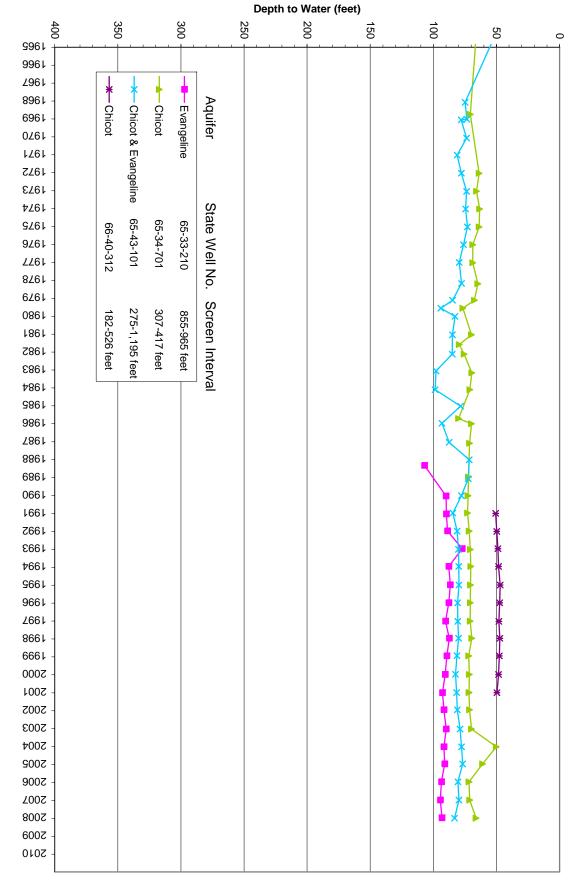
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Figure 3-4
East Fort Bend County – Static Water Levels in Wells



3-13

Figure 3-5
Southwest Fort Bend County – Static Water Levels in Wells



3-14

Figure 3-6 North Fort Bend County – Static Water Levels in Wells

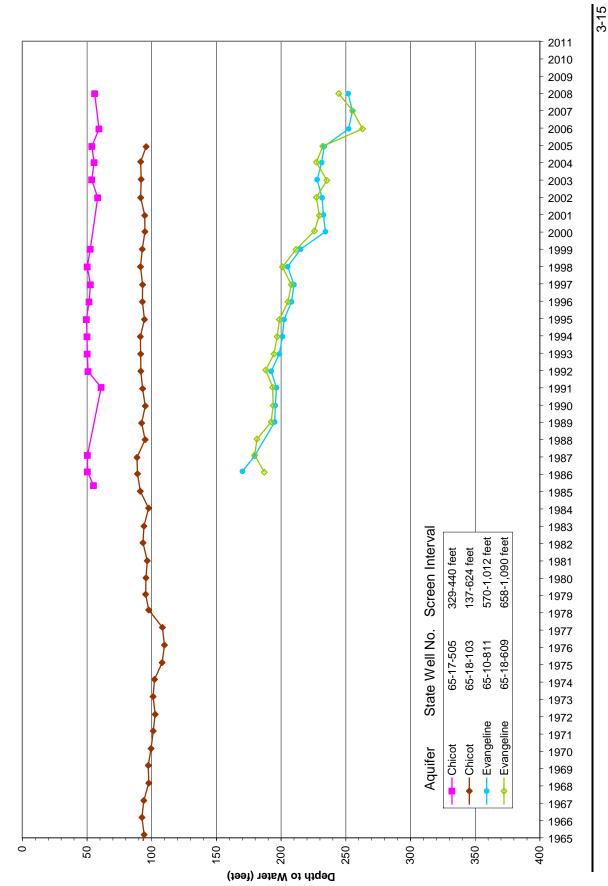
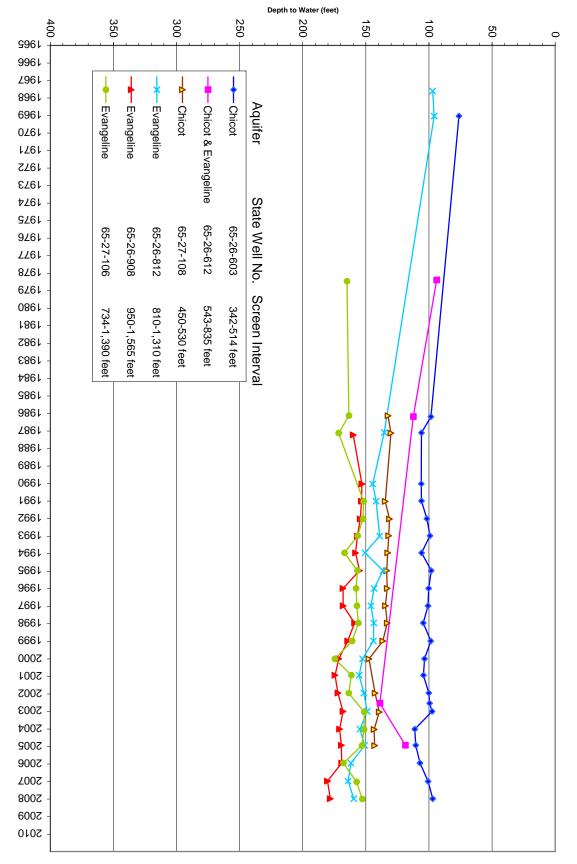


Figure 3-7
Central Fort Bend County – Static Water Levels in Wells



3-16

# 3.2.6 Public Supply Groundwater Usage

Region H relied on groundwater to provide approximately 50 percent or 527,006 acre-feet of the municipal water supply in 2000. Austin, Leon, Liberty, Madison, Montgomery and Waller Counties relied on groundwater to supply essentially 100 percent of the domestic and municipal demand. *Table 3-1* gives the amount of groundwater pumped for municipal purposes for each county in the region as reported by TWDB. Within the region, Harris County accounted for the most municipal groundwater usage in 2000 with 337,837 acre-feet. The next highest demands in 2000 were Fort Bend County with 68,257 acre-feet, Montgomery County with 52,333 acre-feet, and Brazoria County with 26,796 acre-feet. Municipal users represent cities and communities, parks, campgrounds, and water districts. The year 2000 had below normal precipitation for the year and during the summer months, so groundwater pumpage in 2000 was higher than normal.

According to TWDB and HGSD, in 2000 Region H relied on groundwater to provide approximately 8 percent of the water used for industrial purposes, which was approximately 51,607 acre-feet. Industrial consumption represents water that is used for manufacturing, mining, and steam-electric power. *Table 3-2* shows the amount of groundwater used for industrial purposes for each county in the region. Within the region, Harris County accounted for the most industrial groundwater usage in 2000 with approximately 20,800 acre-feet. The next highest users were Fort Bend County with 9,670 acre-feet, Liberty County with 8,952 acre-feet, and Chambers County with 4,063 acre-feet.

# 3.2.7 Industrial Groundwater Usage

According to TWDB and HGSD, in 2000 Region H relied on groundwater to provide approximately 8 percent of the water used for industrial purposes, which accounted for approximately 51,607 acre-feet of the groundwater used in Region H. Industrial consumption represents water that is used for manufacturing, mining, and steam-electric power. *Table 3-2* shows the amount of groundwater used for industrial purposes for each county in the region. Within the region, Harris County accounted for the most industrial groundwater usage in 2000 with approximately 20,800 acre-feet. The next highest users were Fort Bend with 9,670 acre-feet, Liberty with 8,952 acre-feet and Chambers with 4,063 acre-feet.

# 3.2.8 Agricultural Groundwater Usage

According to TWDB and HGSD, in 2000 Region H relied on groundwater to provide approximately 32 percent of the water used for agricultural purposes. This equaled approximately 14 percent or 92,953 acre-feet of the total groundwater used in the region. Agricultural usage represents water that is used for livestock purposes and irrigation of crops. The main agricultural crops in the region include rice, cotton and soybeans in the south and corn, cotton and hay in the north. Cattle are the principal livestock raised. *Table 3-3* shows the amount of groundwater used for agricultural purposes for each county in the region. Within the region, Fort Bend County accounted for the most agricultural groundwater usage in 2000 with 24,971 acre-feet. The next highest user is Waller County with 22,765 acre-feet followed by Harris County with approximately 20,800 acre-feet.

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Table 3-1
Municipal Groundwater Demand From 2000 TWDB Data

County	Total Groundwater Used (acre-feet)	Groundwater Used for Municipal Purposes (acre-feet)	Percent of County's Total Groundwater Used for Municipal Purposes	Percent of County's Municipal Water Demand Supplied by Groundwater
Austin	13,004	3,569	27.4	100.0
Brazoria	36,925	26,796	72.6	699
Chambers	6,355	2,014	31.7	45.5
Fort Bend	102,898	68,257	66.3	98.8
Galveston	5,791	5,163	89.2	14.0
Harris	379,209	337,837	89.1	42.1
Leon	4,849	1,883	38.8	100.0
Liberty	22,113	9,401	42.5	100.0
Madison	3,180	2,621	82.4	100.0
Montgomery	55,403	52,333	94.5	100.0
Polk	4,626	3,952	85.4	68.0
San Jacinto	2,931	2,742	93.6	96.8
Trinity	1,370	1,200	87.6	65.6
Walker	5,386	4,625	85.9	31.4
Waller	27,526	4,613	16.8	100.0
Total	671,566	527,006	78.5	

Table 3-2 Industrial Groundwater Demand From 2000 TWDB Data

County	Total Groundwater Used (acre-feet)	Groundwater Used for Industrial Purposes (acre-feet)	Percent of County's Total Groundwater Used for Industrial Purposes	Percent of County's Industrial Water Demand Supplied by Groundwater
Austin	13,004	204	1.6	97.6
Brazoria	36,925	2,139	5.8	1.9
Chambers	6,355	4,063	63.9	8.8
Fort Bend	102,898	9,670	9.4	13.7
Galveston	5,791	200	3.5	0.5
Harris	379,209	20,800	5.5	6.8
Leon	4,849	1,410	29.1	61.7
Liberty	22,113	8,952	40.5	100.0
Madison	3,180	211	6.6	100.0
Montgomery	55,403	2,800	5.1	62.1
Polk	4,626	419	9.1	79.4
San Jacinto	2,931	75	2.6	100.0
Trinity	1,370	8	0.6	100.0
Walker	5,386	508	9.4	20.1
Waller	27,526	148	0.5	100.0
Total	671,566	51,607	7.7	

Table 3-3 Agricultural Groundwater Demand From 2000 TWDB Data

County	Total Groundwater Used (acre-feet)	Groundwater Used for Agricultural Purposes (acre-feet)	Percent of County's Total Groundwater Used for Agricultural Purposes	Percent of County's Agricultural Water Demand Supplied by Groundwater
Austin	13,004	9,231	71.0	75.5
Brazoria	36,925	7,990	21.6	8.0
Chambers	6,355	278	4.4	0.7
Fort Bend	102,898	24,971	24.3	49.9
Galveston	5,791	200	3.5	3.9
Harris	379,209	20,800	5.5	89.8
Leon	4,849	1,556	32.1	69.7
Liberty	22,113	3,760	17.0	13.0
Madison	3,180	348	10.9	40.0
Montgomery	55,403	270	0.5	46.9
Polk	4,626	255	5.5	54.0
San Jacinto	2,931	114	3.9	12.0
Trinity	1,370	162	11.8	18.6
Walker	5,386	253	4.7	40.0
Waller	27,526	22,765	82.7	98.4
Total	671,566	92,953	13.8	

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# 3.2.9 Groundwater Drought Susceptibility

The aquifers within Region H generally have high transmissivity rates or values and are less susceptible to drought because there is a very large amount of water in storage in the aquifers to serve as a buffer, which means the static water levels do not fluctuate drastically during a severe drought. The static water levels recover following a drought when groundwater withdrawals are less. In general, Region H water suppliers have established drought triggers for their groundwater systems as a function of system capacity (wells, pumps, storage, etc.) as opposed to other regions where static aquifer groundwater levels are used as drought triggers.

# 3.2.10 Groundwater Availability Summary

Groundwater has been an important water resource within Region H for the past 100 years. The major Carrizo-Wilcox and Gulf Coast aquifers and minor Sparta, Queen City, Yegua-Jackson, and Brazos River alluvium aquifers should continue to provide an important water resource to the region that will be used in combination with surface water to help satisfy the regional water demand. Water of good quality continues to be available from the aquifers and should continue in the future with prudent resource management. Groundwater supplies were calculated for each county and basin from various sources and are provided in *Table 3A.1*.

For aquifers in Fort Bend, Galveston and Harris Counties, which are within the jurisdictions of FBSD and HGSD, the available supplies shown in *Table 3A.1* represent the regulated groundwater supplies set by the districts and not necessarily the amount of water available from the aquifer. Water User Groups that are not regulated by the subsidence districts, such as irrigators and small domestic well users, would be allowed to withdraw water in excess of these supplies in order to meet their demands. The certified groundwater management plan for the Bluebonnet Groundwater Conservation District was used as a basis for estimating groundwater availability in Austin and Walker Counties. The certified groundwater management plan for the Lone Star Groundwater Conservation District was used as a basis for determining or estimating groundwater availability in Montgomery County.

Groundwater availability within HGSD is consistent with the HGSD groundwater reduction plan through 2030. Groundwater availability within HGSD may change a modest amount after 2030 depending on updates to the groundwater reduction plan in future years. For this current planning effort it is assumed that groundwater availability will remain the same after 2030 within HGSD with the understanding that if the district's groundwater reduction plan is revised at a future date, the estimates of groundwater availability after 2030 may also be revised.

Groundwater availability within Austin, Waller and Walker Counties is based on information provided by the Bluebonnet Groundwater Conservation District. The district is participating in the GMA-14 effort which is developing desired future conditions for the aquifers. That planning effort is to be completed by September 2010. Groundwater availability in Austin, Waller and Walker Counties may change a modest amount based on the results of the GMA-14 desired future conditions planning effort. If that occurs, revised estimates of groundwater availability will be included in future Region H planning efforts.

# 3.3 Identification of Surface Water Sources

As stated in *Chapter 1*, surface water sources in Region H consist of reservoir storage, ROR supply from three rivers (the Trinity, San Jacinto and Brazos) and four coastal basins (the Neches-Trinity, Trinity-San Jacinto, San Jacinto-Brazos and Brazos-Colorado). The water supply information presented is based on the Texas Commission on Environmental Quality (TCEQ) Water Availability Models (WAM), updated specifically for the Regional Water Plan. A map showing major surface water sources that serve Region H is included as *Figure 3-8*.

# 3.3.1 Available Surface Water

Surface water availability was estimated using the TCEQ WAM for the river basins within Region H. The WAMs use the Water Rights Analysis Package (WRAP), developed at Texas A&M University, to simulate diversions under current and future conditions using historical rainfall and evaporation data (the model does not increase diversion amounts over time, as will actually occur). Instead, the model simulates one set of monthly diversion targets attempted annually against a historical inflow dataset, which is typically 50 years long and varies each year. The drought of record (DOR) for most of Texas occurred in the 1950s and is reflected in the historic dataset for each basin. Water diversions are modeled according to the parameters of each particular water right and are taken in priority order, such that the most senior water rights are satisfied before junior rights are allowed to divert water. Output files are compared by reviewing the statistical frequency of meeting diversion amounts or target instream flow levels.

In the 2006 Region H Water Plan the reliability of run-of-river water rights was evaluated in terms of reliable yield; that is, the least amount of water diverted amongst all of the calendar years modeled. While this assumption is adequate for water users that may not require steady monthly diversions during a drought of record, other users such as municipal and industrial demands typically require a higher degree of water availability. To address this concern, the 2011 Region H Water Plan evaluated water rights on a monthly basis in addition to an annual basis. The monthly firm yield of run-of-river water rights was evaluated by iteratively reducing the annual target diversions until no monthly shortages occur throughout the simulation period. The reliable yield of a water right is the least amount of water diverted among all of the calendar years modeled.

For reservoirs, an additional step is required to determine firm yield. Water stored in reservoirs allows diversions to continue during periods of drought; however, diverting at high rates rapidly depletes storage. To find the optimal target for a reservoir an iterative process is used, modeling the permitted diversion first at its full authorized amount and then at reduced target diversions until a yield is identified that is met throughout the simulation period.

There were originally eight WAM scenarios (referred to as model runs) simulated under the TCEQ program. The Guidelines for Regional Water Planning require the use of WAM Run 3, full-authorized diversion of current water rights with no return flows, when determining the supply available to the region. This is a very conservative approach, since diversions for municipal and manufacturing users typically return up to 60 percent of that water to streams as treated wastewater effluent. However, the majority of water rights do not address return flows to source streams, implying a right to full consumptive use. The Region H Planning Group adopted the Region G – Brazos G WAM which modified the Brazos River WAM Run 3 to allow for some return flows from wastewater plants in the Brazos River basin. Further discussion of the Brazos G WAM is described in detail in *Section 3.3.1.6 Brazos River Basin*.

Table 3-4 summarizes the projected yield from surface water supply sources currently available to Region H. The total estimated 2060 yield available to Region H (approximately 2,641,400 acre-feet per year) is approximately equal to the estimated total in the 2006 Regional Water Plan, but the distribution between permits has changed. The yield of several reservoirs decreased due to the projected storage loss as a result of sedimentation, but additional water rights were added as a result of the WAM modeling. The major water rights and modeling assumptions for each basin are discussed in detail below.

Figure 3-8
Major Surface Water Sources

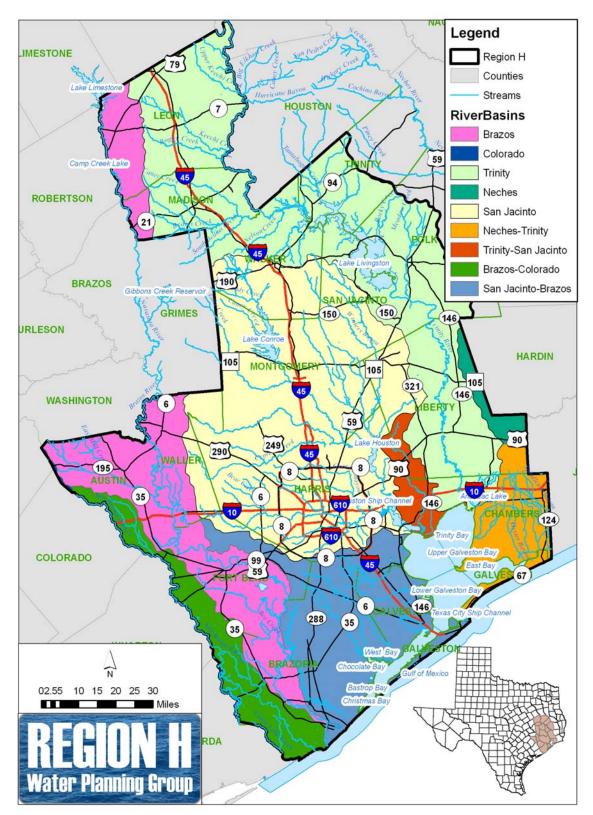


Table 3-4
Current Surface Water Supply Sources Available in Region H

Projected Year 2060 Available Yield				
Basin/Reservoir/Run-of-River	(acre-feet/year)			
Sam Rayburn Reservoir and Neches Basin Supplies <sup>1</sup>	64,177			
Neches-Trinity Coastal Basin	21,754			
Trinity Basin				
Lake Livingston/Wallisville	1,344,000			
Run-of-River, Lower Basin	224,530			
Trinity – San Jacinto Coastal Basin	34,313			
San Jacinto River Basin				
Lake Houston	168,000			
Lake Houston Additional Yield	5,000			
Lake Conroe	74,300			
Run-of-River	55,000			
San Jacinto – Brazos Coastal Basin	33,051			
Brazos River Basin				
BRA/COE System <sup>2</sup>	155,031			
Run-of-River, Lower Basin	418,311			
Brazos – Colorado Coastal Basin	12,019			
Local Supplies (i.e. Stock ponds, etc), all basins	31,895			
Total Existing Surface Water Supply Available to Serve Region H	2,641,381			

<sup>&</sup>lt;sup>1</sup> The total yield of Sam Rayburn Reservoir is approximately 820,000 acre-feet/year. The value shown only includes the portion currently contracted to customers within Region H.

The TCEQ WAM models were updated to add new water rights and reflect the effects of sedimentation on reservoirs. Reservoirs reduce the velocity of the streams they impound, causing suspended soil particles to settle; over time, storage volume is lost due to this accumulation. Sedimentation rates were determined and applied to on-channel reservoirs to calculate the year 2000 and year 2060 storage volumes (see *Table 3-5*). The WAM model was then run under each storage condition. The storage capacity lost to sedimentation reduced the yield of most reservoirs in the year 2060. This change in yield was represented as a linear decline over time in the summary tables.

<sup>&</sup>lt;sup>2</sup> This amount is based on current contracts within Region H. The total yield of the BRA/COE system is approximately 650,000 acre-feet/year.

vvalei Suppiy Neservoii Capacities						
	Surface	St	torage Capaci	ty		
Reservoir	Elev. (feet msl)	Original (ac-ft)	<b>2000</b> (ac-ft)	<b>2060</b> (ac-ft)		
Trinity Basin						
Livingston	131.0	1,741,867	1,738,326	1,717,083		
Anahuac	5.0	35,300	25,781	25,691		
San Jacinto Basin						
Houston	44.5	133,990	131,547	106,409		
Conroe	201.0	416,228	414,143	377,567		
Brazos Basin – BRA/COE System						
Aquilla	537.5	52,400	45,319	20,437		
Alan Henry	2220.0	115,937	94,808	39,478		
Belton	594.0	457,600	437,656	415,255		
Georgetown	791.0	37,100	36,904	36,519		
Granger	504.0	82,000	52,525	20,973		
Stillhouse Hollow	622.0	235,700	227,825	216,165		
Granbury	693.0	153,500	129,011	87,743		
Possum Kingdom	987.0	724,738	540,340	398,000		
Whitney	533.0	627,100	554,203	504,153		
Limestone	363.0	217,494	208,017	172,405		
Proctor	1162.0	59,400	55,457	49,599		
Somerville	238.0	160,100	147,104	126,869		

Table 3-5
Water Supply Reservoir Capacities

The total supply available from each source available to Region H is included in *Table 3A.1*, *Current Water Sources*, in *Appendix 3A*. In general, *Table 3A.1* indicates the maximum amount of water supply that could be obtained during DOR conditions from each supply source. This information was compiled from existing contracts and water rights in Region H, the updated WAM for surface water supplies and groundwater studies addressed in *Section 3.2* of this chapter. Not all of the sources listed in *Table 3A.1* are exclusively available to Region H. Reservoirs located in the upper portions of the Brazos, Trinity and Neches basins are shown with their firm yield, but the portion of that yield available within Region H is limited to the contracted amounts.

# 3.3.1.1 Neches-Trinity Coastal Basin

Surface supplies in the Neches-Trinity Coastal River Basin were modeled using the TCEQ WAM Run 3 model. Of the water right permits totaling 70,175 acre-feet per year from the Neches-Trinity coastal basin, 40,191 acre-feet per year were reliable during the DOR. Approximately one-third of this firm total is the U.S. Fish and Wildlife Service water right for the Anahuac National Wildlife Refuge. Water rights yielding over 500 acre-feet per year for consumptive uses (all for irrigation) are listed in *Table 3A.1* and have a total reliable yield of 21,754 acre-feet per year. This is almost identical to the basin yield estimated in the 2006 Regional Water Plan (21,701 acre-feet per year). The WRAP input file for this model is included in *Appendix 3B*.

# 3.3.1.2 Trinity River Basin

The Trinity River Basin contains 32 major reservoirs, including two Region H sources, Lake Livingston/Wallisville and Lake Anahuac. The permitted yield of Lake Livingston was diminished using WAM Run 3, but showed a firm yield in excess of the permit amount in the TCEQ WAM Run 1 (full use with expected return flows). In the 2006 Region H Water Plan it was assumed that sufficient

return flow from the Upper Trinity Basin would be available throughout the planning period to make Lake Livingston's permitted yield firm. As part of the 2011 Region Water Plan Update, a special study was included to analyze the upper basin demands, reuse strategies and return flows projected in the 2006 Region C Water Plan and the effects on the firm yield of Lake Livingston. The study also included updates to reuse strategies and projected return flow estimates identified in the 2008 Region C Water Conservation and Reuse Study. The 2011 Region H plan identified the following:

- Projected Return Flows Available at the Oakwood Gage (CP 8TROA)
- Firm Yield of Lake Livingston during each planning period decade
- Necessary level of return flows required to make the permitted yield of Lake Livingston firm

The firm yield of the Lake Livingston water rights is expected to decrease from the full permitted yield of 1,344,000 acre-ft per year in the year 2010 to 1,265,000 acre-ft per year in the year 2030. The decrease in firm yield is the result of increasing amounts of reuse projected in the upper basin, reducing the amount of return flows available to Region H. The firm yield is then projected to increase after 2030 as Region C begins to import water supplies to meet growing demands. By the year 2050 the permitted yield of Lake Livingston is projected to be firm. The projected reductions in the firm yield of Lake Livingston are anticipated to be a conservative estimate, as the upper basin is not expected to implement all of the reuse strategies recommended in the 2006 Region C Plan. The results of the study are summarized below:

- Minimum upper basin net return flows of 253,055 acre-ft per year projected in 2030
- Minimum return flows available to Region H in 2030 of approximately 185,500 acre-ft per year
- Firm yield of Lake Livingston water rights are reduced in decades 2020, 2030 and 2040
- Minimum firm yield of Lake Livingston water rights is approximately 1,265,000 acre-ft per year in 2030
- Minimum level of return flows required to make Lake Livingston water rights firm is approximately 285,000 acre-ft per year in 2060

A summary of the return flow analysis and Lake Livingston yield analysis was prepared to coordinate the findings of this study with Region C. The summary report is included in *Appendix 3C*. The WRAP input files for this analysis are included in *Appendix 3B*.

The reliability of three lower Trinity River ROR supplies came from a set of "fixed right" agreements. The agreements are between the Trinity River Authority (TRA) and the City of Houston (COH) (who jointly own the water rights for Lake Livingston) and three providers of irrigation-water. These irrigation-water providers are the Chambers-Liberty Counties Navigation District (CLCND), the American Rice Growers Co-op Association (Dayton Canal), and the Lower Neches Valley Authority (LNVA) which owns and operates the Devers Canal. Pursuant to the fixed right agreement CLCND, Dayton Canal, and Devers Canal are entitled to divert up to 88,820, 33,000, and 86,000 acre-feet per year, respectively. These diversions occur from the Trinity River and some tributaries of the Trinity River. Although these diversions physically take place downstream of Lake Livingston, they are senior in priority to the Lake Livingston water rights.

Approximately 27,500 acre-feet per year of the Devers Canal's 86,000 acre-feet per year is part of Lake Livingston yield and is reflected in the plan as a contractual commitment of the TRA. Fifty-six thousand, of the remaining 58,500 acre-feet per year of the Devers Canal yield, was purchased by the San Jacinto River Authority (SJRA), for use in the Trinity-San Jacinto Coastal Basin.

Houston recently purchased outright the entire amount of the Dayton Canal fixed right agreement. Additionally, Houston holds another water right in the Trinity River Basin with an authorized diversion of 45,000 acre-feet per year from the Old River Tributary of the Trinity River. The reliable yield of the run-of-river right is 26,510 acre-ft per year.

In addition to the 58,820 acre-feet per year in the fixed right agreements, CLCND also owns the rights (39,613 acre-feet per year, of which 17,700 acre-feet per year is reliable) to the Turtle Bayou (Lake Anahuac) supply in the Trinity River Basin. The SJRA purchased a portion (30,000 acre-feet per year) of CLCND's fixed right in 2001. The ownership of the Trinity River Basin supplies is summarized in *Table 3-6*.

Table 3-6
Ownership of Trinity River Basin Supplies

Owner	Source	Permitted Amount (acre-feet/year)	2060 Reliable Yield (acre-feet/year)
СОН	Lake Livingston/Wallisville System	940,800	940,800
TRA	Lake Livingston/Wallisville System	403,200	403,200
СОН	Trinity River and Big Ditch	38,000	33,000
СОН	Old River Tributary	45,000	26,510
SJRA	Trinity River	86,000	86,000
CLCND	Trinity River	73,334	58,820
CLCND	Lake Anahuac	39,613	17,700
LNVA	Trinity River	2,500	2,500
	Total	1,628,447	1,568,530

The supply amounts shown for the Lake Livingston/Wallisville Saltwater Barrier system are the total permitted diversions for each body of water, as discussed in the paragraph above. The City of Houston has a permit to divert 902,800 acre-feet per year from Lake Livingston and 38,000 acre-feet per year from the Wallisville Saltwater Barrier. The TRA has a permit to divert 351,600 acre-feet per year from Lake Livingston and 51,600 acre-feet per year from the Wallisville Saltwater Barrier. Not all of this water would be available to Region H. Of the amount that is owned by the TRA, approximately 26,900 acre-feet per year is committed outside of Region H. In addition, it should be noted that physical diversions are not made from the Wallisville Saltwater Barrier, but the combined yield of Lake Livingston is increased when operated in conjunction with the Wallisville Saltwater Barrier. The increase in yield is a result of the barrier precluding the need for salinity reduction releases for downstream senior water rights.

# 3.3.1.3 Trinity-San Jacinto Coastal Basin

The surface water supply in the Trinity-San Jacinto Coastal Basin was modeled using WAM Run 3. Water right permits totaling 44,473 acre-feet per year from the Trinity-San Jacinto Coastal Basin were analyzed using the water availability model. Of this, 34,973 acre-feet per year was found to be reliable during the DOR. Water rights yielding over 500 acre-feet per year for consumptive uses are listed in *Table 3A.1* located in *Appendix 3A*, and total 34,313 acre-feet per year. NRG's Cedar Bayou plant has a permit to divert 30,000 acre-feet per year of saline water from Cedar Bayou, which accounts for most of the firm supply. The remaining 4,313 acre-feet per year of reliable yield are irrigation rights. The WRAP input file for this model is included in *Appendix 3B*.

# 3.3.1.4 San Jacinto River Basin

The surface water supply in the San Jacinto River Basin was modeled using WAM Run 3. Water right permits totaling 374,544 acre-feet per year from the San Jacinto River Basin were analyzed using the water availability model. Of the 374,544 acre-feet per year permitted, 302,300 acre-feet per year was found to be reliable during the DOR. In addition to the surface water rights, the Indirect Reuse Water Right 10-5809 was issued in June 2004 and included in *Table 3A.1* (*Appendix 3A*). The WRAP input file for this model is included in *Appendix 3B*.

The only reliable ROR diversion right included for the basin is the SJRA permit for 55,000 acre-feet per year. SJRA diversions are physically made from Lake Houston and are the primary source of water for the SJRA Highlands Canal System. The water right is included in the TCEQ model as a run-of-river right as originally permitted. However, the reliability of the water right is based on a water contract between the City of Houston and the San Jacinto River Authority. As a result, the 2011 Region H Water Plan recommends the full permitted amounts of 55,000 acre-ft per year for the SJRA run of river permit and 168,000 acre-ft per year for the original Lake Houston permit as reliable in accordance with the 2001 and 2006 Region H Water Plans. Other reliable run-of-river water rights in the basin were either for recreation or less than 500 acre-feet per year and were not included in *Table 3A.1 (Appendix 3A)*. In September 2009, the TCEQ granted an additional 80,000 acre-feet of run-of-river split between the City of Houston and the SJRA. Physically, diversions will be made from Lake Houston at existing COH and SJRA pump stations. The supply is not 100% reliable but will allow for the use of the in-basin supply, when available, in lieu of transferring water from the Trinity Basin.

## **Lake Houston**

The available yield of Lake Houston is determined from two permitted diversions. The original permitted diversion of Lake Houston, 168,000 acre-feet per year, is firm throughout the planning period. This is due to the downstream location of Lake Houston on the San Jacinto River and its seniority relative to other major water rights in the basin. The COH owns the entire original permitted yield from Lake Houston. The 2006 Region H Water Plan included additional yield from Lake Houston as a recommended water management strategy. In 2008, the TCEQ granted the additional yield from Lake Houston (Permit No. 5807) with a permitted diversion of 28,200 acre-feet per year. The 2011 Plan has been updated to include the additional yield from Lake Houston as part of the available supply. Using the 2060 sedimentation condition, only an additional 5,000 acre-feet per year is available from Lake Houston in 2060 (173,000 acre-ft per year) is the sum of the supply available from the original permit (168,000 acre-feet per year) and the additional yield permit (5,000 acre-feet per year).

# **Lake Conroe**

The Lake Conroe yield declined from its permitted amount of 100,000 acre-feet per year to 74,300 acre-feet per year due to the WAM Run 3 condition and the year 2060 storage capacity estimate. The WAM Run 3 assumption that no return flows will be available greatly impacted the streamflows in the lower San Jacinto Basin. Lake Houston is senior to Lake Conroe, which results in Lake Conroe passing inflows when Lake Houston storage levels drop. As a result of the removal of return flows from the model, Lake Conroe passes more inflows in order to keep Lake Houston full. Also, the bathymetric survey used to determine the sedimentation rate for Lake Conroe identifies a potential discrepancy in the original volumetric capacity of Lake Conroe. This discrepancy likely resulted in a higher than actual sedimentation rate, which also reduces the yield over a 60-year period. The COH and SJRA jointly own the water rights for Lake Conroe. The COH's portion is 66,667 acre-feet per year from Lake Conroe, with an estimated year 2060 reliable yield of 49,038 acre-feet per year. The SJRA portion is 33,333 acre-feet per year from Lake Conroe, with an estimated year 2060 reliable yield of 25,262 acre-feet per year.

Entergy (formerly Gulf States Utility Company) has a contractual agreement with SJRA to divert water from Lake Conroe into Lewis Creek Reservoir. In the TCEQ WAM Run 3, this permit is represented as a separate water right. This was corrected in the 2006 Plan and represented as a contract.

### 3.3.1.5 San Jacinto-Brazos Coastal Basin

Surface supply in the San Jacinto-Brazos Coastal Basin was modeled using Run 3. Water right permits totaling 120,919 acre-feet per year from the San Jacinto-Brazos Coastal Basin were analyzed using the water availability model. Of the 120,919 acre-feet permitted, only 37,569 acre-feet per year was found to be reliable during the DOR. Water rights yielding over 500 acre-feet per year for consumptive uses are listed in Table 3A.1 of Appendix 3A, and total 33,051 acre-feet per year. NRG's Webster plant had a permit to divert 4,440 acre-feet per year of saline water. Since 2006 the permit has been canceled at the request of NRG. The Gulf Coast Water Authority (GCWA) owns two water rights in the San-Jacinto Basin including one water right recently acquired from the former Chocolate Bayou Water Company (CBWC). The GCWA water right C5169 was represented in the 2006 Region H Water Plan with a reliable yield of 3,842 acre-ft per year. However, the water right is used for impoundment in the Sugarland area and not as a source to supply water contracts according to GCWA. The GCWA system availability is discussed further in Section 3.3.1.6. To reflect this, the availability of the water right recommended in the 2011 Region H Water Plan is 0 acre-ft per year. The reliable yield of water right C5357 was reduced from 17,600 acre-ft per year in the 2006 Region H plan to 15,930 acre-ft per year in the 2011 Plan. The firm portion of this supply is 2,120 acre-feet per year. The WRAP input file for this model is included in the Brazos Basin WRAP input file in Appendix 3B.

## 3.3.1.6 Brazos River Basin

Surface supply in the Brazos River Basin was modeled by the Consultant for the Brazos G Water Planning Group. A survey of wastewater plant operators within the Brazos Basin was conducted to determine the amount of anticipated reuse during the planning period. Based on the survey results, WAM Run 3 was modified to allow 65,256 acre-feet per year (58.3 million gallons per day [mgd]) of return flows in the model in the 2010 decade and 128,503 acre-feet per year (114.7 million gallons per day [mgd]) of return flows in the 2060 decade. There are water right permits in the Brazos River Basin of Region H totaling 866,351 acre-feet per year. The modeled annual reliable yield of these rights was 488,419 acre-feet per year. Water rights yielding over 500 acre-feet per year for consumptive uses are listed in *Table 3A.1* of *Appendix 3A* and total 418,311 acre-feet per year. The WRAP input file for this model is included in *Appendix 3B*.

There was a significant reduction in expected yield from the lower Brazos Basin despite the allowance of limited return flows in the model. The largest decline was seen in the Dow Chemical water right, with an authorized diversion of 321,856 acre-feet per year. The reliable yield of this right was reduced from 148,052 acre-feet per year in the 2006 Plan to 137,475 acre-feet per year in the 2011 Plan due to reduced return flows. Similarly, the Brazosport Water Authority water right yield decreased from 23,017 acre-feet per year to 16,492 acre-feet per year. Despite the yield reductions for several water rights in the basin, some firm yields increased. The Richmond Irrigation Company water right was estimated at 29,920 acre-feet per year in the 2006 Region H Water Plan and was not reduced under this model. Similarly, NRG Energy Inc's yield from Smithers Lake remained unchanged at 34,300 acre-feet per year.

The Gulf Coast Water Authority holds three water rights in the Brazos Basin, including a recently purchased water right previously owned by the former Chocolate Bayou Water Company. In the 2006 Region H Water Plan, the combined reliable yield of the three rights was estimated at 235,005 acre-feet per year based on the minimum annual diversion during the drought of record. Under this model scenario, the estimated reliable yield fell to 229,786 acre-feet per year due to lower estimated return flows from the upper basin. The combined firm yield of the three water rights is approximately 78,344 acre-ft per year when analyzed on a monthly basis. This is the result of water

rights C5171 and C5322, which are not reliable during the months of July and August during the Drought of Record.

After discussing the water availability with the GCWA, a monthly analysis of the GCWA contracts and reliable yields was conducted. This allowed the reliable yield of the water rights to be analyzed as a system rather than individually. In addition to the three water rights in the Brazos Basin, the analysis also included reliable yield from a GCWA water right in the San Jacinto – Brazos Basin, water supply contracts from the BRA and existing contracts for future supply from the GCWA. The existing contracts for future supply consist of several contracts that will be available after 2015 once the required infrastructure is constructed to treat additional raw water from the GCWA. A strategy will be developed in *Chapter 4* to allocate the supplies provided to these contracts. The analysis concluded that from the combination of sources, the GCWA was able to provide 256,838 acre-feet per year to meet contractual demands. Of this supply, 198,323 acre-feet per year is supplied from the three run-of-river water rights in the Brazos Basin. The remaining supplies come from a water right in the San Jacinto – Brazos and supplies contracted from the BRA.

# Brazos River Authority/U.S. Army Corps of Engineers System (BRA/COE)

The Brazos River Authority stores water in a system of water supply and flood control reservoirs in the middle and upper basins. The Authority owns Possum Kingdom, Granbury, and Limestone Reservoirs. The U.S. Army Corps of Engineers owns the remaining reservoirs in the system. The supply amounts included in *Appendix 3A* for these facilities were provided by the Brazos G Water Planning Group. The combined firm yield of the BRA Reservoirs is estimated at 650,477 acre-feet per year assuming 2010 sedimentation conditions. The portion of this yield available to Region H is reflected in supply contracts between the BRA and customers in this region. Those contracts total 155,030 acre-feet per year.

# 3.3.1.7 Brazos-Colorado Coastal Basin

The Brazos-Colorado Coastal Basin contains the lower reach of the San Bernard River. The model for this basin was included in the Colorado River WAM, prepared by RJ Brandes Co. for the TCEQ. Two water rights were identified within Brazoria County, and the WAM Run 3 results for these rights are identified in this report. A year 2060 iteration was not made for this basin because sedimentation was not anticipated in the off-channel reservoir associated with these rights. The WRAP input file for this model is included in *Appendix 3B*.

# 3.3.1.8 Lake Sam Rayburn

A water supply allocated from Lake Sam Rayburn in the Neches River Basin, listed in *Table 3A.1*, represents contracted amounts from the Lower Neches Valley Authority by the Trinity Bay Conservation District, the Bolivar Peninsular SUD and irrigators in Chambers and Liberty Counties. The full yield of the lake was obtained from the East Texas Water Planning Group, and the contract amounts are reflected in both regional plans.

# 3.3.1.9 Local Supplies

Local supplies (stock ponds, catchments, etc.) that cannot be related to reported groundwater or surface water use are currently meeting certain livestock and mining demands. The TCEQ allows a landowner to impound up to 200 acre-feet of water without obtaining a water right. Numerous local supplies are included as surface water supplies in *Appendix 3A*.

# 3.3.2 Discussion of Modeling Results

It is important to note that the TCEQ WAMs are based on historic hydrologic data to account for rainfall and evaporation losses. While the model provides an approximation of water right availability

during the drought of record, the model does not predict water right availability in future droughts which may have different hydrologic conditions. The models generally do not include return flows that often increase the reliability of downstream water rights. The reliability of water rights that rely on reservoir storage is also based on assumed sedimentation rates that are projected through the planning period. While this assumption is good for planning purposes, it may not reflect current sedimentation rates. The models also contain assumptions in the internal modeling routines that affect the accuracy of results. Currently, the models are also not able to simulate the interaction between groundwater and surface water supplies.

# 3.3.3 Surface Water Drought Susceptibility

Within this report, the surface water reservoir and ROR supplies represent firm yield and reliable quantities, respectively. However, surface water is dependent on rainfall, and future droughts cannot be expected to follow the same pattern as the DOR used in the WAM. Therefore, the river authorities and water providers in Region H maintain Drought Contingency Plans prepared under provision of the *Texas Administrative Code, Section 30, Chapter 288* for their respective shares of these supplies. These drought plans are highlighted in *Table 3-7* and tabulated in detail in *Appendix 3D*. While each water provider utilizes unique criteria to define drought stages, their drought contingency plans use a common methodology. A first-stage trigger is used to initiate customer notification systems and voluntary use reductions. A second-stage trigger is used to initiate mandatory use reductions. Finally, a third-stage trigger is used to initiate additional use reductions and/or the suspension of service to some customers.

Table 3-7

Typical Drought Triggers for Region H Supplies

Water Source/ Established By	Drought Type	Trigger Condition and Duration
Lake Livingston – Wallisville System/TRA	Mild	Lake Livingston elevation is <126.50 feet at USGS gage, condition lasts 1 day
	Moderate	Lake Livingston elevation is <124.00 feet at USGS gage, condition lasts 1 day
	Severe	Lake Livingston elevation is <121.40 feet at USGS gage, condition lasts 1 day
Lake Conroe/SJRA	Mild	Elevation <198 feet (85% of storage capacity), condition lasts 1 day
	Moderate	Elevation <190 feet (55% of storage capacity), condition lasts 1 day
	Severe	Elevation<185 feet (40% of storage capacity), condition lasts one day
Houston System Reservoirs/ City of Houston	Mild	Combined storage (Lakes Livingston and Houston) is less than 24 months surface water supply, condition lasts 10 consecutive days
	Serious	Combined storage (Lakes Livingston and Houston) is less than 18 months surface water supply, condition lasts 10 consecutive days
	Severe	Combined storage (Lakes Livingston and Houston) is less than 12 months surface water supply, condition lasts 10 consecutive days
Brazos River at Richmond/GCWA	Mild	12.19 feet or 1700 cfs, condition lasts 1 day
	Moderate	11.93 feet or 1500 cfs, condition lasts 1 day
	Watch	11.65 feet or 1300 cfs, condition lasts 1 day
	Warning	11.23 feet or 1000 cfs, condition lasts 1 day
BRA System Reservoirs/BRA	Watch	For a reservoir/reservoir system, when storage is < Stage 1 Trigger level and could be reduced to Stage 2 Trigger or less during the next 12 months.  For the entire Authority system, when the combined storage of the Authority system is < Stage 1 Trigger level and could be reduced to Stage 2 Trigger or less during the next 12 months.
	Warning	For a reservoir/reservoir system, when storage is < Stage 2 Trigger level and could be reduced to Stage 3 Trigger or less during the next 12 months.  For the entire Authority system, when the combined storage of the Authority system is < Stage 2 Trigger level and could be reduced to Stage 3 Trigger or less during the next 12 months.
	Emergency	For a reservoir/reservoir system, when storage is < Stage 3 Trigger level.  For the entire Authority system, when the combined storage of the Authority system is < Stage 3 Trigger level.

# 3.3.4 Surface Water Conveyance Systems

Region H contains a number of raw surface water conveyance systems (pipelines, canals, and pump stations). The conveyance systems lie primarily in the coastal river basins in the southern counties of Region H. The main canal systems belong to the COH, CWA, Gulf Coast Water Authority (GCWA), TRA, Lower Neches Valley Authority (LNVA), Chocolate Bayou Water Company (now part of the GCWA), SJRA, CLCND, and Dow Chemical. The information in this section was gathered from each of the entities listed above and the Trans-Texas Water Program Phase I Report for the Southeast Area. These systems are shown in *Figure 3-9*.

The CWA network consists of a main conveyance canal system and a pipeline distribution system. The conveyance system includes the Trinity River pump station, the main canal, the Lynchburg Reservoir, the Cedar Point lateral, the Lake Houston pump station, and the west canal. The Trinity River pump station near Liberty has been expanded to the ultimate design capacity of 1,400 mgd. The main canal runs westerly from the Trinity River pump station about 22 miles to the Lynchburg Reservoir (north of the Houston Ship Channel). The total capacity of the canal is approximately 1,300 mgd from the Trinity River Pump Station to the Cedar Point lateral. Downstream of the Cedar Point lateral, the canal has a capacity of 1,100 mgd. The Lynchburg Reservoir has an impoundment capacity of 4,600 acre-feet. The Cedar Point lateral, with a design capacity of 230 mgd, is located about 8 miles southwest of the Trinity River pump station and diverts water from the main canal southward. The Lake Houston pump station diverts water from Lake Houston into the CWA west canal, which travels southwesterly until it terminates at the COH East Water Purification Plant. The CWA distribution system consists of pressure pipelines that start at the Lynchburg Reservoir with the Lynchburg pump station and extend southwest about 10 miles to the Bayport Industrial Complex and eastward along State Highway (SH) 225 conveying raw water to industrial users and to the Southeast Water Purification Plant (SEWPP).

The GCWA system consists of three main canals that deliver water from the Brazos River to Fort Bend, Brazoria, and Galveston Counties: the American Canal, the Briscoe Canal, and the Galveston Canal System. The American Canal runs parallel to SH 6 southeasterly from the Brazos River lift station (the Shannon Plant, which is 12 miles north of Rosenberg) to Alvin, Texas. The Briscoe Canal runs southeasterly from the Brazos River pump station (the Briscoe Plant, which is 6 miles west of Arcola) to Alvin and then to an industrial complex in southern Brazoria County. The American Canal is connected to the Briscoe Canal by "Lateral 10" just west of Manvel. The Galveston Canal System extends from the old Briscoe system southeast of Alvin to the GCWA Reservoir (four miles east of Dickinson). The Galveston Canal System connects to the American Canal six miles east of Alvin. The Gulf Coast Water Authority has three pump stations: the Shannon Plant with a total capacity of 347 mgd, the Briscoe Plant with a total capacity of 302.4 mgd, and the American Canal's second lift station located in Sugar Land with a total capacity of 225 mgd.

The GCWA has recently purchased water rights formerly held by the Chocolate Bayou Water Company. The former Chocolate Bayou Water Company distribution system is divided into two sections. The Juliff section, also known as the old South Texas Water system, transports water from the Juliff pump station on the Brazos River near the Fort Bend-Brazoria County border, and the Chocolate Bayou Canal section, which transports water from Chocolate Bayou near Liverpool. The Juliff section has two main canals (the North Canal and the Main Canal) and the Angleton Lateral. This section provides irrigation water to rice farmers and some industrial water to Brazoria County. The Chocolate Bayou Canal section has its main pump station on Chocolate Bayou, but there are additional pump stations on Mustang Bayou and Halls Bayou as well. This section also provides irrigation and industrial water to Brazoria County.

The Dayton Canal is a small system that serves Liberty County. The canal, which diverts from the Trinity River, extends about 20 miles west of the river and has an estimated capacity of 90 mgd.

The Devers Canal System currently delivers irrigation water easterly from the Trinity River to customers in Liberty and Chambers Counties. The main canal system is 81 miles with 125 miles of laterals. Due to the flat grade of the main canal, the flow can be reversed to flow westerly. The system contains two pump stations. The first one on the Devers main canal at the Trinity River has a total rated capacity of 295 mgd, and the second pump station (near SH 563) has a total capacity of 274 mgd. The Devers system has recently been acquired by the Lower Neches Valley Authority (LNVA).

The LNVA system diverts water from the Neches River and Pine Island Bayou and delivers it to customers in Jefferson County, farmers in Chambers and Liberty Counties, and to the Bolivar SUD in Galveston County. The LNVA canal consists of two main canals, the Neches Main and the BI Main. After the junction of the two main canals, the Neches Main travels southwesterly until the Nolte Canal branches off traveling westward into Liberty County. At this point the Neches Main turns and extends southward into Chambers County. The Nolte Canal and the end of the Neches Main are the only sections of the LNVA canal system that extend into Region H. The Nolte Canal is divided into two portions by a check structure. The capacity of the Nolte Canal upstream of the check is 130 mgd and 36 mgd downstream from the check structure.

SJRA provides raw surface water from a point at the Lake Houston dam through its canal system and SJRA's Highlands Reservoir to a point just north of the Houston Ship Channel, providing service to the industrial customers in eastern Harris County. SJRA also contracts with the Coastal Water Authority (CWA) to convey up to 50 MGD of its Trinity Basin water supplies through the CWA Main Canal, and from there to their Highlands System.

The CLCND canal system diverts water from the Trinity River just south of Lake Anahuac. The canal travels easterly and branches to the north and south along the length of the main canal to serve the City of Anahuac and irrigators in Chambers County.

The Dow Chemical Company diverts water from the Brazos River into the Harris and Brazoria Reservoirs in Brazoria County. From Harris Reservoir, water is released into Oyster Creek and rediverted into a canal near Lake Jackson. From the Brazoria Reservoir, water is released into Buffalo Camp Bayou, which joins the Dow canal below the Oyster Creek diversion pump station. The canal travels parallel to the Brazos River and supplies the Brazosport Area Water Authority's water treatment plant before entering the Dow complex just north of Freeport. The canal continues east around Freeport to serve the Dow southern facility.

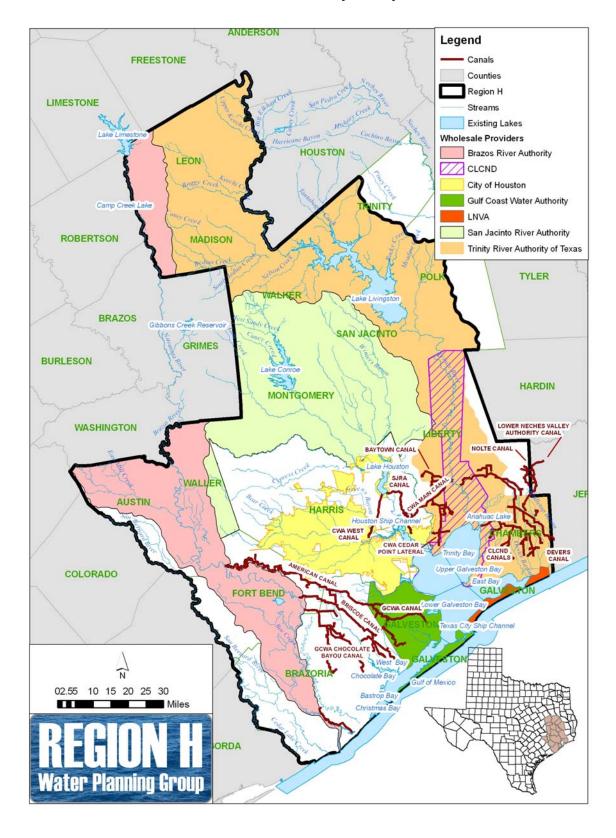


Figure 3-9
Raw Surface Water Conveyance Systems

# 3.3.5 Previously Studied Potential Reservoir Sites

In the City and Basin Master Plans within Region H, twenty-four potential reservoir sites have been identified. Of these, five have been identified in the State and Regional Water Plans as reservoir sites of unique value—Allens Creek in the Brazos Basin, Austin County; Little River and Little River Off-Channel in the Brazos Basin, Milam County; Bedias in the Trinity Basin, Madison County; and Tehuacana in the Trinity Basin, Freestone County. Construction of the Allens Creek reservoir and the Little River Off-Channel reservoir was recommended in the 2006 Region H Water Plan. From information provided in existing studies and reports, a summary table listing expected yields, costs, and a brief discussion of potential issues of concern regarding each potential reservoir is included in *Appendix 3E*.

The potential reservoir sites for Region H were reassessed as potential water management strategies for this update to the water plan. That discussion is presented in *Chapter 4*. Also, the sites were again considered for recommendation as reservoir sites of unique value. That discussion is presented in *Chapter 8*.

# 3.3.6 Legal and Regulatory Factors

A number of legal (institutional) and regulatory factors affect water planning, development, and usage within the Region H area. The most notable of these factors are surface water rights, groundwater conservation districts, interbasin transfer rules, wastewater return flow impacts, and environmental flow requirements.

All of the water included in the analysis of surface water supplies for Region H is obtained under water rights issued through the TCEQ and its predecessor agencies. The larger wholesale water providers hold a substantial portion of the rights available to the region, and these large providers contract to supply water obtained under those rights to various WUGs.

Five groundwater conservation districts exist within the Region H area. These districts are the HGSD, FBSD, Bluebonnet Groundwater Conservation District (includes Austin, Walker, and Waller Counties), Lone Star Groundwater Conservation District (Montgomery County) and Mid-East Texas Groundwater Conservation District (includes Leon and Madison Counties). Each district enacts and enforces groundwater regulations within their respective counties. The specific rules regulating the use of groundwater use were described in the previous section, *Subsidence Effects*. The Harris-Galveston and Fort Bend districts have adopted regulatory plans that limit the withdrawal of groundwater within their respective counties.

The Brown-Lewis Bill (formally Senate Bill 1, 75<sup>th</sup> Legislature) included restrictions on the interbasin transfer of water. These rules mandate that water supplies obtained by a receiving basin become junior to all other rights in existence within the originating basin of the transfer. This rule applies to all future permits associated with interbasin transfers. As illustrated within this report, a significant quantity of water currently supplied within Region H occurs via interbasin transfers. A portion of the water delivered by all of the larger water providers occurs through some type of interbasin transfer. The most significant of these are the COH and SJRA transfers of Trinity River water into the San Jacinto watershed and the BRA and GCWA transfers of Brazos River water into the San Jacinto-Brazos Coastal Basin. It is anticipated that new interbasin transfers will be needed to support growth throughout Region H, particularly to the San Jacinto and San Jacinto-Brazos Basins where the largest population growth is occurring. Current limitations on interbasin transfers will affect the development of future water resource management strategies.

In the 77<sup>th</sup> Texas Legislature, the Water Code was amended to remove an obstacle to long-term planning. Under the previous law, any water right that was unused for a period of ten years could be cancelled by the TCEQ, making that water available for diversion under other water rights permits. This is contrary to the state and regional water planning processes, which project demands 50 years

in advance and recommend projects to meet demands 30 years in advance. The amendment to the Water Code exempts certain water rights from cancellation for non-use, including permits obtained as a result of the construction of a reservoir in whole or in part by the permit holder, permits for reservoirs of 50,000 acre-feet or larger, and permits obtained to meet demonstrated long-term water supply or electric generation needs.

Wastewater reuse and reclamation is a water management strategy that is growing in usage within the Texas water industry. Wastewater reuse is the reuse of wastewater prior to its discharge into a receiving stream of the state. These reused quantities can become supply for irrigation, manufacturing, mining, steam-electric power and limited municipal purposes (landscaping, etc.). Wastewater reclamation, however, can affect the reliability of existing surface water rights. In particular, within Region H, one of the greatest potential areas of reuse is within Harris and Montgomery Counties upstream of Lake Houston. Reuse within Region C in the Trinity Basin would impact the yield of Lake Livingston. Thus significant reuse of these flows may affect the water rights of SJRA, TRA, and COH. Indirect reuse permits are increasingly being requested within the state, allowing the use of the bed and banks of the receiving stream to carry treated effluent to a downstream diversion point. Unlike direct reuse, this practice is considered a separate diversion and requires a separate water right permit. These permits typically allow the rediversion of a percentage of the discharged volume, with the difference being allocated to meet carriage losses and instream flow requirements. The amount required to be left instream is determined on a site-specific basis by TCEQ.

# 3.3.7 Environmental Uses and Requirements

Water right permits for environmental use and enhancement may be granted by TCEQ, although there is no use category within the Water Code for meeting environmental needs. These water rights are typically categorized as Recreational or Other. Within Region H, there are fewer than 20 permits for the diversion or impoundment of water for the purposes of wetland habitat creation/maintenance, wetland mitigation, or wildlife conservation. The larger of these permits are listed in *Table 3-8*. Since 1985, environmental flow requirements have been included as conditions within new and amended water rights. These requirements may include a specified minimum instream flow or gauge height threshold for diversions under the permit, or specify a percentage of the diverted amount that must be returned to the source stream. The establishment of these permit conditions requires supporting data on environmental needs of rivers, streams, bays, and estuaries for wetlands habitat. To increase this body of knowledge, the Texas Instream Flow Program was initiated in 2003 as a joint effort between TPWD, TCEQ, and TWDB. A series of studies are funded and underway, and the results will be incorporated in future water rights permitting and regional water planning.

In 2007, Senate Bill 3 took effect beginning the environmental flows allocation process. The process began with the creation of the Environmental Flows Advisory Group and the Texas Environmental Flows Science Advisory Committee to guide the statewide process. Two basin and bay area stakeholder groups have been formed to develop recommendations concerning environmental flow regime, associated policy considerations, and strategies to meet the flow recommendations that will impact environmental flows in Region H. The Trinity and San Jacinto Rivers and Galveston Bay Stakeholders Committee was appointed in July of 2008. The TCEQ is expected to adopt environmental flow standards for the Trinity and San Jacinto Rivers/Galveston Bay by June 1, 2011. The Stakeholder group for the Brazos River/Bay and Estuary Area will be appointed by June 1, 2010 and begin working on recommendations concerning environmental flow regime, associated policy considerations, and strategies to meet the flow recommendations. The TCEQ is expected to approve the group's recommended environmental flow standards by April 1, 2013.

Major Environmental Water Rights in Region II				
Owner	Stream	Use	Diversion (acre-feet/year)	
U.S. Anahuac Wildlife Refuge	Oyster Bayou	Anahuac NWR* – wetland habitat	21,000	
Texas Parks & Wildlife Department	Carpenters Bayou	Sheldon WMA** – wetland habitat	2,688	
U.S. Fish and Wildlife Service	Bastrop Bayou Austin Bayou	Brazoria NWR – fish & wildlife conservation	2,527	
U.S. Fish and Wildlife Service	Cedar Lake Creek	San Bernard NWR – wetland habitat	1,086	
U.S. Fish and Wildlife Service	Big Slough	Brazoria NWR – fish & wildlife conservation	1,080	

Table 3-8

Major Environmental Water Rights in Region H

A new provision under the Texas Water Code establishes the Texas Water Trust within the Texas Water Bank. Existing water rights can be placed in the Texas Water Trust to be dedicated to environmental needs, including instream flows, water quality, fish and wildlife habitat, or bay and estuary inflows. While no water rights from Region H have yet been placed in the Texas Water Trust, it can be anticipated that it will figure in further efforts to address both the technical and institutional issues associated with environmental water rights within Region H.

#### 3.3.7.1 Bay and Estuary Inflows

Estuaries are coastal waters where inflowing stream or river water mixes with and measurably dilutes sea water. The Brazos River has a very small estuary, but Galveston Bay is one of the largest and richest estuary systems in the state. Tides along the Region H portion of the Texas Gulf Coast are small (typical ranging up to 2 feet), but their influence is felt far inland due to the flat topography of the coastal plain. Galveston Bay averages a 7-foot tidal depth, so freshwater inflows are important in balancing the tidal intrusion of seawater into the estuary habitat.

The Region H Water Planning Group requested input from the Galveston Bay Freshwater Inflow Group (GBFIG) to address this resource need. GBFIG was established in December 1996 as an ad hoc technical work group. GBFIG includes representatives of major stakeholders in the use of Galveston Bay and its tributaries including all those groups specifically itemized in Sec. 11.1491 of the Texas Water Code for "estuary advisory councils." Its efforts have been endorsed, and staff participation has been authorized by TWDB, TCEQ, TPWD, and the General Land Office (GLO). GBFIG coordinates with and reports its findings to both the Galveston Bay Estuary Program and RHWPG.

The work of GBFIG builds upon the State Bay and Estuary Studies authorized by the Legislature in 1985 (HB-2) and amended in 1987 (SB-683). On December 31, 1994, Freshwater Inflows to Texas Bays and Estuaries: Ecological Relationships and Methods for Determination of Needs was published jointly by TWDB and TPWD. This document details the methodology to be applied in each of seven major estuarine systems. Several draft documents providing historical inflow data (1941-1990) and application of the State's methodology to Galveston Bay followed. In December 1998, TPWD issued a final Freshwater Inflow Recommendation by Texas Parks and Wildlife Department for the Trinity-San Jacinto Estuary (hereafter cited as TPWD 1998).

<sup>\*</sup>NWR is National Wildlife Refuge

<sup>\*\*</sup>WMA is Wildlife Management Area

TPWD 1998 presented output from the State's optimization model relating freshwater inflows to biological productivity. Based on that analysis of monthly inflow data, several points on a performance curve were identified, ranging from Max Q, the maximum quantity of freshwater falling within the range of analysis, to Min Q, the minimum modeled quantity of freshwater inflow capable of maintaining bay and estuary fishery harvest. The Galveston Bay system receives average annual inflows of about 10 million acre-feet per year (maf/yr), and median twelve-month inflows of just over 7 maf/yr. Because of the uncertainties inherent in analyzing or managing natural processes, TPWD recommended the point of "maximum harvest" (Max H), or a flow of 5.2 maf/yr, as the target inflow for the Galveston Bay system.

Using the data developed by the State, special studies of Galveston Bay freshwater inflows have been performed in conjunction with regional water planning efforts. In April 1998, Brown & Root completed a *Galveston Bay Freshwater Inflow Study* under the Trans-Texas Water Program. Additional modeling by Brown & Root has been performed to address specific analytic needs of GBFIG. The TCEQ WAM program has improved the statistical data and model availability for Galveston Bay. The Region H Planning Group requested more thorough studies of freshwater inflows and impacts of strategies. The 2006 RWP included a study by Kellogg, Brown & Root on the impacts of water management strategies on seasonal frequency. This evolved into a special study in the first phase of the 2011 planning process by AECOM to determine impacts of individual strategies at a frequency greater than the annual frequency previously studied. An additional study, contained in the *Chapter 4* of this Plan, examines impacts of management strategies in conjunction with upstream strategies for each decade of the planning horizon.

Based on information from state and regional studies, GBFIG set about relating its consideration of freshwater inflow needs to the planning task of Region H. GBFIG developed a recommendation that relates target flows under a range of conditions to target frequencies as shown in *Table 3-9*, which generally are less frequent than historical frequency of occurrence. GBFIG specifically noted that development of management strategies for freshwater inflows requires the consideration of quantity, quality, seasonality (monthly flows), and location of inflows and that its own analytic efforts would continue. It also noted that flows available to meet environmental water needs included total flows to the system and, as a result, include some sources outside of Region H. The GBFIG recommendation was accepted for incorporation into the Regional Water Plan in March 2000.

Table 3-9
Environmental Water Needs for Galveston Bay

Inflow Scenario	Quantity Needed (million acre- feet/year)	Historical Frequency	Target Minimum Frequency
Max H	5.2	66%	50%
Min Q	4.2	70%	60%
Min Q-Sal	2.5	82%	75%
Min Historic	1.8	98%	90%

Scenario Descriptions:

<u>Max H:</u> Modeled inflows recommended for maximum bay and estuary fisheries harvest by TPWD.

Min Q: Minimum modeled inflow recommended to maintain the bay and estuary fisheries harvest.

Min Q-Sal: Estimated minimum acceptable inflow recommended to maintain the salinity needed for bay and estuary fisheries viability.

Min Historic: Minimum annual inflow calculated for Galveston Bay over the period of record (1941-1990).

Notes: The health and productivity of Galveston Bay must consider the quantity, quality, seasonality (monthly inflows), and location of inflows. It is anticipated that the inflow needs projections will continue to be refined over time. The use of improved data focusing on the fisheries production solely from the Galveston Bay system is one example of an anticipated means of refinement.

### 3.3.7.2 Water Quality

The Texas Commission on Environmental Quality (TCEQ) 2008 State of Texas Water Quality Inventory Report addresses the streams within all Texas river basins by segment. Each segment is described and classified, the designated water uses are identified, and the water quality is determined. This report was reviewed for the river segments in Region H to identify their uses and any existing conditions or concerns. Region H is fortunate not to have naturally occurring chlorides or minerals affecting surface water quality as is the case in some regions, but the effects of development within the watersheds are reflected in the Inventory Report. Some streams and bayous, predominantly in the lower San Jacinto Basin and the San Jacinto-Brazos Coastal Basin, were found to be non-supportive of contact recreation due to elevated bacterial levels. This condition is typically the result of wastewater discharges and urban watershed runoff. Sand mining in the San Jacinto River Basin has increased nutrient loads in the San Jacinto River which can result in an increase in cyanobacteria levels. Basin maps from the Water Quality Inventory Report are shown in Appendix 3F. A search of the TCEQ Water Rights Database revealed three water rights specifically designated for the improvement of instream water quality (see Table 3-10). The largest of these is used for stream quality control in Brazoria County.

Table 3-10
Water Quality Rights in Region H

Owner	Stream	Use	Diversion (acre-feet/year)
Dow Chemical Co.	Brazos River	Stream Quality Control	16,000
Paul Weinman	Brazos River	Wetlands	2,448
Cove Creek Corp.	Cove Creek	Water Quality – Flush sewage effluent	967

As with the Galveston Bay estuary, instream salinity is a concern in the flat lower reaches of the Trinity, San Jacinto, and Brazos Rivers. The tidal salt wedge migrates upstream during the drier summer months, threatening the intakes of water right holders. This situation has been addressed on the Trinity River by the construction of the Wallisville Saltwater Barrier, and the Lake Houston dam protects the intake points for the COH and SJRA. The effects of the salt wedge on Brazos River water rights are discussed in *Chapter 4* of this report. *Figure 3-10* depicts the seasonal and restrictive waterways of Region H.

The Texas Parks & Wildlife Department conducted an *Analysis of Texas Waterways: A Report on the Physical Characteristics on Rivers, Streams, and Bayous in Texas.* This 1996 report identifies the seasonal and restrictive waterways:

"those sections of rivers, streams, and bayous... which have been found to contain an insufficient flow of water for recreational use under normal conditions, or for various reasons could not be classified as a major waterway, and would be restricted to seasonal usage"

FREESTONE Legend Recreation LIMESTONE Boating/Watersports Camping/Picnicking Fishing HOUSTON Hunting LEON Nature & Wildlife Viewing Davy Crockett Nat'l Forest Seasonal/Restrictive Waterways Camp Cree TRINITY Streams **Existing Lakes** ROBERTSON MADISON Counties Bedias Creek POLK TYLER WALKER 4 A E Houston Nat'l Forest **BRAZOS** SAN JACINTO Huntsville State Park GRIMES Big Thicket Nat'l Preserve URLESON Nat'l Forest - AG Ne C Big Thicket
Trinity River Nat'l Preserve
NWR - AG-MONTGOMERY Nat'l Forest HARDIN WG Jones State Forest WASHINGTON LIBERTY **a** Lake Houston WALLER JEF AUSTIN - A fi HARRIS Sheldon Lake 1 SP/WMA Buffalo Bayou CHAMBERS 1 - 6 446 Clear C, COLORADO FORT BEND NWR 16 Brazos Bend State Park WHARTON Varner-Hogg State Park BRAZORIA NWR State Park 02.55 10 15 20 25 30 Christmass Bay State Park Brian Beach State Park 4 E / DA Peach Point ■ WMA San Bernard NWR

Figure 3-10
Seasonal and Restrictive Waterways in Region H

### 3.3.7.3 Unique River and Stream Segments

The Region H Water Planning Group identified eight stream segments of unique ecological value in the 2006 Region H Water Plan. These are Armand Bayou in Harris County; Austin Bayou, Bastrop Bayou and Cedar Lake Creek in Brazoria County; Big Creek in Fort Bend County; another Big Creek in San Jacinto County; Menard Creek in Liberty, Hardin, and Polk Counties and Oyster Creek in Chambers County. Several of these streams are used for irrigation and/or recreational supplies, but these water rights were not included in the total Region H supply due to size or reliability. A full discussion of unique stream segments is made in *Chapter 8*.

# 3.3.8 Navigational Uses

The Texas Natural Resources Code states that if a water body maintains an average width of 30 feet, it is considered navigable. The Texas Department of Transportation, the U.S. Army Corps of Engineers, and several port authorities share responsibility for maintaining the major navigable waterways within the region. These include the Gulf Intracoastal Waterway, the Houston Ship Channel, and the Lower Trinity River.

The Gulf Intracoastal Waterway is a man-made canal paralleling the Gulf Coast. In Texas, it is 433 miles long, and within Region H it crosses Chambers, Galveston, and Brazoria Counties, serving the Ports of Galveston and Freeport. The system is over 50-years old and the U.S. Army Corps of Engineers maintains the canals through a program of scheduled dredging. The flow in the waterway is brackish and not used for water supply.

The Houston Ship Channel is a deep-draft channel connecting ocean-going vessels with the Port of Houston and industries located along Buffalo Bayou. It begins at the mouth of Galveston Bay and continues north past the Barbours Cut Terminal and Bayport Industrial Complex, into the San Jacinto River and Buffalo Bayou, ending at the Port of Houston Turning Basin. Ship channels serving the Port of Galveston and the Port of Texas City branch off from the main channel on the northwestern side of Galveston Island, and the system connects with the Gulf Intracoastal Waterway at that point as well. The respective port authorities and the U.S. Army Corps of Engineers maintain the ship channels at a depth of 45 feet to serve deep-draft vessels. Although the entire length of the Ship Channel is tidally influenced, there is some concern that the deep dredging may influence the salinity of the shallow Galveston Bay estuary, which averages 7 feet deep, particularly during drought periods.

The Lower Trinity River serves the shallow (6-foot draft) cargo Port of Liberty, Texas. Water depth and freshwater quality is maintained in the Lower Trinity River by the Wallisville Saltwater Barrier, which includes a lock system for navigation. Barge traffic connects from the Port of Liberty to the Intracoastal Waterway by traversing a dredged canal along the eastern coast of Trinity Bay. This canal connects to the Houston Ship Channel west of Smith Point.

Numerous recreational ports serve the region. The Texas Department of Transportation recognizes the Port of Anahuac on the Trinity Bay and the Port of Sweeny on the San Bernard River, although there are many others. These ports are located in tidal areas, and do not require freshwater flows to maintain navigability.

### 3.3.9 Recreational Uses

Water-based recreational uses in Region H include activities that are directly dependent upon the region's rivers, streams, reservoirs, and bays, such as swimming, boating, fishing, and paddle sports, as well as those enhanced by proximity to water sources such as wildlife viewing, camping and hunting, and eco-tourism. There are also economic activities associated with water-based recreation

such as marinas, tourist accommodation and services, and other recreation-based businesses. Generally, communities developed adjacent to or near accessible water bodies contribute to an increased tax base from which economic benefits can accrue. Positive local tax base impacts in rural communities of Region H have been and can be significant. Therefore, reservoir development in these areas has been viewed as an economic benefit for these regions. Recreational water needs and requirements have two distinct components – physical and economic.

The physical component addresses the amount (volume) of water needed to perform various recreational activities. This is strictly a function of the geometry of whatever body of water is being considered and the type of activity that is being investigated.

In order to provide for this need, some stakeholders in water-related recreational activities apply for permits from TCEQ that allow them to divert and impound water in man-made lakes and ponds dedicated to recreational purposes. A search of the TCEQ Water Rights Database returned 160 records for recreation water rights with total diversion of about 9,200 acre-feet per year. Five of these rights account for 6,572 acre-feet per year in authorized diversions as shown in *Table 3-11*.

Table 3-11

Major Recreational Water Rights in Region H

Owner	Stream	Diversion (acre-feet/year)
Brazos River Club	Brazos River	3,000
Indigo Lake Estates	Log Gully	1,164
C E Zwahr ET AL	Austin Bayou	1,003
George W Maxwell	Cow Island	805
The Woodlands Corporation	Bear Branch	600

The majority of the region's freshwater recreation occurs not on dedicated recreational lakes, but on water supply reservoirs. The region's water supply reservoirs provide a broad range of recreational opportunities but were created to meet the region's consumptive water demands. While recreation is permitted on most of the region's water supply reservoirs, there are no dedicated recreational water rights protecting volumes for recreational purposes on these reservoirs. Three water supply reservoirs in Region H provide a significant portion of the freshwater-related recreational activities in the region—Lake Livingston, Lake Conroe, and Lake Houston, in decreasing degrees.

The economic importance of water-based recreational businesses is illustrated in recent studies that indicate water-related recreational activities account for a significant portion of the Texas economy. In 2006, Texas residents and non residents spent \$9.2 Billion on wildlife recreation in Texas. Approximately \$4.7 Billion was spent on equipment, \$2.9 Billion on trip expenditures and \$1.6 Billion was spent on licenses, contributions, land ownership/leasing. The 2006 National Survey of Fishing, Hunting, and Wildlife – Associated Recreation reported that there were an estimated 2.5 million anglers in Texas (residents and non-residents), with total expenditures estimated at approximately \$3.2 Billion. The survey also estimated that there were approximately 1.1 million hunters in Texas with expenditures of approximately \$2.2 Billion. The Texas Parks & Wildlife Department reported in 2008 that approximately 595,000 boats (6<sup>th</sup> nationally in boat ownership) are registered in the state, 99 percent of which are used as pleasure craft. Counties in Region H account for nearly one-quarter of these.

While there is a direct relationship between lake levels and these industries, there is no statistical data available to quantify that relationship. Although anecdotal information suggests negative impacts will accrue to lakeside communities when reservoir levels decrease, there is no economic

data available which would allow a comparison to the economic impacts of not meeting municipal, manufacturing and/or irrigation water demands. When considering the impacts of lake levels, one might consider (1) water levels required to operate boat ramps and docks, (2) water levels or depths required to support water recreational activities (boating and fishing), and (3) water levels required to support resident and migratory wildlife. Also important to consider is the acceptable duration of a given condition. Lake levels will decline during droughts, but recover during average-to-wet years. Resident wildlife species will be directly affected by the drought conditions. Migratory species would be indirectly affected, because they would be able to adjust their routes to find the best habitats in a particular year.

All state parks and forests, national parks and forests, wildlife refuges, and wildlife management facilities were identified in order to consolidate a listing of recreational resources in Region H. Every facility was researched to determine if it provided facilities for camping and picnicking, nature and wildlife viewing, hunting, fishing, and boating and other water sports. Sources include various websites and publications from the Texas Parks & Wildlife Department, National Park Service, USDA Forest Service, U.S. Fish and Wildlife Service, National Wildlife Refuge System, Galveston Bay National Estuary Program, U.S. Army Corps of Engineers, U.S. Historical Society, Great Outdoor Recreation Pages, Recreation.Gov, 1998-1999 Texas Almanac, Texas road atlases, and various county and river authority websites. Additional information was acquired from the Houston Canoe Club on areas within the region of importance to paddle sports. This information was compiled into the following three tables contained in Appendix 3G.

Region H-River Segments, Bay and Estuaries – Lists all of the river basins, river segments, bays, and estuaries in the region and the recreational opportunities associated with each.

Recreation – Lists all of the national parks, preserves, wildlife refuges, state parks, wildlife management areas, and forests and the recreational opportunities associated with each.

Region H-River Segments, Bay and Estuaries-Special Features – Lists all of the lakes and reservoir segments in the region and the recreational opportunities associated with each.

From the tables containing the public recreational sites and data obtained from the *Galveston Bay Recreational User's Handbook*, *Figure 3-10* was prepared to illustrate the location and each associated recreational activity for Region H. This map also shows the seasonal and restricted waterways within the region. *Appendix 1A* contains a detailed bibliography of all of the sources used for this section.

# 3.4 Total Water Supply

The total amount of water supply currently available to Region H from existing available water sources is 3,556,538 acre-feet per year. Of that, approximately 75 percent is surface water. By the years 2030 and 2060, the available supply is expected to be 3,343,151 acre-feet per year and 3,411,210 acre-feet per year, respectively. *Table 3-12* below summarizes current and projected water supplies.

# 3.4.1 Water Supplies Available by City and Category

This water supply is distributed to each WUG, i.e. each city, each county-other, and each non-municipal water use category. This distribution is shown in *Table 3H.1*, located in *Appendix 3H.* 

In *Table 3H.1*, the ground and surface water supply sources available to Region H are assigned to the various WUGs in the region based on contracts and water rights, limitations of conveyance facilities, and in some cases, current usage patterns. In general, a thorough search was performed to determine how each WUG obtained its water supply. This required identification of third-party contracts as well as water providers in addition to the wholesale water providers (WWPs).

About 72 percent of the year 2010 total available Region H supply is allocated to the region through one of the WWPs. *Table 3-13* shows the distribution of the available supply among the providers for the study years of 2010, 2030, and 2060.

Table 3-12
Summary of Water Supply Available for Region H for Study Years 2010, 2030, and 2060

Supply Source	Supply Available (acre-feet/year)		
	Year 2010	Year 2030	Year 2060
Groundwater			
Gulf Coast Aquifer	812,709	685,529	685,843
Carrizo-Wilcox Aquifer	10,493	9,756	9,610
Queen City Aquifer	7,906	7,906	7,906
Sparta Aquifer	17,414	17,414	17,414
Brazos River Alluvium	41,539	41,539	41,539
Yegua-Jackson Aquifer	6,400	6,400	6,400
Undifferentiated Aquifer	1,117	1,117	1,117
Subtotal	897,578	769,661	769,829
Surface Water			
Neches River Basin <sup>1</sup>	63,863	63,946	64,177
Neches-Trinity Coastal Basin	21,754	21,754	21,754
Trinity River Basin	1,568,530	1,489,530	1,568,530
Trinity-San Jacinto Coastal Basin	34,313	34,313	34,313
San Jacinto River Basin	321,800	314,000	302,300
San Jacinto-Brazos Coastal Basin	33,051	33,051	33,051
Brazos River Basin <sup>2</sup>	573,081	573,278	573,342
Brazos-Colorado Coastal Basin	12,019	12,019	12,019
Local Supplies, all basins	30,549	31,599	31,895
Subtotal	2,658,960	2,573,490	2,641,381
Total	3,556,538	3,343,151	3,411,210

<sup>&</sup>lt;sup>1</sup> Supplies include 63,863 acre-ft per year of firm water currently contracted from upstream LNVA to Region H customers. Total LNVA supply is greater but may not be available to Region H.

<sup>&</sup>lt;sup>2</sup> Supplies include 155,031 acre-ft per year of firm water currently contracted from BRA system reservoirs to Region H customers. The total BRA supply is greater but is not available to Region H. The remaining Brazos River Basin supply is comprised of Lower Brazos Basin permits owned by Dow Chemical, GCWA, NRG, Brazosport Water Authority, and private irrigators.

Table 3-13

Available Supply by Wholesale Water Provider within Region H for Study Years 2010, 2030, and 2060

Provider		Supply	
Fidvidei		(acre-feet/year)	
	Year 2010	Year 2030	Year 2060
Baytown Area Water Authority	17,534	17,534	17,534
Brazos River Authority*	155,031	155,031	155,031
Brazosport Water Authority	16,492	16,492	16,492
Chambers-Liberty Counties Navigation District	76,520	76,520	76,520
Central Harris County Regional Water Authority	5,651	3,662	3,662
Clear Lake City Water Authority	26,876	26,876	26,876
Dow Chemical <sup>1</sup>	137,475	137,475	137,475
Fort Bend County WCID 1	5,634	5,634	5,634
Fort Bend County WCID 2	8,654	7,387	7,375
Galveston County WCID 1	3,541	3,541	3,541
Gulf Coast Water Authority <sup>2</sup>	192,687	214,190	214,254
City of Houston	1,264,231	1,203,528	1,254,628
City of Huntsville	27,686	27,640	27,567
Lower Neches Valley Authority*	63,863	63,946	64,177
Missouri City	25,534	18,999	18,985
North Channel Water Authority	8,355	8,332	8,327
North Fort Bend County Water Authority	35,009	48,077	48,077
North Harris County Regional Water Authority	115,957	65,272	65,272
NRG <sup>3</sup>	94,220	94,220	94,220
Richmond - Rosenburg	14,908	11,779	11,779
City of Pasadena	40,561	40,561	40,561
San Jacinto River Authority	245,244	240,244	232,744
Trinity River Authority	403,200	379,500	403,200
City of Sugar Land	32,844	22,537	21,590
West Harris County Regional Water Authority	65,692	36,958	36,958
Total	3,083,399	2,925,935	2,992,479

<sup>\*</sup>Supplies represent current contracts to Region H with the assumption that the contracts will be extended and maintained through 2060. Total supply is greater but may not be available to Region H.

Dow Chemical supplies do not include 16,000 acre-feet per year contracted from BRA

<sup>&</sup>lt;sup>2</sup> GCWA supplies do not include 44,980 acre-feet per year contracted from BRA.

<sup>&</sup>lt;sup>3</sup> NRG supplies Include Richmond Irrigation water rights. NRG supplies do not include 83,000 acre-feet per year contracted from BRA.

# 3.4.2 General Methodology for Assigning Resources to WUGs

The following methodology summarizes the data collection process and the other procedures followed to arrive at the information in *Appendix 3H*. In general, the methodology includes the following steps.

#### **Data Collection**

- Identify contract supplies available to WUGs via a direct or multi-tier transaction with a WWP using contract information from WWPs and the 2006 Regional Water Plan.
- Coordinate with other planning regions to resolve interregional conflicts, where applicable.
   No interregional conflicts were identified during discussions with regions C, G, and I.
- Identify other possible water providers, using the TWDB Water Use Database and any other
  available information. Identify the end user WUGs that are supplied by these providers under
  a contractual or retail agreement. Contact these providers, and request contract information
  from them.
- Identify surface water supplies being used by self-supplied WUGs, by consulting the TCEQ Water Rights Database and Table 3A.1.
- Update information for water providers identified in the 2006 Regional Water Plan.

#### 3.4.3 Groundwater Allocation

Groundwater supplies in Leon and Madison Counties were allocated according to information received from the Mid-East Texas Groundwater Conservation District. Groundwater supplies in Harris, Galveston, and Fort Bend Counties were allocated in accordance with the groundwater reduction goals provided by the Harris-Galveston Subsidence District (HGSD) and the Fort Bend Subsidence District (FBSD). In Brazoria County, groundwater supplies were allocated based on historic pumpage. In Liberty County, groundwater was first allocated to non-irrigation WUGs. The exceptions are described in more detail below. Generally, where groundwater resources were not adequate to meet demands, supplies were distributed to WUGs based on total demand. Any exceptions to this rule are noted below.

#### 3.4.3.1 Counties With Adequate Groundwater Resources

The available groundwater supplies in Austin, Leon, Madison, Polk, San Jacinto, Trinity and Walker Counties were found to be adequate to satisfy the groundwater demands of WUGs for the planning period.

Water was allocated to WUGs in Leon and Madison Counties and was allocated with guidance provided by the Mid-East Texas Groundwater Conservation District. The plan set forth by the district shows the amount of water allocated from each source to individual customers including irrigation, livestock, manufacturing, and mining users. These values were adjusted, within reasonable limits, to minimize shortages.

#### 3.4.3.2 Counties With Inadequate Groundwater Resources

#### **Brazoria County**

Brazoria County has municipal, manufacturing, mining, irrigation, and livestock water demands that cannot be entirely satisfied by surface water and groundwater resources. The groundwater availability of approximately 50,400 acre-feet per year can satisfy part of the water needs but not all of

the needs in the county. The communities of Jones Creek, and West Columbia were allocated groundwater to meet their entire demands while others were supplied groundwater in addition to surface water supplies. Adequate groundwater was also budgeted through 2060 to supply the Brazoria County MUDs, Bailey's Prairie, Brookside Village, Danbury, Hillcrest, Holiday Lakes, Iowa Colony, Orbit Systems Inc., Southwest Utilities, Surfside Beach, Sweeny, and Varner Creek UD entirely from groundwater. After meeting the groundwater demands of these WUGs, the remaining groundwater supply was allocated among users that were connected to surface supplies as well as groundwater.

The City of Brazoria was capable of providing for all of its demands through 2060 by using surface water supplies and was not allocated any of the county's groundwater resources. Alvin, Angleton, Clute, Freeport, Oyster Creek, Manvel, Pearland and Richwood develop shortages in either 2020 or 2030. Supplies to irrigation in the Brazos River Basin are anticipated to be insufficient to meet demands beginning in 2010. Manufacturing shortages in the Brazos and San Jacinto-Brazos River Basins begin in 2010 and 2020, respectively. Livestock demands that were not met by this groundwater supply were assumed to be provided by local water supplies in 2010. Mining shortages are expected to occur in 2020.

## **Chambers County**

Chambers County will experience groundwater shortages immediately in the 2010 planning period without the use of surface water supplies to meet its municipal, irrigation, manufacturing, mining, and livestock demands. Throughout all of the planning periods, the county will not be able to rely on groundwater supplies alone. Groundwater resources were distributed to each WUG receiving groundwater according to total demand.

#### **Galveston and Harris Counties**

Groundwater was allocated in Galveston and Harris Counties in accordance with regulations established by HGSD which provide for reductions in groundwater pumping in these counties based on a percent of total demand over the planning period. The groundwater reductions vary depending upon the Subsidence District area where the WUG is located.

WUGs located in Subsidence District Area 1 were limited to groundwater usage equal to 10 percent of their total demand for all planning periods from 2010 to 2030. For 2040 through 2060, the 2030 groundwater allocation was carried forward. In Area 2, WUG groundwater usage was limited to 20 percent of their total demand for the planning periods 2010 to 2030. For 2040 through 2060, the 2030 groundwater allocation was carried forward. Maximum groundwater usage for WUGs located in Area 3 varied by planning period. The maximum allowable groundwater use for 2010 was calculated to be 70 percent of the total water demand for the period, for each WUG. For 2020, this percentage was decreased to 30 percent. For 2030 and subsequent decades, only 20 percent of the total water demand could be met with groundwater sources. Steam Electric and Mining WUGs were first allocated surface water supplies followed by groundwater until the remaining demand was satisfied, or the regulatory limit was reached.

Shortages from insufficient supply begin in the San Jacinto River Basin of Harris County in 2010 due to groundwater restrictions. Before this time, shortages are due to groundwater restrictions. In the San Jacinto-Brazos and Trinity-San Jacinto Coastal Basins of the county, groundwater shortages through 2060 only occur due to groundwater pumping restrictions and not from limited supply. Municipal WUGs in Galveston County will experience shortages due to restrictions rather than limited supplies for all of the planning periods. In the Neches-Trinity Coastal Basin, only livestock and mining WUGs are served by groundwater, and these users will experience shortages due to groundwater restrictions.

In instances where groundwater supplies were not adequate to meet groundwater demands or restricted groundwater demands, the amount supplied was prorated among the WUGs based on restricted demand, or total demand, if no restrictions applied.

### **Fort Bend County**

Similar to the subsidence restrictions imposed upon Harris and Galveston Counties by HGSD, the FBSD regulates the quantity of groundwater pumpage in portions of Fort Bend County. However, these restrictions only apply to two zones in the northeastern portion of the county. The FBSD regulations also do not align with the planning decades; surface water conversion dates in 2013 and 2025 require groundwater users in Fort Bend County to reduce groundwater pumpage to 70 percent and 40 percent of total demand respectively. For the 2010 planning period it was assumed that each WUG could pump groundwater in order to satisfy 100 percent of the total 2010 demand. For the 2020 planning decade it was assumed that both zones would be required to lower pumpage to 70 percent of the total demand for each WUG. For the 2030 period, it was assumed that only 40 percent of the total WUG demands could be met by groundwater. For the planning periods 2040 through 2060, the 2030 ground water supply volumes were carried forward. These limitations were not applied to irrigation usage within the county, which were allocated sufficient groundwater supplies in order to provide for irrigation demands remaining after surface water contracts were allocated. Steam Electric and Mining WUGs were first allocated surface water supplies, and then groundwater until the remaining demand was satisfied, or the regulatory limit was reached.

The groundwater restrictions imposed by FBSD are not sufficient to prevent shortages due to supply from 2010 to 2060. The available amount of groundwater was distributed to WUGs according to their demands or restricted demands, where applicable. It was assumed that all groundwater demands to irrigators could be met by groundwater after applying existing surface water contracts. The FBSD restrictions do not apply to irrigators and small domestic wells and it is assumed that these users would pump the amount of water necessary to meet their demands. Therefore, the total available groundwater supplies were increased to accommodate the additional water usage by irrigators, as well as other unregulated WUGs, such as Pleak, that were not subject to subsidence restrictions.

### **Liberty County**

Irrigation demands in Liberty County are of considerable magnitude. For this reason, groundwater was first provided to nonirrigation WUGs. The remaining groundwater was allocated to irrigation based on demand. Shortages appear in the 2010 period for irrigation in the Neches, Neches-Trinity, and Trinity San Jacinto River Basins. However, surface water supplies are adequate to prevent irrigation in the Trinity River Basin from experiencing further shortages until 2020.

#### **Montgomery County**

Available groundwater supplies are projected to be inadequate to meet demands in Montgomery County beginning in the 2010 planning period. The Lonestar Groundwater Conservation District established conversion requirements to limit groundwater withdrawal in Montgomery County to 64,000 acre-feet per year. To meet initial conversion requirements in 2015 more populated communities, most notably Conroe and the Woodlands, will be over-converted to surface water while smaller communities will remain on groundwater. For conversions after 2015, 2045 projected water demands were used to determine the WUGS that would be converted to surface water. Groundwater was initially allocated proportionally to municipal WUG demands, first to WUGs that were not converted to surface water then to WUGs that were anticipated to be converted before each planning period. The WUGs Consumers Water Inc, Crystal Springs Water Company, Magnolia, Montgomery County UD 2 & 3, Montgomery County WCID #1, New Caney MUD, Patton Village, Point Aquarius MUD, Porter WSC, Roman Forest, Southwest Utilities, Splendora, Stagecoach and Woodbranch were assumed to remain on groundwater supplies from 2010 to 2060. The mining water demand remaining after including surface water contracts was fully met by groundwater supplies. Livestock

demands were met entirely from local supplies and groundwater. The small irrigation demand in Montgomery County was supplied by surface water contracts from SJRA and groundwater supplies.

# **Waller County**

The groundwater resources of Waller County were allocated for municipal, manufacturing, mining, irrigation, and livestock based on the groundwater available for the county. The estimated demands for groundwater within the county can be met with available groundwater supplies, Municipal and irrigation conservation and groundwater supplies from Harris County. Katy, which receives groundwater from Harris County, is assumed to remain on groundwater due to participation in the West Harris County Regional Water Authority groundwater reduction plan.

## 3.4.4 Surface Water Allocation

- The values entered into *Appendix 3H* for municipal WUGs are the surface water supply identified from WWPs and smaller water providers.
- It was assumed that the COH provided enough water to meet its remaining surface water demands and existing contracts for surface and groundwater.
- Contracts from GCWA were found to exceed the total of the WWP's contracts from other
  providers and water rights. Because of this, existing GCWA contracts and supplies were
  analyzed on a monthly basis and annual allocations were lowered accordingly.
- As a general rule, if a WUG is found in different counties, the supply allocated to the WUG in
  each county was split based on the surface water demand. In cases where this demand was
  "0," the supply was split equally between these counties. (The surface water demand for
  each entry WUG/county/basin was calculated by subtracting the allocated groundwater for
  that entry from that entity's total demand).
- Municipal contracts that were not identified as a municipal WUG were assumed to be a portion of County-Other and assigned to the appropriate county and basin unit.
- For non-municipal WUGs, contracts from water providers were used to determine contractual sources to various categories. Wherever possible, each contract was associated with a basin through available information.
- For non-municipal WUGs, some information was received from water rights information collected in the previous steps and entered in *Table 3A.1* on a WUG/county/basin basis.
   Ownership and use information for the available firm supplies was provided by the TCEQ Water Rights Database.
- Irrigation entries were compiled from contracts and firm water rights described later in this chapter.
- Livestock entries assumed livestock demands would be provided from local surface water supply sources. This is consistent with past Regional Water Planning procedures.
- In the 2006 Plan, mining WUGs with shortages in the year 2000 were assumed to be supplied from local surface supplies equal to their shortage. This amount was also carried out for the remaining planning periods. The 2011 Plan will adopt the amount identified in the 2006 Plan.

#### **Data Collection**

Entities that sell water to WUGs in the region were contacted in order to obtain an up-to-date list of their water commitments. This procedure was repeated at each tier of subsequent transactions until all of the contract water supplies provided by non-major water providers could be tracked to an end user, identified as a WUG or part of a WUG.

The remaining water supplies that were entered in *Table 3H-1* are other permit amounts or assumed local supplies. These entries are generally non-municipal users. Moreover, with the exception of livestock and mining supplies, the only noncontract supplies that were considered for *Table 3H-1* are the supplies associated with the records listed in *Table 3A-1*.

# **Supply Allocation**

After the data collection process was completed, the contract and non-contract supplies were allocated to each WUG on a county/basin basis. If a portion of the water acquired through a contract by a WUG was provided to another WUG, through a contract or direct retailing, or by using another intermediary seller, the amount associated with the initial WUG was modified accordingly to avoid double accounting of water. Within each category (county-other, manufacturing, mining, steam-electric, livestock, irrigation), all entities receiving water directly from the same source or obtaining water via contracts from the same provider/self provider and from the same source were aggregated into a single record.

Non-municipal contract supplies were allocated to a specific county/basin unit where possible. This involved the determination of the correct county and basin location for each recipient. Use of the historical data from the water use reports provided by TWDB was instrumental in this process. For example, the COH WWP currently has a wholesale contract with the manufacturing entity, Dixie Chemical Company. It was found that Dixie Chemical is using the water in Harris County in the San Jacinto-Brazos River Basin. Therefore, the current contract supply amount for Dixie Chemical would be added to the overall manufacturing supply available in Harris County, in the San Jacinto-Brazos Basin, and receiving water from the same source (in this case, Lake Livingston).

The allocation of the municipal contract supplies was more complex. Most of the water providers that receive water via a wholesale agreement have retail customers that are in their service areas. Retail customers are defined here as those recipients of water that pay for their service through some means other than a wholesale agreement (i.e., monthly billings). There is not a well-defined methodology for determining the amount of water available to these types of users. For the most part, the availability of water for these WUGs at the city/county level was assessed on a case-by-case basis. For those municipal WUGs that were divided into more than one basin, the availability to each basin was based on the basin's proportionate share of the city/county surface water demand.

For water rights for irrigation that were not found to be sold through contract, such as irrigation rights owned by individuals, the entire supply was allocated to irrigation. Irrigation contracts were used, where available, to determine what portion of a water provider's water right was actually sold for irrigation use. Most of the irrigation supplies are year-to-year contract supplies that are allocated differently with each growing season. For the most part, providers of irrigation water sell water to irrigators in their immediate vicinity. It was assumed that irrigation water rights provided water to the basin in which they originated unless known contracts allocated the water to another location. Contracted water supplies for irrigation were assumed to serve customers along the canal system in which it was conveyed.

The 2006 Plan assumed that livestock demands not met by groundwater were supplied by water available from local surface supply sources (i.e., stock ponds). Much of the mining demand for surface water also appeared to be supplied from local sources. However, it was assumed that these supplies would not increase in quantity over the planning period and alternative sources would be required to supplement any growth in demand. The year 2000 local supply quantity was held

constant through the year 2060. The 2011 Plan will retain the local supply volumes recommended in the 2006 Plan.

### 3.4.4.1 Municipal Contracts Allocation

#### **Anahuac**

The City of Anahuac receives 1,105 acre-feet per year from the CLCND. This amount was split between the Neches-Trinity and Trinity River Basins based on the surface water demand ratios, by basin.

# **Angleton**

The City of Angleton receives approximately 2,016 acre-feet per year from Brazosport Water Authority (BWA) (nonmajor water provider), and provides 202 acre-feet per year (approximately 10 percent) to manufacturing in the Brazoria County/San Jacinto-Brazos Basin (assumed that the split is for the entire length of the contract between City of Angleton and BWA). The amount remaining for the City of Angleton is 1,815 acre-feet per year.

#### **Bacliff MUD**

Bacliff MUD is contracted to receive 1,373 acre-feet per year from GCWA for municipal use.

# **Bayou Vista**

Bayou Vista receives 519 acre-feet per year from GCWA.

#### City of Baytown

Baytown Area Water Authority (BAWA) receives 17,534 acre-feet per year from COH and provides water to several water supplies and to the City of Baytown. BAWA provided information regarding the amounts distributed to each of its customers. It was assumed that the BAWA customers Fresh Water Supply District 1-A, Harris County Fresh Water Supply District 1-B, Harris County Fresh Water Supply District 27, Lake MUD, Country Terrace, and Cedar Bayou represent county-other in the Trinity-San Jacinto Basin. The allocation of BAWA's contract is shown below.

Baytown
 15,934 ac-ft/yr

Harris County WCID 1
 784 ac-ft/yr

Harris County-Other (Trinity-San Jacinto)
 816 ac-ft/yr

The amount of water that the City of Baytown receives was calculated based on the surface water demand. The part of Baytown located in Harris County is also located in two different basins, Trinity-San Jacinto and San Jacinto. The amounts entered in these basins were prorated based on the surface water demands.

#### **Bellaire**

Bellaire receives 1,310 acre-feet per year of blended surface water and groundwater from the COH. As the groundwater reduction plan for the area progresses the amount of groundwater used will decrease significantly. The entirety of this contract was assumed to be made up of surface water and was allocated to municipal use.

#### **Bolivar Peninsula SUD**

Bolivar SUD contracts to receive 5,550 acre-feet per year from LNVA. It was assumed that 1 acre-feet per year of this contract could be used to provide water to county-other in the Neches-Trinity basin, leaving 5,549 acre-feet per year available to Bolivar SUD. The contracted supply is projected to decrease from 5,550 acre-ft per year in 2010 to 5,300 acre-ft per year in 2060.

#### Brazoria

Brazoria has a contract with BWA for 336 acre-feet per year, and the entire contract was allocated to the City of Brazoria. The City of Brazoria is located in two different basins, the Brazos and Brazos-Colorado. The contract amount was prorated between these two basins based on the total water demand ratios for these two basins.

## **Bunker Hill Village**

The COH provides 635 acre-feet per year of blended water to Bunker Hill Village. This entire supply was allocated as surface water as the portion of this supply from surface water will increase throughout the groundwater reduction plan.

## **Chimney Hill MUD**

Chimney Hill MUD receives water under a contract from the COH. COH provides 426 acre-feet of groundwater/year to the MUD, and it was assumed the groundwater was obtained from the San Jacinto River Basin.

## **Clear Brook City MUD**

The Clear Brook City MUD receives 1,680 acre-feet per year from the COH for municipal use. The MUD is a partner in the Southeast Water Purification Plant.

### **Clear Lake Shores**

Based on information received from Galveston County WCID 12, this water provider serves Clear Lake Shores, Kemah, Lazy Bend (county-other), and a small number of customers in League City. Water provided to Kemah is sold wholesale to the City of Kemah, and then to other customers. All other sales by the district are carried out directly between WCID 12 and the customer. The WCID 12 contract from GCWA was split between Kemah and other customers in the district according to the ratio of usage between Kemah and WCID 12. The portion of water allocated to WCID 12 was further divided among Clear Lake Shores, League City, and county-other according to the number of connections served in each community. League City also receives a majority of its water from the GCWA. The resulting volumes for each WUG are:

•	Kemah	64 ac-ft/yr
•	League City (Galveston County)	13 ac-ft/yr
•	Lazy Bend (WCID 12)	799 ac-ft/yr
•	Clear Lake Shores	155 ac-ft/yr

#### Central Harris County Regional Water Authority (CHCRWA)

CHCRWA has a contract with the COH for 2,375 acre-feet per year.

#### Clute

The City of Clute has a contract with BWA for 1,120 acre-feet per year; the entire contract was allocated to City of Clute.

### **County-Other in Brazoria County**

BWA has contracts with Clemens Unit-TDCJ and Wayne Scott Unit-TDCJ for 420 acre-feet per year. The demands of these units were considered part of the county-other demand; therefore, since these units are located in Brazoria County, they were allocated to county-other in Brazoria County. The portion for the Clemens Unit was allocated to the Brazos-Colorado Basin while the Wayne Scott Unit supply contract was allocated to the San Jacinto-Brazos River Basin.

### **County-Other in Fort Bend County**

Fort Bend County WCID 2 has an option contract with GCWA for 11,762 acre-feet per year. This contract was reduced so that GCWA contracts did not exceed supplies. Based on the information received from the contacted person, this amount, if used, would be split among its customers. Since GCWA provides retail water to its customers, an exact amount is difficult to estimate; therefore, GCWA estimated the amounts for each entity listed below:

•	Missouri City	87 ac-ft/yr
•	Sugar Land (San Jacinto-Brazos River Basin)	30 ac-ft/yr
•	Harris County MUD 122 (assumed Harris County-other, San Jacinto River Basin)	195 ac-ft/yr
•	Fort Bend County, unincorporated area (assumed Fort Bend County-other, San Jacinto-Brazos River Basin)	73 ac-ft/yr
•	Stafford	6,194 ac-ft/yr

The amount indicated for Stafford and Missouri City was divided by basin and county according to surface water demand.

# **County-Other in Harris County**

Several water providers including WWPs provide water to county-other in Harris County. These contributions are described below.

The provider with the alpha number 1095 in *Appendix 3H* is the La Porte Area Water Authority (LAWA). LAWA has a contract with COH for 8,734.6 acre-feet per year. According to the information received from LAWA, LAWA provides water to the cities of La Porte, Shoreacres, and Morgans Point. The volumes of water are shown below.

•	Shoreacres	406 ac-ft/yr
•	Morgans Point (entered as Harris County-Other)	688 ac-ft/yr
•	City of La Porte	8,656 ac-ft/yr

As Morgans Point resides within both the San Jacinto and San Jacinto-Brazos River Basins, the water provided to county-other was split based on area. Because Morgans Point is divided fairly equally by the two basins, the 616 acre-feet per year was split in half.

North Channel Water Authority receives 6,682 acre-feet per year from COH that can be split among its customers. A summary of water usage for several years was provided by NCWA and used to prorate the COH contract amount among NCWA customers on a basis of their total water use. Municipal users that were not listed as individual WUGs were combined into county-other. The amount of contract water allocated to each WUG is shown below.

•	Harris County FWSD 6	187 ac-ft/yr
•	Harris County FWSD 47	288 ac-ft/yr
•	Harris County FWSD 51	1,539 ac-ft/yr
•	Harris County MUD 53	836836 ac-ft/yr
•	Harris County WCID 21	913 ac-ft/yr
•	Harris County WCID 36	802 ac-ft/yr
•	Harris County WCID 84	310 ac-ft/yr
•	Pine Trails Utility	480 ac-ft/yr
•	County-Other	281 ac-ft/yr
•	Manufacturing	1,046 ac-ft/yr

The City of Pasadena receives water from COH, and it is one of the Southeast Purification Plant participants. Contract information was not available from the City of Pasadena and therefore information used in the 2006 Region H Regional Water Plan was used for the current plan. Based on the information received from the City of Pasadena for the 2006 Regional Water Plan, its customers are City of Seabrook (which in turn provides some of this water to the City of El Lago), manufacturing companies located in Harris County (San Jacinto-Brazos River Basin), and Clear Lake City Water Authority (CLCWA). These amounts are shown below.

•	Seabrook and El Lago	1,120 ac-ft/yr
•	County-Other	3,360 ac-ft/yr
•	Manufacturing	5,040 ac-ft/yr

The remaining supply from Pasadena was assumed to be available to satisfy the demands of the City of Pasadena.

The Fort Bend County WCID 2 contract allocation was described under county-other in Fort Bend County. The amount allocated to county-other in Harris County is 349 acre-feet per year.

Baytown Area Water Authority provides water to several communities in Harris County that are not listed as WUGs. This water was allocated to Harris county-other. The BAWA contract allocation is described under Baytown.

Municipal customers of the COH that were not itemized as WUGs were combined into county-other, based on the customer's location. COH provides groundwater to the San Jacinto, San Jacinto-Brazos, and Trinity-San Jacinto River Basins for use by county-other WUGs.

### **County-Other in Galveston County**

The 275 acre-feet contract between GCWA and Bayview MUD was allocated to county-other in Galveston County. The COH has a contract to supply Galveston County with 18,477 acre-feet per year for municipal use and it was assumed that this amount provided supply to the portion of Galveston County in the San Jacinto-Brazos basin. It was also assumed that the infrastructure that provides LNVA water to Bolivar SUD also provides water to county-other in the Neches-Trinity basin.

## **County-Other in Montgomery County**

COH provides 381 acre-feet per year to Montgomery County MUD 98. The entirety of this amount was allocated to county-other.

# **County-Other in Polk County**

The 20 acre-feet per year TRA supply allocated is the sum of contracts to Memorial Point Townhouse Association and Fountain Lake Townhouse Association.

### **County-Other in San Jacinto County**

Waterwood MUD has a contract for 560 acre-feet per year from the Trinity River Authority. This supply was allocated to county-other in the Trinity River Basin.

#### **County-Other in Trinity County**

Three contracts from TRA were entered as county-other category in Trinity County. One of the contracts for 1,000 acre-feet per year, listed for "Individual Domestic Use" was entirely allocated to county-other in Trinity County. Westwood Shores MUD is the recipient of 108 acre-feet per year from TRA, and it represents part of the demand of the county-other category in Trinity County. Westwood Shores POA receives 10 acre-feet per year from the TRA. The other contract entered in this category is part of the Trinity County Regional Water Supply System (TCRWSS) contract. TCRWSS has a contract with TRA for 3,360 acre-feet per year. TCRWSS provides water, on a retail basis, to the WUGs of Trinity, Groveton (located in Region H and I), and Riverside Water Supply. It was assumed that enough water would be provided to each WUG TCRWSS serves to meet demands and that the remaining contract would be allocated to county-other in Trinity County.

# **County-Other in Walker County**

Most of the contract of 22,403 acre-feet per year that the Huntsville Regional Water Supply System (HRWSS) has with TRA was allocated to the City of Huntsville. A small portion of this contract (15 percent) was allocated to county-other, based on the assumption that there are unincorporated areas in the vicinity of Huntsville that are supplied by the city. This amount was split by basin based on the water demand ratios.

### Crosby

Crosby MUD serves the City of Crosby and has a contract with SJRA for 1,120 acre-feet per year. Based on the information received from the City of Crosby, all the water is used for residential purposes except a small amount that is supplied to a manufacturing company located in Harris County. The City of Crosby receives 1,050 acre-feet per year. The remaining 70 acre-feet is allocated to the manufacturing category in Harris County, San Jacinto River Basin.

#### **Deer Park**

The City of Deer Park has a contract with COH for 3,956 acre-feet per year, and Deer Park uses the entire amount for residential purposes. The contract was split by basins based on the surface water demand ratios.

#### Dickinson

Galveston County WCID 1 has a contract with GCWA for 5,224 acre-feet per year and provides this water to Dickinson, Texas City, and League City, which are all retail customers. The contract amount, after adjustment, is equal to 3,232 acre-feet per year. Based on the information received from Galveston County WCID 1, it provides water to 50 houses in Texas City, League City pays for 1 mgd (it currently uses 150,000 gallons/day), and the rest goes to Dickinson. For all decades, Texas City was allocated an amount equal to 2.5 persons/house and a 150 gallons per day per person. League City was allocated the 1 mgd contract.

### El Lago

The City of Seabrook receives water from the City of Pasadena and then sells the water to El Lago. The volume of water provided by Pasadena was split between Seabrook and El Lago based on surface water demands. The contract with the City of Pasadena is for 1,120 acre-feet per year.

### Freeport

BWA has a contract with Freeport for 2,240 acre-feet per year. Based on the information received from the City of Freeport, 85 percent of this contract is allocated to the City of Freeport, and the remaining 15 percent is allocated to different manufacturers in the San Jacinto-Brazos and Brazos River Basins.

#### Friendswood

Friendswood has a contract with COH for 6,719 acre-feet per year and is one of the Southeast Purification Plant participants. The contract is entirely allocated to municipal use for the City of Friendswood. The contract was split in two entries in different counties, based on the surface water demand ratios for the two counties.

#### Galena Park

Galena Park has a contract with COH for 1,008 acre-feet per year. Galena Park personnel indicated that 94.6 percent of this contract goes to municipal use for the City of Galena Park. The remaining 5.4 percent of the contract amount is supplied to manufacturing use in Harris County in the San Jacinto River Basin. Galena Park receives 954 acre-feet per year. Manufacturing in the San Jacinto River Basin receives the balance of the contract, or 54 acre-feet per year.

# Galveston

Galveston receives 24,217 acre-feet per year from GCWA. This water is distributed among the city and two wholesale customers, Galveston County MUD 1 and Jamaica Beach. Galveston no longer serves customers that are not located on Galveston Island. As these customers receive water on a retail basis, it is difficult to determine a set amount provided to each one. Instead, this volume of water was divided among the three recipients according to their surface water demands in each decade.

## **Galveston County MUD 1**

The Galveston County MUD 1 surface supply is divided out of the total supply from GCWA to the City of Galveston according to its demand ratio among the other two recipients as described under Galveston.

# **Galveston County WCID 12**

The division of the GCWA supply to Galveston County WCID 12 and the WUGs it provides water to, is described under Clear Lake Shores.

#### Groveton

Groveton receives 119 acre-feet per year from TCRWSS in 2010, as explained in the county-other in Trinity County section above. This allocation represents the amount supplied to the portion of Groveton located within Region H.

### **Harris County FWSD 6**

Harris County FWSD is provided 187 acre-feet of water per year from NCWA as described under county-other in Harris County.

### **Harris County FWSD 47**

Harris County FWSD 47 receives 288 acre-feet per year of water from NCWA. This amount was allocated as described under county-other for Harris County.

# **Harris County FWSD 51**

Harris County FWSD 51 is also a customer of NCWA and is provided a portion of water according to the description under county-other in Harris County. The estimated supply to FWSD 51 is 1,539 acre-feet per year.

# **Harris County MUD 8**

COH has a contract with Harris County MUD 8 to provide 420 acre-feet of groundwater.

### **Harris County MUD 53**

NCWA provides an estimated 836 acre-feet per year of supply to Harris County MUD 53. This estimate is described for county-other in Harris County.

### **Harris County MUD 55**

The COH provides 3,877 acre-feet per year to Harris County MUD 55. This contract is perpetual and was assumed to continue throughout the planning periods.

## **Harris County MUD 158**

Harris County MUD 158 receives 411 acre-feet of groundwater per year from COH. It was assumed that this water originated from the San Jacinto River Basin.

## **Harris County MUD 261**

Harris County MUD 261 and Windfern Forest UD receive 140 acre-feet of groundwater/year from COH. This amount was split between the two districts according to surface water demands.

### **Harris County WCID 1**

BAWA has a contract to provide 784 acre-feet per year to Harris County WCID 1.

### **Harris County WCID 21**

NCWA provides 913 acre-feet of water per year to Harris County WCID 21 as described under county-other in Harris County.

# **Harris County WCID 36**

The description for county-other in Harris County explains the allocation of water from NCWA and includes the 802 acre-feet per year provided to Harris County WCID 36.

### **Harris County WCID 84**

Harris County WCID 84 provides 310 acre-feet of water per year to Channelview from its source, NCWA. The assignment of this supply is described under county-other in Harris County.

## **Hedwig Village**

Memorial Villages Water Authority (MVWA) has a contract with COH for 747 acre-feet per year of blended water. It was assumed for planning purposes that this water originated from a surface source. Based on the information received from MVWA, this contract is split between Hedwig Village, Piney Point Village, and Hunters Creek. Since these entities are retail customers, without information on exact amounts, the contract was split among the customers based on their total water demand ratios for each planning period.

# **Hitchcock**

Hitchcock is a customer of GCWA and is contracted to receive 1,731 acre-feet per year on a perpetual basis.

# Houston

The City of Houston, in its capacity as water provider to residents within the city limits, receives its water from several sources that are operated as a system. The available supply of this system, less contracts to other parties, was assumed to make up the available supply for Houston. This total volume was distributed among the individual occurrences of the Houston WUG in each basin and county.

Additionally, the Clear Lake City Water Authority provides a portion of its contract from COH to areas of Houston. As some of the authority's contracts are indefinable, it was assumed that Webster and Pasadena received a share of water prorated by the area served in each community. The amount of water remaining was assumed to serve Clear Lake (a portion of the Houston WUG). The amounts of water provided to each CLCWA customer are shown below.

• City of Houston 8,076 ac-ft/yr

City of Pasadena 8,619 ac-ft/yr

Taylor Lake Village 1,730 ac-ft/yrNassau Bay 2,184 ac-ft/yr

Manufacturing
 1,792 ac-ft/yr

#### Humble

The City of Houston provides 47 acre-feet of groundwater per year to Humble.

### **Hunters Creek Village**

This entity receives its water from the MVWA. As described under Hedwig Village, the amount of water that MVWA receives from COH was shared among its customers based on the surface water demand ratios.

#### Huntsville

Huntsville receives 22,403 acre-feet of groundwater per year from the Huntsville Regional Water Supply System (HRWSS). Approximately 15 percent of this water is allocated to county-other to support surrounding communities. The remaining supply was allocated to the City of Huntsville.

### **Jacinto City**

Jacinto City has a contract with COH for 1,120 acre-feet per year, and the entire amount of the contract is allocated to municipal use in Jacinto City.

#### Jamaica Beach

The City of Galveston provides water to Jamaica Beach, as described under Galveston. The portion of water provided to Jamaica Beach for each planning period was prorated from the GCWA supply according to the surface water demands of each end user customer.

### Jersey Village

The City of Jersey village has a contract with COH for 840 acre-ft per year of groundwater.

# Kemah

Galveston County WCID 12 provides water to Kemah, as described for Clear Lake Shores.

### La Marque

The GCWA contract to La Marque was reduced from 3,207 to 2,224 acre-feet per year. The contract is entirely allocated for municipal usage.

#### La Porte

The La Porte Area Water Authority receives water from COH and then distributes water to the City of La Porte and other customers. The City of La Porte receives 8,656 acre-feet per year, as described previously at county-other in Harris County. This contract was split between the city's WUGs in the San Jacinto and San Jacinto-Brazos River Basins.

## Lake Livingston Water Supply & Sewer Service Company

The Lake Livingston Water Supply & Sewer Service Company has a contract for 954 acre-feet per year from the TRA. The supply was split according to demand.

#### Lake Jackson

Lake Jackson receives water from BWA, and the entire contract of 2,240 acre-feet per year is allocated to municipal use for Lake Jackson.

#### League City

League City receives the majority of its water from two providers, GCWA and Galveston County WCID 1. The League City contract with GCWA is for 2,307 acre-feet per year. League City also contracts for 1 mgd with Galveston County WCID 1. Galveston County WCID 12 also provides a small amount of water to customers in a portion of League City in Harris County. This is shown under Clear Lake Shores.

### Livingston

Livingston receives water from the Livingston Regional Water Supply System. The entire amount, 5,601 acre-feet per year, is allocated to Livingston for its municipal use.

# **Missouri City**

Missouri City has a contract with GCWA for 16,802 acre-feet per year. However, this amount was reduced to 9,487 to reflect the supply available from the GCWA. The other provider for Missouri City is Fort Bend WCID 2. The amount received by Missouri City from Fort Bend County WCID 2 is shown above, at county-other in Fort Bend County. Missouri City in Fort Bend County is split by basins based upon surface water demand ratios.

## Nassau Bay

Nassau Bay receives water from Clear Lake City Water Authority (CLCWA). The current amount contracted, 2,184 acre-feet per year, is assumed to remain constant through 2060. Nassau Bay uses the whole amount contracted for its municipal use.

#### **North Fort Bend Water Authority (NFBWA)**

The COH has a contract with the North Fort Bend Water Authority which supplies 21,841 acre-feet per year of water. The COH will activate the supply to the (NFBWA) in the year 2013.

#### **North Harris County Regional Water Authority**

NHCRWA has a contract with COH for 11 acre-feet per year until 2010. Beginning in 2010, the authority will receive 34,714 acre-feet of surface water/year.

## **Oyster Creek**

Oyster Creek receives water from BWA, and the entire contract, 106 acre-feet per year, is allocated for municipal use in Oyster Creek.

#### Pasadena

Pasadena receives water from COH and from CLCWA. The COH contract allocation is described under county-other in Harris County. The CLCWA contribution to Pasadena was described above under Houston.

#### **Pearland**

Pearland has a contract with GCWA with an available supply of 15,675 acre-feet per year, valid until 2010, and a contract with COH for 560 acre-feet per year until 2041. Pearland is located in Harris and Brazoria Counties. Therefore, these contracts are split between the two counties based on surface water demand.

#### **Pecan Grove**

Pecan Grove receives 3,101 acre-ft of water contracted from the BRA via the GCWA. Although Pecan Grove has already contracted supply from the BRA, construction of a surface water treatment plant to treat the raw water will not begin construction until 2010. Pecan Grove is located in Fort Bend County and the contract is allocated for 3,101 acre feet per year for municipal use.

## **Pine Trails Utility**

Pine Trails Utility is a customer of NCWA and receives 480 acre-feet per year as estimated under county-other in Harris County.

# **Piney Point Village**

Memorial Villages Water Authority (MVWA) provides Piney Point Village with water from its contract with COH. As described above, under Hedwig Village and Hunters Creek Village, this contract is split between the MVWA customers.

### Richmond

The City of Richmond has two municipal contracts with the Brazos River Authority for a total amount of 3,000 acre-feet per year.

#### Richwood

Richwood receives water from BWA, and the entire contract of 263 acre-feet per year is allocated for municipal use by Richwood.

#### **Riverside WS Corp**

Riverside WS Corp receives 20 acre-feet of water/year from TCRWS as mentioned above in county-other for Trinity County. This amount was allocated to Walker County as San Jacinto County had no shortages for this WUG.

## Rosenberg

Rosenberg receives water from the Brazos River Authority and the contract of 4,500 acre-feet per year is allocated for municipal use by Rosenberg.

#### San Jacinto WSC

San Jacinto Water Supply Corporation receives 280 acre-feet per year from TRA. Coldspring is included in their service area, but since Coldspring has enough groundwater to meet its demand, this contract was allocated entirely to the San Jacinto Water Supply Company.

#### San Leon

San Leon receives 2,059 acre-feet per year of water from GCWA. The entire contract amount is allocated to the municipal use in San Leon.

#### Santa Fe

Santa Fe (Galveston County WCID 8) has a contract with GCWA for 1,154 acre-feet per year.

#### Seabrook

The Pasadena contract was split between El Lago and Seabrook as described under El Lago.

#### **Shoreacres**

La Porte provides water to Shoreacres, as shown in the allocation of the contract between the La Porte Area Water Authority and COH described under county-other in Harris County.

#### **South Houston**

As one of the Southeast Water Purification Plant partners, South Houston has a contract with COH for 4199 acre-feet per year. The contract is entirely allocated to municipal use for the City of South Houston.

### **Southside Place**

Southside Place has a contract with COH for 319 acre-feet per year, and the entire contract is used to meet its municipal demands.

#### **Stafford**

Stafford receives water from Fort Bend County WCID 2. Fort Bend County WCID 2 has an option contract with GCWA. The contract allocation is described above at county-other in Fort Bend County. The amount that Stafford receives is split between Fort Bend County and Harris County based on surface water demand ratios. The amount allocated to the part of Stafford located in Fort Bend County is split by basins, between San Jacinto and San Jacinto-Brazos River Basins, based on their surface water demand ratios.

#### **Sugar Land**

Sugar Land has two water providers. Fort Bend County WCID 2 provides water to some residents of Sugar Land, and the amount allocated is described under county-other in Fort Bend County. This amount is assumed to serve the portion of Sugar Land located in the San Jacinto-Brazos River Basin. GCWA has a contract with the City of Sugar Land for 22,403 acre-feet per year. This contract was adjusted to 12,533 acre-feet per year and is entirely allocated to the City of Sugar Land for its municipal use. The GCWA contract amount was split by basins based on the surface water demand ratios.

#### **Sunbelt FWSD**

The City of Houston provides 187 acre-feet of groundwater per year to the Sunbelt FWSD, in addition to 299 acre-feet of blended water/year. This blended supply is assumed to be surface water in *Appendix 3H*. Sunbelt is also a member of the COH Groundwater Reduction Plan.

## **Taylor Lake Village**

Clear Lake City Water Authority provides 1,730 acre-feet of water per year to Taylor Lake Village. The allocation of the CLCWA contract with COH was described under Houston.

### **Texas City**

Texas City has two water providers. The entity providing the largest amount is GCWA. The contract from GCWA is 12,016 acre-feet per year and is used entirely by the City of Texas City for its municipal water usage. The other provider is Galveston County WCID 1, and the allocation of its contract with GCWA is summarized under Dickinson. This small amount of water was estimated to be approximately 21 acre-feet per year.

#### The Woodlands

The Woodlands receives 11,303 acre-feet per year of groundwater from SJRA. The available groundwater supply is projected to be diminished over time as a result of groundwater availability and projected surface water conversion.

#### Tiki Island

Tiki Island receives water from GCWA under a contract for 415 acre-feet per year.

#### **Trinity**

Trinity receives water from TCRWSS. The allocation of the TCRWSS contract is described under county-other in Trinity County and is equal to the TWDB demands for Trinity.

#### **Trinity Bay Conservation District**

The Trinity Bay Conservation District receives 663 acre-feet per year from CLCND. LNVA provides an additional sum of water on an as-needed basis to the district through the Winnie Treatment Plant. When the new Winnie Water Treatment Plant is completed, the district will have the capacity to receive 2.4 mgd of water from LNVA. Therefore, it is assumed that the available supply from the Rayburn-Steinhagen system is 2,688 acre-feet per year. These supplies were split between the Trinity and Neches-Trinity River Basins according to demand.

#### **Trinity Rural WS Corp**

The Trinity Rural WSC supply is provided 1,240 acre-feet per year by TRA. The supply was split between the Polk, Trinity and Walker Counties based on demand.

## Webster

The City of Webster has a contract with COH for 4,536 acre-feet per year and is using the entire contract amount for its municipal water use. CLCWA provides an additional 4,475 acre-feet per year from their surface water allocation from COH.

## **West Harris County Regional Water Authority**

WHCRWA will begin a contract with COH for 20,437 acre-feet per year in 2010. This amount was allocated between the portions of WHCRWA located in Harris and Fort Bend Counties based on surface water demand.

### **West University Place**

The City of West University Place has a contract with COH for 2,053 acre-feet of groundwater/year, and it is using the entire contract amount for its municipal water use.

#### Windfern Forest UD

Windfern Forest UD shares a 140 acre-feet per year contract with Harris County MUD 261. This amount was split between the two districts according to their demands in each decade as described under Harris County MUD 261.

### 3.4.4.2 Manufacturing Supplies

#### **BRAZORIA COUNTY**

Brazoria County manufacturing supplies are allocated below.

Provider	2010	2020	2030	2040	2050	2060
	(acre-feet/year)					
Angleton	202	202	202	202	202	202
Dow	137,475	137,475	137,475	137,475	137,475	137,475
Freeport	336	336	336	336	336	336
GCWA	45,010	45,010	45,010	45,010	45,010	45,010
BRA	16,000	16,000	16,000	16,000	16,000	16,000
Individual Water Rights	11,354	11,422	11,422	11,422	11,422	11,422

The supply listed by the City of Angleton is provided from their contract from BWA. The Dow supply represents the company's firm water right and assumes that the full quantity is either contracted to other entities or used for the Dow facility itself. The 16,000 acre-feet listed from BRA is contracted to Dow. Freeport allocates approximately 15 percent of its contract from BWA to manufacturing, providing the value listed above. The sum of GCWA contracts to manufacturers in the San Jacinto-Brazos River Basin totals 45,010 acre-feet per year (after adjustment in order to observe available supplies). All contract amounts were allocated to the basin in which the consumer was located. Water rights intended for manufacturing were allocated to the basin the source originated in. Individual water rights in the Brazos-Colorado basin total 12,019 acre-feet per year and are available to Region H and Region K. A portion of these water rights are allocated to steam electric demands in Region K. The remainder is allocated to Manufacturing in Brazoria County, shown in the table above.

## **FORT BEND COUNTY**

Fort Bend County manufacturing supplies are allocated below.

Provider	2010 ac-ft/yr	2020 ac-ft/yr	2030 ac-ft/yr	2040 ac-ft/yr	2050 ac-ft/yr	2060 ac-ft/yr
BRA	400	400	400	400	400	400
FBC WCID 1	1,000	1,000	1,000	1,000	1,000	1,000

The Fort Bend County WCID 1 has a contract with Imperial Sugar for 1,000 acre-feet per year. Originally, this contract was for the entire 20,000 acre-feet per year yield from this right. However, this was reduced due to Imperial Sugar's plant closure. This contract was allocated to the San Jacinto-Brazos River Basin. The 400 acre-feet per year shown from BRA is contracted to Vulcan Materials.

#### **GALVESTON COUNTY**

Galveston County manufacturing supplies are allocated below.

Provider	2010	2020	2030	2040	2050	2060
	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr
GCWA	68,414	68,414	68,414	68,414	68,414	68,414

The GCWA amount represents the sum of contracts between the Gulf Coast Water Authority and manufacturers in Galveston County, San Jacinto-Brazos River Basin. This sum is adjusted so that the total GCWA contracts do not exceed supplies.

#### **HARRIS COUNTY**

Harris County manufacturing supplies are allocated below.

Provider	2010 ac-ft/yr	2020 ac-ft/yr	2030 ac-ft/yr	2040 ac-ft/yr	2050 ac-ft/yr	2060 ac-ft/yr
СОН	379,312	379,312	379,312	379,312	379,312	379,312
Crosby	70	70	70	70	70	70
CLCWA	1,792	1,792	1,792	1,792	1,792	1,792
Galena Park	54	54	54	54	54	54
NCWA	1,046	1,046	1,046	1,046	1,046	1,046
Pasadena	5,040	5,040	5,040	5,040	5,040	5,040
SJRA	75,703	75,703	75,703	75,703	75,703	75,703

The COH amount includes Houston contracts to manufacturers in Harris County. The appropriate portions of the contract sum were allocated to the basin in which the manufacturer was located. The supplies from Crosby and Galena Park represent portions of their contracted supplies provided for manufacturing. The Pasadena supply was split between the San Jacinto and San Jacinto-Brazos River Basins according to surface water demand. The sum of SJRA contracts was split according to the location of the contract customer.

A portion of the water provided by COH, equal to 23,404 acre-feet per year, is actually contracted to Lyondell-Citgo Refining. This water is used for refinery processes by LCR as well as 16,733 acre-feet/year of steam-electric demand by a customer of LCR. Attempts were made to contact LCR regarding how this water is used, which user receives the water first, and which portion of the water is reused between the two users. Lyondell-Citgo was unable to provide any information regarding this use pattern and, therefore, the total sum of water has been shown in the shortage analysis and the table above with COH as the provider.

#### 3.4.4.3 Irrigation Supplies

#### **BRAZORIA COUNTY**

Brazoria County irrigation allocations are tabulated below.

Irrigator	2010 ac-ft/yr	2020 ac-ft/yr	2030 ac-ft/yr	2040 ac-ft/yr	2050 ac-ft/yr	2060 ac-ft/yr
GCWA	13,694	13,694	13,694	13,694	13,694	13,694
Individual Water Rights	10,529	10,529	10,529	10,529	10,529	10,529

The water supply listed as individual water rights consists of the firm water rights within each basin. It was assumed that this water was used for agriculture within the source basin.

#### **CHAMBERS COUNTY**

Chambers County irrigation allocations are tabulated below.

Irrigator	2010 ac-ft/yr	2020 ac-ft/yr	2030 ac-ft/yr	2040 ac-ft/yr	2050 ac-ft/yr	2060 ac-ft/yr
CLCND	40,000	40,000	40,000	40,000	40,000	40,000
LNVA	38,000	38,000	38,000	38,000	38,000	38,000
TRA	16,818	16,552	16,370	16,170	15,941	15,669
Individual Water Rights	23,995	23,995	23,995	23,995	23,995	23,995

The CLCND amount represents the volume of water provided to Devers Canal customers in the Neches-Trinity River Basin by the CLCND. The LNVA amount is the sum of annual irrigation contracts to individuals in the Neches-Trinity River Basin. The water supplied by TRA represents the amount contributed to the Devers Canal system, split between Chambers and Liberty Counties according to irrigation surface demand in the basins served by the canal. In Chambers County, this water was only provided to the Neches-Trinity River Basin. Individual water rights for irrigation were assumed to be applied within the basin from which they originated.

#### FORT BEND COUNTY

Fort Bend County irrigation allocations are tabulated below.

Irrigator	2010 ac-ft/yr	2020 ac-ft/yr	2030 ac-ft/yr	2040 ac-ft/yr	2050 ac-ft/yr	2060 ac-ft/yr
GCWA	2,143	2,143	2,143	2,143	2,143	2,143
NRG	12,000	12,000	12,000	12,000	12,000	12,000

The GCWA supply represents the adjusted contract amounts between GCWA and several irrigators in the San Jacinto-Brazos River Basin. The supply from NRG represents the firm irrigation supply from the Brazos River Basin contracted to Richmond Irrigation. It was assumed that this entire amount was used within the Brazos River Basin. The balance of this water right was allocated to steam-electric in the Brazos basin.

#### **GALVESTON COUNTY**

Galveston County irrigation allocations are tabulated below.

Irrigator	2010	2020	2030	2040	2050	2060
	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr
GCWA	142	142	142	142	142	142

The GCWA allocated amounts equal the contracted volume of water to irrigation users in Galveston County.

#### HARRIS COUNTY

Harris County irrigation allocations are tabulated below.

Irrigator	2010 ac-ft/yr	2020 ac-ft/yr	2030 ac-ft/yr	2040 ac-ft/yr	2050 ac-ft/yr	2060 ac-ft/yr
SJRA	1,476	1,476	1,476	1,476	1,476	1,476
Individual Water Rights	1,355	1,355	1,355	1,355	1,355	1,355

The SJRA amount is equal to the current irrigation contracts between SJRA and customers in Harris County. It was assumed that these annual contracts ran perpetually and that they served irrigation demands in the San Jacinto River Basin.

#### LIBERTY COUNTY

Liberty County irrigation allocations are tabulated below.

Irrigator	2010 ac-ft/yr	2020 ac-ft/yr	2030 ac-ft/yr	2040 ac-ft/yr	2050 ac-ft/yr	2060 ac-ft/yr
СОН	33,000	33,000	33,000	33,000	33,000	33,000
Devers Canal	2,500	2,500	2,500	2,500	2,500	2,500
LNVA	17,200	17,200	17,200	17,200	17,200	17,200
TRA	10,682	10,948	11,130	11,130	11,559	11,831

The COH supply was purchased from the Dayton Canal Irrigation Company and is assumed to be provided to irrigators within the Trinity River Basin. The Devers Canal irrigation supply listed above is from a water right from the Trinity River and was split between the basins served by the Devers Canal system based on demand. This supply has recently been purchased by the Lower Neches Valley Authority (LNVA). The LNVA amount is the sum of the authority's contracts to individual farmers, assumed to be located in the Neches-Trinity River Basin. The volume of water provided to irrigation by TRA is Liberty County's share of the TRA contribution to the Devers Canal system. The water rights available to irrigation in Liberty County were allocated to the basin in which the supply originated.

#### MONTGOMERY COUNTY

Montgomery County irrigation allocation is tabulated below.

Irriga	tor	2010 ac-ft/yr	2020 ac-ft/yr	2030 ac-ft/yr	2040 ac-ft/yr	2050 ac-ft/yr	2060 ac-ft/yr
SJR	Α	088	880	880	880	880	880

The SJRA amount is the sum of water contracts between SJRA and irrigators in Montgomery County. These year to year contracts were assumed to be renewed through 2060.

#### SAN JACINTO COUNTY

San Jacinto County irrigation allocation is tabulated below.

Irrigator	2010	2020	2030	2040	2050	2060
	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr
TRA	135	135	135	135	135	135

The TRA amount allocated is the sum of two contracts between Royal Pines and Waterwood National Resort and TRA.

#### **TRINITY COUNTY**

Trinity County irrigation allocation is tabulated below.

Irrigator	2010	2020	2030	2040	2050	2060
	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr
TRA	290	290	290	290	290	290

The TRA amount allocated is a lump sum of contracts between several water recipients and TRA. The sum of these contracts, 290 acre-feet per year, is the sum of all the individual irrigation amount contracts in Trinity County.

#### 3.4.4.4 Mining Supplies

#### FORT BEND COUNTY

Fort Bend County mining supplies are allocated below:

Provider	2010	2020	2030	2040	2050	2060
	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr
GCWA	583	583	583	583	583	583

The GCWA contract provides water to Texas Brine in the San Jacinto-Brazos River Basin.

#### 3.4.4.5 Steam-Electric Supplies

#### **CHAMBERS COUNTY**

Chambers County steam-electric supplies are allocated below:

Provider	2010	2020	2030	2040	2050	2060
	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr
NRG	30,000	30,000	30,000	30,000	30,000	30,000

The portion shown above is provided through Water Right 3460903926 from Cedar Bayou owned by NRG.

#### **FORT BEND COUNTY**

Fort Bend County steam-electric supplies are allocated below:

Provider	2010	2020	2030	2040	2050	2060
	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr
NRG	111,711	111,711	111,711	111,711	111,711	111,711

The sum of supplies represents two individual rights owned by NRG for use in the Brazos River Basin (Water Rights 3461205320 and 3461205325 (28,711 acre-feet per year)) and a contract from BRA for 83,000 acre-feet per.

#### **GALVESTON COUNTY**

Galveston County steam-electric supplies are allocated below:

Provider	2010 ac-ft/yr	2020 ac-ft/yr	2030 ac-ft/yr	2040 ac-ft/yr	2050 ac-ft/yr	2060 ac-ft/yr
GCWA	2,231	2,231	2,231	2,231	2,231	2,231

The GCWA portion represents the sum of two contracts to steam-electric WUGs in the San Jacinto-Brazos River Basin. These contracts have been adjusted according to the procedures outlined above to limit GCWA contracts to available supplies.

#### HARRIS COUNTY

Harris County steam-electric supplies are allocated below:

Provider	2010	2020	2030	2040	2050	2060
	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr
COH	14,369	14,369	14,369	14,369	14,369	14,369

The COH supply is provided to two steam-electric WUGS in the San Jacinto River Basin. Water Right 3461105350 (2120 acre-feet per year) from Clear Creek was cancelled by NRG and is not assumed to be available for use in power generation.

#### **MONTGOMERY COUNTY**

Montgomery County steam-electric supplies are allocated below:

Provider	2010	2020	2030	2040	2050	2060
	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr	ac-ft/yr
SJRA	7,841	7,841	7,841	7,841	7,841	7,841

The SJRA supply from Lake Conroe provides water to Entergy for steam-electric use.

#### 3.4.5 Wholesale Water Providers

The resources available to Water User Groups (WUGs) in Region H through Wholesale Water Providers (WWPs) are listed in *Appendix 31*. The Appendix lists the WWPs that supply water directly to WUGs and lists if the water is "self supplied" or contracted from another WWP. In instances where supplies are contracted from another WWP, the supplier is listed in the "Source WWP" column. This list was compiled with the use of the TCEQ Water Rights Database, WAM and GAM results, contract information and clarifications received directly from the WWPs, and the allocation of groundwater resources shown above.

For the sake of this study, water supplies that are contracted by customers from the City of Houston and delivered via the CWA system have been included with the data for COH. Similarly, TRA is listed as the wholesale water provider for supplies provided by the Trinity County Regional Water Supply System, Huntsville Regional Water Supply System, and Livingston Regional Water Supply System as these providers are operated by TRA.

The groundwater supplies shown in *Table 3-14* represent the groundwater supplied to a WUG by the WWP and not groundwater used by a WUG from its own wells. These amounts of groundwater are generally the available supply as determined by the groundwater allocation method described above. However, COH was known to provide specified amounts of groundwater to its contract customers. Therefore, for the COH WWP, the available supply of groundwater is equal to the groundwater supplied to the Houston WUG plus the sum of groundwater contracts to customers. The groundwater available to NCWA is equal to the sum of groundwater allocated to its customers as it was assumed that NCWA is the only source of water for these customers. Fort Bend County WCID #2 was assumed to provide groundwater to the city of Meadows. Galveston County WCID 1 was allocated the groundwater associated with Dickinson as part of its available supply. The Woodlands is provided water by SJRA, and the groundwater that was available to The Woodlands was assumed to originate from SJRA. Finally, CHCRWA, NFBWA, NHCRWA, the City of Galveston, City of Pasadena, WHCRWA, Sugarland, Missouri City, Richmond-Rosenberg and the City of Huntsville were allocated the groundwater associated with each of the WUGs by the same name.

The volume of WWP supplies available to individual WUGs was determined through contract information from the WWPs, previous records, and further clarification from both the providers and customers. Where it was not possible to determine specific contract amounts to each WUG, other methods were used to approximate the supply to each WUG as described above in the groundwater and surface water allocation sections.

The 2060 supplies available to each WWP are shown below in *Table 3-14*. Wholesale Water Providers that receive water from another WWP through contractual transfer are listed below the original provider.

The surface water supplies are summarized by county, basin and category of use in *Table 3-15*. Similarly, *Tables 3-16* and *Table 3-17* summarize the groundwater and reuse supplies, respectively. An updated shortage analysis will be included in *Chapter 4* based on projected demands described in *Chapter 2*. During the development of the 2011 Region H Water Plan it was noted that several counties in Region H had experienced significant population growth indicating that current and future demands may be higher than previously projected. As a result, shortages in later decades may become greater than projected. If that occurs additional shortages may be met with alternative strategies described later in *Chapter 4*. The current surface water supplies are summarized by category of water use by basin by WWP in *Appendix 3J*.

Table 3-14
Summary of Supplies Available to Region H Wholesale Water Providers in 2060

William B. Mark		Available Supplie (acre-feet)	s
Wholesale Water Provider*	Contracts**	Groundwater	Surface Water Rights
Brazos River Authority <sup>1</sup>			155,031
Dow Chemical Company	16,000		137,475
Gulf Coast Water Authority <sup>2</sup>	44,980		214,260
City of Galveston	25,406	1,539	
Fort Bend County WCID #2	6,579	796	
Galveston County WCID 1 <sup>3</sup>	3,232	309	
Missouri City	9,645	9,340	
NRG <sup>4</sup>	83,000		94,220
Sugarland	12,563	9,027	
Richmond-Rosenburg	7,500	4,279	
Brazosport Water Authority			16,492
Chambers-Liberty Counties Navigation District <sup>5</sup>			76,520
Fort Bend County WCID 1			5,634
City of Houston <sup>6</sup>		83,818	1,254,628
Baytown Area Water Authority	17,534		
Central Harris County Regional Water Authority <sup>7</sup>	2,375	1,287	
Clear Lake City Water Authority <sup>8</sup>	26,876		
La Porte Area Water Authority	9,750		
North Channel Water Authority <sup>9</sup>	6,682	1,645	
North Fort Bend Water Authority <sup>10</sup>	21,434	26,643	
North Harris County Regional Water Authority <sup>11</sup>	34,714	30,558	
City of Pasadena <sup>12</sup>	38,514	2,047	
West Harris County Regional Water Authority <sup>13</sup>	20,437	16,521	
Lower Neches Valley Authority <sup>14</sup>			64,177
San Jacinto River Authority <sup>15</sup>		7,359	232,744
Trinity River Authority			403,200
City of Huntsville	22,403	5,164	

<sup>\*</sup>WWPs that provide water through contract to other WWPs are shown with the customer WWPs listed below the sellers.

<sup>\*\*</sup>Water received under contract from another WWP.

- <sup>1</sup> Available supplies represent contractual agreements to Region H customers only. Supply quantities are for the amount of water currently contracted to Region H customers by BRA.
- <sup>2</sup> GCWA contracts with its customers exceed available firm yield supplies. For the purpose of the shortage analysis, contracts were adjusted not to exceed supplies.
- <sup>3</sup> Supplies include GCWA contract and maximum amount of groundwater allowed for Dickinson per HGSD regulations.
- <sup>4</sup> Supplies include contractual demands to Richmond Irrigation and Brazos Valley Energy, as well as the entire portion of the GCWA contract, which is assumed to be used by NRG. Actual demands may be greater but are overall split among supply sources since actual data is unavailable.
- <sup>5</sup> CLCND supply includes rights from Lake Anahuac, less 30,000 acre-feet sold to SJRA.
- <sup>6</sup> Groundwater supply includes the portion of groundwater provided to Houston after prorating available, restricted supplies to WUGs, plus groundwater contracted to other WWPs. Demands include contracts to BAWA, CLCWA, LPAWA, Lyondell-Citgo, NCWA, NHCRWA, Pasadena, and WHCRWA WWPs. Surface water rights for COH include 33,000 acre-feet purchased from the Dayton Canal Irrigation Company; it is allocated entirely to irrigation demands in Liberty County.
- <sup>7</sup> Available Groundwater Supplies are supplied by the CHCRWA, not contracted from the City of Houston.
- <sup>8</sup> Assumes all water remaining after contracts is provided to Clear Lake (Houston WUG).
- <sup>9</sup> NCWA groundwater supply estimated from the 2003-2004 ratio of groundwater to contract water. Demands were assumed to equal supplies.
- <sup>10</sup> Available Groundwater Supplies are supplied by the NFBWA, not contracted from the City of Houston.
- <sup>11</sup> Available Groundwater Supplies are supplied by the NHCRWA, not contracted from the City of Houston.
- <sup>12</sup> Includes total Pasadena demands, less the portion met by CLCWA.
- <sup>13</sup> Available Groundwater Supplies are supplied by the WHCRWA, not contracted from the City of Houston.
- <sup>14</sup> Supplies represent contractual agreements to Region H customers only. Supply quantities are for the entire Rayburn-Steinhagen system and do not represent the portion available to Region H.
- <sup>15</sup> Includes water demands and available groundwater supplied to The Woodlands. The 2060 groundwater supply shown above is the least amount of groundwater available throughout the planning periods. Also includes 14,944 acre-feet of permitted indirect reuse.

Table 3-15
Surface Water Supply by Categories of Water Use in Each County and Basin

				Availab	le Supplies	(acre-feet pe	er year)	
County	Basin	Use	Year	Year	Year	Year	Year	Year
			2010	2020	2030	2040	2050	2060
AUSTIN	COLORADO	LIVESTOCK	52	56	58	59	60	61
		IRRIGATION	1,850	1,850	1,850	1,850	1,850	1,850
		LIVESTOCK	220	228	232	235	236	238
	BRAZOS	MANUFACTURING	153,763	153,763	153,763	153,762	153,742	153,762
		MINING	190	190	190	190	190	190
		MUNICIPAL	223	199	183	172	162	154
		LIVESTOCK	200	202	206	210	217	225
BRAZORIA	BRAZOS-	MANUFACTURING	11,354	11,422	11,422	11,422	11,422	11,422
	COLORADO	MINING	1,124	1,124	1,124	1,124	1,124	1,124
		MUNICIPAL	478	478	478	478	478	478
		IRRIGATION	25,131	25,131	25,131	25,131	25,131	25,131
	SAN	LIVESTOCK	545	505	547	591	643	690
	JACINTO- BRAZOS	MANUFACTURING	45,260	45,260	45,260	45,261	45,281	45,261
	BINAZOS	MINING	305	305	305	305	305	305
		MUNICIPAL	23,155	23,223	23,259	23,280	23,302	23,320
		IRRIGATION	116,568	116,302	116,120	115,920	115,691	115,419
	NECHES-	LIVESTOCK	317	317	317	317	317	318
	TRINITY	MINING	505	505	505	505	505	505
		MUNICIPAL	3,806	3,863	3,931	4,007	4,092	4,191
		LIVESTOCK	50	50	50	50	51	51
CHAMBERS	TRINITY	MINING	18,989	18,989	18,989	18,989	18,989	18,989
CHAMBERS		MUNICIPAL	1,595	1,623	1,653	1,688	1,729	1,774
		IRRIGATION	2,185	2,185	2,185	2,185	2,185	2,185
		LIVESTOCK	48	49	51	52	53	54
	TRINITY-SAN JACINTO	MINING	4,722	4,722	4,722	4,672	4,601	4,502
	07.0	MUNICIPAL	821	891	950	996	1,040	1,084
		STEAM ELECTRIC POWER	30,000	30,000	30,000	30,000	30,000	30,000
		IRRIGATION	12,000	12,000	12,000	12,000	12,000	12,000
		LIVESTOCK	0	207	415	415	415	415
	BRAZOS	MANUFACTURING	400	400	400	400	400	400
		MUNICIPAL	15,242	16,028	16,131	16,259	16,515	16,822
		STEAM ELECTRIC				444.744		
		POWER	111,711	111,711	111,711	111,711	111,711	111,711
FORT BEND	SAN JACINTO	LIVESTOCK	13	30	47	47	47	47
	C/IIV G/ (CIIV) C	MINING	8	8	8	8	8	8
		MUNICIPAL	8,529	18,494	18,408	18,680	19,121	19,261
		IRRIGATION	2,143	2,143	2,143	2,143	2,143	2,143
	SAN JACINTO-	LIVESTOCK	1 000	98	139	139	139	139
	BRAZOS	MANUFACTURING	1,000	1,000	1,000	1,000	1,000	1,000
		MINING	517	517	517	517	517	517
	NEOUES	MUNICIPAL	19,478	31,008	33,159	34,283	35,559	36,584
GALVESTON	NECHES- TRINITY	MINING	106	106	106	106	106	106
		MUNICIPAL	5,550	5,500	5,450	5,400	5,350	5,300

				Availab	le Supplies	(acre-feet pe	er year)	
County	Basin	Use	Year 2010	Year 2020	Year 2030	Year 2040	Year 2050	Year 2060
		IRRIGATION	142	142	142	142	142	142
		LIVESTOCK	306	296	280	280	280	281
	SAN	MANUFACTURING	68,414	68,414	68,414	68,414	68,414	68,414
	JACINTO- BRAZOS	MINING	101	101	101	101	101	101
		MUNICIPAL	77,993	78,258	78,403	78,465	78,509	78,538
		STEAM ELECTRIC POWER	2,231	2,231	2,231	2,231	2,231	2,231
		IRRIGATION	1,476	1,476	1,476	1,476	1,476	1,476
		LIVESTOCK	324	666	803	803	803	803
	SAN JACINTO	MANUFACTURING	364,933	364,933	364,961	364,970	364,975	364,973
	SAIV SACIIVI O	MINING	992	992	992	992	992	992
		MUNICIPAL STEAM ELECTRIC	404,719	435,032	464,366	499,737	537,217	543,310
		POWER	14,369	14,369	14,369	14,369	14,369	14,369
HARRIS	SAN	LIVESTOCK	82	82	82	82	82	82
	JACINTO-	MANUFACTURING	55,739	55,739	55,711	55,702	55,697	55,699
	BRAZOS	MINING	19	19	19	19	19	19
		MUNICIPAL	58,484	60,167	61,852	63,786	65,854	66,182
		IRRIGATION	1,355	1,355	1,355	1,355	1,355	1,355
	TRINITY-SAN JACINTO	LIVESTOCK	73	73	73	73	73	73
	JACINTO	MANUFACTURING	42,345	42,345	42,345	42,345	42,345	42,345
		MUNICIPAL	17,100	17,033	16,978	16,934	16,892	16,851
	NECHES	IRRIGATION	2,500	2,500	2,500	2,500	2,500	2,500
	NEOLIEO	LIVESTOCK	45	45	45	45	45	70
LIBERTY	NECHES- TRINITY	IRRIGATION	19,269	19,228	19,199	19,170	19,134	19,093
LIBERTY	TRINITY	IRRIGATION	44,113	44,420	44,631	44,860	45,125	45,438
		MUNICIPAL	72	71	72	73	77	80
	TRINITY-SAN	IRRIGATION	685	685	685	685	685	685
	JACINTO	LIVESTOCK	0	0	0	0	0	17
		IRRIGATION	880	880	880	880	880	880
MONTGOME RY	SAN JACINTO	LIVESTOCK STEAM ELECTRIC	510	510	510	510	510	510
		POWER	7,841	7,841	7,841	7,841	7,841	7,841
POLK	TRINITY	MUNICIPAL	6,236	6,225	6,221	6,221	6,230	6,237
	SAN JACINTO	MUNICIPAL	63	70	73	75	75	74
SAN JACINTO	TRINITY	IRRIGATION	135	135	135	135	135	135
		MUNICIPAL	977	990	1,004	1,013	1,012	1,008
		IRRIGATION	290	290	290	290	290	290
TRINITY	TRINITY	LIVESTOCK	211	211	211	211	211	211
		MUNICIPAL	5,615	5,598	5,590	5,587	5,577	5,573
	SAN JACINTO	LIVESTOCK	0	1	12	8	9	11
WALKER		MUNICIPAL	17,606	17,211	17,244	17,291	17,367	17,454
	TRINITY	LIVESTOCK MUNICIPAL	106 4,925	127 5,322	138 5,283	143 5,230	148 5,157	154 5,073
WALLER	BRAZOS	LIVESTOCK	232	232	232	232	242	277
	SAN JACINTO	LIVESTOCK	90	90	90	90	102	107
	Total	I	1,843,815	1,899,087	1,932,954	1,971,925	2,013,605	2,021,690

Table 3-16
Groundwater Supply by Categories of Water Use in Each County and Basin

County	Basin	Use		Available \$	Supplies (a	acre-feet p	er year)	
			Year 2010	Year 2020	Year 2030	Year 2040	Year 2050	Year 2060
		IRRIGATION	743	743	743	743	743	743
		LIVESTOCK	1,211	1,211	1,211	1,211	1,211	1,211
	BRAZOS	MANUFACTURING	172	172	172	172	172	172
		MINING	40	40	40	40	40	40
		MUNICIPAL	3,638	3,462	3,353	3,283	3,250	3,215
		IRRIGATION	9,874	9,874	9,874	9,874	9,874	9,874
AUSTIN		LIVESTOCK	339	339	339	339	339	339
	BRAZOS- COLORADO	MANUFACTURING	38	38	38	38	38	38
	COLORADO	MINING	4	4	4	4	4	4
		MUNICIPAL	459	459	459	459	459	459
		LIVESTOCK	13	9	7	6	5	4
	COLORADO	MINING	7	7	7	7	7	7
		MUNICIPAL	26	26	26	26	26	26
		LIVESTOCK	22	14	10	7	6	4
	55.700	MANUFACTURING	24,125	4,493	4,026	3,597	3,116	2,600
	BRAZOS	MINING	117	28	28	28	28	28
		MUNICIPAL	2,257	2,122	2,097	2,075	2,056	2,045
		IRRIGATION	4,765	4,277	4,089	3,976	3,976	3,976
BRAZORIA	BRAZOS-	LIVESTOCK	204	202	198	194	187	179
	COLORADO	MINING	1,728	1,440	1,440	1,440	1,440	1,440
		MUNICIPAL	2,869	2,858	2,847	2,834	2,827	2,825
		LIVESTOCK	423	423	421	377	325	278
	SAN JACINTO- BRAZOS	MINING	640	624	624	624	624	624
	BRAZOS	MUNICIPAL	13,250	13,113	13,082	13,058	13,051	13,053
		IRRIGATION	3,890	3,884	3,880	3,879	3,876	3,876
	NECHES-	LIVESTOCK	16	16	16	16	16	15
	TRINITY	MINING	30	30	30	30	30	30
		MUNICIPAL	47	45	43	42	41	40
		IRRIGATION	5,688	5,464	5,330	5,207	5,089	4,988
		LIVESTOCK	10	10	10	10	9	9
	TRINITY	MINING	4,907	4,907	4,907	4,907	4,907	4,907
CHAMBERS		MUNICIPAL	201	197	195	193	191	190
		IRRIGATION	530	509	472	439	409	379
		LIVESTOCK	21	20	18	17	16	15
	TRINITY-SAN	MANUFACTURING	3,538	3,538	3,538	3,538	3,538	3,538
	JACINTO	MINING	2,561	2,561	2,561	2,511	2,440	2,341
		MUNICIPAL	282	278	273	268	265	262
		STEAM ELECTRIC POWER	1,330	1,018	1,104	1,208	1,332	1,468

		IRRIGATION	5,907	5,907	5,907	5,907	5,907	5,907
		LIVESTOCK	691	484	276	276	276	276
		MANUFACTURING	1,235	907	538	538	538	538
	BRAZOS	MINING	618	441	255	255	255	255
		MUNICIPAL	30,481	23,372	16,990	16,966	16,966	16,966
		STEAM ELECTRIC POWER	11,316	11,316	11,316	11,316	11,316	11,316
		IRRIGATION	18,869	18,869	18,869	18,869	18,869	18,869
	BRAZOS-	LIVESTOCK	211	211	211	211	211	211
	COLORADO	MINING	140	140	140	140	140	140
FORT BEND		MUNICIPAL	706	552	662	720	798	819
		IRRIGATION	7,538	7,538	7,538	7,538	7,538	7,538
		LIVESTOCK	57	40	23	23	23	23
	SAN JACINTO	MANUFACTURING	1,979	1,453	862	862	862	855
		MINING	272	200	116	116	116	116
		MUNICIPAL	28,134	25,090	16,923	16,913	16,910	16,910
		IRRIGATION	6,998	6,998	6,998	6,998	6,998	6,998
	0411 14 011 170	LIVESTOCK	135	101	60	60	60	60
	SAN JACINTO- BRAZOS	MANUFACTURING	3,649	2,679	1,588	1,588	1,588	1,588
		MINING	1,455	1,408	814	822	830	838
		MUNICIPAL	46,394	41,389	31,085	31,051	31,049	30,149
	NECHES-	LIVESTOCK	2	2	2	2	2	2
	TRINITY	MINING	14	14	14	14	14	14
		IRRIGATION	1,020	1,020	1,020	1,020	1,020	1,020
GALVESTON	0411 14 011 170	LIVESTOCK	3	3	3	3	3	3
	SAN JACINTO- BRAZOS	MANUFACTURING	4,101	4,101	4,101	4,101	4,101	4,101
		MINING	13	13	13	13	13	13
		MUNICIPAL	4,444	4,395	4,349	4,303	4,273	4,275
		IRRIGATION	9,883	9,883	9,883	9,883	9,883	9,883
		LIVESTOCK	666	285	190	190	190	190
	SAN JACINTO	MANUFACTURING	51,293	51,293	51,293	51,293	51,293	51,293
		MINING	126	126	126	126	126	126
		MUNICIPAL	253,507	168,337	147,713	147,659	147,639	147,647
		LIVESTOCK	9	9	9	9	9	9
LIADDIC		MANUFACTURING	6,692	6,692	6,692	6,692	6,692	6,692
HARRIS	SAN JACINTO- BRAZOS	MINING	2	2	2	2	2	2
	510.200	MUNICIPAL	6,002	5,279	5,222	5,124	5,111	5,120
		STEAM ELECTRIC POWER	44	44	44	44	44	44
		IRRIGATION	5,417	5,417	5,417	5,417	5,417	5,417
	TRINITY-SAN	LIVESTOCK	18	18	18	18	18	18
	JACINTO	MANUFACTURING	7,261	7,261	7,261	7,261	7,261	7,261
		MUNICIPAL	1,528	1,408	1,452	1,452	1,452	1,452
		LIVESTOCK	423	423	423	423	423	423
LEON	BRAZOS	MINING	221	213	209	205	201	198
		MUNICIPAL	488	488	488	488	488	488
	TRINITY	IRRIGATION	542	542	542	542	542	542

		LIVESTOCK	1,268	1,268	1,268	1,268	1,268	1,268
		MANUFACTURING	714	714	714	714	714	714
		MINING	1,296	1,251	1,226	1,204	1,183	1,166
		MUNICIPAL	1,640	1,640	1,640	1,640	1,640	1,640
		IRRIGATION	12	12	12	12	12	12
		LIVESTOCK	59	59	59	59	59	34
	NECHES	MINING	32	32	32	32	32	32
		MUNICIPAL	241	241	241	241	241	241
		IRRIGATION	375	374	372	369	368	367
	NECHES-	LIVESTOCK	35	35	35	35	35	35
	TRINITY	MINING	23	23	23	23	23	22
		MUNICIPAL	11	11	11	11	11	11
		IRRIGATION	830	830	830	830	830	830
		LIVESTOCK	140	140	140	140	140	140
	SAN JACINTO	MANUFACTURING	331	331	331	331	331	331
LIBERTY		MINING	34	34	34	34	34	34
LIBERTT		MUNICIPAL	2,865	2,865	2,865	2,865	2,865	2,865
		IRRIGATION	10,367	8,078	6,416	4,597	2,447	0
		LIVESTOCK	446	446	446	446	446	446
		MANUFACTURING	62	62	62	62	62	62
	TRINITY	MINING	4,924	4,880	4,836	4,794	4,747	4,695
		MUNICIPAL	7,166	7,166	7,166	7,166	7,166	7,166
		STEAM ELECTRIC	2,962	2,962	2,962	2,962	2,962	2,962
		POWER IRRIGATION	5,683	5,643	5,608	5,573	5,535	5,507
		LIVESTOCK	32	32	32	32	32	15
	TRINITY-SAN JACINTO	MINING	3,717	3,717	3,717	3,717	3,717	3,717
		MUNICIPAL	187	187	187	187	187	187
		LIVESTOCK	120	120	120	120	120	120
	BRAZOS	MINING	9	9	9	9	9	9
	BIVAZOO	MUNICIPAL	106	106	106	106	106	106
		IRRIGATION	19	19	19	19	19	19
MADISON		LIVESTOCK	630	630	630	630	630	630
	TRINITY	MANUFACTURING	260	260	260	260	260	260
	1131111	MINING	15	15	15	15	15	15
		MUNICIPAL	1,687	1,660	1,643	1,692	1,688	1,657
		IRRIGATION	51	38	31	26	21	18
		LIVESTOCK	393	293	239	199	161	132
		MANUFACTURING	1,576	1,344	1,224	1,127	997	888
MONTGOMERY	SAN JACINTO	MINING	370	293	247	212	177	148
		MUNICIPAL	57,722	52,532	53,909	52,949	49,746	47,142
		STEAM ELECTRIC POWER	3,888	3,885	3,879	3,873	3,864	3,852
		LIVESTOCK	134	134	134	134	134	134
POLK	TRINITY	MINING	29	29	29	29	29	29
- <del></del>		MUNICIPAL	2,919	2,919	2,919	2,919	2,919	2,919
SAN JACINTO	SAN JACINTO	LIVESTOCK	142	142	142	142	142	142

		MANUFACTURING	48	48	48	48	48	48
		MINING	23	23	22	21	20	20
		MUNICIPAL	1,345	1,345	1,345	1,345	1,345	1,345
		IRRIGATION	532	532	532	532	532	532
		LIVESTOCK	142	142	142	142	142	142
	TRINITY	MINING	7	6	6	6	6	6
		MUNICIPAL	2,650	2,650	2,650	2,650	2,650	2,551
		IRRIGATION	467	467	467	467	467	467
TRINITY	TRINITY	MINING	6	6	6	6	6	6
		MUNICIPAL	805	805	800	782	762	734
		IRRIGATION	5	5	5	5	5	5
		LIVESTOCK	310	309	298	302	301	299
	SAN JACINTO	MANUFACTURING	577	577	577	577	577	577
		MINING	7	7	7	7	7	7
		MUNICIPAL	8,546	6,422	6,714	6,444	6,548	6,602
WALKER		IRRIGATION	6	6	6	6	6	6
		LIVESTOCK	216	195	184	179	174	168
	TRINITY	MANUFACTURING	2,631	2,422	2,111	2,312	2,352	2,369
		MINING	6	6	6	6	6	6
		MUNICIPAL	4,080	4,254	4,359	3,739	3,434	3,049
		IRRIGATION	4,825	4,825	4,825	4,825	4,825	4,825
		LIVESTOCK	444	444	444	444	434	399
	BRAZOS	MANUFACTURING	17	17	17	17	17	17
		MINING	9	9	9	9	9	9
		MUNICIPAL	4,061	4,061	4,061	4,061	4,061	4,061
WALLER		IRRIGATION	18,153	17,679	18,153	18,140	16,561	14,755
		LIVESTOCK	173	173	173	173	161	156
	SAN JACINTO	MANUFACTURING	72	72	72	72	72	72
		MINING	71	71	71	71	71	71
		MUNICIPAL	1,570	1,502	1,491	1,491	1,491	1,491
	Total	•	777,845	641,359	591,590	586,814	578,644	569,361

Table 3-17
Reuse Supply by Categories of Water Use in Each County and Basin

County	Basin	Use		Availab	le Supplies	(acre-feet p	er year)	
			Year	Year	Year	Year	Year	Year
			2010	2020	2030	2040	2050	2060
MONTGOMERY	SAN JACINTO	MUNICIPAL	0	0	438	14,799	14,840	14,866
	Total		0	0	438	14,799	14,840	14,866

# Appendix 3A

Current Water Supply Sources Available During Drought of Record Conditions This Page Intentionally Left Blank

Region H
Table 3A-1: Current Water Supply Sources Available During Drought of Record Conditions

Source Name	Source	Source	Source Basin	Source County	Basin ID	County ID	Source ID	2010	So	Source Supply (acre-ft /year	(acre-ft /year)	2050	2060
BRAZOS RIVER ALLUVIUM AQUIFER	t		BRAZOS	AUSTIN	12	008	00805	8.607	8.607	8.607	8.607	8.607	8.607
GULF COAST AQUIFER	01-GW	=	BRAZOS	AUSTIN	12	800	00815	9,668	9,668	899'6	9,668	9,668	9,668
GULF COAST AQUIFER	01-GW	I	BRAZOS-COLORADO	AUSTIN	13	800	00815	11,200	11,200	11,200	11,200	11,200	11,200
GULF COAST AQUIFER	01-GW	I	COLORADO	AUSTIN	14	800	00815	46	46	46	46	46	46
GULF COAST AQUIFER	01-GW	I	SAN JACINTO-BRAZOS	BRAZORIA	11	020	02015	35,904	35,904	35,904	35,904	35,904	35,904
GULF COAST AQUIFER	01-GW	I	BRAZOS	BRAZORIA	12	020	02015	7,192	7,192	7,192	7,192	7,192	7,192
GULF COAST AQUIFER	01-GW	I	BRAZOS-COLORADO	BRAZORIA	13	020	02015	7,304	7,304	7,304	7,304	7,304	7,304
UNDIFFERENTIATED AQUIFER	01-GW	I	SAN JACINTO-BRAZOS	BRAZORIA	11	020	02022	167	167	167	167	167	167
GULF COAST AQUIFER	01-GW	Ξ:	NECHES-TRINITY	CHAMBERS	20	036	03615	3,990	3,990	3,990	3,990	3,990	3,990
GULF COAST AQUIFER	01-GW	=	THE STATE OF THE S	CHAMBERS	80 8	036	03615	10,806	10,806	10,806	10,806	10,806	10,806
GULF CUASI AQUIFER	01-GW	Ξ-	I KINI I Y-SAN JACIN I O	CHAMBERS	3 8	030	03615	8,205	8,205	8,205	8,205	8,205	8,205
SAM KAYBUKN-S I EINHAGEN LAKE/RESEKVOIK SYS I EM	00-SW	- =	NECHES	KESERVOIK	8 6	020	UBUAU	820,000	820,000	820,000	820,000	820,000	820,000
BRAZOS NIVEN ALLOVIONI AQUIFEN	01-GW		SAN IACINES	TONI BEIND	7 5	070	07046	20,432	23,432	20,432	25,432	25,432	23,432
GULF COAST AQUIPER	01-GW	c 3	SAN JACINTO BRAZOS	FORI BEND	2 7	6/0	07915	59,095	50,294	20,000	42,005	42 474	42,225
GOLT COAST AQUIEED	01-0v		SAIN SACINI O-BRAZOS	FORT BEND	- 2	070	07915	73 577	36,306	20 505	20,000	30.073	30 490
GOEL COAST AQUIFER	70.0	= =	BPAZOS-COLOBADO	FORT BEND	4 6	070	07915	26,54	25,300	20,303	20,450	20,00	20,430
IVINGSTON-WALLISVII I FI AKE/RESERVOIR	WS-00	= =	TRINITY	RESERVOIR	2 8	200	084H0		1 289 000	1 265 000	1 294 000	- 1	1 344 000
GILLE COAST AQUIFFER	01-GW	= =	YEINIAT-SEHEN	GALVESTON	20	084	08415	+	30	31	31	_	31
GULF COAST AQUIFER	01-GW	: 1	SAN JACINTO-BRAZOS	GALVESTON	17	180	08415	10.084	10.343	10.837	10.789	10.761	10.763
HOUSTON LAKE/RESERVOIR	WS-00	1	SANJACINTO	RESERVOIR	10		10030	187,000	184.200	181.400	178,600	175.800	173.000
GULF COAST AQUIFER	01-GW	I	TRINITY-SAN JACINTO	HARRIS	80	101	10115	14,284	14,699	15,202	15,206	15,211	15,216
GULF COAST AQUIFER	01-GW	I	SAN JACINTO	HARRIS	10	101	10115	317,587	245,596	236,106	236,053	236,035	236,045
GULF COAST AQUIFER	01-GW	I	SAN JACINTO-BRAZOS	HARRIS	11	101	10115	9,682	10,355	11,087	10,989	10,976	10,985
NECHES-TRINITY RIVER RUN-OF-RIVER	WS-00	I	NECHES-TRINITY	CHAMBERS	-07	036	3410704290	1,037	1,037	1,037	1,037	1,037	1,037
NECHES-TRINITY RIVER RUN-OF-RIVER	WS-00	I	NECHES-TRINITY	CHAMBERS	-07	036	3410704291	1,078	1,078	1,078	1,078	1,078	1,078
NECHES-TRINITY RIVER RUN-OF-RIVER	WS-00	I	NECHES-TRINITY	CHAMBERS	-07	036	3410704295	1,199	1,199	1,199	1,199	1,199	1,199
NECHES-TRINITY RIVER RUN-OF-RIVER	WS-00	I	NECHES-TRINITY	CHAMBERS	20	980	3410704299	1,173	1,173	1,173	1,173	1,173	1,173
NECHES-TRINITY RIVER RUN-OF-RIVER	WS-00	I	NECHES-TRINITY	CHAMBERS	20	036	3410704306	1,818	1,818	1,818	1,818	1,818	1,818
NECHES-TRINITY RIVER RUN-OF-RIVER	WS-00	I	NECHES-TRINITY	CHAMBERS	20	980	3410704311	2,072	2,072	2,072	2,072	2,072	2,072
NECHES-TRINITY RIVER RUN-OF-RIVER	WS-00	Ξ.	NECHES-TRINITY	CHAMBERS	07	036	3410705016	1,012	1,012	1,012	1,012	1,012	1,012
SAN JACINTO-BRAZOS RIVER RUN-OF-RIVER	WS-00	Ξ:	SAN JACINTO-BRAZOS	BRAZORIA	14	020	3411104449	1,200	1,200	1,200	1,200	1,200	1,200
SAN JACIN I O-BRAZOS RIVER RUN-OF-RIVER	00-8W	Ξ (	SAN JACIN I O-BRAZOS	BRAZORIA	= 5	020	3411104509	2,028	2,028	2,028	2,028	2,028	2,028
BRAZOS RIVER AUTHORITY SYSTEM	00-5W	בפ	BRAZOS	AESERVOIR FOR	7 8	115	120E0	121,228	7.18,330	7.09,472	7.00,594	1 562	4 562
CARINIZO-WILCOX AQUILEED	70.0	= 3	- ININI-	LEON	2 8	145	14510	2,2,5	1,1	4,000	1,000	200,4	4,302
OFFICE ACTION ACTION TO THE PROPERTY ACTION	01-GW	= =	TRINITY	LEON	2 8	145	14524	4 860	4 860	4 860	4 860	4 860	4 860
QUEEN CITY AQUIFER	01-GW	: =	BRAZOS	LEON	12	145	14524	201	201	201	201	201	201
SPARTA AQUIFER	01-GW	I	TRINITY	LEON	80	145	14527	6,895	6,895	6,895	6,895	6,895	6,895
SPARTA AQUIFER	01-GW	I	BRAZOS	LEON	12	145	14527	497	497	497	497	497	497
GULF COAST AQUIFER	01-GW	I	NECHES	LIBERTY	90	146	14615	4,414	4,414	4,414	4,414	4,414	4,414
GULF COAST AQUIFER	01-GW	I	NECHES-TRINITY	LIBERTY	07	146	14615	444	444	444	444	444	444
GULF COAST AQUIFER	01-GW	Ξ.	TRINITY	LIBERTY	88	146	14615	21,857	21,857	21,857	21,857	21,857	21,857
GULF COAST AQUIFER	01-GW	Ξ:	TRINITY-SAN JACINTO	LIBERTY	60	146	14615	9,619	9,619	9,619	9,619	9,619	9,619
GULF COAST AQUIFER	01-GW		SANJACINIO	MADISON	010	146	14615	6,887	6,887	6,887	6,887	6,887	6,887
CARRIZO-WILCOX AQUILEER	01-GW	= =	BRAZOS	MADISON	3 5	157	15710	722	717	104,1	197	190	190
UNDIFFERENTIATED AQUIFER	01-GW	=	TRINITY	MADISON	: 88	157	15722	334	334	334	334	334	334
QUEEN CITY AQUIFER	01-GW	I	TRINITY	MADISON	80	157	15724	2.625	2.625	2.625	2.625	2.625	2.625
QUEEN CITY AQUIFER	01-GW	I	BRAZOS	MADISON	12	157	15724	145	145	145	145	145	145
SPARTA AQUIFER	01-GW	I	TRINITY	MADISON	80	157	15727	7,576	7,576	7,576	7,576	7,576	7,576
SPARTA AQUIFER	01-GW	I	BRAZOS	MADISON	12	157	15727	441	44	441	441	441	14
GULF COAST AQUIFER	01-GW	I	SAN JACINTO	MONTGOMERY	10	170	17015	64,000	64,000	64,000	64,000	64,000	64,000
GULF COAST AQUIFER	01-GW	I	TRINITY	POLK	80	187	18715	19,117	19,117	19,117	19,117	19,117	19,117
GULF COAST AQUIFER	01-GW	I	TRINITY	SAN JACINTO	80	204	20415	9,863	9,863	9,863	9,863	9,863	9,863
GULF COAST AQUIFER	01-GW	Ξ:	SAN JACINTO	SAN JACINTO	9 9	204	20415	12,006	12,006	12,006	12,006	12,006	12,006
CARRIZO-WILCOX AQUIPER	01-GW	- 1	TRIVITY	TRINITY	88 88	877	22810	249	249	249	2 7 1 4	241	3 717
UNDIFFERENTIATED AQUIFER	01-GW	= =	TRINITY	TRINITY	80	228	22822	416	416	416	416	416	416
SPARTA ADUIFFR	01-GW	:   I	TRINITY	TRINITY	80	228	22827	245	245	245	245	245	245
									-				

Region H
Table 3A-1: Current Water Supply Sources Available During Drought of Record Conditions

7	Source	Source		1	:	-	2		Š	ource Supply	Source Supply (acre-ft /year)		
Source Name	Type	RWPG	Source Basin	Source County	Basin ID	County ID	Source ID	2010	2020	2030	2040	2050	2060
2	01-GW	I	TRINITY	WALKER	88	236	23610	2,293	2,293	2,293	2,293	2,293	2,293
GULF COAST AQUIFER	01-GW	Ξ.	TRINITY	WALKER	88	236	23615	5,845	5,845	5,845	5,845	5,845	5,845
GULF COAST AQUIFER	01-GW	Ξ:	SAN JACINTO	WALKER	9	236	23615	12,434	12,434	12,434	12,434	12,434	12,434
UNDIFFERENTIALED AQUIFER	01-GW		- KINIT	WALKER	88	236	23622	200	200	200	200	200	200
SPARTA ADIIIFER	01-6w	=	TRINIT	WALKER	8 8	236	23624	1 760	1 760	1 760	1 760	1 760	1 760
YEGUA-JACKSON AQUIFER	01-GW	Ξ	TRINITY	WALKER	88	236	23631	5,440	5,440	5,440	5,440	5,440	5,440
YEGUA-JACKSON AQUIFER	01-GW	Ι	SAN JACINTO	WALKER	10	236	23631	096	960	096	096	096	096
BRAZOS RIVER ALLUVIUM AQUIFER	01-GW	I	BRAZOS	WALLER	12	237	23705	9,480	9,480	9,480	9,480	9,480	9,480
GULF COAST AQUIFER	01-GW	I	SAN JACINTO	WALLER	9	237	23715	13,086	13,086	13,086	13,086	13,086	13,086
GULF COAST AQUIFER	01-GW	Ξ	BRAZOS	WALLER	12	237	23715	15,416	15,416	15,416	15,416	15,416	15,416
TRINITY RIVER RUN-OF-RIVER	00-SW	Ξ:	TRINITY	LIBERTY	88	146	3410805271A	2,500	2,500	2,500	2,500	2,500	2,500
BBAZOS BIVEB BLIN OF BIVEB	00-00	= =	FRINITY	LIBERI Y	\$ 8	140	34108052/1B	26,000	56,000	56,000	56,000	26,000	56,000
BPAZOS RIVER KON-OF-RIVER	WS-00		BRAZOS	UNER TOOL	7 5	6/0	3461205166	64,000	64, 124	64,197	64,230	64,230	64,201
NECHES-TRINITY RIVER RIIN-DE-RIVER	WS-00	=	NECHES-TRINITY	CHAMBERS	2 0	980	3460704287	2 528	2 528	2 528	2 528	2,003	2 528
NECHES-TRINITY RIVER RUN-OF-RIVER	00-SW	: =	NECHES-TRINITY	CHAMBERS	20	030	3460704293	1,626	1.626	1.626	1.626	1,626	1.626
NECHES-TRINITY RIVER RUN-OF-RIVER	WS-00	Ξ	NECHES-TRINITY	CHAMBERS	20	920	3460704304B	1,997	1,997	1,997	1,997	1,997	1,997
TRINITY RIVER RUN-OF-RIVER	MS-00	I	TRINITY	POLK	80	187	3460804261	26,510	26,510	26,510	26,510	26,510	26,510
TRINITY RIVER RUN-OF-RIVER	MS-00	Ξ	TRINITY	LIBERTY	80	146	3460804277	33,000	33,000	33,000	33,000	33,000	33,000
TRINITY RIVER RUN-OF-RIVER	WS-00	Ξ	TRINITY	CHAMBERS	80	980	3460804279B	76,520	76,520	76,520	76,520	76,520	76,520
TRINITY RIVER RUN-OF-RIVER	WS-00	Ξ:	TRINITY	CHAMBERS	88	036	3460804279	30,000	30,000	30,000	30,000	30,000	30,000
SAN IACINITY BIVED BIVED	00-8W		I KINI I Y-SAN JACIN I O	CHAMBERS	3 5	036	3460903926	30,000	30,000	30,000	30,000	30,000	30,000
SAN JACINTO RIVER ROIN-OF-RIVER	WS-00	= =	SAN JACINI O SAN J	AIACZARA	2 5	101	3461004964	33,000	15 930	15 930	15 930	33,000	15 930
SAN JACINTO-BRAZOS RIVER RIJN-OF-RIVER	WS-00	= =	SAN JACINTO-BRAZOS	BRAZORIA		020	3461105357B	0000	0.5,51	0,500	0000	000	0,90
SAN JACINTO-BRAZOS RIVER RUN-OF-RIVER	WS-00	Ξ	SAN JACINTO-BRAZOS	BRAZORIA	=	020	3461105357C	0	0	0	0	0	0
BRAZOS RIVER RUN-OF-RIVER	WS-00	I	BRAZOS	FORT BEND	12	079	3461205320	29,920	29,920	29,920	29,920	29,920	29,920
BRAZOS RIVER RUN-OF-RIVER	00-SW	Τ	BRAZOS	FORT BEND	12	079	3461205322B	52,980	52,980	52,980	52,980	52,980	52,980
BRAZOS RIVER RUN-OF-RIVER	00-SW	Τ	BRAZOS	FORT BEND	12	020	3461205325	34,300	34,300	34,300		34,300	34,300
BRAZOS RIVER RUN-OF-RIVER	00-SW	Ξ	BRAZOS	BRAZORIA	12	020	3461205328B	137,475	137,475	137,475		137,475	137,475
BRAZOS RIVER RUN-OF-RIVER	00-SW	Ξ:	BRAZOS	BRAZORIA	15	020	3461205366	16,492	16,492	16,492	16,492	16,492	16,492
BRAZOS RIVER RUN-OF-RIVER	WS-00	= :	BRAZOS	BRAZORIA	12	020	3461205492	1,800	1,800	1,800	1,800	1,800	1,800
NECHES-IRINITY RIVER RUN-OF-RIVER	00-8W		NECHES-IRINITY	CHAMBERS	200	036	3460704294	5/3	5/3	5/3	5/3	5/3	5/3
NECHES-I KINII 1 KIVER KON-OF-KIVER	WS-00		NECHES-TRINITY	CHAMBERS	6	030	3460704300	000	000	000	C00	000	000
NECHEN-I RINII Y RIVER RUN-OF-RIVER	WS-00		NECHEO-IRINITY	CHAMBERS	/0	030	3460704304	2,663	2,663	2,003	2,663	2,663	2,003
NECHES-TRINITY RIVER RUN-OF-RIVER	WS-00	=	VECTED TRIBIT	CHAMBERS	02	980	3460704309	711	711	711	711	711	711
NECHES-TRINITY RIVER RUN-OF-RIVER	WS-00	Ξ	NECHES-TRINITY	CHAMBERS	20	920	3460704312	691	691	691	691	691	691
TRINITY-SAN JACINTO RIVER RUN-OF-RIVER	00-SW	Τ	TRINITY-SAN JACINTO	LIBERTY	60	146	3460903909	769	769	769	169	769	269
TRINITY-SAN JACINTO RIVER RUN-OF-RIVER	00-SW	Ξ	TRINITY-SAN JACINTO	CHAMBERS	60	920	3460903918	926	976	926	926	926	926
TRINITY-SAN JACINTO RIVER RUN-OF-RIVER	WS-00	Ξ:	TRINITY-SAN JACINTO	HARRIS	60	101	3460903922	661	661	661	661	661	661
TRINITY-SAN JACINTO RIVER RUN-OF-RIVER	WS-00	=	TRINITY-SAN JACINTO	HARRIS	8	101	3460903923	694	694	694	694	694	694
CONDOCT AKE/DESCED/OID	00-8W	-	CAN INCINIO	MONTCOMERS	3 5	130	3460903924	7,213	79,713	77,600	1,213	1,213	74 200
S.IRA INDIRECT RELISE	WS-00	=	SAN JACINTO	MONTGOMERY	2 6	170	3510170	14 944	14 944	14 944	14 944	14 944	14 944
SAN JACINTO-BRAZOS RIVER RUN-OF-RIVER	MS-00	Ξ	SAN JACINTO-BRAZOS	FORT BEND	1	0.79	3461105169	0	0	0	0	0	0
SAN JACINTO-BRAZOS RIVER RUN-OF-RIVER	WS-00	Ξ	SAN JACINTO-BRAZOS	FORT BEND	11	079	3461105170	5,634	5,634	5,634	5,634	5,634	5,634
SAN JACINTO-BRAZOS RIVER RUN-OF-RIVER	WS-00	Ξ:	SAN JACINTO-BRAZOS	BRAZORIA	=	020	3461105343	720	720	720	720	720	720
SAN JACINTO-BRAZOS RIVER RUN-OF-RIVER	WS-00		SAN JACINTO-BRAZOS	BRAZORIA	= =	020	3461105344	1,320	1,320	1,320	1,320	1,320	1,320
SAN JACIN I O-BRAZOS RIVER RUN-OF-RIVER	00-9W		SAN JACIN IO-BRAZOS	BRAZORIA	= =	020	3461105346	2,214	2,214	2,214	2,214	2,214	2,214
SAN JACINTO-BRAZOS RIVER RIN-OF-RIVER	WS-00	= =	SAN JACINTO-BRAZOS	BRAZORIA BRAZORIA	= ==	020	3461105364	734	734	734	734	734	734
SAN BERNARD RIVER RUN-OF-RIVER	WS-00	Ξ	BRAZOS-COLORADO	BRAZORIA	13	020	3461303421	8,519	8.519	8.519	8.519	8.519	8.519
SAN BERNARD RIVER RUN-OF-RIVER	WS-00	Ξ	BRAZOS-COLORADO	BRAZORIA	13	020	3461303423	3,500	3,500	3,500	3,500	3,500	3,500
LIVESTOCK LOCAL SUPPLY	WS-00	Ξ	NECHES	LIBERTY	90	146	99706146	45	45	45	45	45	70
LIVESTOCK LOCAL SUPPLY	WS-00	Ξ:	NECHES-TRINITY	CHAMBERS	20	036	99707036	317	317	317	317	317	318
LIVESTOCK LOCAL SUPPLY	00-9W	- 1	Y INIGH Y INIGH	CHAMBERS	8 8	030	99708036	211	211	211	211	211	24
LIVESTOCK LOCAL SUPPLY	WS-00	= =	TRINITY	WAI KER	8 8	936	99708220	108	127	138	143	148	154
בואבטו לכון בכיטר כסיד בי	5	=		***	3	3	22100100	2	14	2	2	2	2

Region H
Table 3A-1: Current Water Supply Sources Available During Drought of Record Conditions

	Source	Source					9		Ø	ource Supply	Source Supply (acre-ft /vear)		
Source Name	Type	RWPG	Source Basin	source County	Basin ID	County ID	Source ID	2010	2020	2030	2040	2050	2060
LIVESTOCK LOCAL SUPPLY	WS-00	I	TRINITY-SAN JACINTO	CHAMBERS	60	980	9806026	48	49	51		53	54
LIVESTOCK LOCAL SUPPLY	WS-00	I	TRINITY-SAN JACINTO	HARRIS	60	101	99709101	73	73	73	73	73	73
LIVESTOCK LOCAL SUPPLY	WS-00	I	TRINITY-SAN JACINTO	LIBERTY	60	146	99709146	0	0	0	0	0	17
LIVESTOCK LOCAL SUPPLY	WS-00	I	SANJACINTO	FORT BEND	10	620	99710079	13	30	47	47	47	47
LIVESTOCK LOCAL SUPPLY	WS-00	I	SANJACINTO	HARRIS	10	101	99710101	324	999	803	803	803	803
LIVESTOCK LOCAL SUPPLY	WS-00	I	SANJACINTO	MONTGOMERY	9	170	99710170	510	510	510	510	510	510
LIVESTOCK LOCAL SUPPLY	WS-00	I	SANJACINTO	WALKER	10	236	99710236	0	1	12	80	6	11
LIVESTOCK LOCAL SUPPLY	WS-00	I	SANJACINTO	WALLER	10	237	99710237	06	06	06	06	102	107
LIVESTOCK LOCAL SUPPLY	WS-00	I	SAN JACINTO-BRAZOS	BRAZORIA	1	020	99711020	545	202	547	591	643	069
LIVESTOCK LOCAL SUPPLY	WS-00	I	SAN JACINTO-BRAZOS	FORT BEND	11	620	99711079	64	86	139	139	139	139
LIVESTOCK LOCAL SUPPLY	WS-00	I	SAN JACINTO-BRAZOS	GALVESTON	7	084	99711084	306	296	280	280	280	281
LIVESTOCK LOCAL SUPPLY	WS-00	I	SAN JACINTO-BRAZOS	HARRIS	1	101	99711101	82	82	82		82	82
LIVESTOCK LOCAL SUPPLY	WS-00	I	BRAZOS	BRAZORIA	12	020	99712020	220	228	232	235	236	238
LIVESTOCK LOCAL SUPPLY	WS-00	I	BRAZOS	FORT BEND	12	620	99712079	0	207	415		415	415
LIVESTOCK LOCAL SUPPLY	WS-00	I	BRAZOS	WALLER	12	237	99712237	232	232	232	232	242	277
LIVESTOCK LOCAL SUPPLY	WS-00	I	BRAZOS-COLORADO	BRAZORIA	13	020	99713020	200	202	206	210	217	225
LIVESTOCK LOCAL SUPPLY	WS-00	I	COLORADO	AUSTIN	14	800	99714008	52	99	58	69	09	61
OTHER LOCAL SUPPLY	WS-00	I	NECHES-TRINITY	CHAMBERS	20	980	9802066	202	202	202	202	202	202
OTHER LOCAL SUPPLY	WS-00	I	NECHES-TRINITY	GALVESTON	20	084	99907084	106	106	106		106	106
OTHER LOCAL SUPPLY	WS-00	I	TRINITY	CHAMBERS	88	980	9808036	18,989	18,989	18,989	18,989	18,989	18,989
OTHER LOCAL SUPPLY	WS-00	I	TRINITY-SAN JACINTO	CHAMBERS	60	980	98060666	4,722	4,722	4,722	4,722	4,722	4,722
OTHER LOCAL SUPPLY	WS-00	I	SANJACINTO	FORT BEND	9	620	99910079	8	8	8	80	8	8
OTHER LOCAL SUPPLY	WS-00	I	SANJACINTO	HARRIS	10	101	99910101	992	992	992	892	992	992
OTHER LOCAL SUPPLY	WS-00	I	SANJACINTO	MONTGOMERY	10	170	99910170	0	0	0	0	0	0
OTHER LOCAL SUPPLY	WS-00	I	SAN JACINTO-BRAZOS	BRAZORIA	1	020	99911020	305	305	305	305	305	305
OTHER LOCAL SUPPLY	WS-00	I	SAN JACINTO-BRAZOS	GALVESTON	1	084	99911084	101	101	101	101	101	101
OTHER LOCAL SUPPLY	WS-00	I	SAN JACINTO-BRAZOS	HARRIS	7	101	99911101	19	19	19	19	19	19
OTHER LOCAL SUPPLY	WS-00	I	BRAZOS	BRAZORIA	12	020	99912020	190	190	190	190	190	190
OTHER LOCAL SUPPLY	00-SW	I	BRAZOS	FORT BEND	12	020	99912079	0	0	0	0	0	0
OTHER LOCAL SUPPLY	00-SW	I	BRAZOS-COLORADO	BRAZORIA	13	020	99913020	1,124	1,124	1,124	1,124	1,124	1,124
OTHER LOCAL SUPPLY	MS-00	I	BRAZOS-COLORADO	FORT BEND	13	620	99913079	0	0	0	0	0	0

Appendix 3B

WRAP Input Files

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#### Appendix 3B

### **Water Availability Model Input Files**

These input files are used with the Water Rights Analysis Package (WRAP) available from the TCEQ or the Texas Water Resources Institute at Texas A&M University.

Basin	File Name(s)	Notes
Neches-Trinity	NT_wam3.dat .dis .eva .inf	1, 2
Trinity	TR_wam3_2000.dat	3
	TR_wam3_2060.dat	
	TR_wam3_2010_LIVFY.dat	
	TR_wam3_2020_LIVFY.dat	
	TR_wam3_2030_LIVFY.dat	
	TR_wam3_2040_LIVFY.dat	
	TR_wam3_2050_LIVFY.dat	
	TR_wam3_2060_LIVFY.dat	
	TR_wam3_2000_anaFY.dat	
	TR_wam3_2060_anaFY.dat	
	Trin3.flo .dis.eva	
Trinity-San Jacinto	TRSJ_wam3.dat .dis .eva .inf	1, 2
San Jacinto	SJ_wam3_2000.dat .dis .eva .inf	
	SJ_wam3_2060.dat .dis .eva .inf	
San Jacinto-Brazos	SJBR_wam3.dat .dis .eva .inf	
Brazos	2010_bwam3.dat .dis .eva .inf	
	2060_bwam3.dat .dis .eva .inf	
Brazos-Colorado	CO_wam3.dat .dis .eva .inf	2, 4

- 1. The original TCEQ WAM file was used without modification.
- 2. A 2060 condition model was not required for this basin. There are no on-channel reservoirs in the coastal basin to be affected by sedimentation.
- 3. Firm yield models for Lake Livingston and Lake Anahuac, using updated areacapacity curves. The Lake Livingston model also includes partial return flows from the upper basin (varied by decade).
- 4. The Brazos-Colorado basin is included in the Colorado basin WAM

Model files are provided electronically (attached CD). These files may be viewed using a text editor such as Notepad or Wordpad. All four files are required to run the WRAP simulation. The file extensions indicate the type of data included in the file:

Root.dat Basic file containing all input data, except the hydrology related data in the following files.

Root.inf Inflow records with naturalized streamflows

Root.eva Evaporation records with net evaporation-precipitation rates

Root.dis Flow distribution and watershed parameter records for transferring flows from the inflow records to other control points

Additional model runs were conducted for the San Jacinto Basin to determine the firm yield of Lakes Conroe and Houston. In these models, the diversion amount for a given reservoir is adjusted downward until a value is determined that can be reliably diverted in every year of the

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simulation. This is an iterative process that balances available run-of-river supply and stored water with monthly diversion targets. These models are included in subfolders in this Appendix.

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# Appendix 3C

Upper Basin Return Flow and Lake Livingston Firm Yield Analysis

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Appendix B	DB07 - Region C Industrial Demands in Trinity Basin
Appendix C	DB07 – Region C Conservation Supply in Trinity Basin
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# Section 1 – Executive Summary

#### 1.1 Introduction

Return flows have an important impact on the magnitude and reliability of downstream water rights and have been carefully considered by the Region H Water Planning Group in previous regional water plans. Region H is comprised of eight river and coastal basins with several river basins extending though multiple planning regions. The Trinity River Basin is a major source of water supplies for both Region C and Region H. As a result, projected water demands and water management strategies in both regions have the ability to influence water supply availability. Coordination between lower Trinity Basin supplies located in Region H and upper Trinity Basin supplies in Region C is necessary to protect the firm yield of downstream water rights. During the development of both the 2001 and 2006 Region H Water Plans, the importance of upper basin return flows was recognized.

During the 2006 Region H Regional Water Plan, the firm yield of the Lake Livingston water rights was evaluated assuming that a minimum level of return flows would be available from the upper Trinity Basin throughout the planning period. The 2006 Region H Regional Water Plan took into account future conditions in the Trinity Basin by analyzing the 2060 projected return flows and proposed water management strategies. However, an analysis confirming the minimum level of return flows necessary to make the Lake Livingston water rights firm was not performed. Additionally, a decadal analysis was not performed to verify that the level of return flows projected from the upper Trinity Basin would be sufficient to firm up the Lake Livingston water rights. The analysis concluded that the permitted yield of Lake Livingston would be available throughout the planning period.

# 1.2 Purpose of Study

As part of the 2011 Region H Regional Water Plan, specific scope items were included to review and evaluate the 2006 Region C Regional Water Plan. The study focused on determining the level of Upper Trinity Basin return flows projected in each planning decade as a result of increased demands and levels of reuse. The Water Rights Analysis Package (WRAP) was utilized to perform the following tasks:

- Evaluate return flows available to Region H at the Oakwood Gage (gage located between Region C and Region H).
- Determine if projected return flows would be sufficient to maintain the firm yield of the Lake Livingston water rights for each planning decade.
- Identify the minimum level of return flows necessary to maintain the firm yield.
- Perform a decadal firm yield analysis on Lake Livingston water rights.

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# Section 2 – Projected Return Flows

Lake Livingston is dependent upon return flows from upstream Region C in the upper Trinity Basin. As a result of its downstream location, Lake Livingston indirectly benefits from growth in the Dallas–Fort Worth Metroplex. As upstream demands increase in Region C, it is anticipated that the importation of out-of-basin supplies will increase, providing additional return flows to the lower basin. Although return flows will likely increase over time, the timing of developing reuse supplies may have an adverse effect on the Lake Livingston water rights, temporarily reducing the in-basin return flows. To calculate the projected level of return flows in the upper Trinity Basin, a desktop analysis of Region C WUG demands and reuse strategies was performed and compared to previous estimates performed by the Region C Consultant.

The analysis was performed in the following order:

- Region C WUG Demands in the Trinity Basin were obtained from the TWDB DB07 database.
- Region C conservation strategies for WUGs in the Trinity Basin were totaled from the TWDB DB07 database.
- Net demands were calculated by subtracting conservation strategy volumes from WUG demands.
- Total return flows were calculated by assuming return flow factors (RFs) from the 2008 Region C draft Conservation and Reuse Study (December, 2008).
- Existing and proposed reuse strategies were summarized from information in the 2006 Region C Regional Water Plan, Chapter 3.
- The net instream return flows in Region C were estimated by subtracting proposed reuse volumes from total return flows.

## 2.1 Region C Demands

Region C demands from the 2006 Region C Regional Water Plan were summarized using data obtained from the TWDB DB07 online database. *Table 1* lists the municipal demands in the upper Trinity Basin by county and decades. Demands in the upper Trinity Basin are projected to increase to approximately 3,000,000 million acre-feet/year by 2060. The largest demand centers are Dallas, Collin, Denton and Tarrant Counties which encompass the Dallas-Fort Worth Metroplex. A full list of the WUGs and projected water demand summarized in the table below is provided in *Appendix A*.

Table 1 Projected Municipal Demands in the Upper Trinity Basin by County

Values in Acre-feet per Year

County	2010	2020	2030	2040	2050	2060
Collin	205,085	283,825	338,957	403,157	463,042	528,034
Cooke	6,806	7,711	8,658	9,459	10,641	11,669
Dallas	664,648	744,647	798,544	849,619	926,206	1,032,662
Denton	160,915	215,320	270,575	318,575	367,531	423,718
Ellis	27,766	35,225	43,561	52,850	63,927	77,145
Fannin	717	876	1,226	1,822	2,594	3,293

County	2010	2020	2030	2040	2050	2060
Freestone	2,831	3,127	3,321	3,498	3,663	3,828
Grayson	4,643	7,463	9,413	10,703	11,916	13,032
Henderson	10,316	12,495	14,645	16,862	19,553	22,888
Jack	1,089	1,177	1,256	1,321	1,385	1,449
Kaufman	17,835	25,020	30,198	34,950	40,226	46,845
Navarro	9,637	10,748	11,730	12,817	14,109	15,712
Parker	15,697	27,903	37,011	41,868	47,113	51,875
Rockwell	15,720	24,933	30,700	34,588	36,757	38,445
Tarrant	376,889	434,790	488,467	550,239	626,628	713,176
Wise	10,801	15,310	18,991	22,501	26,814	31,494
Total	1,531,395	1,850,570	2,107,253	2,364,829	2,662,105	3,015,265

The industrial demands in the Upper Trinity Basin are listed in *Table 2* by County and decade and are projected to increase to nearly 100,000 acre-feet/year by 2060. The largest demand centers are Dallas and Tarrant Counties part of the Dallas-Fort Worth Metroplex. A full list of the WUGs and projected water demand summarized in the table below is provided in *Appendix B*.

Table 2 Projected Industrial Demands by County

Values in Acre-feet per Year

County	2010	2020	2030	2040	2050	2060
Collin	3,607	4,137	4,654	5,170	5,633	6,115
Cooke	273	306	335	364	389	421
Dallas	34,115	37,791	41,148	44,214	46,703	46,983
Denton	1,068	1,239	1,408	1,579	1,731	1,880
Ellis	3,466	3,670	3,841	3,987	4,089	3,912
Fannin	0	0	0	0	0	0
Freestone	0	0	0	0	0	0
Grayson	2	2	2	2	2	2
Henderson	110	118	133	151	172	195
Jack	0	0	0	0	0	0
Kaufman	760	813	869	928	993	1,061
Navarro	1,172	1,328	1,468	1,607	1,730	1,872
Parker	548	618	685	751	809	878
Rockwell	12	14	16	17	19	21
Tarrant	17,258	20,444	23,630	26,924	29,919	32,457
Wise	2,313	2,660	2,979	3,277	3,539	3,858
Total	64,704	73,140	81,168	88,971	95,728	99,655

# 2.2 Projected Conservation

Projected Conservation supplies are listed below in *Table 3* by County. A full list of the WUGs and projected water demand summarized in the table below is provided in *Appendix C*.

County	2010	2020	2030	2040	2050	2060
Collin	3,607	4,137	4,654	5,170	5,633	6,115
Cooke	273	306	335	364	389	421
Dallas	34,115	37,791	41,148	44,214	46,703	46,983
Denton	1,068	1,239	1,408	1,579	1,731	1,880
Ellis	3,466	3,670	3,841	3,987	4,089	3,912
Fannin	0	0	0	0	0	0
Freestone	0	0	0	0	0	0
Grayson	2	2	2	2	2	2
Henderson	110	118	133	151	172	195
Jack	0	0	0	0	0	0
Kaufman	760	813	869	928	993	1,061
Navarro	1,172	1,328	1,468	1,607	1,730	1,872
Parker	548	618	685	751	809	878
Rockwell	12	14	16	17	19	21
Tarrant	17,258	20,444	23,630	26,924	29,919	32,457
Wise	2,313	2,660	2,979	3,277	3,539	3,858
Total	64,704	73,140	81,168	88,971	95,728	99,655

Table 3 Projected Conservation by County

Values in Acre-feet per Year

### 2.3 Recommended Region C Reuse Projects

Currently, direct and indirect reuse projects account for nearly 100,000 acre-feet/year of existing supply in Region C. According to 2006 Region C Water Plan, the proposed future adoption of reuse is anticipated to provide approximately 771,000 acre-feet per year of water to meet demand in Region C by 2060. The total amount of reuse recommended in the plan is approximately 795,500 acre-ft per year. Two types of reuse projects are recommended in the 2006 Region C Water Plan, direct and indirect reuse.

### 2.3.1 Direct Reuse Projects

The majority of the existing reuse projects identified in the 2006 Region C Water Plan are direct reuse projects. Direct reuse projects typically supply water for landscape irrigation (golf courses) and industrial uses (cooling water for electric power plants) by delivering treated wastewater effluent directly from a wastewater treatment facility. Direct reuse projects require notification of the Texas Commission on Environmental Quality (TCEQ) and must comply with direct reuse regulations in Title 30, Chapter 210 of the Texas Administrative Code. Recommended direct reuse projects included in the 2006 Region C Water Plan are listed below.

Table 4 Region C Recommended Direct Reuse Projects

Values in Acre-feet per Year

Reuse Project	2010	2020	2030	2040	2050	2060
NTMWD East Fork Reuse	81,400	96,400	102,000	102,000	102,000	102,000
TRA Tarrant County Reuse (Tarrant County-Other)	0	7,500	7,500	7,500	7,500	7,500

Reuse Project	2010	2020	2030	2040	2050	2060
TRA Mountain Creek Direct Reuse SEP (Dallas County)	0	3,000	3,000	3,000	3,000	3,000
TRA Ellis County Direct Reuse SEP	20,000	20,000	30,000	30,000	40,000	40,000
TRA Direct Reuse for County Irrigation	3,750	3,750	3,750	3,750	3,750	3,750
TRA Direct Reuse for Denton County Irrigation	3,750	3,750	3,750	3,750	3,750	3,750
TRA Freestone County Direct Reuse SEP	0	0	10,000	10,000	20,000	20,000
TRA Kaufman County Direct Reuse SEP	0	7,500	15,000	15,000	15,000	15,000
Fort Worth Direct Reuse from Village Creek WWTP	500	500	1,100	2,000	2,600	2,600
Fort Worth Direct Reuse Mary's Creek	0	1,240	1,570	1,570	1,570	1,570
Fort Worth Direct Reuse Central Business District	0	2,240	3,360	3,360	3,360	3,360
Fort Worth Direct Reuse - Alliance Corridor	0	1,120	2,240	3,360	3,360	3,360
Bridgeport Direct Reuse	0	0	0	1,500	2,000	2,000
Decatur Direct Reuse	0	0	0	2,000	2,000	2,000
Local Mining Reuse	14,337	14,133	22,428	19,652	24,648	28,520
Total	123,737	161,133	205,698	208,442	234,538	238,410

### 2.3.2 Indirect Reuse Projects

Indirect reuse involves the discharge of treated wastewater into a stream or reservoir and subsequent diversion for reuse. The process allows the treated wastewater effluent to "blend" with the "natural" waters of the stream or reservoir prior to being diverted for use. In Region H many sources rely on the return flows from treated wastewater effluent as well as naturally occurring runoff. Recommended indirect reuse projects included in the 2006 Region C Water Plan are listed below.

**Table 5 Region C Recommended Indirect Reuse Projects** 

Values in Acre-feet per Year

Reuse Project	2010	2020	2030	2040	2050	2060
NTMWD Additional Wilson Creek Indirect Reuse	26,956	35,941	35,941	35,941	35,941	35,941
DWU Direct Reuse	20,456	20,456	20,456	20,456	20,456	20,456
DWU Southside Indirect Reuse	0	67,253	67,253	67,253	67,253	67,253
DWU Lewisville Indirect Reuse	0	0	67,253	67,253	67,253	67,253
DWU and UTRWD Indirect Reuse of Return Flows above Dallas Lakes	34,366	44,746	53,141	60,640	69,854	79,605
TRWD Trinity River Reuse (Richland-Chambers)	63,000	63,000	63,000	63,000	63,000	63,000
TRWD Trinity River Reuse (Cedar Creek)	0	52,500	52,500	52,500	52,500	52,500
TRWD Additional Yield from Richland-Chambers due to reuse	21,556	28,612	35,668	37,465	37,465	37,465

Reuse Project	2010	2020	2030	2040	2050	2060
project						
TRWD Additional Yield from Cedar Creek due to reuse project	0	24,934	27,651	30,368	33,085	35,800
TRA Joe Pool Lake Indirect Reuse	0	20,000	20,000	20,000	20,000	20,000
TRA Joe Pool Lake Indirect Reuse	0	3,500	3,500	3,500	3,500	3,500
UTRWD Indirect Reuse of Chapman Lake	8,441	8,301	8,161	8,021	7,882	7,743
Athens Indirect Reuse	1,662	1,966	2,325	2,677	2,677	2,677
Ennis Indirect Reuse	0	0	74	1,037	2,269	3,696
TRA Additional Las Colinas Indirect Reuse		7,000	7,000	7,000	7,000	7,000
Gainesville Indirect	0	561	561	561	561	561
TRA Contract With Irving	28,000	28,000	28,000	28,000	28,000	28,000
Waxahachie Additional Reuse	3,112	2,963	2,684	2,405	2,125	1,846
UTRWD Indirect Reuse of flows from Lake Ralph Hall		17,760	17,760	17,760	17,760	17,760
Weatherford Indirect Reuse		5,000	5,000	5,000	5,000	5,000
Total	207,549	432,493	517,928	530,837	543,581	557,056

### 2.4 Projected Return Flows

As part of the 2011 Region H Water Plan, the potential impact of Region C recommended reuse strategies on return flows in the Trinity Basin were evaluated. The projected water demands, return flows and reuse strategies from the upper Trinity Basin were analyzed to determine the level of return flows available to Region H in the lower Trinity Basin.

The 2006 Region C Water Plan estimated the level of projected future return flows estimated based on projected municipal and industrial (M&I) water demands after the implementation of conservation measures. Return flow factors were determined from historical data (69 % for the Metroplex and 50% for other counties). Recommended direct reuse projects were subtracted from the projected return flows to determine the net return flows available to the upper Trinity Basin. *Table 6* presents the summary of projected return flow calculations presented in the Region C 2006 Water Plan. This number represents net return flows across the upper Trinity Basin.

Table 6 Region C 2006 Projected Upper Trinity Basin Return Flows

Values in Acre-feet per Year

	2010	2020	2030	2040	2050	2060
Demands	1,563,725	1,858,601	2,092,965	2,328,370	2,607,058	2,943,509
Conservation	51,370	106,427	148,159	188,500	230,232	277,434
Net Demands	1,512,355	1,752,174	1,944,806	2,139,870	2,376,826	2,666,075
Projected Return Flows	1,022,392	1,181,415	1,307,898	1,437,611	1,595,689	1,789,184
Proposed Reuse	372,112	601,685	724,073	743,867	780,471	796,279
Net Return Flows	650,280	579,730	583,825	693,744	815,218	992,905

Note: Projected Return Flows are based on (M&I) Water Use in the Trinity Basin in Region C.

The return flow analysis presented in the 2006 Region C Regional Water Plan resulted in a minimum net annual return flow estimate of 579,730 acre-ft per year in the 2020 planning decade. However, this estimate was based largely on an assumed return flow factor of 69% from water demands in the Metroplex. The 69% return flow factor was assumed from the TCEQ WAM Run 8 model and may not accurately reflect the return flow estimates during drought conditions. In December 2008, the draft Region C Water Conservation and Reuse Study was prepared by the Region C consultant team. As part of the study, projected return flows were re-analyzed using a reduced return flow factor reflecting severe drought conditions experienced in 2006. The revised return flow estimate assumed a return flow factor of 51% in 2010 and 2020, 52% in 2030 and 2040, and 53% in 2050 and 2060. The reduced return flow factors presented in the Region C Conservation and Reuse Study suggest a more consumptive use of existing water supplies than previously estimated. *Table 7* shows the revised return flow estimates based on information presented in the 2008 Draft Region C Water Conservation and Reuse Strategy.

Table 7 Region C 2008 Projected Upper Trinity Basin Return Flows

Values in Acre-feet per Year

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	2010	2020	2030	2040	2050	2060
Demands	1,563,725	1,858,601	2,092,965	2,328,370	2,607,058	2,943,509
Conservation	51,370	106,427	148,159	188,500	230,232	277,434
Net Demands	1,512,355	1,752,174	1,944,806	2,139,870	2,376,826	2,666,075
Projected Return Flows	765,662	896,882	1,004,341	1,115,359	1,247,968	1,404,851
Proposed Reuse	350,476	613,996	751,286	781,515	817,876	832,360
Net Return Flows	415,185	282,886	253,055	333,844	430,092	572,491

Note: Projected Return Flows are based on M&I Water Use in the Trinity Basin in Region C.

As can be seen in *Table 7*, the projected return flows are reduced significantly from previous estimates as a result of the revised return flow factors. The minimum annual return flow estimated in the 2008 draft Region C report is 253,055 acre-ft per year in the year 2030. This estimate represents an almost 50% reduction from the previously estimated minimum annual return flow of 579,730 acreft per year in the year 2020.

Region C projected demands and reuse strategies downloaded from DB07 were analyzed assuming a reduced return flow factor of 50% in lieu of 69% as assumed in the Region C 2006 Plan. As can be seen in *Table 8*, the resulting net in-basin return flows are consistent with the results of the 2008 Region C Conservation and Reuse Study. There are some discrepancies. The total demands for Municipal and Manufacturing (M&I) WUGS in the Trinity Basin inside of Region C were higher in DB07 than shown in the 2008 Region C Water Conservation and Reuse Study. The WUG demands from DB07 were sorted by region and by basin to only include the WUGs located within the Trinity Basin and Region C. This may include several WUGs located in the Trinity Basin that discharge wastewater outside of the Trinity Basin.

**Table 8 DB07 Return Flow Analysis** 

Values in Acre-feet per Year

7 3.1300 1117 1010 1001 1011						
	2010	2020	2030	2040	2050	2060
Demands	1,596,099	1,923,710	2,188,421	2,453,800	2,757,833	3,114,920
Conservation	52,095	110,803	154,475	196,101	238,662	286,681
Net Demands	1,544,004	1,812,907	2,033,946	2,257,699	2,519,171	2,828,239
Return Flows	772,002	906,454	1,016,973	1,128,850	1,259,586	1,414,120
Proposed Reuse	381,657	627,507	761,415	774,472	812,259	826,588
Net Return Flows	390,345	278,947	255,558	354,378	447,327	587,532

Note: Projected Return Flows are based on M&I Water Use in the Trinity Basin in Region C.

#### 2.5 Simulated Return Flows

The projected return flows available to Region H were analyzed at the Oakwood Gage location marking the boundary between Region C and Region H. To model the projected return flows, several models were obtained from the Region C consultant to accurately model the net in-basin return flows associated with projected upper basin demands and projected strategies. The models were developed by the Region C Consultant team for the decades 2010, 2020, 2040 and 2060 to analyze projected return flows at the Oakwood gage. The results of the revised return flow projections were summarized in the 2008 Region C Conservation and Reuse Study. After performing a desktop analysis of Region C WUG demands and proposed reuse strategies downloaded from DB07, it was decided to adopt the return flow estimates projected in the 2008 Region C Water Conservation and Reuse Study for the analysis. The return flows projected in 2008 by the Region C consultant presents the most conservative estimation of future return flows with a minimum annual in-basin return flow of approximately 253,000 acre-ft per year in 2030. In March 2009, the Region H consultant team received the future condition WAM Models from the Region C consultants for use in evaluating the impacts projected return flows on water availability in Region H, specifically the yield of Lake Livingston.

The Water Rights Analysis Package (WRAP) WAM Run 3 was updated to include the projected Region C reuse strategies and in-basin return flows. The models were then used to quantify the return flows available to Region H. The return flows available to region H during the drought of record were quantified as the increase in regulated flow above the WAM Run3 baseline conditions. *Figure 2-1* and *Table 9* illustrate that not all of the net in-basin return flows projected in Region C will be available to Region H. The return flows will also be available to other water right holders for diversion and impoundment in upstream reservoirs.

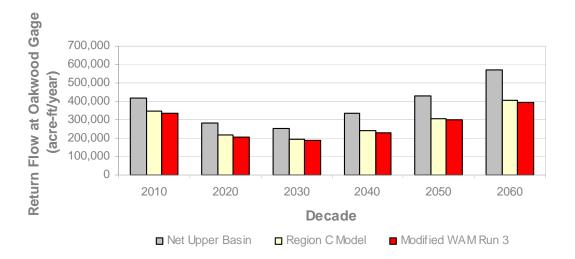


Figure 2-1 Minimum Annual Return Flows at Oakwood Gage

#### Table 9 Return Flows at Oakwood Gage

Values in Acre-feet per Year

Return Flows	2010	2020	2030	2040	2050	2060
Net Upper Basin	415,185	282,886	253,055	333,844	430,092	572,491
at Oakwood Gage	333,966	208,601	185,502	227,847	299,417	393,808
% of Net Upper Basin Return Flows	80.4%	73.7%	73.3%	68.2%	69.6%	68.8%

#### Section 3 – Methodology

Two sets of models were created and executed to evaluate the firm yield of the Lake Livingston water rights. The first set of models was updated to include the projected upper basin return flows from Region C for each decade as modeled for the Region C Water Conservation and Reuse Study. These models were used to evaluate the firm yield of Lake Livingston in each decade. The second set of models was updated to quantify the minimum level of return flows necessary to firm up the Lake Livingston water rights. Return flows were iteratively added to these models until the full permitted yield of the reservoir was firm during drought of record conditions. The models were executed to evaluate the firm yield of Lake Livingston with projected return flows from Region C and to determine the minimum level of return flows required in each planning decade. The results were also compared to quantify the excess or shortage of return flows projected in each planning decade.

#### 3.1 Trinity River WAM Firm Yield Analysis

The firm yield of the Lake Livingston water rights was evaluated using a modified version of the TCEQ WAM Run3. The WAM Run 3 presents the most conservative set of assumptions when evaluating water right availability by assuming full authorized diversions and complete consumption (no return flows) unless otherwise specified within the water rights permit. To simulate actual projected conditions, the model was revised to include anticipated return flows and planned reuse identified in the Region C 2008 Water Conservation and Reuse Study. The model was also revised to include future storage area vs storage volume (SA/SV) curves to account for the effects of projected sedimentation on reservoir yields. The year 2000 SA/SV records were inserted into the model to simulate the 2010 scenario. Decade 2030 SA/SV records were inserted to model the decades 2020, 2030, and 2040. Model simulations for decades 2050 and 2060 assumed the year 2060 sedimentation condition. Table 10 lists the WAM Run 3 models and assumptions utilized in the analysis.

"Planning groups should analyze existing surface water supplies based on firm yield for both reservoirs and surface water diversions. For reservoirs, firm yield is the maximum amount of water a reservoir can provide in a given year during drought of record conditions using reasonable sedimentation rates, and under the assumption that senior water rights holders have their full allotments of water." General Guidelines for Regional Water Plan Development (2007 - 2012), March 2008.

Table 10 Lake Livingston Firm Yield Models with Anticipated Return Flows and Planned Reuse

Model	Net Upper Basin Return Flows (acre ft/year)	Lake Livingston SA/SV Curve
TR_RUN3FY_2010.dat	415,815	Year 2000
TR_RUN3FY_2020.dat	282,886	Year 2030
TR_RUN3FY_2030.dat	253,055	Year 2030
TR_RUN3FY_2040.dat	333,844	Year 2030
TR_RUN3FY_2050.dat	430,092	Year 2060
TR_RUN3FY_2060.dat	572,491	Year 2060

#### 3.2 Trinity River WAM Iterative Firm Yield Analysis

The effects of return flows on the firm yield of the Lake Livingston water rights were simulated by iteratively adjusting the magnitude of return flow available at the boundary between Region C and Region H. Return flows from the upper basin were modeled with a Constant Inflow (CI) record inserted at control point (CP) 8TROA, located at the boundary of Region H and Region C. The CI record assumed a constant monthly distribution. The annual volume of the assumed return flows was increased until the full permitted yield of the Lake Livingston water rights was available during the drought of record.

As discussed in *Section 3.1*, the storage area capacity curve for Lake Livingston was updated to account for the effects of projected sedimentation in future decades. The year 2000 SA/SV records were inserted into the model to simulate the 2010 scenario. Decade 2030 SA/SV records were inserted to model the decades 2020, 2030, and 2040. Model simulations for decades 2050 and 2060 assumed the year 2060 sedimentation condition. *Table 11* lists the WAM Run 3 models and assumptions utilized in the analysis.

Table 11 Lake Livingston Firm Yield

Model	Net Upper Basin Return Flows (acre ft/year)	Lake Livingston SA/SV Curve
TR_8TROA_2010.dat	280,000	Year 2000
TR_8TROA _2020.dat	280,000	Year 2030
TR_8TROA _2030.dat	280,000	Year 2030
TR_8TROA _2040.dat	280,000	Year 2030
TR_8TROA _2050.dat	285,000	Year 2060
TR_8TROA _2060.dat	285,000	Year 2060

#### Section 4 – Evaluation of Projected Return Flow on Lake Livingston

The impacts of projected upper basin return flows on the firm yield of Lake Livingston were analyzed for each decade in the planning period. The results are summarized in Section 4.1. The necessary level of return flows required to make the Lake Livingston water rights permit achieve 100% reliability was quantified for each decade in the planning period. The results are discussed in Section 4.2.

#### 4.1 Lake Livingston Firm Yield

The firm yield of Lake Livingston is reduced in the decades 2020, 2030 and 2040 due to insufficient return flows from the upper Trinity Basin. *Table 12* lists the firm yield of Lake Livingston for each of the planning decades studied. By 2020, increased reuse diversions in Region C are projected to reduce return flows available to Region H and consequently to reduce the firm yield of Lake Livingston during a drought-of-record by 55,000 acre-ft per year. By 2030, projected in-basin return flows are projected to be reduced to 253,055 acre-ft per year, which is the minimum level expected during the planning period. Under these assumed conditions, the firm yield of Lake Livingston in 2030 is projected to be 1,265,000 acre-ft per year, approximately 79,000 acre-ft per year less than the currently permitted diversion under the existing water rights permit.

Return flows in the upper Trinity Basin are expected in increase from the year 2030 through 2060. In 2040 the firm yield of Lake Livingston is projected to increase to 1,294,000 acre-ft per year. The increase in firm yield is due to increased demands in the upper basin that will require the importation of additional out-of-basin supplies. By 2050, the firm yield of Lake Livingston is projected to be equal to the full permitted diversion. *Table 12* shows the projected firm yield of the Lake Livingston water rights under these assumed conditions.

**Return Flows** 2010 2020 2030 2040 2050 2060 1,344,000 Firm Yield 1,344,000 1,294,000 1,344,000 1,289,000 1,265,000 Reduction in Yield 0 -55,000 -79,000 -50,000 0 0

Table 12 Lake Livingston Firm Yield (acre-ft per year)

#### 4.2 Necessary Level of Return Flows

The level of return flows required to achieve 100% reliability during the drought-of-record for the permitted diversion of the Lake Livingston water rights was determined by an iterative analysis. Return flows were artificially added to the TCEQ WAM Run 3 model and the analysis was performed for each decade in the planning period.

The results of the analysis are shown graphically in *Figure 4-1* by recording Lake Livingston storage volumes at the end of each month during the simulation. The baseline model shown in gray illustrates the storage volume of Lake Livingston assuming no return flows from the upper Trinity Basin. As can be seen from the graph, the firm yield of Lake Livingston is dependant on return flows. By adding return flows into the model, Lake Livingston is able to impound additional water during the drought of record. In *Figure 4-1* the additional water impounded in the Lake is represented by increasing storage volumes. As return flows are increased, the minimum lake levels between April 1956 and April 1957 are decreased until the permitted diversion is met during the drought of record.

Figure 4-2 compares the results of the iterative return flow analysis with the return flows projected at the Oakwood Gage for each decade in the planning period. The figure shows that a minimum of 280,000 acre-ft per year is required from 2010 to 2040 to achieve 100% reliability for the Lake Livingston water rights. This minimum required level of return flow increases in 2050 and 2060 to 285,000 acre-ft per year to offset reduced storage from sedimentation. The figure shows that in 2010 a sufficient volume of return flow is available to "firm up" the Lake Livingston permitted diversions. In the decades 2020, 2030, and 2040, however, the projected return flows are insufficient to maintain the full yield of the water rights. In 2050 and 2060, return flow levels are projected to increase to levels that will support the full permitted diversion of the Lake Livingston water rights.

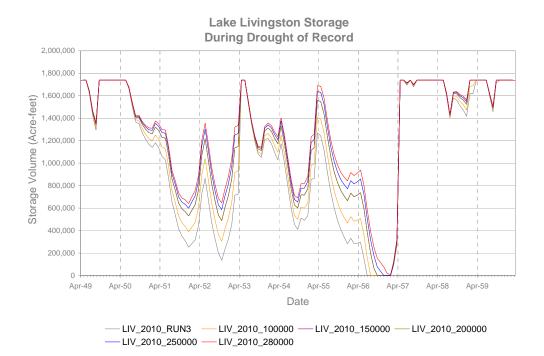
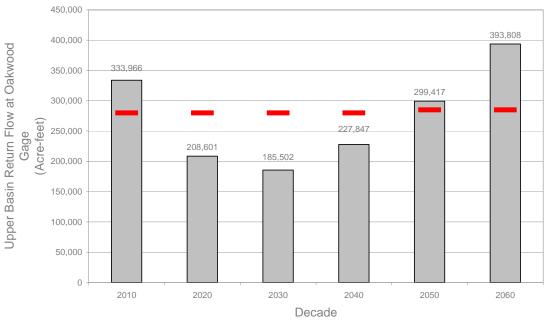


Figure 4-1 Lake Livingston Storage

Figure 4-2 Minimum Annual Flows at Oakwood

#### Minimum Annual Return Flows Trinity River near Oakwood



■ Projected Min Annual - Min Required

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#### Section 5 – Findings and Conclusions

#### 5.1 Summary of Findings

The results of this study consider conservative assumptions regarding the availability of return flows from Region C including full projected reuse and more consumptive use of existing and future water supplies. The reduction in projected return flows available to Region H are the result of a revision to the return flow factors used to estimate the amount of water returned in the upper Trinity Basin. The lower return flow factor indicates that demands in the upper basin are more consumptive than previously estimated, producing less net return flow to the basin. More consumptive use of water supplies in the upper Trinity Basin will reduce the amount of return flows available to Region H and will reduce the reliability of surface water rights in the lower Trinity Basin. The study shows that the firm yield of the Lake Livingston water rights may be temporarily reduced during the 2020, 2030 and 2040 decades as a result of these conservative return flow estimates from the upper Trinity Basin. By the year 2050 however, the projected return flows should be sufficient to maintain the full permitted diversion of the Lake Livingston water rights during the drought-of-record.

The firm yield of the Lake Livingston water rights was estimated for every decade in the planning period to evaluate the impacts of projected return flows from the upper Trinity Basin. The following statements describe whether sufficient return flows will be available to make the permitted yield of the Lake Livingston water rights 100% reliable during drought-of-record conditions. If sufficient return flows are not projected to be present, the reduction in the firm yield is listed.

- Sufficient return flows will be present in 2010.
- The firm yield of Lake Livingston will be reduced by 55,000 acre-ft per year in 2020.
- The firm yield of Lake Livingston will be reduced by 79,000 acre-ft per year in 2030.
- The firm yield of Lake Livingston will be reduced by 50,000 acre-ft per year in 2040.
- Sufficient return flows will be present in 2050.
- Sufficient return flows will be present in 2060.

The minimum level of return flows required to make the permitted yield of the Lake Livingston water rights 100% reliable during drought-of-record is approximately:

- 280,000 acre-ft per year required in 2010 2040 to maintain permitted diversions.
- 280,500 acre-ft per year required in 2050 and 2060.

#### 5.2 Impacts on Recommended Region H Strategies

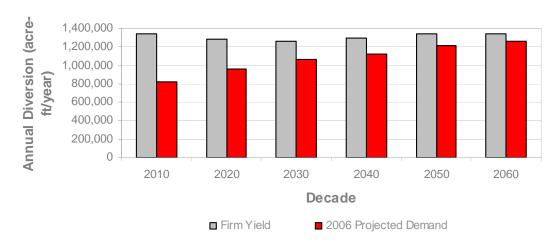
The 2006 Region H Water Plan recommended several water management strategies that relied on utilizing water supplies from Lake Livingston. During the decades 2020, 2030, and 2040, the firm yield of the Lake Livingston water rights is projected to be reduced which could possibly impact these proposed water management strategies. Although the firm yield of the Lake Livingston water rights is projected to be reduced, sufficient supplies are projected to be available in Lake Livingston resulting in no impact to the water management strategies proposed in the 2006 Region H Plan. The firm yield of the Lake Livingston water rights and the Region H demands projected to be supplied by the source are summarized below in *Table 13* and illustrated in *Figure 5-1*.

Table 13 Lake Livingston Firm Yield vs Projected Demands (acre-ft per year)

	2010	2020	2030	2040	2050	2060
Firm Yield	1,344,000	1,289,000	1,265,000	1,294,000	1,344,000	1,344,000
Projected Demands	820,020	966,102	1,068,845	1,120,753	1,215,812	1,258,245
Surplus	523,980	322,898	196,155	173,247	128,188	85,755

Figure 5-1 Lake Livingston Firm Yield vs Projected Demands





#### Appendix A

DB07 - Region C Municipal Demands in Trinity Basin

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Appendix A DB07 – Region C Municipal Demands in Trinity Basin

WUG ID	WUG Name	WUG County Name	WUG Basin Name	TWD2010	TWD2020	TWD2030	TWD2040	TWD2050	TWD2060
034001000	ABLE SPRINGS WSC		TRINITY	539	841	1,069	1,321	1,634	2,022
000829080	ADDISON	DALLAS	TRINITY	8,932	10,235	11,145	11,778	12,220	12,528
030674000	ALEDO	PARKER	TRINITY	454	622	793	943	1,105	1,284
000800000	ALLEN	COLLIN	TRINITY	24,150	29,603	34,845	36,584	37,321	37,632
030810000	ALVORD	WISE	TRINITY	178	196	215	233	253	277
030813000	ANNA	COLLIN	TRINITY	1,317	2,688	4,033	5,377	7,169	11,201
030814000	ANNETTA	PARKER	TRINITY	203	254	295	330	368	409
030997000	ANNETTA SOUTH	PARKER	TRINITY	16	108	121	132	145	158
030677000	ARGYLE	DENTON	TRINITY	2,380	4,011	5,035	5,562	6,144	6,721
034007000	ARGYLE WSC	DENTON	TRINITY	862	863	863	863	863	863
030025000	ARLINGTON	TARRANT	TRINITY	81,692	92,026	101,591	104,733	106,828	107,875
030028000	ATHENS	HENDERSON	TRINITY	2,737	3,276	3,930	4,724	5,678	6,822
030758000	AUBREY	DENTON	TRINITY	481	806	1,471	1,977	2,657	3,571
030816000	AURORA	WISE	TRINITY	142	168	193	218	246	279
030031000	AZLE	PARKER	TRINITY	998	466	280	829	781	895
030031000	AZLE	TARRANT	TRINITY	1,655	2,337	3,338	4,506	5,675	9/9/9
030033000	BALCH SPRINGS	DALLAS	TRINITY	2,716	2,907	3,072	3,216	3,340	3,448
000666080	BARDWELL	ELLIS	TRINITY	108	138	168	199	234	271
030820000	BARTONVILLE	DENTON	TRINITY	1,008	2,240	3,136	3,696	3,921	4,033
034010000	BARTONVILLE WSC	DENTON	TRINITY	317	898	404	441	474	203
030044000	BEDFORD	TARRANT	TRINITY	10,418	10,916	11,336	11,688	11,984	12,233
030051000	BENBROOK	TARRANT	TRINITY	4,963	606'5	7,091	8,509	10,163	12,054
034016000	BETHEL-ASH WSC	HENDERSON	TRINITY	175	213	252	291	339	399
034017000	BETHESDA WSC	TARRANT	TRINITY	1,589	1,968	2,358	2,769	3,262	3,846
034024000	BLACKLAND WSC	ROCKWALL	TRINITY	151	223	273	328	392	467
030828000	BLOOMING GROVE	NAVARRO	TRINITY	152	152	152	152	152	152
030062000	BLUE MOUND	TARRANT	TRINITY	308	322	322	322	322	322
030829000	BLUE RIDGE	COLLIN	TRINITY	314	672	1,176	1,848	2,688	3,024
034028000	BOLIVAR WSC	COOKE	TRINITY	215	260	311	312	312	312
034028000	BOLIVAR WSC	DENTON	TRINITY	928	1,301	3,024	6,721	10,921	14,786
034028000	BOLIVAR WSC	WISE	TRINITY	196	254	329	482	670	1,005
030760000	BOYD	WISE	TRINITY	222	296	325	325	325	325
034029000	BRANDON-IRENE WSC	ELLIS	TRINITY	10	11	13	14	15	17
034029000	BRANDON-IRENE WSC	NAVARRO	TRINITY	28	30	32	32	38	42
030076000	BRIDGEPORT	WISE	TRINITY	1,616	1,983	2,850	3,395	3,956	4,734
034040000	BUENA VISTA - BETHEL SUD	ELLIS	TRINITY	699	702	692	875	1,006	1,159
030087000	BURLESON	TARRANT	TRINITY	821	1,045	1,275	1,518	1,810	2,154
034041000	CADDO BASIN SUD	COLLIN	TRINITY	192	239	298	358	420	487
030088000	CARROLLTON	DALLAS	TRINITY	11,087	11,197	11,373	11,487	11,603	11,724
030088000	CARROLLTON	DENTON	TRINITY	15,478	16,027	16,839	17,344	17,696	17,871
030102000	CEDAR HILL	DALLAS	TRINITY	8,229	10,521	12,445	14,061	15,416	16,554
030102000	CEDAR HILL	ELLIS	TRINITY	6	6	6	6	6	6

2.771	2,416	2,082	1,762	1,451	956	TRINITY	COLLIN	CULLEOKA WSC	034083000
3,949	3,633	3,001	2,211	1,737	1,421	TRINITY	TARRANT	CROWLEY	030145000
6,922	5,545	3,560	2,134	1,310	588	TRINITY	DENTON	CROSS ROADS	031011000
2,553	2,064	1,669	1,351	1,063	759	TRINITY	KAUFMAN	CRANDALL	030767000
4,626	4,626	4,626	4,626	4,626		TRINITY	WISE	COUNTY-OTHER	030757249
3,535	3,535	3,535	3,535	3,535		TRINITY	TARRANT	COUNTY-OTHER	030757220
140	140	140	140	140	140	TRINITY	ROCKWALL	COUNTY-OTHER	030757199
1,288	1,546	1,803	2,061	2,319	2,576	TRINITY	PARKER	COUNTY-OTHER	030757184
256	256	256	256	256	256	TRINITY	NAVARRO	COUNTY-OTHER	030757175
1,837	1,837	1,837	1,837	1,837	1,837	TRINITY	KAUFMAN	COUNTY-OTHER	030757129
708	644	580	515	451		TRINITY	JACK	COUNTY-OTHER	030757119
267	267	267	267	268	268	TRINITY	HENDERSON	COUNTY-OTHER	030757107
347	388	421	443	449	451	TRINITY	GRAYSON	COUNTY-OTHER	030757091
1,159	1,159	1,159	1,152	1,127	1,078	TRINITY	FREESTONE	COUNTY-OTHER	030757081
161	168	173	178	181	182	TRINITY	FANNIN	COUNTY-OTHER	030757074
2,039	2,039	2,039	2,039	2,039	2,039	TRINITY	ELLIS	COUNTY-OTHER	030757070
16,605	14,825	13,096	11,320	9,402	7,412	TRINITY	DENTON	COUNTY-OTHER	030757061
53	69	88	114	147	190	TRINITY	DALLAS	COUNTY-OTHER	030757057
1,063	1,063	1,063	1,057	1,022	870	TRINITY	COOKE	COUNTY-OTHER	030757049
564	620	673	723	772		TRINITY	COLLIN	COUNTY-OTHER	030757043
7,587	7,148	6,790	6,491	6,215		TRINITY	NAVARRO	CORSICANA	030137000
7,092	6,754	6,304	5,548	4,800	3,824	TRINITY	DENTON	CORINTH	030691000
1,568	1,456	1,246	840	560	404	TRINITY	DENTON	COPPER CANYON	030849000
258	237	212	182	147		TRINITY	DENTON	COPPELL	030133000
10,171	10,171	10,171	10,171	10,171	10,171	TRINITY	DALLAS	COPPELL	030133000
19	19	18	18	18	18	TRINITY	WISE	COMMUNITY WSC	034069000
477	467	458	451	444	437	TRINITY	TARRANT	COMMUNITY WSC	034069000
409	327	262	209	168		TRINITY	NAVARRO	COMMUNITY WATER COMPANY	034068000
340	295	254	218	182		TRINITY	ELLIS	COMMUNITY WATER COMPANY	034068000
1,303	1,040	828	656	502		TRINITY	KAUFMAN	COMBINE WSC	034066000
409	350	305	271	237		TRINITY	DALLAS	COMBINE WSC	034066000
504	420	352	297	247	191	TRINITY	KAUFMAN	COMBINE	030766000
212	186	166	150	135		TRINITY	DALLAS	COMBINE	030766000
994	862	730	599	467		TRINITY	GRAYSON	COLLINSVILLE	030765000
10,299	10,275	10,213	10,063	9,697	8,799	TRINITY	TARRANT	COLLEYVILLE	030125000
3,403	2,837	2,381	2,013	1,461	944	TRINITY	KAUFMAN	COLLEGE MOUND WSC	034065000
742	741	738	732	720		TRINITY	DALLAS	COCKRELL HILL	030121000
547	448	365	298	249		TRINITY	WISE	CHICO	030842000
1,813	1,509	1,262	1,055	864		TRINITY	NAVARRO	CHATFIELD WSC	034049000
33,604	29,124	19,042	10,753	5,080	- 1		COLLIN	CELINA	030103000
TWD2060	TWD2050	TWD2040	TWD2030	TWD2020 TWD2	TWD2010	WUG Basin Name	<b>WUG County Name</b>	WUG Name	WUGID

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August 2010

Appendix A DB07 – Region C Municipal Demands in Trinity Basin

WUGID	WUG Name	WUG County Name	WUG Basin Name	TWD2010	TWD2020	TWD2030	TWD2040	TWD2050	TWD2060
030151000	DALLAS	COLLIN	TRINITY	16,969	18,964	20,148	20,851	21,268	21,876
030151000	DALLAS	DALLAS	TRINITY	370,552	410,015	430,705	451,783	501,451	589,420
030151000	DALLAS	DENTON	TRINITY	2,900	8,492	8,787	8,934	200'6	9,043
030151000	DALLAS	ROCKWALL	TRINITY	9	9	9	9	9	9
034085000	DALLAS COUNTY WCID #6	DALLAS	TRINITY	609	828	626	1,089	1,258	1,483
030692000	DALWORTHINGTON GARDENS	TARRANT	TRINITY	782	840	878	606	920	930
034086000	DANVILLE WSC	COLLIN	TRINITY	870	1,203	1,497	1,798	2,114	2,450
030855000	DAWSON	NAVARRO	TRINITY	180	193	205	219	236	256
030161000	DE SOTO	DALLAS	TRINITY	10,942	13,465	15,490	17,379	19,506	20,089
030153000	DECATUR	WISE	TRINITY	1,669	2,087	2,879	3,742	4,845	2,697
030159000	DENTON	DENTON	TRINITY	30,698	42,130	52,927	62,454	76,974	105,533
034089000	DENTON COUNTY FWSD	DENTON	TRINITY	1,008	1,614	2,184	2,771	3,367	3,990
030768000	DOUBLE OAK	DENTON	TRINITY	069	764	813	863	912	961
030171000	DUNCANVILLE	DALLAS	TRINITY	8,104	8,529	8,734	8,930	9,116	9,293
034094000	EAST CEDAR CREEK FWSD	HENDERSON	TRINITY	2,381	2,987	3,586	4,200	4,949	5,894
034096000	EAST FORK SUD	COLLIN	TRINITY	222	751	904	1,062	1,226	1,401
034096000	EAST FORK SUD	DALLAS	TRINITY	120	126	130	134	139	145
034096000	EAST FORK SUD	ROCKWALL	TRINITY	6	6	6	6	6	6
030180000	EDGECLIFF	TARRANT	TRINITY	471	471	471	471	471	471
030192000	ENNIS	ELLIS	TRINITY	3,589	4,594	5,881	7,528	6,637	12,336
030193000	EULESS	TARRANT	TRINITY	866'6	11,302	11,945	12,262	12,418	12,496
030864000	EUSTACE	HENDERSON	TRINITY	153	169	184	200	219	243
030194000	EVERMAN	TARRANT	TRINITY	837	915	992	1,069	1,146	1,159
030196000	FAIRFIELD	FREESTONE	TRINITY	1,143	1,257	1,371	1,485	1,600	1,714
030772000	FAIRVIEW	COLLIN	TRINITY	1,752	2,353	3,038	4,557	7,595	13,291
030198000	FARMERS BRANCH	DALLAS	TRINITY	11,366	12,369	13,282	14,112	14,866	15,552
030199000	FARMERSVILLE	COLLIN	TRINITY	989	1,113	1,591	2,386	3,499	4,772
030201000	FERRIS	ELLIS	TRINITY	341	341	341	341	341	341
034112000	FILES VALLEY WSC		TRINITY	145	158	171	184	199	216
034114000	FLO COMMUNITY WSC	FREESTONE	TRINITY	21	22	23	23	23	23
030204000	FLOWER MOUND	DENTON	TRINITY	17,205	22,851	26,883	30,916	33,335	34,972
030206000	FOREST HILL	TARRANT	TRINITY	1,847	2,015	2,187	2,369	2,576	2,705
030207000	FORNEY	KAUFMAN	TRINITY	2,016	4,301	5,377	6,273	066'9	7,671
034115000	FORNEY LAKE WSC	KAUFMAN	TRINITY	2,285	2,464	2,576	2,688	2,800	2,912
034115000	FORNEY LAKE WSC	ROCKWALL	TRINITY	1,792	2,464	2,576	2,688	2,800	2,912
030213000	FORT WORTH	DENTON	TRINITY	1,204	7,225	10,837	15,654	22,879	30,104
030213000	FORT WORTH	PARKER	TRINITY	2,890	12,523	19,266	22,156	25,287	27,696
030213000	FORT WORTH	TARRANT	TRINITY	147,856	167,210	196,093	239,362	301,825	380,214
030213000	FORT WORTH	WISE	TRINITY	482	2,408	3,372	4,335	5,780	7,225

302	302		302	302	103	TRINITY	COLLIN	JOSEPHINE	031031000
	1,033		689	554	429	TRINITY	TARRANT	JOHNSON COUNTY RURAL SUD	034216000
	110		73	57	43	TRINITY	ELLIS	JOHNSON COUNTY RURAL SUD	034216000
	741		741	726		TRINITY	JACK	JACKSBORO	030302000
	494		397	352	293	TRINITY	ELLIS	ITALY	030299000
~	71,296		65,916	61,857	56,483	TRINITY	DALLAS	IRVING	030298000
	8,029		4,015	2,509	1,255	TRINITY	DALLAS	HUTCHINS	
	8,906		8,542	8,219	7,742	TRINITY	TARRANT	HURST	030293000
	1,073		731	549	381	TRINITY	PARKER	HUDSON OAKS	
	1,512	1,344	1,143	840		TRINITY	GRAYSON	HOWE	
	4,310		4,102	3,873	3,478	TRINITY	DENTON	HIGHLAND VILLAGE	030706000
	4,434		4,366	4,327	4,285	TRINITY	DALLAS	HIGHLAND PARK	030276000
	149		102	82	51	TRINITY	ROCKWALL	HIGH POINT WSC	034205000
	1,333		932	771		TRINITY	KAUFMAN	HIGH POINT WSC	034205000
	17		16	15	13	TRINITY	FANNIN	HICKORY CREEK SUD	034203000
	27		20	16	12	TRINITY	COLLIN	HICKORY CREEK SUD	
	1,764		1,092	891	557	TRINITY	DENTON	HICKORY CREEK	030704000
	1,747		582	349	224	TRINITY	DENTON	HEBRON	
	4,903		3,323	2,650	1,796	TRINITY	ROCKWALL	HEATH	030702000
	1,498		1,498	856		TRINITY	TARRANT	HASLET	030879000
	9,013		8,677	8,230	7,336	TRINITY	TARRANT	HALTOM CITY	030261000
	336		287	219	147	TRINITY	DENTON	HACKBERRY	
	451		206	155		TRINITY	GRAYSON	GUNTER RURAL WSC	
	1,284		909	773	580	TRINITY	COLLIN	GUNTER RURAL WSC	
	1,111		833	694		TRINITY	GRAYSON	GUNTER	030876000
	2,232		1,729	1,508		TRINITY	HENDERSON	GUN BARREL CITY	030699000
_	19,244		17,590	16,249		TRINITY	TARRANT	GRAPEVINE	030249000
	9,686		8,675	7,732		TRINITY	TARRANT	GRAND PRAIRIE	030245000
	2,242		903	361		TRINITY	ELLIS	GRAND PRAIRIE	
(T)	46,881		33,327	28,400		TRINITY	DALLAS	GRAND PRAIRIE	
	862		593	469	343	TRINITY	ELLIS	GLENN HEIGHTS	
	1,676		1,338	1,149	944	TRINITY	DALLAS	GLENN HEIGHTS	
	2,214		1,500	1,288	896	TRINITY	KAUFMAN	GASTONIA-SCURRY	
(F)	56,455		51,186	47,987	44,227	TRINITY	DALLAS	GARLAND	030230000
	5,430		4,610	4,149	3,811	TRINITY	COOKE	GAINESVILLE	030225000
	118	110	103	96		TRINITY	NAVARRO	FROST	030868000
w	37,637	34,276	29,572	18,482		TRINITY	DENTON	FRISCO	
)	59,816	56,119	52,423	48,726	1		COLLIN	FRISCO	00
TWD:	TWD2050	TWD2040	TWD2030 TWI	TWD2020 TWD:	TWD2010	WUG Basin Name	WUG County Name	WUG Name	WUG ID

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Appendix A DB07 – Region C Municipal Demands in Trinity Basin

WUGID	WUG Name	WUG County Name	WUG Basin Name	TWD2010	TWD2020	TWD2030	TWD2040	TWD2050	TWD2060
030784000	JUSTIN	DENTON	TRINITY	516	803	1,457	2,395	2,924	3,226
030313000	KAUFMAN	KAUFMAN	TRINITY	1,202	1,825	2,188	2,479	2,770	3,341
030315000	KELLER	TARRANT	TRINITY	9,341	11,152	11,152	11,152	11,152	11,152
030711000	KEMP	KAUFMAN	TRINITY	185	185	185	185	185	185
030318000	ALE	TARRANT	TRINITY	1,388	1,675	1,869	2,001	2,089	2,149
030712000	KERENS	NAVARRO	TRINITY	405	405	405	405	405	405
034223000	KIOWA HOMEOWNERS WSC	COOKE	TRINITY	514	551	571	574	573	573
030892000	KRUGERVILLE	DENTON	TRINITY	171	196	228	296	386	554
030785000		DENTON	TRINITY	495	208	877	1,176	1,512	1,932
030337000	LAKE DALLAS	DENTON	TRINITY	1,257	1,529	1,669	1,765	1,832	1,878
030341000	LAKE WORTH	TARRANT	TRINITY	952	1,059	1,176	1,294	1,411	1,470
031036000	LAKESIDE	TARRANT	TRINITY	454	527	601	629	773	884
030345000	LANCASTER	DALLAS	TRINITY	7,953	12,725	15,906	19,087	21,632	23,223
034230000	LAVON WSC	COLLIN	TRINITY	383	616	905	1,803	2,834	3,864
034230000	LAVON WSC	ROCKWALL	TRINITY	348	616	804	1,007	1,245	1,525
030352000		FANNIN	TRINITY	308	358	499	785	1,142	1,427
030355000	LEWISVILLE	DALLAS	TRINITY	1	1	1	1	1	-
030355000		DENTON	TRINITY	21,309	26,697	30,647	33,332	35,285	37,301
031018000	LINCOLN PARK	DENTON	TRINITY	138	208	264	322	381	442
030899000	LINDSAY	COOKE	TRINITY	157	168	174	175	175	175
030790000	LITTLE ELM	DENTON	TRINITY	5,565	8,513	10,104	10,104	10,104	10,104
031039000	LOG CABIN	HENDERSON	TRINITY	66	135	155	155	155	155
031041000	LOWRY CROSSING	COLLIN	TRINITY	322	413	494	226	663	2,505
030718000	LUCAS	COLLIN	TRINITY	1,075	1,655	2,016	2,604	3,696	5,041
034239000	LUELLA WSC	GRAYSON	TRINITY	206	569	613	638	654	743
034241000	M E N WSC	NAVARRO	TRINITY	456	501	551	265	635	069
030375000	MABANK	HENDERSON	TRINITY	92	82	87	66	99	108
030375000	MABANK	KAUFMAN	TRINITY	530	647	191	006	1,065	1,270
030383000	MALAKOFF	HENDERSON	TRINITY	431	457	483	509	542	582
030384000	MANSFIELD	ELLIS	TRINITY	124	278	484	755	1,116	1,589
030384000	MANSFIELD	TARRANT	TRINITY	13,442	19,603	25,203	30,804	34,164	34,164
030911000	MAYPEARL	ELLIS	TRINITY	147	147	147	147	147	147
030379000	MCKINNEY	COLLIN	TRINITY	25,134	41,231	60,241	81,835	97,595	112,014
031042000	MCLENDON-CHISHOLM	ROCKWALL	TRINITY	204	265	317	373	440	518
030914000	MELISSA	COLLIN	TRINITY	2,420	4,481	5,825	7,169	8,961	11,201
030401000	MESQUITE	DALLAS	TRINITY	29,572	36,041	41,585	44,727	46,021	46,317
030401000	MESQUITE	KAUFMAN	TRINITY		1	1	1	1	2

0	RRO TRINITY 603	RRO TRINITY	ER   TRINITY   531   343
ER 1	ER TRINITY 331	ER TRINITY 331 345	ER TRINITY 331 345 356
	TRINITY 1,143	TRINITY 1,143 1,463	TRINITY 1,143 1,463 1,745
ROCKWALL TRINITY	ALL TRINITY 420	LL TRINITY 420 462	LL TRINITY 420 462 499
	TRINITY 2,061	TRINITY 2,061 7,561	TRINITY 2,061 7,561 10,921
COLLIN TRINITY	TRINITY 700	TRINITY 700 1,680	TRINITY 700 1,680 3,024
	TRINITY 643	TRINITY 643 1,787	TRINITY 643 1,787 3,573
_	TRINITY 1,578	TRINITY 1,578 2,220	TRINITY 1,578 2,220 2,243
	TRINITY 72,283	TRINITY 72,283 74,938	TRINITY 72,283 74,938 77,848
	TRINITY 1,255	TRINITY 1,255 1,764	TRINITY 1,255 1,764 2,016
TARRANT TRINITY	TRINITY 164	TRINITY 164 217	TRINITY 164 217 277
J	TRINITY 164	TRINITY 164 190	TRINITY 164 190 216
HENDERSON TRINITY	TRINITY 169	TRINITY 169 181	TRINITY 169 181 193
TRINITY	1,943	1,943 4,237	1,943 4,237 6,219
TRINITY	, 657	, 657 657	, 657 657 657
TRINITY	248	248 266	248 266 283
TRINITY	1,049	1,049 1,407	1,049 1,407 1,759
TRINITY	, 77	77 114	77 114 167
TRINITY	527	527 873	527 873 1,142
TRINITY	347	347 409	347 409 471
TRINITY	130	130 160	, 130 160 190
TRINITY	808	, 808 967	7 808 967 1,858
TRINITY	12,787	12,787 14,491	12,787 14,491 15,642
TRINITY	904	904 1,167	7 904 1,167 1,399
TRINITY	160	160 250	160 250 330
TRINITY	272	272 395	272 395 659
TRINITY	204	204 279	204 279 352
TRINITY	71	71 182	71 182 218
TRINITY	360	360 517	360 517 647
TRINITY	958	958 1,552	958 1,552 2,041
TRINITY	1,596	1,596 6,066	1,596 6,066 6,066
TRINITY	385	385 446	, 385 446 493
TRINITY	447	447 658	447 658 737
TRINITY	1,244	1,244 1,396	1,244 1,396 1,481
TRINITY	209	209 209	209 209 209
TRINITY	, 88	, 88 88	,
TRINITY	TRINITY 2,925	TRINITY 2,925 4,667	TRINITY 2,925 4,667 6,904
WUG County Name   WUG Basi	WUG Basin Name   TWD2010	WUG Basin Name   TWD2010	WUG Basin Name   IWD2010   IWD2020   IWD2030   IWD2040

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August 2010

Appendix A DB07 – Region C Municipal Demands in Trinity Basin

034409000						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
034409000	RICE WSC	ELLIS	TRINITY	132	177	222	267	318	374
000000000	RICE WSC	NAVARRO	TRINITY	855	1,077	1,307	1,557	1,855	2,222
030498000	RICHARDSON	COLLIN	TRINITY	7,023	10,854	10,854	10,854	10,854	10,854
030498000	RICHARDSON	DALLAS	TRINITY	25,820	26,178	26,178	26,178	26,178	26,178
030499000	RICHLAND HILLS	TARRANT	TRINITY	1,355	1,452	1,548	1,661	1,726	1,750
030505000	RIVER OAKS	TARRANT	TRINITY	1,042	1,042	1,042	1,042	1,042	1,042
030800000	ROANOKE	DENTON	TRINITY	1,209	1,960	3,080	4,201	5,601	6,747
034325000	ROCKETT SUD	DALLAS	TRINITY	340	426	477	528	594	683
034325000	ROCKETT SUD	ELLIS	TRINITY	4,161	5,119	2,607	6,370	7,323	8,430
030513000	ROCKWALL	ROCKWALL	TRINITY	8,603	15,402	19,883	22,403	22,995	22,995
030521000	ROWLETT	DALLAS	TRINITY	10,997	14,152	16,238	17,925	19,291	20,397
030521000	ROWLETT	ROCKWALL	TRINITY	1,617	1,722	1,725	1,725	1,725	1,725
031059000	RUNAWAY BAY	WISE	TRINITY	329	405	478	220	632	726
030742000	SACHSE	COLLIN	TRINITY	741	1,212	1,404	1,485	1,520	1,546
030742000	SACHSE	DALLAS	TRINITY	2,350	2,953	3,446	3,894	4,301	4,670
030527000	SAGINAW	TARRANT	TRINITY	2,956	3,692	4,162	4,505	4,755	4,938
031072000	SAINT PAUL	COLLIN	TRINITY	198	496	991	1,586	1,884	1,983
030535000	SANGER	DENTON	TRINITY	2,333	2,950	3,518	4,195	4,704	4,901
030539000	SANSOM PARK VILLAGE	TARRANT	TRINITY	623	644	199	673	683	691
034330000	SARDIS-LONE ELM WSC	DALLAS	TRINITY	8	8	8	8	8	8
034330000	SARDIS-LONE ELM WSC	ELLIS	TRINITY	1,718	1,770	1,782	1,982	2,366	2,869
030547000	SEAGOVILLE	DALLAS	TRINITY	2,574	2,961	3,295	3,656	3,938	4,241
030547000	SEAGOVILLE	KAUFMAN	TRINITY	3	4	9	7		12
030959000	SEVEN POINTS	HENDERSON	TRINITY	181	217	252	288	333	389
030803000	SHADY SHORES	DENTON	TRINITY	320	464	999	671	777	888
034336000	SOUTH GRAYSON WSC	COLLIN	TRINITY	220	227	235	238	242	246
034336000	SOUTH GRAYSON WSC	GRAYSON	TRINITY	176	279	367	470	587	734
030570000	SOUTHLAKE	DENTON	TRINITY	336	672	1,008	1,344	1,949	2,016
030570000	SOUTHLAKE	TARRANT	TRINITY	11,620	13,960	15,168	15,792	16,114	16,280
034341000	SOUTHWEST FANNIN COUNTY SUD	FANNIN	TRINITY	5	8	6	10	10	11
030574000	SPRINGTOWN	PARKER	TRINITY	521	694	868	1,042	1,215	1,389
030749000	SUNNYVALE	DALLAS	TRINITY	1,815	2,540	3,266	3,992	4,718	4,827
031065000	TALTY	KAUFMAN	TRINITY	866	1,356	1,860	2,419	3,111	3,968
030596000		FREESTONE	TRINITY	338	459	202	561	611	662
030599000		KAUFMAN	TRINITY	3,643	4,469	5,193	5,669	6,136	6,819
030752000	THE COLONY	DENTON	TRINITY	5,513	7,214	8,115	8,373	8,631	8,708
030974000		GRAYSON	TRINITY	196	445	623	712	784	819
030976000	BEAN	GRAYSON	TRINITY	268	304	345	365	385	406
030753000	TOOL	HENDERSON	TRINITY	419	479	538	598	671	764

	ン スた4 X/S	2.107.253	1,850,570	1,531,395				lotal
474	383	306	234	136	TRINITY	ROCKWALL	WYLIE	030669000
319	279	235	185	117	TRINITY	DALLAS	WYLIE	030669000
19,715	18,818	13,442	10,782	6,804	TRINITY	COLLIN	WYLIE	030669000
270	270	268	262	251	TRINITY	FREESTONE	WORTHAM	030668000
14	14	14	14	13	TRINITY	GRAYSON	WOODBINE WSC	034403000
934	866	798	729	661	TRINITY	COOKE	WOODBINE WSC	034403000
1,803	1,353	1,134	966	678	TRINITY	DALLAS	WILMER	030657000
1,300	1,139	986	806	648	TRINITY	PARKER	WILLOW PARK	030756000
514	508	499	482	458	TRINITY	GRAYSON	WHITESBORO	030650000
3,353	3,107	3,026	2,780	2,584	TRINITY	TARRANT	WHITE SETTLEMENT	030651000
374	348	325	306	252	TRINITY	TARRANT	WESTWORTH VILLAGE	030644000
279	279	279	279	279	TRINITY	TARRANT	WESTOVER HILLS	031070000
7,841	4,481	1,568	717	269	TRINITY	COLLIN	WESTON	031069000
736	677	625	572	517	TRINITY	WISE	WEST WISE RURAL SUD	034391000
3,513	2,787	2,200	1,598	955	TRINITY	KAUFMAN	WEST CEDAR CREEK MUD	034381000
3,233	2,767	2,386	1,926	1,352	TRINITY	HENDERSON	WEST CEDAR CREEK MUD	034381000
9,757	8,690	7,696	6,464	5,108	TRINITY	PARKER	WEATHERFORD	030634000
17,693	13,821	10,797	8,435	6,589	TRINITY	ELLIS	WAXAHACHIE	030633000
4,080	3,987	3,871	3,725	3,542	TRINITY	TARRANT	WATAUGA	030632000
559	479	407	335	261	TRINITY	WISE	WALNUT CREEK SUD	034373000
4,160	3,695	3,258	2,753	2,128	TRINITY	PARKER	WALNUT CREEK SUD	034373000
412	409	407	405	403	TRINITY	HENDERSON	VIRGINIA HILL WSC	034371000
4,145	3,808	3,360	2,464	1,011	TRINITY	GRAYSON	VAN ALSTYNE	030619000
1,546	902	644	386	193	TRINITY	COOKE	VALLEY VIEW	030981000
7,840	7,776	7,687	7,565	7,394	TRINITY	DALLAS	UNIVERSITY PARK	030615000
509	438	368	301	207	TRINITY	GRAYSON	TWO WAY SUD	034367000
3,927	3,646	3,386	3,086	2,737	TRINITY	DENTON	TROPHY CLUB	030806000
205	200	196	192	188	TRINITY	HENDERSON	TRINIDAD	030609000
1,257	838	524	314	209	TRINITY	FANNIN	TRENTON	030978000
TWD2050	TWD2040	TWD2030	TWD2020	TWD2010	WUG Basin Name	WUG County Name	WUG Name	WUG ID
	TWD2050 1,257 205 3,927 509 7,840 1,546 4,145 4,160 559 4,080 17,693 9,757 3,233 3,513 7,841 270 1,803 934 1,803 934 1,803 934 1,803 934 1,803 934 1,803 934 1,715 319 474 270 19,715 319 474	O P	### TWD2040   TWD:  ### 838    ### 200    ### 3,646    ### 438    ### 7,776    ### 902    ### 3,808    ### 409    ### 3,805    ### 4,49    ### 3,897    ### 13,821    ###	314         524         838           192         196         200           3,086         3,386         3,646           301         368         438           365         7,687         7,776           386         644         902           2,464         3,360         3,808           405         407         409           405         407         479           2,753         3,258         3,695           3,725         3,871         3,987           3,464         7,696         8,690           1,926         2,386         2,767           3,435         10,797         13,821           3,464         7,696         8,690           1,926         2,386         2,767           3,484         7,696         8,690           1,598         2,200         2,787           5,72         625         677           7,780         3,026         3,107           482         4,481         1,139           966         1,134         1,353           729         279         3,06           3,66         3,107 <t< td=""><td>TWD2020         TWD2030         TWD2040         TWD2040           314         524         838           492         196         200           3,086         3,386         3,646           3,086         3,386         438           403         3,86         438           405         7,687         7,776           8         3,86         644         902           9         3,86         407         409           405         407         409         409           3,725         3,871         3,808         3,695           407         479         479         479           3,725         3,871         3,897         479           3,725         3,871         3,987         479           3,444         7,696         8,690         479           4,481         7,696         8,690         2,787           5         1,598         2,200         2,787           6         1,598         2,200         2,787           7         4,481         3,026         3,107           8,690         3,026         3,107           9,000         3,107&lt;</td><td>TWD2010         TWD2020         TWD2030         TWD2040         TWD2           209         314         524         838           188         192         196         200           2,737         3,086         3,386         3,646           207         301         368         438           7,394         7,565         7,687         7,776           193         386         644         902           1,011         2,464         3,360         3,808           403         405         407         409           2,128         2,753         3,258         3,695           2,128         2,753         3,258         3,695           2,128         2,753         3,258         3,695           2,128         2,753         3,258         3,695           2,128         2,753         3,258         3,695           3,542         3,725         3,871         3,987           6,589         8,435         10,797         13,821           1,352         1,926         2,386         2,767           1,352         1,598         2,200         2,787           2,787         1,568</td><td>County Name         WUG Basin Name         TWD2010         TWD2020         TWD2030         TWD2040         TWD2040           IN         TRINITY         209         314         524         838           EERSON         TRINITY         2737         3086         3,846           SON         TRINITY         207         301         368         438           SE         TRINITY         207         301         368         438           SON         TRINITY         193         386         644         902           SON         TRINITY         193         386         407         408           SERSON         TRINITY         403         405         407         409           ERSON         TRINITY         403         2,753         3,258         3,695           ERSON         TRINITY         4,03         2,753         3,258         3,695           ER         TRINITY         4,54         7,96         8,690           ERSON         TRINITY         4,59         8,435         10,797         13,821           NANT         TRINITY         2,518         6,464         7,696         8,690           ERSON         T</td><td>  WUG County Name</td></t<>	TWD2020         TWD2030         TWD2040         TWD2040           314         524         838           492         196         200           3,086         3,386         3,646           3,086         3,386         438           403         3,86         438           405         7,687         7,776           8         3,86         644         902           9         3,86         407         409           405         407         409         409           3,725         3,871         3,808         3,695           407         479         479         479           3,725         3,871         3,897         479           3,725         3,871         3,987         479           3,444         7,696         8,690         479           4,481         7,696         8,690         2,787           5         1,598         2,200         2,787           6         1,598         2,200         2,787           7         4,481         3,026         3,107           8,690         3,026         3,107           9,000         3,107<	TWD2010         TWD2020         TWD2030         TWD2040         TWD2           209         314         524         838           188         192         196         200           2,737         3,086         3,386         3,646           207         301         368         438           7,394         7,565         7,687         7,776           193         386         644         902           1,011         2,464         3,360         3,808           403         405         407         409           2,128         2,753         3,258         3,695           2,128         2,753         3,258         3,695           2,128         2,753         3,258         3,695           2,128         2,753         3,258         3,695           2,128         2,753         3,258         3,695           3,542         3,725         3,871         3,987           6,589         8,435         10,797         13,821           1,352         1,926         2,386         2,767           1,352         1,598         2,200         2,787           2,787         1,568	County Name         WUG Basin Name         TWD2010         TWD2020         TWD2030         TWD2040         TWD2040           IN         TRINITY         209         314         524         838           EERSON         TRINITY         2737         3086         3,846           SON         TRINITY         207         301         368         438           SE         TRINITY         207         301         368         438           SON         TRINITY         193         386         644         902           SON         TRINITY         193         386         407         408           SERSON         TRINITY         403         405         407         409           ERSON         TRINITY         403         2,753         3,258         3,695           ERSON         TRINITY         4,03         2,753         3,258         3,695           ER         TRINITY         4,54         7,96         8,690           ERSON         TRINITY         4,59         8,435         10,797         13,821           NANT         TRINITY         2,518         6,464         7,696         8,690           ERSON         T	WUG County Name

#### Appendix B

DB07 - Region C Industrial Demands in Trinity Basin

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Appendix B DB07 – Region C Industrial Demands in Trinity Basin

WUG ID	WUG Name	WUG County Name	WUG Basin Name	TWD2010	TWD2020	TWD2030	TWD2040	TWD2050	TWD2060
031001043	MANUFACTURING	COLLIN	TRINITY	3,607	4,137	4,654	5,170	5,633	6,115
031001049	MANUFACTURING	COOKE	TRINITY	273	908	332	364	688	421
031001057	MANUFACTURING	DALLAS	TRINITY	34,115	37,791	41,148	44,214	46,703	46,983
031001061	MANUFACTURING	DENTON	TRINITY	1,068	1,239	1,408	1,579	1,731	1,880
031001070	MANUFACTURING	ELLIS	TRINITY	3,466	3,670	3,841	3,987	4,089	3,912
031001091	MANUFACTURING	GRAYSON	TRINITY	2	2	2	2	7	2
031001107	MANUFACTURING	HENDERSON	TRINITY	110	118	133	151	172	195
031001129	MANUFACTURING	KAUFMAN	TRINITY	092	813	698	928	866	1,061
031001175	MANUFACTURING	NAVARRO	TRINITY	1,172	1,328	1,468	1,607	1,730	1,872
031001184	MANUFACTURING	PARKER	TRINITY	548	618	982	751	608	878
031001199	MANUFACTURING	ROCKWALL	TRINITY	12	14	16	17	19	21
031001220	MANUFACTURING	TARRANT	TRINITY	17,258	20,444	23,630	26,924	29,919	32,457
031001249	MANUFACTURING	WISE	TRINITY	2,313	2,660	2,979	3,277	3,539	3,858
Total				64,704	73,140	81,168	88,971	95,728	99,655

#### Appendix C

DB07 - Region C Conservation Supply in Trinity Basin

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WWS Broject II Broject Name		CDC Name	WIG Name	Will County Name	WING Pact	010000	5 000055	000000	070000	03060	090033
		CONSEDVATION	031001004MANI IEACTI IDING	Mod county wante			ď	_	-	10	130
	MANUFACTURING CONSERVATION	CONSERVATION		COCKE	TRINITY		0 +	7	10		12
		CONSERVATION	031001057MANUFACTURING	DALLAS	TRINITY		- 89	781	1,135	1.212	1,258
		CONSERVATION		DENTON	TRINITY		2	53	44	49	53
		CONSERVATION	031001107MANUFACTURING	HENDERSON	TRINITY		-	3	4	2	2
		CONSERVATION	031001129MANUFACTURING	KAUFMAN	TRINITY		1	15	22	23	25
T		CONSERVATION	031001175MANUFACTURING	NAVARRO	TRINITY		-	16	23	25	27
COTCONSMIFG MANUFACTORIN	MANUFACTURING CONSERVATION	CONSERVATION	031001184MANUFACTURING	PARKEK	> NINIAL			4 '	٥	, ,	
		CONSERVATION	03100122dMANUFACTURING	TARRANT	TRINITY		35	413	630	711	784
		CONSERVATION	031001249MANUFACTURING	WISE	TRINITY		3 -	12	18	19	21
	-ERATED	CONSERVATION	03015100d DALLAS	COLLIN	TRINITY	316	242	50			
		CONSERVATION	03015100(DALLAS	DALLAS	TRINITY	6,891	5,235	437			
C01CONSACC MUNICIPAL CON		CONSERVATION	03015100(DALLAS	DENTON	TRINITY	147	108	6			
		CONSERVATION	03000800¢ALLEN	COLLIN	TRINITY	208	1,430	1,960	2,346	2,694	3,019
C01CONSBAS MUNICIPAL CON:	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	03081300(ANNA	COLLIN	TRINITY	43	141	243	366	543	936
		CONSERVATION	03082900(BLUE RIDGE	COLLIN	TRINITY	2	25	48	80	125	150
C01CONSBAS MUNICIPAL CON	MUNICIPAL CONSERVATION-BASIC	CONSERVATION		COLLIN	TRINITY	4 3	13	17	22	28	34
		CONSERVATION		COLLIN	Y KINIT	31	259	630	1,263	2,157	2,750
CO1CONSBAS MUNICIPAL CONS	MUNICIPAL CONSERVATION-BASIC	CONSERVATION		COLLIN	- KINII	74	41	400	400	38	36
1		CONSERVATION	034083000 COLLEONA WSC	COLLIN	> X IX I	135	782	102	1 149	1318	185
		CONSERVATION		COLLIN	TRINITY	30	76	106	141	182	231
		CONSERVATION		COLLIN	TRINITY	10	38	47	28	71	98
		CONSERVATION	030772000FAIRVIEW	COLLIN	TRINITY	48	105	160	275	520	1,017
		CONSERVATION	030199000FARMERSVILLE	COLLIN	TRINITY	9	38	29	96	151	221
		CONSERVATION	03022100(FRISCO	COLLIN	TRINITY	1,319	4,345	5,104	5,924	6,805	7,561
		CONSERVATION	03414600(GUNTER RURAL WSC	COLLIN	TRINITY	12	43	53	29	82	100
T		CONSERVATION	034203000HICKORY CREEK SUD	COLLIN	TRINITY		-	- :	2	2	က
		CONSERVATION	031031000JOSEPHINE	COLLIN	TRINITY	- (	13	14	15	16	16
CO1CONSBAS MUNICIPAL CONS	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	03423000(LAVON WSC	COLLIN	KIN	∞ (	34	252	110	182	260
		CONSERVATION	03104 1004 LOWR 1 CROSSING	COLLIN	> NINI	01	23	3.1	116	175	25.4
		CONSERVATION	7 =	N I I I I	TRINITY	931	966 6	4 851	7 228	9 407	11 700
		CONSERVATION	030914000MELISSA	COLLIN	TRINITY	87	240	357	497	693	926
		CONSERVATION		COLLIN	TRINITY	3	11	12	13	13	14
C01CONSBAS MUNICIPAL CON		CONSERVATION	03041800¢MUENSTER	COOKE	TRINITY	11	25	31	38	47	22
		CONSERVATION		COLLIN	TRINITY	51	337	384	431	479	527
C01CONSBAS MUNICIPAL CON	MUNICIPAL CONSERVATION-BASIC	CONSERVATION		COLLIN	TRINITY	2	ω (	12	26	50	139
		CONSERVATION	030923000 NEW HOPE	COLLIN	KIN	7 60	19	36	134	105	259
		CONSERVATION	, C	COLLIN	TRINITY	52	186	322	604	1.000	1.530
		CONSERVATION		COLLIN	TRINITY	1,937	3,439	4,180	4,970	5,800	6,692
		CONSERVATION	030487000 PRINCETON	COLLIN	TRINITY	6	22	108	194	350	563
		CONSERVATION	03079900(PROSPER	COLLIN	TRINITY	64	373	626	908	996	1,140
COTCONSBAS MINICIPAL CONS	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	USU49800U KICHAKDSON	COLLIN	> X IX I	183	4/4	190	103	117	132
		CONSERVATION	03107200dSAINT PAUL	COLLIN	TRINITY	9	28	63	113	149	172
		CONSERVATION		COLLIN	TRINITY	4	11	12	13	14	15
		CONSERVATION	031069000WESTON	COLLIN	TRINITY	2	41	95	299	584	1,108
		CONSERVATION	030669000WYLIE	COLLIN	TRINITY	281	877	1,196	1,816	2,059	2,420
T		CONSERVATION	034028000BOLIVAR WSC	COOKE	TRINITY	ო (	12	14	15	16	17
		CONSERVATION		COOKE	TRINITY	12	46	51	55	58	61
COTCONSBAS MINICIPAL CONS	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030225000 GAINESVILLE	COOKE	- KINIT		222	787	342	411	984
		CONSERVATION	030899000LINDSAY	COOKE	TRINITY	2 0	10	12	13	14	16
C01CONSBAS MUNICIPAL CON		CONSERVATION		COOKE	TRINITY	3	17	31	46	83	110
		CONSERVATION	034403000	COOKE	TRINITY	6	33	39	44	20	22

2/2	224	165	89	48	16	ZZZ	DENION	030/8400QJUSTIN	CONSERVATION	S MUNICIPAL CONSERVATION-BASIC	COTCONSBAS
367	329	291	252	208	102	TRINITY	DENTON	030706000HIGHLAND VILLAGE	CONSERVATION		C01CONSBAS
112	82	58	44	33	8	TRINITY	DENTON	030704000 HICKORY CREEK	CONSERVATION		C01CONSBAS
155	130	78	35	18	6	TRINITY	DENTON		CONSERVATION		C01CONSBAS
20	19	17	14	10	ω	TRINITY	DENTON		CONSERVATION		C01CONSBAS
4.733	4.281	3.618	2.879	1.648	690	TRINITY	DENTON		CONSERVATION		C01CONSBAS
2,002	1 614	2,00	601	345	33	TRINITY	DENTON	030204000FLOWEN MOOND	CONSERVATION	S MUNICIPAL CONSERVATION-BASIC	CO1CONSBAS
2 002	2 470	3 061	1 573	1 150	200	RINITY	DENTON		TRYATION	MUNICIPAL	COLCONSBAS
330	251		127	81	30	TRINITY	DENTON	ĭ×		L	C01CONSBAS
8,013	5,247		2,798	1,912	847	TRINITY	DENTON	03015900(DENTON	CONSERVATION	L	C01CONSBAS
581	558		430	350	202	TRINITY	DENTON	03015100(DALLAS	CONSERVATION	MUNICIPAL	C01CONSBAS
530	380		112	58	16	TRINITY	DENTON	03101100(CROSS ROADS	CONSERVATION	S MUNICIPAL CONSERVATION-BASIC	C01CONSBAS
800	668		439	336	94	TRINITY	DENTON	_	CONSERVATION	MUNICIPAL	C01CONSBAS
615	531		348	263	116	TRINITY	DENTON	_	CONSERVATION	MUNICIPAL	C01CONSBAS
126	106		48	28	11	TRINITY	DENTON	$^{\circ}$	CONSERVATION	MUNICIPAL	C01CONSBAS
21	17		10	7	3	TRINITY	DENTON	030133000COPPELL	CONSERVATION		C01CONSBAS
1,417	1,265		952	784	425	TRINITY	DENTON		CONSERVATION	MUNICIPAL	C01CONSBAS
790	550		134	61	15	TRINITY	DENTON	034028000BOLIVAR WSC	CONSERVATION		C01CONSBAS
42	36		25	19	3	TRINITY	DENTON	03401000dBARTONVILLE WSC	CONSERVATION	MUNICIPAL	C01CONSBAS
350	310		199	125	34	TRINITY	DENTON	03082000(BARTONVILLE	CONSERVATION		C01CONSBAS
181	126		95	52	8	TRINITY	DENTON	(AUBREY	CONSERVATION	MUNICIPAL CONSERVATION-BAS	C01CONSBAS
78	71		58	52	26	TRINITY	DENTON	034007000ARGYLE WSC	CONSERVATION		C01CONSBAS
528	433		275	187	69	TRINITY	DENTON		CONSERVATION	MUNICIPAL	C01CONSBAS
40	33		21	15	5	TRINITY	DALLAS	030669000WYLIE	CONSERVATION		C01CONSBAS
147	88		49	39	10	TRINITY	DALLAS	WILMER	CONSERVATION	MUNICIPAL	C01CONSBAS
259	232		180	154	49	TRINITY	DALLAS	030615000UNIVERSITY PARK	CONSERVATION	_	C01CONSBAS
371	325		173	115	50	TRINITY	DALLAS		CONSERVATION	1	C01CONSBAS
193	168		121	100	30	TRINITY	DALLAS	030547000 SEAGOVII I E	CONSERVATION		COLCONSBAS
397	332	403	212	- 108	·	TBINITY	DALLAS	03/330000 SARDIS-I ONE ELM WSC	CONSERVATION	S MILINICIPAL CONSERVATION-BASIC	COLCONSBAS
1,/32	333	7,243	7,007	150	328	TRINITY	DALLAS		CONSERVATION	1	CO1CONSBAS
37	31	26	22	18	5	TRINITY	DALLAS		CONSERVATION	L	C01CONSBAS
1,960	1,751	1,552	1,353	1,144	678	TRINITY	DALLAS	03049800(RICHARDSON	CONSERVATION		C01CONSBAS
46	29	18	11	6	2	TRINITY	DALLAS	03072900(OVILLA	CONSERVATION		C01CONSBAS
3,882	3,504	3,075	2,548	1,949	869	TRINITY	DALLAS	9	CONSERVATION	MUNICIPAL	C01CONSBAS
1,059	921	756	583	429	100	TRINITY	DALLAS	~	CONSERVATION	_	C01CONSBAS
5 263	4 577	3 900	3 229	2.563	1 452	TRINITY	DALLAS	030294000 FO FCHINS	CONSERVATION	S MIJNICIPAL CONSERVATION-BASIC	COTCONSBAS
602	717	201	32 87	126	24	RINITY	DALLAS		CONSERVATION	-	CO1CONSBAS
4,597	3,603	2,752	2,067	1,552	710	TRINITY	DALLAS		CONSERVATION	: 3	C01CONSBAS
109	94	81	68	55	15	TRINITY	DALLAS	9	CONSERVATION	MUNICIPAL	C01CONSBAS
4,663	4,229	3,646	3,083	2,533	1,251	TRINITY	DALLAS	03023000(GARLAND	CONSERVATION	S MUNICIPAL CONSERVATION-BASIC	C01CONSBAS
1,149	980	819	667	525	295	TRINITY	DALLAS	0	CONSERVATION	MUNICIPAL	C01CONSBAS
9	8	7	7	6	2	TRINITY	DALLAS	ă,	CONSERVATION	MUNICIPAL	C01CONSBAS
753	668	588	513	439	226	TRINITY	DALLAS	$\circ$	CONSERVATION	<b>-</b> :	C01CONSBAS
1.613	1.413	1.127	886	668	309	TRINITY	DALLAS	IDE SOTO	CONSERVATION	MUNICIPAL	C01CONSBAS
37,090	01,070	56	47	38	9,491	TRINITY	DALLAS	034085000 DALLAS COLINITY WOID #6	CONSERVATION	MUNICIPAL	COLCONSBAS
37 808	31 078	24 888	21 067	16 910	0 401	TRINITY	DALLAS	030151000 DALL AS	CONSERVATION		COLCONSBAS
828	/45	000	280	700	283	TBINITY	DALLAS	0307557055 COLINITY OTHER	CONSERVATION	MUNICIPAL	COLCONSBAS
23	745	16	13	-07	ο Ο	T RINITY	DALLAS		CONSERVATION	Ļ	COLCONSBAS
13	10	9	8	6	2	TRINITY		9	CONSERVATION	MUNICIPAL	C01CONSBAS
36	33	31	29	26	7	TRINITY	DALLAS	030121000 COCKRELL HILL	CONSERVATION	S MUNICIPAL CONSERVATION-BASIC	C01CONSBAS
4,002	3,608	3,181	2,751	2,256	693	TRINITY	DALLAS	03010200(CEDAR HILL		MUNICIPAL	C01CONSBAS
929	829	734	643	548	304	TRINITY	DALLAS	030098000CARROLLTON			C01CONSBAS
180	164	149	134	119	32	TRINITY		3000			C01CONSBAS
826	7 707	587	465	345	TRINITY 213 345	TRINITY	DALLAS	030673000 ADDISON	CONSERVATION	S MUNICIPAL CONSERVATION-BASIC	C01CONSBAS
CCONGO	CCOURU	UVUCSS	ceonan	ncncaa	CC2010	WIID Raci	WILL County Name		CEC Name		WIMS Droigs II

WMS Project ID Pr	roject Name	SRC Name	WUG ID	WUG Name	WUG County Name	WUG Basi	SS2010	SS2020 S	SS2030 S	SS2040 SS	SS2050 SS	SS2060
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030892000	KRUGERVILLE	DENTON	TRINITY	3	-	~	16	22	33
Ī	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030785000	KRUM	DENTON	TRINITY	7	40	36	52	71	6
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030337000	AKE DALLAS	DENTON	TRINITY	15	85	102	122	140	158
Ī	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030355000	LEWISVILLE	DENTON	TRINITY	601	1,306	1,737	2,146	2,540	2,979
CO1CONSBAS M	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	031018000	LINCOLN PARK	DENION	> NINI NI N	7 5	12	11	14	18	22
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	03079000	LITLE ELM MISTANG W/SC	DENION	> LEINIGE	180	4/5	101	134	470	211
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	03427 1000	03427 TOO MICE THIS WAS CONTROL OF THE THE	DENTON	- ALIVIEL	20 00	50	101	212	281	332
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030930000	OAK POINT	DENTON	TRINITY	2 &	20	74	103	137	177
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030465000	PILOT POINT	DENTON	TRINITY	18	94	123	06	103	117
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030472000	PLANO	DENTON	TRINITY	42	102	120	139	158	177
C01CONSBAS M	UNICIPAL CONSERVATION-BASIC	CONSERVATION	031021000	PONDER	DENTON	TRINITY	18	78	184	340	446	512
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030799000	PROSPER	DENTON	TRINITY	16	110	225	384	473	220
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030800000	ROANOKE	DENTON	TRINITY	34	91	168	261	393	527
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030535000	SANGER	DENTON	TRINITY	75	162	220	294	366	419
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030803000	SHADY SHORES	DENTON	TRINITY	4	56	23	29	36	44
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030570000	SOUTHLAKE	DENTON	TRINITY	6	32	26	85	139	161
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030752000	THE COLONY	DENTON	TRINITY	06	341	407	444	482	511
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030806000	TROPHY CLUB	DENTON	TRINITY	74	142	182	225	274	328
	IUNICIPAL CONSERVATION-BASIC	CONSERVATION	030999000	BARDWELL	ELLIS	TRINITY	2	7	6	11	13	16
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	034029000	BRANDON-IRENE WSC	ELLIS	TRINITY		-	_	_	_	_
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	034040000	BUENA VISTA - BETHEL SUD	ELLIS	TRINITY	17	40	49	62	79	100
	IUNICIPAL CONSERVATION-BASIC	CONSERVATION	030102000	CEDAR HILL	ELLIS	TRINITY	_	2	5	5	5	2
	IUNICIPAL CONSERVATION-BASIC	CONSERVATION	034068000	COMMUNITY WATER COMPANY	ELLIS	TRINITY	2	ω (	- i	13	16	20
	IUNICIPAL CONSERVATION-BASIC	CONSERVATION	030757070	COUNTY-OTHER	ELLIS	TRINITY	19	89	74	81	87	93
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030192000	NNIS	ELLIS	TRINITY	110	266	384	546	770	1,079
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030201000	TERKIN	ELLIS	- KINIT	· .	12	13	14	15	16
COTCONSBAS	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	034112000	FILES VALLEY WSC	ELLIS	>	- 4	n (	٥ ٥	\ c	φξ	D (
T	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	03034500	GLEINN HEIGH IS	ELLIS	>	ი ი	7 6	30	30,00	4 t	000
COTCONSBAS	MINICIPAL CONSERVATION-BASIC	CONSERVATION	030245000	GRAND PRAIRIE	ELLIS	- KIN -	7	707	200	102	7/1	707
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	034216000	IOHNSON COLINTY RUBAL SUD	ELLIS FILIS	- ALIVIEL	ţ ,	0 0	۲۵ د	27	4	32
	UNICIPAL CONSERVATION-BASIC	CONSERVATION	030384000	MANSFIELD	FILIS	TRINITY	4	14	280	49	82	130
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030911000	03091100dMAYPEARL	ELLIS	TRINITY	4	o	10	5 -	12	13
	UNICIPAL CONSERVATION-BASIC	CONSERVATION	030405000	MIDLOTHIAN	ELLIS	TRINITY	88	248	421	211	747	910
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030916000	MILFORD	ELLIS	TRINITY	-	4	4	2	2	2
	UNICIPAL CONSERVATION-BASIC	CONSERVATION	034269000	MOUNTAIN PEAK WSC	ELLIS	TRINITY	148	443	479	260	202	968
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030929000	OAK LEAF	ELLIS	TRINITY	10	22	58	37	47	28
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030729000	OVILLA	ELLIS	TRINITY	33	80	113	141	157	173
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030731000	PALMER	ELLIS	TRINITY	က	13	14	16	18	20
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030935000	PECAN HILL	ELLIS	K	c c	10	13	17	721	52.0
COTCONSBAS	MONICIPAL CONSERVATION-BASIC	CONSERVATION	030/3/000 RED OAK	RED OAN	FILIS	> LINIGH	ۍ د	ρ α	5 5	137	170	224
T	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	034325000	ROCKETT SLID	FILIS	TRINITY	2 22	221	258	312	380	463
	UNICIPAL CONSERVATION-BASIC	CONSERVATION	034330000		ELLIS	TRINITY	51	96	111	137	181	242
C01CONSBAS MI	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030633000	WAXAHACHIE	ELLIS	TRINITY	229	280	823	1,155	1,612	2,241
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030757074	030757074COUNTY-OTHER	FANNIN	TRINITY	2	8	6	6	6	6
	UNICIPAL CONSERVATION-BASIC	CONSERVATION	034203000	HICKORY CREEK SUD	FANNIN	TRINITY		1	1	1	2	2
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030352000	LEONARD		TRINITY	4	15	22	36	22	75
	IUNICIPAL CONSERVATION-BASIC	CONSERVATION	034341000	SOUTHWEST FANNIN COUNTY SU	4	TRINITY				. :	-	-
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030978000	TRENTON	FANNIN	TRINITY	22	88	148	240	368	503
T	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030757081	COUNTY-OTHER	FREESTONE	TRINITY	14	49	23	57	09	63
T	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030196000	FAIRFIELD	FREESTONE	TRINITY	34	65	84	86	118	139
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	034114000	FLO COMMUNITY WSC	FREESTONE	TRINITY		7 5	2 5	2 5	2 5	2 5
COTCONSBAS	MUNICIPAL CONSERVATION BASIC	CONSERVATION	03066900	I EAGUE	FREESTONE	- KIN -	4 1	9 7	75	79	77	32
	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	030974000	TIOGA	GRAYSON	TRINITY	- 6	27	42	53	64	73
Ť	MINICIPAL CONSERVATION-BASIC	CONSERVATION	030765000	030765000COLINSVILE	GRAYSON	TRINITY	, =	18	25	32	40	49
			3	000000000000000000000000000000000000000				2	3	1	þ	P

30	02	12	Ī		2	7	NAVANNO	CONSERVATION 03094/000RICE	CO I CONSBAS IMONICIPAL CONSERVATION-BASIC
72	304	2 4	31		o o	RNITY	NAVARRO		
39	34	30	26		2	T RIVE	NAVARRO	034241000	MUNICIPAL
16	15	14	12		1 ω	TRINITY	NAVARRO	030712000	Ĺ
8	7	6	5		,	TRINITY	NAVARRO	030868000	C01CONSBAS MUNICIPAL CONSERVATION-BASIC
19	15	13	7		2	TRINITY	NAVARRO	03085500(DAWSON	L
13	13	12	11		3	TRINITY	NAVARRO	CONSERVATION 030757175 COUNTY-OTHER	C01CONSBAS MUNICIPAL CONSERVATION-BASIC
497	413	341	184		46	TRINITY	NAVARRO	CONSERVATION 030137000 CORSICANA	C01CONSBAS MUNICIPAL CONSERVATION-BASIC
23	18	14	10	8	2	TRINITY	NAVARRO	034068000	_
104	82	65	51		10	TRINITY	NAVARRO	034049000	MUNICIPAL
2	2	2	_ 0			TRINITY	NAVARRO	034029000	_
12	10	9	n .		2	TRINITY	NAVARRO	030828000	MUNICIPAL
259	195	147	109		17	TRINITY	KAUFMAN	034381000	
539	438	361	292		100	TRINITY	KAUFMAN	030599000	MUNICIPAL
304	213	145	96	50	24	TRINITY	KALIEMAN	031065000	_
ء ا	' [		' (			TRINITY	KALIEMAN	030547000	MUNICIPAL
19	15		9	7	2	TRINITY	KALIEMAN	030928000	1
353	203		136	110	37	TRINITY	KALIEMANI	03075000	_
0	0 0		20	10	5 0	TOINITY	KALIFINAN	4	1
155	120		8 4	07	15.0	TRINITY	KALIEMANI	030313000	MINICIPAL
9	72		45	35	٥	TRINITY	KALIEMAN	034205000	
155	120		73	70	16	TRINITY	XALIEMANI XALIEMANI	CONSERVATION 034137001 GASTONIA-SCHBBY	CO1CONSBAS MINICIPAL CONSERVATION-BASIC
242	344		156	120	75	TBINITY	KALIEMANI	03411 FOOD FORNIEV I AKE	
674	л 61		350	240	67	TRINITY	KALIEMANI	03070700	MINICIPAL
228	169		9	63	24	TRINITY	KALIEMAN	030767000	
94	88		77	71	24	TRINITY	KALIEMAN	030757129	MUNICIPAL
75	57		3 5	23	ח ת	TRINITY	KALIEMAN	034066000	
ي آ	24		15	10	ء د	TRINITY	KALIEMANI	030766000	_
104	153		97	75	18	TRINITY	KALIEMANI	034065000	CO1CONGRAG MINICIPAL CONGENYATION-BASIC
116	80		Λ. Ο 0.	38.5	٥	TRINITY	KALIEMANI	034001000	1
33	30	28	36	23	7	TRINITY	JACK	CONSERVATION 030/3/113COUNTY-OTHER	CO1CONSEAS MINICIPAL CONSERVATION-BASIC
224	180		118	93	24	RNIT	HENDERGON	034381000	1
24	22		20	19	2 0	T RING	HENDERSON	0343/1000	
2 1	30		3 0	10	7 1	T RNIT	HENDERSON	030609000	Ļ
38	31		22	2.	0	TO RELITY	HENDERSON	030753000	COTCONGRAS MUNICIPAL CONGERVATION-BASIC
22	18		12	10	1 2	TRINITY	HENDERSON	030959000	
20	16		12	10	5	TRINITY	HENDERSON	030934000	C01CONSBAS MUNICIPAL CONSERVATION-BASIC
24	21		16	14	4	TRINITY	HENDERSON	03038300(MALAKOFF	L
21	19		15	14	5	TRINITY	HENDERSON	030375000MABANK	C01CONSBAS MUNICIPAL CONSERVATION-BASIC
10	9		8	7	2	TRINITY	HENDERSON	CONSERVATION 03103900(LOG CABIN	C01CONSBAS   MUNICIPAL CONSERVATION-BASIC
218	171		106	82	37	TRINITY	HENDERSON	030699000	
23	19		13	11	51	TRINITY	HENDERSON	030864000	_
531	407		241	178	74	TRINITY	HENDERSON	034094000	MUNICIPAL
12	11		9	8	2	TRINITY	HENDERSON	030757107	MUNICIPAL
30	25		17	14	ω	TRINITY	HENDERSON	034016000	
520	388		212	152	24	TRINITY	HENDERSON	030028000	MUNICIPAL CONS
ا حـــا	: د	ا د	<u> </u>	1	-	TRINITY	GRAYSON	034403000	
45	41	36	32	28	15	TRINITY	GRAYSON	030650000	MUNICIPAL
353	308	254	198	127	31	TRINITY	GRAYSON	030619000	_
33	28	23	18	14	ω	TRINITY	GRAYSON	0343670007	MUNICIPAL
99	91	84	77	67	23	TRINITY	GRAYSON	030976000	
45	34	26	19	14	ω.	TRINITY	GRAYSON	034336000	
43	36	33	30	26	7	TRINITY	GRAYSON	_	
78	65	54	69	45	7	TRINITY	GRAYSON	030286000	MUNICIPAL
43	29	17	12	9	<b>&gt;</b> 0	TRINITY	GRAYSON		1
63	א ל	49	24	96	n 0	TRINITY	GRAYSON	03087806	
352060	352050	352040	332030	02020	010766	WUG Basi SSZUTU	CRAYSON Name	CONFIGURATION CONTEST AND	WMO Project ID Project Name
2000		55040	00000	00000	20000	WIIO Book	WIIO County Name	5	

WWS Project ID Project Name		SPC Name	IM CI SIM	WIIGName	WIIG County Name	WIIC Baci	050040	000000	5 050055	000000	SC2050	090000
	TION BASIC	CONSERVATION	0	RICE WSC	NAVARRO	TRINITY	12010	σ	_		5	128
COTCONSBAS MINICIPAL CONSERVATION-BASIC	TION-BASIC	CONSERVATION	, L		PARKER	TRINITY	1 2	37	53	71	91	116
	TION-BASIC	CONSERVATION		ANNETTA	PARKER	TRINITY	9	13	16	19	22	26
	TION-BASIC	CONSERVATION	030997000 ANN	ANNETTA SOUTH	PARKER	TRINITY	1	2	9	7	6	10
	TION-BASIC	CONSERVATION	030031000AZLE	Е	PARKER	TRINITY	18	16	22	27	34	41
	TION-BASIC	CONSERVATION	030757184COUNTY-OTHER	JNTY-OTHER	PARKER	TRINITY	29	106	100	93	84	74
	TION-BASIC	CONSERVATION	030213000 FORT WORTH	XT WORTH	PARKER	TRINITY	79	298	1,068	1,394	1,783	2,170
COLCONSBAS MUNICIPAL CONSERVATION-BASIC	TION-BASIC	CONSERVATION	03088300(HUDSON OAKS	JSON OAKS	PARKER	TRINITY	9 4	76	36	19	91	72
	TION-BASIC	CONSERVATION	03057400dSPF	SPRINGTOWN	PARKER	TRINITY	17	42	28 - 2	78	100	125
	TION-BASIC	CONSERVATION		WALNUT CREEK SUD	PARKER	TRINITY	33	125	157	189	226	268
	TION-BASIC	CONSERVATION	030634000WE,	WEATHERFORD	PARKER	TRINITY	149	339	461	282	732	906
	TION-BASIC	CONSERVATION	030756000 WILLOW PARK	LOW PARK	PARKER	TRINITY	20	49	40	20	09	73
	TION-BASIC	CONSERVATION	03402400(BLA	BLACKLAND WSC	ROCKWALL	TRINITY	2	10	13	16	21	26
	TION-BASIC	CONSERVATION	030757199COUNTY-OTHER	JNTY-OTHER	ROCKWALL	TRINITY	1	4	2	2	2	9
C01CONSBAS MUNICIPAL CONSERVATION-BASIC	TION-BASIC	CONSERVATION	034096000 EAS	EAST FORK SUD	ROCKWALL	TRINITY						-
T	TION-BASIC	CONSERVATION	034115000FOF	034115000 FORNEY LAKE WSC	ROCKWALL	TRINITY	29	130	156	183	211	242
CO1CONSBAS MUNICIPAL CONSERVATION-BASIC	TION-BASIC	CONSERVATION	030702000HEATE	USW HAICH	ROCKWALL	Y KINIT	25	131	190	263	358	4/8
T	TION PASIC	CONSERVATION	034205000 FILE	TIGH FOINT WAS	ROCKWALL	> NIN O	- 0	4 6	0 2	۵	0 0	103
COLCOINSBAS MINICIPAL CONSERVATION-BASIC	TION-BASIC	CONSERVATION		MCI ENDON-CHISHOLM	POCKWALL POCKWALL	Y TINIGE	0 6	4 7	4 7	17	22	27
	TION-BASIC	CONSERVATION		MT ZION WSC	ROCKWALL	TRINITY	13	33	42	53	64	73
	TION-BASIC	CONSERVATION		R-C-H WSC	ROCKWALL	TRINITY	12	26	32	38	46	22
	TION-BASIC	CONSERVATION		ROCKWALL	ROCKWALL	TRINITY	247	737	1,106	1,422	1,643	1,827
C01CONSBAS MUNICIPAL CONSERVATION-BASIC	TION-BASIC	CONSERVATION	030521000RO	ROWLETT	ROCKWALL	TRINITY	48	66	106	120	133	146
	TION-BASIC	CONSERVATION	030669000 WYLIE	.IE	ROCKWALL	TRINITY	9	19	27	37	20	22
	TION-BASIC	CONSERVATION	030025000ARI	ARLINGTON	TARRANT	TRINITY	2,252	4,627	5,714	6,662	7,596	8,507
	TION-BASIC	CONSERVATION	030031000 AZLE	Ш	TARRANT	TRINITY	79	80	124	182	245	309
	TION-BASIC	CONSERVATION	03004400(BEDFORD	FORD	TARRANT	TRINITY	283	529	632	734	841	953
	TION-BASIC	CONSERVATION	1000	IBROOK	TARRANT	TRINITY	119	287	398	540	722	950
CO1CONSBAS MUNICIPAL CONSERVATION-BASIC	TION-BASIC	CONSERVATION	03401 /00(BE	BETHESDA WSC	TABBANT	KINI	21	82	106	132	165	707
T	TION PASIC	CONSERVATION		BLUE MOUND	TABBANT	>	4 000	137	91	/	18	6-00
COLCONSBAS MINICIPAL CONSERVATION-BASIC	TION-BASIC	CONSERVATION	030125000000	030125000 COLLETVILLE	TARRANT	TRINITY	243	404 70	230	929	7.54 2.6	28
	TION-BASIC	CONSERVATION	03075722000	COMMISSION WOO	TARRANT	TRINITY	41	150	161	171	182	192
	TION-BASIC	CONSERVATION		CROWLEY	TARRANT	TRINITY	17	99	06	131	169	195
C01CONSBAS MUNICIPAL CONSERVATION-BASIC	TION-BASIC	CONSERVATION	030692000DAI	DALWORTHINGTON GARDENS	TARRANT	TRINITY	21	40	49	22	65	73
	TION-BASIC	CONSERVATION	030180000 EDGECLIF	SECLIFF	TARRANT	TRINITY	14	28	31	32	38	41
C01CONSBAS MUNICIPAL CONSERVATION-BASIC	TION-BASIC	CONSERVATION	030193000 EUI	EULESS	TARRANT	TRINITY	272	539	655	761	862	963
	TION-BASIC	CONSERVATION	030194000EVERMAN	EVERMAN	TARRANT	TRINITY	11	41	47	53	60	65
	TION-BASIC	CONSERVATION	J .	FOREST FILE FORT WORTH	TARRANT	TRINITY	4.067	7.988	10.869	15.061	21.286	29.792
	TION-BASIC	CONSERVATION		GRAND PRAIRIE	TARRANT	TRINITY	187	422	538	645	744	841
	TION-BASIC	CONSERVATION	030249000GR/	GRAPEVINE	TARRANT	TRINITY	375	747	944	1,137	1,328	1,518
	TION-BASIC	CONSERVATION	030261000HAL	HALTOM CITY	TARRANT	TRINITY	216	265	306	340	371	401
COLCONSBAS MINICIPAL CONSERVATION-BASIC	TION-BASIC	CONSERVATION	03087900(HASLE	LE!	TAPPANT	Y Y N N	73	116	707	105 568	111/	719
Ī	TION-BASIC	CONSERVATION	034216000,IOH	JOHNSON COUNTY RURAL SUD	TARRANT	TRINITY	5	18	24	32	41	52
	TION-BASIC	CONSERVATION	030315000 KELLER		TARRANT	TRINITY	279	269	685	770	859	948
	TION-BASIC	CONSERVATION	030318000KENNEDALE	INEDALE	TARRANT	TRINITY	22	151	181	209	233	256
	TION-BASIC	CONSERVATION		E WORTH	TARRANT	TRINITY	28	29	75	91	110	125
	TION-BASIC	CONSERVATION	031036000LAK	LAKESIDE	TARRANT	TRINITY	20	49	61	74	06	110
	TION-BASIC	CONSERVATION		<b>ISFIELD</b>	TARRANT	TRINITY	396	975	1,451	2,016	2,510	2,784
	TION-BASIC	CONSERVATION	030435000NO	NORTH RICHLAND HILLS	TARRANT	TRINITY	366	758	936	1,102	1,264	1,424
	TION-BASIC	CONSERVATION	03045400(PANTEGO	ITEGO	TARRANT	TRINITY	18	32	37	42	47	52
COLCOINSBAS MINICIPAL CONSERVATION-BASIC		CONSERVATION	030793000	PELICAN BAT	TAPPANT	> ALINIAL	٥ <del>(</del>	10	4 7	92	13	70
		CONSERVATION	030505000	FR OAKS	TARRANT	TRINITY	12	43	46	40	52	7,5
1		001000	_	Sigo	ואוכאואואן		ā	P	}	}	7	3

Appendix C DB07 – Region C Conservation Supply in Trinity Basin

MANICEPA COSSESTATIONESSES   CONSESTATION MOSTORIA CONTRIBUTION   CONSESTATIONESSES   CONSESTATION MOSTORIA CONSESTATION MOSTORIA CONSESTATIONESSES   CONSESTATION MOSTORIA CONSESTATION M	1 100	1 /07	1 116	200	200						
1975   1975	68	48	26	5		TRINITY	DALLAS	03029400(HUTCHINS	CONSERVATION		C01CONSEXP
MANUSCRIA CONSERVATIONARISES   CONSERVATION MANUSCRIA CONSERVATIONARISES   CONSERVATIONARIS   CONSERVATIONARISES   CONSERVATIONARISES   CONSERVATIONARISES	511	423	337	161	17	TRINITY	DALLAS	030245000 GARLAND 030245000 GRAND PRAIRIE	CONSERVATION		C01CONSEXP
MANUSPIAL CONSERVATIONA 64505   CONSERVATION   MOST CONSERVATION	375	352	254	61	25 5	TRINITY	DALLAS	030198000FARMERS BRANCH	CONSERVATION		C01CONSEXP
MANUSPIAL CONSERVATIONALAGIS   CONSERVATION MOSSING/PART MATULAGE   TARBAMT   TRIBITY   MIT	55	55	50	29	5	TRINITY	DALLAS	030171000 DUNCANVILLE	CONSERVATION		C01CONSEXP
MANUCIPAL CONSERVATIONASAGE   CONSERVATION MOSTONI GAMAMENT   TRANSPATE   TR	141	127	101	57	9	TRINITY	DALLAS	03016100(DE SOTO	CONSERVATION		C01CONSEXP
MANUELPIA CORSERVATION-BASIC CONSERVATION MOSSION/GALVIA-MER STREAMY   TRAINY   30, 201 303 301 301	12,050	11,390	8,220	1,281	109	TRINITY	DALLAS	ďDΑ	CONSERVATION	MUNICIPAL	C01CONSEXP
WANDERFORD CONSERVATION ASSESS   CONSERVATION MOSSISSON/GENOMENT   CARRED   CONSERVATION ASSESS   CONSERVATION MOSSISSON/GENOMENT   CARRED   CONSERVATION MOSSISSON/GENOMENT   CARRED   CONSERVATION MOSSISSON/GENOMENT   CARRED   CONSERVATION MOSSISSON/GENOMENT   CARRED   C	210	212	190	94	9	TRINITY	DALLAS	03013300(COPPELL	CONSERVATION		C01CONSEXP
MANUSPIAL CONSERVATION BASIC CONSERVATION   MOSEZNOGAGIANA   MARCHAIT   RINATY   90   207   208   301   305   MANUSPIAL CONSERVATION   MOSEZNOGAGIATICA   MOSEZNOGA	290	263	233	182	65	TRINITY	DALLAS	03010200(CEDAR HILL	CONSERVATION		C01CONSEXP
MANICEPAL CONSERVATIONASSIC   CONSERVATION   CONSERVATION   CONSERVATIONASSIC   CONS	111	110	109	76	11	TRINITY	DALLAS	03009800(CARROLLTON	CONSERVATION		C01CONSEXP
MANICIPAL CONSERVATION-MASC   CONSERVATION   CONS	15	13	13	1		TRINITY	DALLAS		CONSERVATION		C01CONSEXP
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   CONSERVATION   CONSERVATION-BASIC   CONSERVATION   CONSERVATION-BASIC   CONSERVATION-BASIC   CONSERVATION-BA				_		TRINITY	COOKE		CONSERVATION		C01CONSEXP
WANNERPAY CONSERVATION-BASIC CONSERVATION CONSERVATION CONSERVATION CONSERVATION CONSERVATION-BASIC CONSERVATION CONSERV	20	19	18	14	3	TRINITY	COOKE		CONSERVATION		C01CONSEXP
WANDERSON CONSERVATION-BASIC CONSERVATION GOOGGOOGNACTHANE   TARRAMIT   TRIMITY   23   25   27   27   28   28   28   28   28   28	229	214	150	75	5	TRINITY	COLLIN	_	CONSERVATION		C01CONSEXP
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   GOOGREGALANA   TRINANT   TRINATY   80 207 207 208 30 30 30 30 30 30 30 30 30 30 30 30 30	38	21	7	1 5		TRINITY	COLLIN		CONSERVATION	_	C01CONSEXP
MUNICIPAL CONSERVATIONESISCE CONSERVATION (03052700/GSNCHAME)  MUNICIPAL CONSERVATIONESISCE CONSERVATION (03052700/GSNCHAME)  MUNICIPAL CONSERVATIONESISCE CONSERVATION (03052700/GSNCHAME)  MUNICIPAL CONSERVATIONESISCE CONSERVATION (0305300/GSNCHAME)  MUNICIPAL CONSERVATIONESISCE CONSERVATION (0305300/GSNCHAME)  MUNICIPAL CONSERVATIONESISCE CONSERVATION (0305300/GSNCHAME)  MUNICIPAL CONSERVATIONESISCE CONSERVATION (0305300/GSCNTHARE)  MUNICIPAL CONSERVATIONESISCE CONSERVATION (0305300/GSCNTHARE)  MUNICIPAL CONSERVATIONESISCE CONSERVATION (0305300/GSNCHAME)  MUNICIPAL CONSERVATIONESISCE CONSERVATION (0305300/GSNCHA	33	32	30	23	6	TRINITY	COLLIN		CONSERVATION		C01CONSEXP
MUNICIPAL CONSERVATION-BASIC CONSERVATION (00052700/SACHAM)  MUNICIPAL CONSERVATION-BASIC CONSERVATION (0005700/SAUTHAKE TIRANITY 8, 22, 33, 33, 33, 34, 34, 34, 34, 34, 34, 34	107	108	109	81	œ	TRINITY	COLLIN		CONSERVATION		C01CONSEXP
MAUNUPPAL CONSERVATIONEASIG CONSERVATION 6025706(\$45,000.000.000.000.000.000.000.000.000.00	81	74	63	38	2	TRINITY	COLLIN		CONSERVATION	_	C01CONSEXP
MUNICIPAL CONSERVATIONEASG  CONSERVATION 05057009(SACRIAW)   TARRANT   TRINTY   90 207 265 231 355 231 231 231 231 231 231 231 231 231 231	489	473	458	397	76	TRINITY	COLLIN		CONSERVATION	_	C01CONSEXP
MAUNICIPAL CONSERVATIONEASIC CONSERVATION GODEZOGGISAGNAMY ITRARPANT ITRARPA	107	72	43	24	2	TRINITY	COLLIN		CONSERVATION	-	C01CONSEXP
MUNICIPAL CONSERVATIONEASIC CONSERVATION 0002270G/GANGLANDAY TRANSTY T	11	9	8	5	1	TRINITY	COLLIN	03427800(NORTH COLLIN WSC	CONSERVATION	L	C01CONSEXP
MUNICIPAL CONSERVATION BASIC CONSERVATION (2002/2008/SACHAWN (17.008-00) (2017-00-0	6	4	2	2		TRINITY	COLLIN	03092300(NEW HOPE	CONSERVATION	١	C01CONSEXP
MUNICIPAL CONSERVATIONADISC   CONSERVATION   G0092700/GNADHAR VILLAGE   TARRANT   TRINITY   90   207   258   321   375   MUNICIPAL CONSERVATIONADISC   CONSERVATION   G0092700/GNADHAR VILLAGE   TARRANT   TRINITY   328   369   1,000   1,192   1,100   1,192   1,192   1,1	2	1	1	-		TRINITY	COLLIN	03104500(NEVADA	CONSERVATION		C01CONSEXP
MANICIPAL CONSERVATION-BASIC   CONSERVATION   0392300/G SACTIVE   TARRANT   TRINITY   8   28   39   39   39   39   39   39   39   3	42	42	41	31	2	TRINITY	COLLIN	03072400(MURPHY	CONSERVATION		C01CONSEXP
MUNICIPAL CONSERVATION   CONSERVAT	10	9	6	1		TRINITY	COOKE	03041800(MUENSTER	CONSERVATION		C01CONSEXP
MUNICIPAL CONSERVATION   2005/2006/SAGNAY   TARRANT   TRINTY   90 207 208 33 33 35	72	58	38	12	1	TRINITY	COLLIN		CONSERVATION	MUNICIPAL	C01CONSEXP
MINICIPAL CONSERVATION-BASIC   CONSERVATION   CON	3,098	2,569	1,852	978	207	TRINITY	COLLIN	03037900(MCKINNEY	CONSERVATION		C01CONSEXP
MINICIPAL CONSERVATION-BASIC   CONSERVATION   CON	2,038	1,910	1,764	1,277	257	TRINITY	COLLIN		CONSERVATION		C01CONSEXP
MINICIPAL CONSERVATION-BASIC   CONSERVATION   CON	140	83	54	26	2	TRINITY	COLLIN	03077200(FAIRVIEW	CONSERVATION		C01CONSEXP
MINICIPAL CONSERVATION-BASIC   CONSERVATION   1030627000 SANDAM PARK VILLAGE   TARRANT   TRINITY   30   20   30   33   35	14	12	10	6	1	TRINITY	COLLIN	m	CONSERVATION		C01CONSEXP
MINNCIPAL CONSERVATION-BASIC   CONSERVATION   1009270006SINIAW   TRINITY   8   28   33   35   35   35   36   36   37   38   38   38   38   38   38   38	511	526	385	59	5	TRINITY	COLLIN	030151000DALLAS	CONSERVATION		C01CONSEXP
MINNEDPAL CONSERVATION-BASIC   CONSERVATION   30052700(\$SAGINAW   TARRANT   TRINITY   90   207   328   331   332   333   334	93	56	24	2		TRINITY	COLLIN		CONSERVATION	_	C01CONSEXP
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   J03052300(\$ANISOM PARK VILLAGE   TARRANI   TRINITY   32   35   37   375	33	24	16	7		TRINITY	COLLIN		CONSERVATION		C01CONSEXP
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   GOOGGOOG/SANDAW   TARRANT   TRINITY   90 207 265 331 375	613	593	517	236	20	TRINITY	COLLIN		CONSERVATION	_	C01CONSEXP
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03053900   CONSERVATIO	36	32	27	23	6	TRINITY	WISE		CONSERVATION	_	C01CONSBAS
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03053000 SANSOM PARK VILLAGE   TARRANT   TRINITY   90   207   268   321   375	30	25	20	15	4	TRINITY	WISE		CONSERVATION	<b>-</b>	C01CONSBAS
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03052700(\$AGNAW   TARRANT   TRINITY   90   207   265   321   375	47	37	29	21	10	TRINITY	WISE		CONSERVATION		C01CONSBAS
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   30562700d SAGINAW   TARRANT   TRINITY   30   207   268   375   375   MUNICIPAL CONSERVATION-BASIC   CONSERVATION   30563900d SANDAM PARK VILLAGE   TARRANT   TRINITY   328   658   838   1,000   1,152   1,52	192	144	99	60	19	TRINITY	WISH		CONSERVATION	_ _	C01CONSBAS
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03052700   3AGINAW   TARRANT   TRINITY   90   207   265   321   375     MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03052300   35ANSOM PARK VILLAGE   TARRANT   TRINITY   328   658   838   1,000   1,152     MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03063300   030632	3 0	200	150	100	<b>3</b> 4	TRINITY	WIN I		CONSERVATION		CO1CONSBAS
MUNICIPAL CONSERVATION BASIC   CONSERVATION   30362700   SAGINAW   TARRANT   TRINITY   90   207   375   376   MUNICIPAL CONSERVATION BASIC   CONSERVATION   30363900   SANSOM PARK VILLAGE   TARRANT   TRINITY   328   828   1,000   1,152   MUNICIPAL CONSERVATION   BASIC   CONSERVATION   03063200   WATAUGA   TARRANT   TRINITY   328   428   1,000   1,152   MUNICIPAL CONSERVATION   BASIC   CONSERVATION   03063200   WATAUGA   TARRANT   TRINITY   42   154   171   187   203   MUNICIPAL CONSERVATION   BASIC   CONSERVATION   03064000   WESTWORTH VILLAGE   TARRANT   TRINITY   42   154   171   191   MUNICIPAL CONSERVATION   BASIC   CONSERVATION   03064000   WESTWORTH VILLAGE   TARRANT   TRINITY   42   87   103   115   134   MUNICIPAL CONSERVATION   BASIC   CONSERVATION   03081000   ALVORD   WISE   TRINITY   2   8   9   11   12   12   134   MUNICIPAL CONSERVATION   BASIC   CONSERVATION   03081000   ALVORD   WISE   TRINITY   2   8   9   11   12   15   134   MUNICIPAL CONSERVATION   BASIC   CONSERVATION   03076000   BOLDVAR WSC   WISE   TRINITY   3   12   14   15   16   MUNICIPAL CONSERVATION   BASIC   CONSERVATION   03076000   BOLDVAR WSC   WISE   TRINITY   3   12   14   15   16   MUNICIPAL CONSERVATION   BASIC   CONSERVATION   03076000   BOLDVAR WSC   WISE   TRINITY   3   12   14   15   16   MUNICIPAL CONSERVATION   030816000   CONSERVATION   030915300   DECATURE   WISE   TRINITY   -   1   1   1   1   1   1   1   1   1	300	36	20	15	4	TRINITY	WINT		CONSERVATION		CO1CONSBAS
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03052700d SAGINAW   TARRANT   TRINITY   90   207   325   375   MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03053900d SANISOM PARK VILLAGE   TARRANT   TRINITY   328   658   838   1,000   1,152   1,	349	272	103	115	47	TRINITY	WISH	030153000 DECATOR	CONSERVATION	_	COTCONSBAS
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   30052700d SAGINAW   TARRANT   TRINITY   90   207   265   321   375   MUNICIPAL CONSERVATION-BASIC   CONSERVATION   30053900d SANISOM PARK VILLAGE   TARRANT   TRINITY   328   658   838   1,000   1,152   1,15	250	236	223	209	57	TRINITY	WISE	030757249COUNTY-OTHER	CONSERVATION	<u> </u>	C01CONSBAS
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03052700d SAGINAW   TARRANT   TRINITY   90   207   265   321   375   MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03053900 SANSOM PARK VILLAGE   TARRANT   TRINITY   328   658   838   1,000   1,152	_	_	_	_		TRINITY	WISE	03406900(COMMUNITY WSC	CONSERVATION	<u> </u>	C01CONSBAS
MUNICIPAL CONSERVATION-BASIC         CONSERVATION         03052700d SAGINAW         TARRANT         TRINITY         90         207         265         321         375           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         03052700d SANSOM PARK VILLAGE         TARRANT         TRINITY         8         28         30         33         35           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         03052700d SOUTHLAKE         TARRANT         TRINITY         328         658         838         1,000         1,152           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         03052200 WATAUGA         TARRANT         TRINITY         42         154         171         187         203           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         030644000 WESTWORTH VILLAGE         TARRANT         TRINITY         4         15         17         19         21           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         030644000 WESTWORTH VILLAGE         TARRANT         TRINITY         4         15         17         19         21           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         03086000 ALVORD         WISE         TRINITY         2         8         10         12         14         15         23         34	21	16	12	10	7	TRINITY	WISE	03084200(CHICO	CONSERVATION	<u> </u>	C01CONSBAS
MUNICIPAL CONSERVATION-BASIC         CONSERVATION         03052700d SAGINAW         TARRANT         TRINITY         90         207         265         321         375           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         03052700d SANSOM PARK VILLAGE         TARRANT         TRINITY         8         28         30         33         35           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         030527000 SOUTHLAKE         TARRANT         TRINITY         42         658         838         1,000         1,152           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         03052200 WATAUGA         TARRANT         TRINITY         42         154         17         19           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         03064400 WESTWORTH VILLAGE         TARRANT         TRINITY         4         15         17         19         21           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         03064400 WESTWORTH VILLAGE         TARRANT         TRINITY         4         15         17         19         21           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         030861000 ALVORD         WISE         TRINITY         2         8         10         12         14           MUNICIPAL CONSERVATION-BASIC         CO	288	221	164	99	47	TRINITY	WISE	030076000 BRIDGEPORT	CONSERVATION		C01CONSBAS
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   30052700d SAGINAW   TARRANT   TRINITY   90   207   265   321   375   MUNICIPAL CONSERVATION-BASIC   CONSERVATION   30053900d SANSOM PARK VILLAGE   TARRANT   TRINITY   328   658   338   1,000   1,152	16	15	14	12	3	TRINITY	WISE		CONSERVATION	MUNICIPAL CONSERVATION-BAS	C01CONSBAS
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03052700d SAGINAW   TARRANT   TRINITY   90   207   265   321   375   MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03053900d SANSOM PARK VILLAGE   TARRANT   TRINITY   328   658   330   335   MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03057000d SOUTHLAKE   TARRANT   TRINITY   328   658   838   1,000   1,152	34	23	15	12	3	TRINITY	WISE	03402800(BOLIVAR WSC	CONSERVATION		C01CONSBAS
MUNICIPAL CONSERVATION-BASIC         CONSERVATION         03052700 SAGINAW         TARRANT         TRINITY         90         207         265         321         375           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         03053900 SANSOM PARK VILLAGE         TARRANT         TRINITY         38         30         33         35           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         03057000 WATAUGA         TARRANT         TRINITY         42         154         171         19           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         03063200 WATAUGA         TARRANT         TRINITY         42         154         171         19           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         03064400 WESTOVER HILLS         TARRANT         TRINITY         4         15         17         19           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         03064400 WESTOVER HILLS         TARRANT         TRINITY         4         15         17         19         21           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         03086400 WHITE SETTLEMENT         TARRANT         TRINITY         4         15         17         19         21           MUNICIPAL CONSERVATION-BASIC         CONSERVATION         030861000 WHITE SETTLEMENT	14	12	10	8	2	TRINITY	WISE		CONSERVATION		C01CONSBAS
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03052700   SAGINAW   TARRANT   TRINITY   90   207   265   321   375   MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03053900   SANSOM PARK VILLAGE   TARRANT   TRINITY   8   28   30   3.3   3.5   MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03063200   WATAUGA   TARRANT   TRINITY   328   658   838   1.000   1.52   MUNICIPAL CONSERVATION   03063200   WATAUGA   TARRANT   TRINITY   42   154   171   19   MUNICIPAL CONSERVATION   03064400   WESTOVER HILLS   TARRANT   TRINITY   4   15   17   19   21   MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03064400   WESTOVER HILLS   TARRANT   TRINITY   4   15   17   19   21   MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03065100   WHITE SETTLEMENT   TARRANT   TRINITY   4   15   17   19   21   MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03065100   WHITE SETTLEMENT   TARRANT   TRINITY   4   15   17   19   21   14   17   19   21   14   17   19   21   14   17   19   21   14   17   19   21   14   17   19   21   14   17   19   17   19   19   19   19   19	12	11	9	8	2	TRINITY	WISE	03081000(ALVORD	CONSERVATION		C01CONSBAS
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03052700  SAGINAW   TARRANT   TRINITY   90   207   265   321   375   MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03053900  SANSOM PARK VILLAGE   TARRANT   TRINITY   8   28   30   33   35   35   36   36   36   375	134	115	103	87	142	TRINITY	TARRANT		CONSERVATION		C01CONSBAS
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03052700d SAGINAW   TARRANT   TRINITY   90   207   265   321   375   MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03053900d SANSOM PARK VILLAGE   TARRANT   TRINITY   8   28   330   335   MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03053700d SOUTHLAKE   TARRANT   TRINITY   328   658   430   03053700d SOUTHLAGE   TARRANT   TRINITY   42   154   171   187   203   MUNICIPAL CONSERVATION-BASIC   CONSERVATION   03053700d WESTOVER HILLS   TARRANT   TRINITY   7   12   14   17   19   19   19   19   19   19   19	21	19	17	15	4	TRINITY	TARRANT		CONSERVATION		C01CONSBAS
MUNICIPAL CONSERVATION-BASIC   CONSERVATION   030527000   SAGINAW   TARRANT   TRINITY   90   207   265   321   375	19	17	14	12	7	TRINITY	TARRANT		CONSERVATION	_	C01CONSBAS
MUNICIPAL CONSERVATION-BASIC CONSERVATION 03052700d/SAGINAW TARRANT TRINITY 90 207 265 321 375  MUNICIPAL CONSERVATION-BASIC CONSERVATION 03053900d/SANSOM PARK VILLAGE TARRANT TRINITY 8 28 30 33 35  MUNICIPAL CONSERVATION-BASIC CONSERVATION 03057000d/SOUTHLAKE TARRANT TRINITY 328 658 838 1,000 1,152	203	187	171	154	42	TRINITY	TARRANT		CONSERVATION	_	C01CONSBAS
MUNICIPAL CONSERVATION-BASIC CONSERVATION 03052700(SAGINAW TARRANT TRINITY 90 207 265 321 375 MUNICIPAL CONSERVATION-BASIC CONSERVATION 03053900(SANSOM PARK VILLAGE TARRANT TRINITY 8 28 30 33 35	1,152	1,000	838	658	328	TRINITY	TARRANT		CONSERVATION		C01CONSBAS
MUNICIPAL CONSERVATION-BASIC CONSERVATION 03052700dSAGINAW TARRANT TRINITY 90 207 265 321 375	35	33	30	28	8	TRINITY	TARRANT	0	CONSERVATION	_	C01CONSBAS
	375	321	265	207	90	TRINITY	TARRANT		CONUTAVALOR	-	COTCONSBAS

286,681	238,662	196,101	154,475	110,803	52,095						Total
98		60	38	8		TRINITY	WISE	03021300(FORT WORTH	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
85	71	55	35	10	_	TRINITY	WISE	030153000 DECATUR	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
51		36	23	7		TRINITY	WISE	030076000BRIDGEPORT	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
	-			1	2	TRINITY	TARRANT	030651000WHITE SETTLEMENT	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
4	4	4	4	4	2	TRINITY	TARRANT	03107000 WESTOVER HILLS	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
4	4	4	4			TRINITY	TARRANT	030570000 SOUTHLAKE	CONSERVATION		C01CONSEXP
30	30	28	24	15	2	TRINITY	TARRANT	03052700(SAGINAW	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
ω	ω	3	2			TRINITY	TARRANT	03049900(RICHLAND HILLS	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
5	5	5	5	4	_	TRINITY	TARRANT	030454000PANTEGO	CONSERVATION		C01CONSEXP
466	455	440	407	312	109	TRINITY	TARRANT	030435000 NORTH RICHLAND HILLS	CONSERVATION		C01CONSEXP
986	961	847	634	381	111	TRINITY	TARRANT	030384000MANSFIELD	CONSERVATION		C01CONSEXP
24	20	18	16	11	ω	TRINITY	TARRANT	03103600(LAKESIDE	CONSERVATION		C01CONSEXP
19	18	17	11	4	_	TRINITY	TARRANT	030341000LAKE WORTH	CONSERVATION		C01CONSEXP
29	28	26	18	6	_	TRINITY	TARRANT	030318000KENNEDALE	CONSERVATION		C01CONSEXP
98	98	98	85	52	9	TRINITY	TARRANT	030315000KELLER	CONSERVATION		C01CONSEXP
273	271	268	235	161	63	TRINITY	TARRANT	030293000HURST	CONSERVATION		C01CONSEXP
30	30	30	16	3	57	TRINITY	TARRANT	030261000HALTOM CITY	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
640	622	598	520	343	112	TRINITY	TARRANT	030249000GRAPEVINE	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
111	106	99	88	44	4	TRINITY	TARRANT	030245000 GRAND PRAIRIE	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
5,170	4,101	3,328	2,182	551	75	TRINITY	TARRANT	030213000FORT WORTH	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
351	349	346	323	236	82	TRINITY	TARRANT	03019300(EULESS	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
4	4	4	3	2		TRINITY	TARRANT	03018000(EDGECLIFF	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
7	7	7	7	5	1	TRINITY	TARRANT	030692000 DALWORTHINGTON GARDENS	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
151	150	150	148	142	65	TRINITY	TARRANT	03012500(COLLEYVILLE	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
157	131	107	86	47	5	TRINITY	TARRANT	030051000BENBROOK	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
75	74	73	72	57	11	TRINITY	TARRANT	030044000BEDFORD	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
				_	2	TRINITY	TARRANT	030031000AZLE	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
1,448	1,429	1,401	1,083	369	53	TRINITY	TARRANT	030025000ARLINGTON	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
6	6	4	3	2		TRINITY	ROCKWALL	03066900¢WYLIE	CONSERVATION		C01CONSEXP
8	8	8	8	7	1	TRINITY	ROCKWALL	030521000ROWLETT	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
134	133	127	109	75	9	TRINITY	ROCKWALL	030513000ROCKWALL	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
3	3	3	2	2	-	TRINITY	ROCKWALL	03431300(R-C-H WSC	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
4	4	4	4	3	-	TRINITY	ROCKWALL	034270000MT ZION WSC	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
2	2	2	1	-	-	TRINITY	ROCKWALL	03070200(HEATH	CONSERVATION		C01CONSEXP
18	17	16	15	13	2	TRINITY	ROCKWALL	034115000FORNEY LAKE WSC	CONSERVATION		C01CONSEXP
	-	-		2	-	TRINITY	PARKER	030756000 WILLOW PARK	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
251	221	194	140	38	3	TRINITY	PARKER	03063400(WEATHERFORD	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
27	23	20	16	10	4	TRINITY	PARKER	030574000SPRINGTOWN	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
377	344	308	214	41	1	TRINITY	PARKER	030213000FORT WORTH	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
11	10	8	6	4	-	TRINITY	PARKER	030674000 ALEDO	CONSERVATION		C01CONSEXP
_	1					TRINITY	NAVARRO	030855000DAWSON	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
158	147	62			-	TRINITY	NAVARRO	030137000CORSICANA	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
1	1	-				TRINITY	NAVARRO		CONSERVATION		C01CONSEXP
214	195	181	142	78	28	TRINITY	KAUFMAN	03059900(TERRELL	CONSERVATION		C01CONSEXP
16	13	10	8	5	1	TRINITY	KAUFMAN	03106500(TALTY	CONSERVATION		C01CONSEXP
4	4	3	3	2		TRINITY	KAUFMAN	03037500(MABANK	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
6	5	5	2	16		TRINITY	KAUFMAN	030313000KAUFMAN	CONSERVATION	XP MUNICIPAL CONSERVATION-EXPANDED	C01CONSEXP
SS2060	SS2050	SS2040	SS2030	SS2020		WUG Basi SS2010	WUG County Name	WUG ID WUG Name	SRC Name	☆ ID   Project Name	WMS Project ID

#### Appendix D

DB07 - Region C Current Reuse Supplies in Trinity Basin

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## Appendix D DB07 – Region C Current Reuse Supplies in Trinity Basin

WUG ID WUG Name	WUG County Name	WUG Basin Name	SRC Name	SRC County Name	SRC Basin Name	WS2010	WS2020	WS2030   WS	WS2040   WS2050		WS2060
030008000 ALLEN	COLLIN	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	2,232	2,109	2,122	1,963	1,826	1,680
034024000 BLACKLAND WSC	ROCKWALL	SABINE	INDIRECT REUSE LAVON	COLLIN	TRINITY	32	36	37	39	42	46
	ROCKWALL	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	13	15	16	16	18	20
	COLLIN	SABINE	INDIRECT REUSE LAVON	COLLIN	TRINITY	39	38	40	43	46	49
	COLLIN	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	18	17	19	20	21	23
_	ROCKWALL	SABINE	INDIRECT REUSE LAVON	COLLIN	TRINITY	4 6	4 6	3	o [	10	11
	KAUFMAN	IKINIT	INDIRECT REUSE LAVON	COLLIN	Y I KINI Y	46	69	90	76	108	122
030/5/043 COUNTY-OTHER	COLLIN	SABINE	INDIRECT REUSE LAVON	COLLIN	TEINITY	2	L SC	- 00	- 4	- 6	
_	DENTON	TRINITY	DIRECT REUSE	DENTON	TRINITY	ì,	02 .	07 .	2 .	2 ,	
	KAUFMAN	SABINE	INDIRECT REUSE I AVON	COLLIN	TRINITY	31	24	21	18	16	15
	KALIEMAN	TRINITY	INDIRECT RELISE I AVON	COLLIN	TRINITY	72	55	47	41	37	34
	ROCKWALL	SABINE	INDIRECT REUSE LAVON	COLLIN	TRINITY	17	41	12	10	5 6	5 0
	ROCKWALL	TRINITY	DIRECT REUSE	ROCKWALL	TRINITY			! ,		,	,
	ROCKWALL	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	10	8	7	9	2	2
	TARRANT	TRINITY	DIRECT REUSE	TARRANT	TRINITY						
030767000   CRANDALL	KAUFMAN	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	69	73	79	98	26	109
	COLLIN	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	86	66	102	105	111	116
	COLLIN	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	80	84				107
	DENTON	TRINITY	INDIRECT REUSE	DENTON	TRINITY	1,682	2,130				5,382
	COLLIN	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	52	52	52	54	26	29
	DALLAS	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	11	6	8	7	9	9
	ROCKWALL	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	-	1	-	-	-	
030772000 FAIRVIEW	COLLIN	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	162	168	185	244	371	593
	COLLIN	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	53	92	91	120	160	199
	KAUFMAN	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	183	295	312	320	325	326
	KAUFMAN	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	210	173	154	140	133	126
	ROCKWALL	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	165	173				126
	COLLIN	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	2,824	3,507				2,819
	DENTON	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	1,479	1,330			1,875	1,765
	DALLAS	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	4,048	3,345		~	2,639	2,408
	KAUFMAN	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	79	88				112
	TARRANT	TRINITY	INDIRECT REUSE	TARRANT	TRINITY	1,824	2,033	_	2,278 2		2,412
	DENTON	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	13	15	17	17	16	15
	ROCKWALL	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	166	188	201	216	238	262
	KAUFMAN	IKINITY	INDIRECT REUSE LAVON	COLLIN	KINI   Y	36	44	46	49	54	61
	ROCKWALL	T KINITY	INDIRECT REUSE LAVON	COLLIN	Y I KINI Y	3	0 000				/ 000
031004043 IRRIGATION	COCKE	TEINITY	DIRECT REUSE	COLLIN	TEINIT	2,221	177,2	2,221	2,221	7,227	7,22,1
_	DALL AS	TRINITY	DIRECT RELISE	DALLAS	YEINIAL	561	561	561	561	561	561
	DALLAS	TRINITY	INDIRECT RELISE	DALLAS	TRINITY	000 8	000	000 8			8 000
Έ	DENTON	TRINITY	CT R	DENTON	TRINITY	2,099	2,195		L	L	2,509
	KAUFMAN	TRINITY	DIRECT REUSE	KAUFMAN	TRINITY	576	758	<u></u>			1,659
	PARKER	BRAZOS	DIRECT REUSE	PARKER	TRINITY	202	202	202	202	202	202
	PARKER	TRINITY	DIRECT REUSE	PARKER	TRINITY	11	11	11	11	1	11
031004199 IRRIGATION	TABBANT	TRINITY	DIRECT REUSE	TABBANT.	Y I KINI Y	1 708	1 006	784	7 877	784	784
	TAPPANI	TENNIT	NNIPECT REUSE	TAPPANT	YEINIAL	1,700	1,900				1 074
_	N - 100	TRINITY	INDIRECT RELISE - AVON	NICO	VEINITA	1,130	2,000			177	1,0,1
	KAUFMAN	TRINITY	INDIRECT REUSE I AVON	COLLIN	TRINITY	109	126	126	126	127	140
	COLLIN	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	35	43	53	93	134	166
	ROCKWALL	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	31	43	47	52	69	99
	DENTON	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	448	226	571	505	461	420
031041000 LOWRY CROSSING	COLLIN	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	30	29	29	30	31	107
	COLLIN	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	97	112	115	130	169	210
	COLLIN	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	1,247	1,119	1,087	1,073	690,	1,063
031001057 MANUFACTURING	DALLAS	TRINITY	DIRECT REUSE	DALLAS	TRINITY	20	20	20	20	20	50
031001057 MANUFACTURING	DALLAS	TRINITY	INDIRECT REUSE LAVON	COLLIN	TRINITY	611	526	491	467	450	413

84,749	83,900	82,700	81,853	80,663	79,340						Total
22	23	20	18	16	13	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	ROCKWALL	030669000 WYLIE
16	15	15	14		11	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	DALLAS	030669000 WYLIE
946	949	994	807		624	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	COLLIN	030669000 WYLIE
3,283	3,004	2,724	2,445		1,886	TRINITY	ELLIS	INDIRECT REUSE	TRINITY	ELLIS	030633000 WAXAHACHIE
35	38	41	46		49	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	DENTON	030752000 THE COLONY
181	155	132	114		79	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	KAUFMAN	031065000 TALTY
214	229	212	197		167	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	DALLAS	030749000 SUNNYVALE
3,000	3,000	3,000	3,000	3,000	3,000	TRINITY	KAUFMAN	DIRECT REUSE	TRINITY	KAUFMAN	031002129 STEAM ELECTRIC POWER
3,363	3,363	3,363	3,302		2,098	TRINITY	ELLIS	DIRECT REUSE	TRINITY	ELLIS	031002070 STEAM ELECTRIC POWER
3,363	3,363	2,849	2,288		831	TRINITY	DENTON	DIRECT REUSE	TRINITY	DENTON	031002061 STEAM ELECTRIC POWER
8	7	6	6		10	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	DALLAS	031002057 STEAM ELECTRIC POWER
57	52	48	46		75	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	COLLIN	031002043 STEAM ELECTRIC POWER
85	89	82	58		18	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	COLLIN	031072000 SAINT PAUL
205	207	206	208		217	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	DALLAS	030742000 SACHSE
68	73	78	85		68	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	COLLIN	030742000 SACHSE
292	315	293	269		228	TRINITY	COLLIN	INDIRECT REUSE LAVON	SABINE	ROCKWALL	030522000 ROYSE CITY
174	170	140	105		30	TRINITY	COLLIN	INDIRECT REUSE LAVON	SABINE	COLLIN	030522000 ROYSE CITY
75	83	91	103		149	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	ROCKWALL	030521000 ROWLETT
891	924	947	974		1,010	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	DALLAS	030521000 ROWLETT
1,021	1,119	1,195	1,204		795	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	ROCKWALL	030513000 ROCKWALL
1,155	1,266	1,399	1,599		2,401	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	DALLAS	030498000 RICHARDSON
479	525	580	663		653	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	COLLIN	030498000 RICHARDSON
27	27	28	29		39	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	ROCKWALL	034313000 R-C-H WSC
240	242	241	180		26	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	DENTON	030799000 PROSPER
481	494	505	501		105	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	COLLIN	030799000 PROSPER
532	389	256	175		63	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	COLLIN	030487000 PRINCETON
101	110	121	136		146	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	DENTON	030472000 PLANO
3,832	4,059	4,316	4,722		6,687	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	COLLIN	030472000 PLANO
894	716	537	374		181	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	COLLIN	030733000 PARKER
13	12	11	11		12	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	KAUFMAN	030928000 OAK GROVE
93	89	85	83		83	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	COLLIN	034278000 NORTH COLLIN WSC
146	72	52	40		25	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	COLLIN	
81	35	23	13		7	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	COLLIN	
161	71	46	26		17	TRINITY	COLLIN	INDIRECT REUSE LAVON	SABINE	COLLIN	031045000 NEVADA
266	291	319	363		147	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	COLLIN	030724000 MURPHY
40	43	43	45		42	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	ROCKWALL	034270000 MT ZION WSC
8,061	9,236	10,643	12,152		15,930	TRINITY	WISE	DIRECT REUSE	TRINITY	WISE	
8	9	10	12		19	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	COLLIN	034257000   MILLIGAN WSC
1,973	2,148	2,305	2,439		2,705	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	DALLAS	030401000 MESQUITE
492	430	377	345		209	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	COLLIN	030914000 MELISSA
22	20	19	18	18	18	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	ROCKWALL	031042000 MCLENDON-CHISHOLM
5,014	4,787	4,403	3,679		2,331	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	COLLIN	030379000 MCKINNEY
1	1	1	1	1	1	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	ROCKWALL	031001199 MANUFACTURING
1	1		1			TRINITY	COLLIN	INDIRECT REUSE LAVON	SABINE	ROCKWALL	031001199 MANUFACTURING
32	33	34	36		7	TRINITY	COLLIN	INDIRECT REUSE LAVON	TRINITY	KAUFMAN	031001129 MANUFACTURING
WS2060	WS2050 \		WS2030	WS2020	WS2010	SRC Basin Name	SRC County Name	SRC Name	WUG Basin Name	WUG County Name	WUG ID WUG Name

### Appendix E

DB07 - Region C WMS Reuse Supplies in Trinity Basin

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	Total Dag
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Appendix	Pool MMC Pours Canadian in Tripity Book
	2007

2,433	1 243	258	4,546	4,000	199	3,106	69	222	259	06	337	6	351	149	547	1,281	1,775	87	219	655	266	680	415	849	1.827	913	315	1,929	340	779	442	670	940	124	2,398	447	218	179	262	1,081	516	22	1 436	200	3,531	233	793	060	38	8,290	2,600	3,696	24,407	5,000	3,070	1,602	632	6,430	2 2 7 5	1,687	645	979	1,000	2,821	12,733	124	8 8	3 1819	46
<b>SS2050</b> 2,465	1 576	596	3,768	4,000	167	3,368	99	194	128	67	368	6	133	125	395	1,391	1,481	08	286	718	224	640	348	2887	1,779	871	288	1,613	302	683	385	02/	35	151	2,483	463	194	158	193	1,096	496	62	1231	200	3,620	204	758	95	39	8,290	24.648	2,269	24,809	2,000	4,120	1,748	802	7,001	2 430	1,458	929	902			-		33		
<b>SS2040</b> 2,677	1740	298	3,457	3,500	171	3,563	61	166	99	49	395	10	124	131	343	1,463	2,295	101	509	1,090	251	574	317	1351	1,870	892	279	1,843	363	647	359	4 000	42	255	2,751	656	238	189	201	1,183	457	97	1019	200	3,831	187	269	125	51	8,290	2,000	1,037	25,294	5,000	4,301	1,868	748	7,114	2521	1,312	712	849			6,216				
<b>SS2030</b> 2,936	1 843	285	2,900	- 12,000	187	3,641	22	138	46	88	368	13	45	745	299	1,491	1,404	93	673		191	411	30/	1 588	1,949	200	281	1,443	317	615	340	1 224	3,5	318	3,090	299	219	166	146	1,269	343	116	830	200	4,061	164	1 000	145	69	7,170	1,100	135	25,811	2,000	774'4	1,928		6,894	6	1,618		979	1 159	2,617	4,428	155	5 61	2.247	40
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030044000	030196000	031003057	031002057	031002249	034040000	030098000	034066000	034066000	034269000	030729000	030729000	030731000	030737000	034325000	034330000	030752000	030633000	030814000	030757184	031002081	030756000	030829000	030767000	031004129	030799000	030799000	031002043	031002129	030674000	034017000	030087000	030345000	030245000	030245000	030315000	030318000	031036000	031047000	030920000	030435000	031020000	030454000	030792000	030570000	030570000	030574000	030806000	031004043	031003043	031004220	031002220	030192000	030298000	031002184	030151000	030151000	031004057	031001057	030673000	030677000	030033000	030820000	034028000	030102000	030103000	03012100u	030766000	030100000	030133000
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1,310 125 125 125 125 125 125 125 125 10,000	1,098 1,323 46 40 280 5,968 3,64 741 13,387 2,792 1,423 5,000	550 4,779 1,057 1,57 193 193 166 475 30 20 1,606 647	20,976 627 1,029 1,029 1,029 1,029 1,343 1,1343 1,1343 1,1343 1,136 90 1,061 1,061 628 628 628 57 97 97 97 97 97	19 1,335 1,335 1,335 3 3 1,119 60 21 573 1,449 96 1,444 1,444 1,444 1,444 1,444 1,444 1,444 1,444 1,444 1,55 1,57 1,57 1,57 1,57 1,57 1,57 1,57	\$2010 \$ 372 \$ 2,274 \$ 223 \$ 2509 192 \$ 2,849 \$ 49 \$ 11,721 \$ 11,721 \$ 79 \$ 360 \$ 649
1,476 1,149 125 125 125 125 125 1000 3,750 10,000 10,000 7,5	2,592 127 2,556 81 85 538 7,366 349 693 14,119 2,173 7,827 3,000 4,766	4,711 2,106 27 363 363 292 1,048 55 - 1,991 957	633 2,002 2,002 2,545 3,002 2,320 194 194 2,004 1,022 1,022 1,022 1,023 1,023 1,123	35 2,635 125 5 5 267 110 36 1,007 1,126 1,	## 1,025 1,025 1,025 1,076 3,133 68 68 1,095 1,095 1,095 1,402
125 125 300 3,750 10,000 3,750 10,000 10,000 15,000 15,000 7,000 7,000 7,000 20,000 15	2,167 122 2,400 78 85 570 7,568 346 346 346 346 11,779 1,910 11,623 2,000	3,145 2,234 2,636 369 374 1,131 54 1,132	857 1,225 26 319 3,198 2,336 2,336 2,77 1,986 947 1,986 947 1,986 947 1,987 1,986 1,193 36 36 1,193 1,193 36 37 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	1,355   2,35	452 1,633 1,633 1,633 1,77 1,160 582 3,137 71 58 9,370 9,370 9,370 1,655
125 125 3000 3,760 10,000 20,000 10,000 15,000 7,000 7,000 7,000 7,000 7,000 7,000 7,000	2,653 133 2,543 70 79 516 6,916 6,916 348 904 10,065 1,727 14,942 1,000	2,786 2,093 2,093 2,3 3,50 2,40 1,093 47 47 - - - 3,059 1,244	835 1,226 3,287 3,058 2,172 3,23 3,23 3,23 3,23 3,23 3,23 3,20 1,802 851 851 32 32 32 32 32 32 32 32 32 32 32 32 32	27 2,398 105 319 165 53 843 692 174 112 2,678 138 547 3,377	\$\$2040 494 1,465 1,165 1,173 1,172 1,462 1,462 3,678 54 10,707 244 1,620 1,814
7.50 7.00 7.00 7.00 7.00 7.00 7.00 7.00	2,094 117 2,210 62 77 512 6,359 9,363 1,338 9,766 1,620 16,030	2,025 2,037 2,037 22 327 215 1,035 43 43 2,743 1,371	1,076 786 286 164 2,886 1,925 291 291 293 1,647 763 29 220 20 20 20 10,071 329 10,071 346 6,964	23 2,170 95 4 32,6 146 146 47 754 43 1159 100 2,431 138 532 4,656	552050 564 1,391 138 974 1,950 3,419 55 18,153 18,153 18,153 11,988
125 125 3,000 3,750 20,000 20,000 15,000 7,000 7,000 1,161 1,161	1,975 129 2,396 60 82 545 6,170 405 2,253 9,465 1,569 13,533 1,000	1,893 2,020 2,020 321 208 1,038 43 - - 2,634 1,616	1,086 802 802 147 2,891 1,87 1,87 1,87 2,891 1,61 7,25 4,161 1,61 1,61 1,61 1,61 1,61 1,61 1,6	22.102 94 4 352 144 423 728 423 156 423 156 96 2,365 136 2,365 136 2,365 136 2,365	\$\$2060 693 1,474 134 954 3,153 3,598 84 84 59 16,713 2,317

Appendix 3D

Region H Drought Contingency Plans This Page Intentionally Left Blank

## Table 3D-1 Major Water Provider Drought Triggers

MWP	<b>Drought Type</b>		Trigger Condition	Time requirement	Act	Actions
RRA		l ocal Reservoirs	System Reservoirs		l ocal Reservoirs	System Reservoirs
4 4 6	Watch	Storage is < Stage 1 Trigger level and could be reduced to Stage 2 Trigger or less during the next 12 months		Condition lasts 30 consecutive days	Inform/meet with customers, urge activation of drought contingency plans, prepare/initiate specific drought response plan, activate storage in Federal reservoirs	Inform/meet with customers, urge activation of drought contingency plans, prepare/initiate specific drought response plan, activate storage in Federal reservoirs
	Warning	Storage is < Stage 2 Trigger level and could be reduced to Stage 3 Trigger or less during the next 12 months	Storage of the Authority system is < Stage 2 Trigger level and could be reduced to Stage 3 Trigger or less during the next 12 months	Condition lasts 30 consecutive days	Inform/meet with customers, require activation of drought contingency plans, evaluate alternative actions, update specific drought reponse plan, activate storage in Federal reservoirs	Inform/meet with customers, require activation of drought contingency plans, evaluate alternative actions, update specific drought reponse plan, activate storage in Federal reservoirs
	Emergency	Storage is < Stage 3 Trigger level Brazos River -	Storage of the Authority system is < Stage 3 Trigger level Brazos River -	Condition lasts 30 consecutive days	Continue Stage 1 & 2 actions, additional actions as deemed necessary	Continue Stage 1 & 2 actions, additional actions as deemed necessary
GCWA	Mild	Hempstead Gauge	Richmond Gauge	Condition ceases for Notify BRA, monitor 30 consec. days situation daily	Notify BRA, monitor situation daily	
	Moderate	13.71 ft or 2000 cfs	11.93 ft or 1500 cfs	Condition ceases for Alert customers, 30 consec. days increase mainte	Alert customers, increase maintenance	
	Watch	13.41 ft or 1800 cfs	11.65 ft or 1300 cfs	Condition ceases for 30 consec. days	Condition ceases for Request stored water 30 consec. days releases, if needed	
	Warning	12.93 ft or 1500 cfs	11.23 ft or 1000 cfs	Condition ceases for 30 consec. days		
	Emergency	GCWA delivery or storage system outage, or extreme fire flows (industrial) that temporarily interrupts service to customers.	s system outage, or ial) that temporarily mers.	Until condition corrected	Notify customers, minimize service interruptions while making repairs	

## Table 3D-1 Major Water Provider Drought Triggers

MWP	Drought Type	Lakes Conroe, Houston & Livingston	Trigger Condition  Municipal water  demand / production  Average production =	Municipal water distribution system	Time I	Time requirement
	Mild	Combined storage = 24 months surface water	80% of combined surface and ground water canacity	Average system		Condition lasts 10
	Serious	Combined storage = 18 months surface water supply	Average production = 85% of combined surface and ground water capacity	Average system pressure is 40 psi		Condition lasts 10 outdoor use and listed consecutive days water waste
	Critical	Combined storage = 12 months surface water supply	Average production = 90% of combined surface and ground water capacity	Average System pressure is 35 psi		Condition lasts 10 Ban all outdoor use and consecutive days listed water waste
SJRA		Lake Conroe	Woodlands GW System			
	Mild	Elev < 198 ft (85% capacity)	Combined Pumpage > 75% of capacity for 3 days, Plant operator's call based on usage and weather	% of capacity for d on usage and w	3 days, ⁄eather	3 days, Condition ceases for Request voluntary conservation
	Moderate	Elev < 190 ft (55% capacity)	Combined pumpage > 85% of capacity for 3 days or 90% of capacity for 1 day, or 95% of 1 plant for 3 days, or storage does not recover to 70% capacity overnight	% of capacity for lay, or 95% of 1 pot recover to 70%	3 days, lant for	3 days, lant for Condition ceases for meetings, mandatory conservation
	Severe	Elev < 185 ft (40% capacity)	Combined pumpage > 90% of capacity for 3 days or 95% of capacity for 1 day, or 95% of 1 plant for 3 days, or storage does not recover to 50% capacity overnight	% of capacity for 3 lay, or 95% of 1 pla lay, or 95% of 1 pla lot recover to 50%	•	ant for Condition ceases for look for alternate 7 days Sources
	Critical	Delivery system failure or supply contamination	Delivery system failure or supply contamination	supply contaminati		

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# Table 3D-1 Major Water Provider Drought Triggers

MWP	Drought Type		Trigger Condition		Time requirement	Actions	
TRA		Huntsville RWSS		Trinity County RWSS			
		-		Wellfield or plant		:	
	Mild	Demand > 6 MGD for 30 days	Demand > 6 MGD for 30   Demand > 2 MGD for 15   capacity <1000 gpm, or days	capacity <1000 gpm, or	Condition ceases to exist for 5 days	Voluntary reductions, monthly undates	
	5			Wellfield or plant		Ban non-esential use	
		Demand > 7 MGD for 20	Demand > 2.25 MGD for capacity <850 gpm, or	capacity <850 gpm, or	Condition ceases to	prep pro-rata reduction	
	Moderate	days	10 days	use 15% > allocation		plan	
				Wellfield or plant			
		Demand > 7.5 MGD for	Demand > 2.5 MGD for	capacity <700 gpm, or	s to	Initiate pro-rata reduction	
	Severe	10 days	5 days	use 25% > allocation	exist for 5 days	plan	
		rre	ıre	Major system failure			
		(>50% of delivery	(>50% of delivery	(>50% of delivery		Inform customers, make	
		capacity lost) or supply	capacity lost) or supply	capacity lost) or supply	Until condition	specific response based	
	Emergency	contamination	contamination	contamination	corrected	on situation	
		Lake Livingston /					
TRA		Wallisville System					
						Modify gate operations,	
		Lake Livingston elev <			es to	voluntary reductions,	
	Mild	126.50 ft at USGS gage			exist for 5 days	monthly updates	
						No new contracts initiate	
		Lake Livingston elev <			Condition ceases to	mandatory reductions	
	Moderate	124.00 ft at USGS gage				and pro-rata curtailments	
						Terminate supply to low-	
						priority customers,	
		Lake Livingston elev <			Condition ceases to	additional mandatory	
	Severe	121.40 ft at USGS gage			exist for 5 days	reductions	
		Major system failure					
		(>50% of delivery				Inform customers, make	
		capacity lost) or supply			Until condition	specific response based	
	Emergency	contamination			corrected	on situation	

Table 3D-2
Source-Specific Drought Triggers
Established by Major Water Providers

Water Source	Drought Type	Trigger Condition	Time Req	Time Requirement	Established By	Actions
			Initiation	Termination		
Trinity River						
Lake Livingston	Mild	Combined storage (Lakes Livingston, Conroe & Houston) is less than 24 months surface water supply	Condition exists 10 consecutive days	Condition ceases for 30 consecutive days	Houston	Inform the public and request voluntary reductions
	Serious	Combined storage (Lakes Livingston, Conroe & Houston) is less than 18 months surface water supply	Condition exists 10 consecutive days	Condition ceases for 30 consecutive days	Houston	Ban non-essential outdoor use and listed water waste
	Severe	Combined storage (Lakes Livingston, Conroe & Houston) is less than 12 months surface water supply	Condition exists 10 consecutive days	Condition ceases for 30 consecutive days	Houston	Ban all outdoor use and listed water waste
Lake Livingston / Wallisville System	Mild	Lake Livingston elev < 126.50 ft at USGS gage	Condition exists for one day	Condition ceases to exist for 5 days	TRA	Modify gate operations, voluntary reductions, monthly updates
	Moderate	ton elev < 124.00 ft at	Condition exists for one Condition ceases to exist for 5 days		TRA	No new contracts, initiate mandatory reductions and pro- rata curtailments
	Severe	ton elev < 121.40 ft at	Condition exists for one Condition ceases to exist for 5 days		TRA	Terminate supply to low-priority customers, additional mandatory reductions

## Table 3D-2 Source-Specific Drought Triggers Established by Major Water Providers

water source	prought Type	Trigger Condition	IIme Ke	lime Kequirement	Established By	Actions
			Initiation	Termination		
San Jacinto River						
		Elev < 198 ft (85% of storage	Condition exists for one	Condition ceases for 7		
Lake Conroe	Mild	capacity)	day	days	SJRA	Request voluntary conservation
		Elev < 190 ft (55% of storage	Condition exists for one	Condition ceases for 7		Weekly customer meetings,
	Moderate	capacity)	day	days	SJRA	mandatory conservation
						Additional mandatory or pro-rata
		Elev < 185 ft (40% of storage	Condition exists for one	Condition ceases for 7		use reductions, look for alternate
	Severe	capacity)	day	days	SJRA	sources
		Combined storage (Lakes Livingston,				
		Conroe & Houston) is less than 24	Condition exists 10	Condition ceases for 30		Inform the public and request
Lake Houston	Mild	months surface water supply	consecutive days	consecutive days	Houston	voluntary reductions
		Combined storage (Lakes Livingston,				
		Conroe & Houston) is less than 18	Condition exists 10	Condition ceases for 30		Ban non-essential outdoor use
	Serious	months surface water supply	consecutive days	consecutive days	Houston	and listed water waste
		Combined storage (Lakes Livingston,				
		Conroe & Houston) is less than 12	Condition exists 10	Condition ceases for 30		Ban all outdoor use and listed
	Severe	months surface water supply	consecutive days	consecutive days	Houston	water waste

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Table 3D-2 Source-Specific Drought Triggers Established by Major Water Providers

	F 7-1-1-0		i i	***************************************	Total Calcal	
water source	Drought Type	i rigger condition	IIMe Kec	IIme Kequirement	Established by	Actions
			Initiation	Termination		
Brazos River						
Hempstead Gauge	Mild	14.00 ft or 2200 cfs	Condition exists for one day	Condition ceases for 30 consec. days	GCWA	Notify BRA, monitor situation daily
-			Condition exists for one	Condition ceases for 30		Alert customers, increase
	Moderate	13.71 ft or 2000 cfs	day	consec. days	GCWA	maintenance
			Condition exists for one	Condition ceases for 30		Request stored water releases, if
	Watch	13.41 ft or 1800 cfs	day	consec. days	GCWA	needed
			Condition exists for one	Condition ceases for 30		
	Warning	12.93 ft or 1500 cfs	day	consec. days	GCWA	Request stored water releases
			Condition exists for one	Condition ceases for 30		Notify BRA, monitor situation
Richmond Gauge	Mild	12.19 ft or 1700 cfs	day	consec. days	GCWA	daily
			Condition exists for one	Condition ceases for 30		Alert customers, increase
	Moderate	11.93 ft or 1500 cfs	day	consec. days	GCWA	maintenance
			Condition exists for one	Condition ceases for 30		Request stored water releases, if
	Watch	11.65 ft or 1300 cfs	day	consec. days	GCWA	needed
			Condition exists for one	Condition ceases for 30		
	Warning	11.23 ft or 1000 cfs	day	consec. days	GCWA	Request stored water releases
						Inform/meet with customers, urge
		Storage is < Stage 1 Trigger level				activation of drought contingency
		and could be reduced to Stage 2				plans, prepare/initiate specific
		Trigger or less during the next 12	Condition exists for one	Condition ceases for 30		drought response plan, activate
BRA Local Reservoirs	Watch	months	day	consecutive days	BRA	storage in Federal reservoirs
						Inform/meet with customers,
						require activation of drought
						contingency plans, evaluate
		Storage is < Stage 2 Trigger level				alternative actions, update
		and could be reduced to Stage 3				specific drought reponse plan,
		Trigger or less during the next 12	Condition exists for one	Condition ceases for 30		activate storage in Federal
	Warning	months	day	consecutive days	BRA	reservoirs
						Continue Stage 1 & 2 actions,
			Condition exists for one	Condition ceases for 30		additional actions as deemed
	Emergency	Storage is < Stage 3 Trigger level	day	consecutive days	BRA	necessary

## Table 3D-2 Source-Specific Drought Triggers Established by Major Water Providers

Water Source	Drought Type	Trigger Condition	Time Rec	Time Requirement	Established By	Actions
			Initiation	Termination		
						Inform/meet with customers, urge
		Storage of the Authority system is <				activation of drought contingency
		Stage 1 Trigger level and could be				plans, prepare/initiate specific
		reduced to Stage 2 Trigger or less	Condition exists for one	Condition ceases for 30		drought response plan, activate
BRA System Reservoirs Watch	Watch	during the next 12 months	day	consecutive days	BRA	storage in Federal reservoirs
						Inform/meet with customers,
						require activation of drought
						contingency plans, evaluate
		Storage of the Authority system is <				alternative actions, update
		Stage 2 Trigger level and could be				specific drought reponse plan,
		reduced to Stage 3 Trigger or less	Condition exists for one	Condition ceases for 30		activate storage in Federal
	Warning	during the next 12 months	day	consecutive days	BRA	reservoirs
						Continue Stage 1 & 2 actions,
		Storage of the Authority system is <	Condition exists for one	Condition ceases for 30		additional actions as deemed
	Emergency	Stage 3 Trigger level	day	consecutive days	BRA	necessary
Gulf Coast Aquifer	Local triggers based on p	Local triggers based on pumping/delivery system limits, not aquifer levels	ifer levels.			
Carrizo-wilcox Aquirer	Local triggers based on b	Local (riggers based on pumping/delivery system limits, not aquiler levels	ller levels.			
Sparta Aquifer	Local triggers based on p	Local triggers based on pumping/delivery system limits, not aquifer levels	ifer levels.			
Queen City Aquifer	Local triggers based on p	Local triggers based on pumping/delivery system limits, not aquifer levels.	ifer levels.			
Brazos River Alluvium	Local triggers based on p	Local triggers based on pumping/delivery system limits, not aquifer levels.	ifer levels.			

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Appendix 3E

Potential Reservoir Sites

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Region H
Table 3E: Previously Studied Potential Reservoir Sites

		7,00,0	LARGE RESERVOIR SITES (OVER 50,000 ACRE-FEET)					
River Basin Acr	Yield, Acre-Feet	Reference Z	Recommended Project in the 2007 Texas State Water Plan	Recommended Unique Site in the 2007 Texas State Water Plan	Original Cost at Dam, Million \$		Comments	Reference
Allens Creek Brazos Basin	99,650	10	Yes	No (see comments)	\$169.0 in 1997	This pro Legislati	This project has been designated as a unique reservoir site by the Texas Legislature. A water right permit has been granted to the BRA and City of House on Designal Assign and amirpomantal claudies are an original assign.	
	70,000	7			\$143.3 in 1995	5 rrousion	nousion. Detailed design and environmental studies are on-going.	
Bedias Trinity Basin	90,732	4	No	Yes	\$50.7 in 1975	This pro	This project has been designated as a unique reservoir site by the Texas	3
	70,705	2			\$50.8 in 1975	acres los wildlife	Legislature. Some endangered species have been identified. There are 24,073 acres lost of which 7,328 acres of bottomland hardwoods and 15,327 units of wildlife habitats are lost. Included in Region C Water Plan for TRA.	
	84,370	1				Site is li	Site is listed in the Trinity River Basin Master Plan.	11
Cleveland San Jacinto Basin	65,900		No	No	\$76.5 in 1975	Some en which 2, are lost.	Some endangered species have been identified. There are 11,485 acres lost of which 2,330 acres of bottomland hardwoods and 4,845 units of wildlife habitats are lost. Alternative site in the 1997 Texas Water Plan.	ъ
(Lower) Lake Creek San Jacinto Basin	53.767	4	No	°N	\$65.5 in 1975	Some en which 2, are lost.	Some endangered species have been identified. There are 10,904 acres lost of which 2,200 acres of bottomland hardwoods and 6,195 units of wildlife habitats are lost. Site is listed in COH Master Plan.	3, 4
		12				12		
	73,012	2						
Little River Brazos Basin	129,000	~	No	Yes		Also inc designat	Also included in Brazos G Regional Water Plan. This project has been designated as a unique reservoir site by the Texas Legislature.	∞
Off Channel	32,110	∞	Yes	Yes	96.0 in 2001	Also inc designat	Also included in Brazos G Regional Water Plan. This project has been designated as a unique reservoir site by the Texas Legislature.	∞
Millican/Panther Creek Brazos Basin	252.032	4	N <sub>O</sub>	Š	\$318.0 in 1971	Some en which 26	Some endangered species have been identified. There are 63,410 acres lost of which 26,730 acres of bottomland hardwoods and 29,323 units of wildlife habitats are lost. Reservoir site also included in Brazos G Regional Water Plan.	9,3
	248,600	2						
2	252,225	12						
2	235,200	∞						
Millican/Bundic Crossing Brazos Basin	73,800	∞	No	No		Formerl Also inc	Formerly called Millican-Peach Creek. The site contains a large lignite deposit. Also included in Brazos G Regional Water Plan.	6
Tehuacana Trinity Basin 2	282,500	12	No	Yes	\$156.0 in 1995	A few er which 6, are lost. 5 Basin M	A few endangered species have been identified. There are 14,804 acres lost of which 6,993 acres of bottomland hardwoods and 9,093 units of wildlife habitats are lost. This site contains a lignite deposit. Site is listed in the Trinity River Basin Master Plan and Region C Water Plan.	3, 9, 11
	61,068	-						

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# Region H Table 3E: Previously Studied Potential Reservoir Sites

		Mustang Trinity Basin		Lower Keechie Trinity Basin		Trinity Basin	Long King	Liberty			Trinity Basin	Hurricane	San Jacinto Basin	Humble		Trinity Basin	Harmons	Gail Creek Trinity Basin		Trinity Basin	Canev	Big Elkhart Creek Trinity Basin		Reservoir/River Basin	SMALLER RESERVOIR S			Tennessee Colony Trinity Basin	
This project is large enough to be a regional water source possibility. Some endangered species have been identified. There are \$5.053 acres lost of which 34,767 acres of bottomland hardwoods and 43.031 units of wildlife habitats are look. A large lighte deposit is also on site. Site is listed in the Thinity River Basin Master Plan.  No Dam, John See Comments  Water Plan  No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997  No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997  No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997  No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997  No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997  No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997  No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997  No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997  No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997  Texas Water Plan.  No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997  Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997  Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997  Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997  Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997  Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997  Texas Water Plan.	24,890	15,694	28,513	25,783	34,869	20,178		N/A		16,546	17,936		N/A		11,809	10,089		19,040	25,880	15,694				Yield, Acre-Feet	SITES (UNI	997,112	405,802	405,492	68,300
This project is large enough to be a regional water source possibility. Some endangered species have been identified. There are \$5.053 acres lost of which 34,767 acres of bottomland hardwoods and 43,031 units of wildlife habitats are loan. A large lightle deposit is also on site. Site is listed in the Trinity River Basin Master Plan.  No Site is listed in the Trinity River Basin Master Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.	1	12	1	12	-	12		7		1	12				1	12		1	4	12		1	Re		ER	S	12	4	S
This project is large enough to be a regional water source possibility. Some endangered species have been identified. There are \$5.053 acres lost of which 34,767 acres of bottomland hardwoods and 43,031 units of wildlife habitats are loan. A large lightle deposit is also on site. Site is listed in the Trinity River Basin Master Plan.  No Site is listed in the Trinity River Basin Master Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 No N/A Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.		No		No		No		No			No		No			No		No		No		No	Water Plan	Recommended Project in the 2002 Texas State	50,000 ACRE-F			N <sub>o</sub>	
endangered species have been identified. There are 85,053 acres lost of which 34,767 acres of bottomland hardwoods and 43,031 units of wildflife habitats are lost. A large lignite deposit is also on site. Site is listed in the Trinity River Basin Master Plan. The water rights are seior to Livingston rights and would 6 impact current available supply.  Comments  Site is listed in the Trinity River Basin Master Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Capers Ridge site from 1956 TRA Master Plan. Site now permitted for the Luce Bayon Pump station  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.		No		No		No		No			No		No			No		No		No		N <sub>o</sub>	State Water Plan	Recommended Unique Site in the 2002 Texas	EET)			No	
This project is large enough to be a regional water source possibility. Some endangered species have been identified. There are 85,053 acres lost of which 34,767 acres of bottomland hardwoods and 43,031 units of wildlife habitats are lost. A large lignite deposit is also on site. Site is listed in the Trinity River Basin Master Plan. The water rights are seior to Livingston rights and would simpact current available supply.  Comments  Comments  Comments  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  There are 35,800 acres of affected area.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.  Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997 Texas Water Plan.		N/A		N/A		N/A		N/A			N/A		N/A			N/A		N/A		N/A		N/A		Original Cost at Dam, Million \$				\$509.0 in 1970	
e a regional water source possibility. Some lentified. There are 85,053 acres lost of which twoods and 43,031 units of wildlife habitats are so on site. Site is listed in the Trinity River ghts are seior to Livingston rights and would Basin Master Plan.  Basin Master Plan. Alternative site in the 1997																							Re	eference					
				Trinity River Basin Master Plan.		Texas Water Plan.	Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997	Bayou Pump station	Capers Ridge site from 1956 TRA Master Plan. Site now permitted for the Luce		•	Trinity River Basin Master Plan.	affected area.					Site is listed in the Trinity River Basin Master Plan.											

August 2010 Page 2 of 3

August 2010

Region H
Table 3E: Previously Studied Potential Reservoir Sites

Navasota						Original site had 58,180 acres of affected area. This location is now in the tail-	
Brazos Basin	N/A				\$196 in 1968	7 water of the proposed Millican-Bundic Crossing Reservoir.	7
Nelsons						Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997	
Frinity Basin	17,936 12	12	No	No	N/A	Texas Water Plan.	11
	8,849	1					
Oak Knoll						Original site had 4,302 acres of affected area. This location is now in the tail-	
Brazos Basin	N/A		No	No	N/A	water of the proposed Millican-Bundic Crossing Reservoir.	7
Spring Creek Lake							
San Jacinto Basin	7,500		No	No	N/A		7
	26,900	4					
Jpper Keechi						Site is listed in the Trinity River Basin Master Plan. Alternative site in the 1997	
Trinity Basin	15,694	12	No	No	N/A	Texas Water Plan.	11
	16,317	1					
Jpper Lake Creek							
San Jacinto Basin			No	No	N/A	Alternative site in the 1997 Texas Water Plan.	
		İ					

1 1986. Trinity River Yield Study Phase III: Yield Analysis. By Espey, Huston & Associates, Inc. REFERENCES:

2 1988. San Jacinto River Authority Water Resources Development Plan-Water Supply Plan, Pate Engineers, Inc.

3 1990 (Texas Parks & Wildlife Dept.), and (U.S. Fish & Wildlife Service). Texas Water and Wildlife. A Natural Resource Survey for

4 1991. Houston Water Master Plan, Appendix L, Table 2-8, revised by Metcalf & Eddy.

5 1996. Memorandum Report Updated Water Project Opinions of Cost. Freese and Nichols, Inc.

6 1997. Trans-Texas Water Program Southeast Area, Operation Studies and Opinions of Cost for Allens Creek Reservoir Volume I - Text.

7 1997. Water for Texas, A Concensus-Based Update to the State Water Plan, TWDB

8 2001. Brazos G Regional Water Plan

9 2001. Region C Water Plan

10 2001. Region H Water Plan

10 2001: Nogron II Water I Itali

11 2003. Trinity River Basin Master Plan, Update

12 Additional information collected in 1999 from River Authorities

Appendix 3F

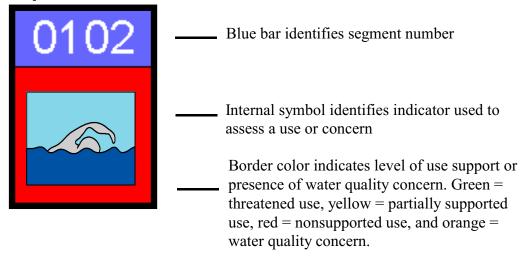
Water Quality Basin Maps

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### Explanation of Water Quality Indicator Icons Used on the Basin Maps

Basin maps are provided as a quick reference to the general location of classified segments within the basin. Icons are used to indicate the presence of threatened, partially supported, and nonsupported designated uses and water quality concerns.

### **Conceptual Icon**

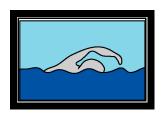


### **Icons for Designated Uses**



### **Aquatic Life**

A specific subcategory of aquatic life use (exceptional, high, intermediate, limited, or minimal) is assigned to each water body for protection and propagation of desirable fish, benthic macroinvertebrates, and other aquatic biota. Support of the use is determined by four indicators (dissolved oxygen criteria, acute and chronic toxic substances in water criteria, ambient water and sediment toxicity test results, and fish and macrobenthos data).



### **Contact Recreation**

The contact recreation use is assigned to water bodies where recreational activities including wading by small children, swimming, water skiing, diving, and surfing commonly occur. Support of the use is determined by bacterial indicators (fecal coliform or *E. coli*).



### Noncontact Recreation

A noncontact recreation use is primarily assigned to water bodies where ship and barge traffic or other activities make contact recreation unsafe. Recreational activities such as boating that do not involve a significant risk of water ingestion are allowed. Support of the use is determined by bacterial indicators (fecal coliform or *E. coli*).



### General Use

Water temperature, pH, chloride, sulfate, total dissolved solids and enterococci bacteria indicators are used to determine support of general water quality, rather than a specific use.



### Fish Consumption

The fish consumption use is assigned to all water bodies to ensure that fish and shellfish is safe for human consumption. Support of the use is determined by human health criteria in water (to protect against bioacumulation of toxic substances) and issuance of consumption advisories and aquatic life closures by the Texas Department of Health.



### **Oyster Waters**

The oyster waters use is assigned to estuarine water bodies that are suitable for harvesting shellfish. Support of the use is determined from maps developed by the Texas Department of Health that depict the classification of shellfish growing areas.



### **Public Water Supply**

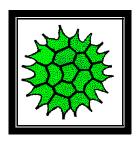
A public water supply use is assigned to all water bodies that are used as a supply for public drinking water. The use is designed to ensure that finished drinking water (after treatment) is safe for consumption. Primary organic substances in finished drinking water is the indicator used to determine support of the use.

### **Icons for Water Quality Concerns**



### Nutrient Enrichment

Elevated concentrations of nutrients from point and nonpoint sources may contribute to excessive eutrophication in a water body. Nutrient enrichment concerns are determined by four indicators (ammonia and nitrite + nitrate nitrogen, orthophosphorus, and total phosphorus). Statewide 85<sup>th</sup> percentile concentrations by water body type are used to identify water bodies with nutrient enrichment concerns.



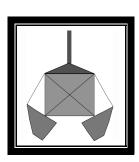
### Chlorophyll a

Elevated concentrations of chlorophyll *a* signal potential problems associated with excessive algal growths. Algal blooms may occur in response to elevated nutrient concentrations. Statewide 85<sup>th</sup> percentile concentrations by water body type are used to identify water bodies with chlorophyll *a* concerns.



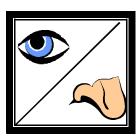
### Fish Tissue

Elevated concentrations metals and organic substances in fish tissue signal potential health risks to humans and other organisms that consume fish in their diets. Screening levels slightly below those used by the Texas Department of Health to establish consumption advisories are used to identify fish consumption concerns.



### Sediment

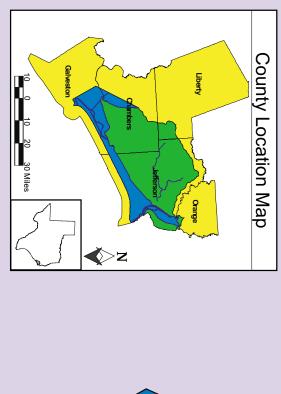
Elevated concentrations of metals and organic substances in sediment may contribute to water quality problems when they are re-suspended by wind activity and spring and fall overturn in deep reservoirs. Metals in sediment may be released into the water column when changes in pH occur near the sedimentwater interface. Contaminated sediments may also affect small creatures such as worms, crustaceans, and insect larvae that live directly in the bottoms of water bodies. Statewide 85<sup>th</sup> percentile concentrations by water body type, threshold effects levels (TELS), and probable effect levels (PELS), are indicators used to identify sediment concerns.

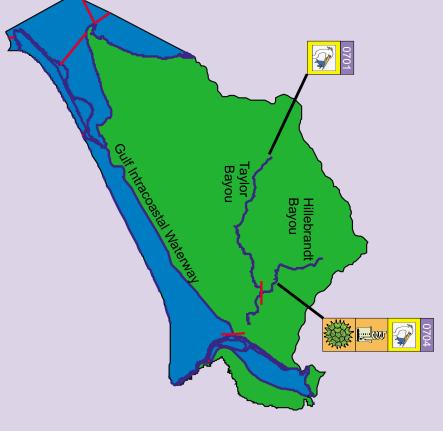


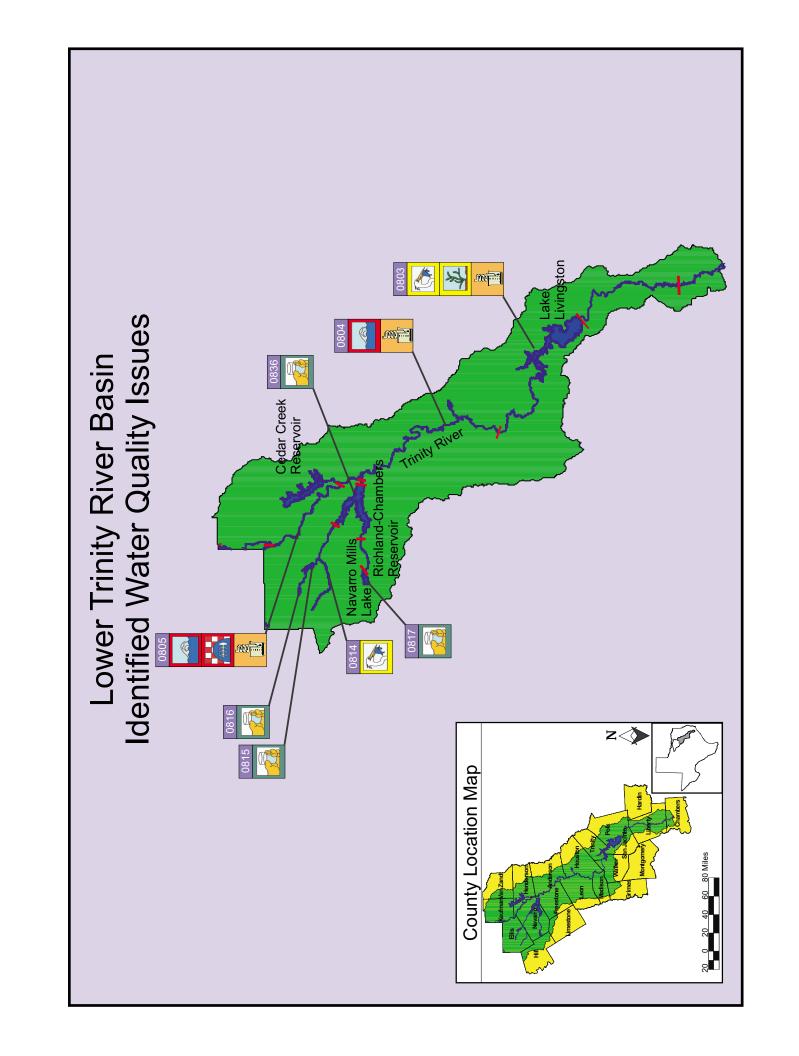
### Narrative Criteria

Narrative criteria concerns are identified in water bodies where activities or substances impair taste, odor, color, and other aesthetic qualities.

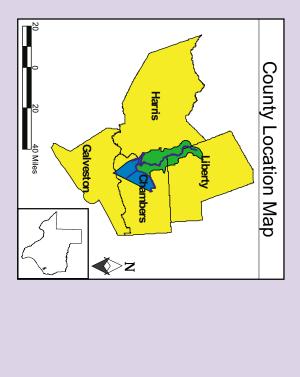
# Neches-Trinity Coastal Basin Identified Water Quality Issues

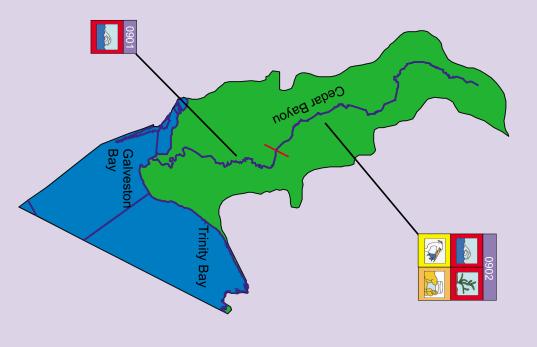


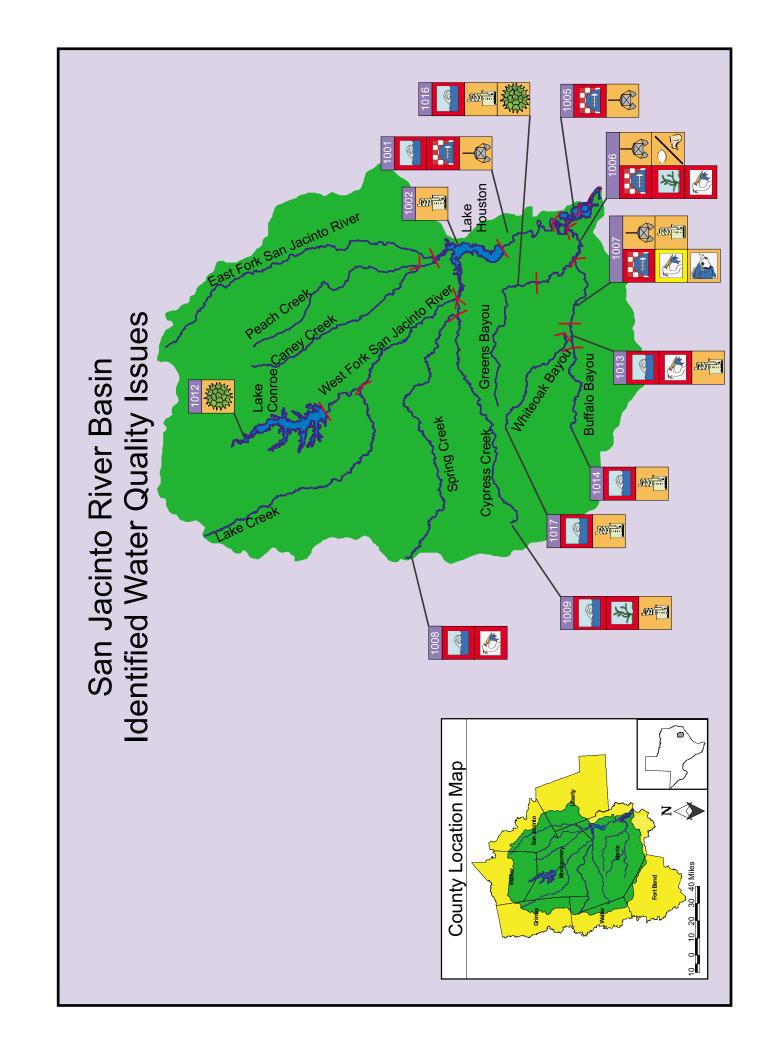


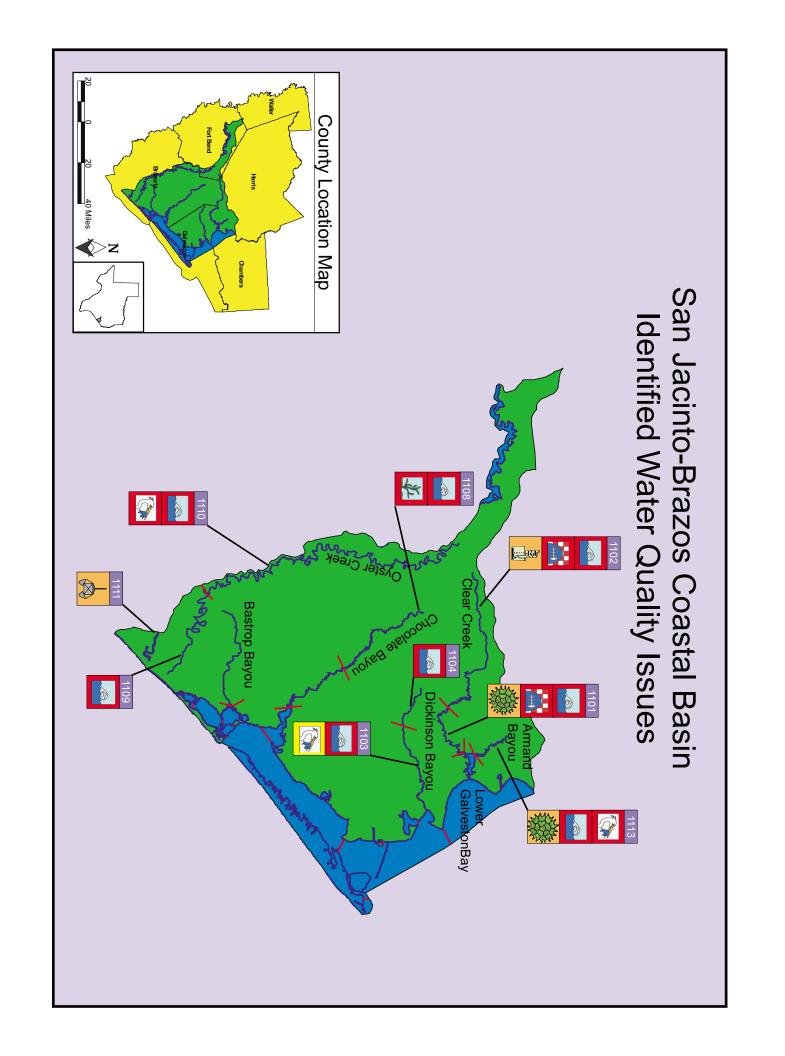


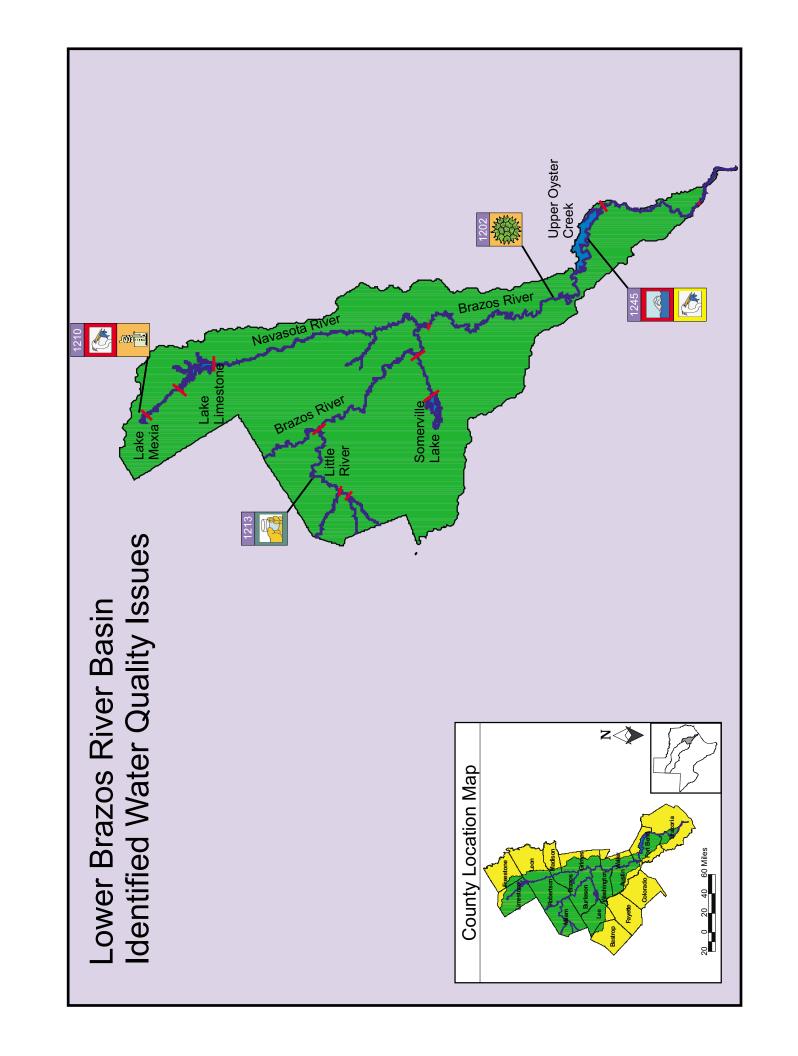
# Trinity-San Jacinto Coastal Basin Identified Water Quality Issues











## County Location Map Brazos-Colorado Coastal Basin Identified Water Quality Issues 1302

East Matagora Bay

Cedar

1301

Appendix 3G

Region H Recreational Use Information

Region H
Table 3G-1: River Segments, Bays and Estuaries

Segment	Recreation <sup>1</sup>	Aquatic Life	Water Supply	Uses	Boating & Water Sports	Camping & Picnicking	Fishing	Hunting	Nature & Wildlife Viewing	Restrooms & Showers	Campsite Sewage	Visitor Center
Neches-Trinity Coastal Basin						,					,	
702 Intracoastal Waterway Tidal	Contact	High		Navigation								
Trinity River Basin												
801 Trinity River Tidal	Contact	High		В	+	+			+			
802 Trinity River below Lake Livingston	Noncontact	High	Public	B, Sp	+	+			+			
803 Lake Livingston	Contact	High	Public	E, Mun, In, Ir, Rec	+	+	+		+	s/ı	D	
804 Trinity River above Lake Livingston	Noncontact	High		E, Sp	+	+			+			
Trinity-San Jacinto Coastal Basin												
901 Cedar Bavon Tida	Noncontact			Sufficient	S/R		+		+			
902 Cedar Bayou aboveTidal	Noncontact	High	Public	Sufficient	S/R							
and a social and a												
Sall Jacillo River Basill												
1001 San Jacinto River Tidal	Contact	High										
1002 Lake Houston	Contact	High	Public	Mun, In, Ir, Mi, Rec								
1003 East Fork San Jacinto River	Contact	High	Public		S/R+							
1004 West Fork San Jacinto River	Contact	High	Public		+	+ .						
1005 Houston Ship Channel/San Jacinto River Tidal	Noncontact	High	Industrial	Sp Navigation Sp		ŧ ŧ			+ +			+ +
alo Bavou Tidal	Noncontact		Industrial	Navigation		;			-			
	Noncontact		Public		S/R+							
X	Noncontact		Public									
1010 Caney Creek	Contact	High	Public									
1011 Peach Creek	Noncontact	High	Public									
1012 Lake Conroe	Contact	High	Public	Mun, In, Mi	.0/0							
10.13 Bullalo Bayou Tidal	Noncontact	limited			9/R+							
1015 Lake Creek	Contact	High	Public		5							
1016 Greens Bayou above Tidal	Noncontact	Limited										
1017 White Oak Bayou above Tidal	Noncontact	Limited										
San Jacinto-Brazos Coastal Basin												
1101 Clear Creek Tidal	Noncontact	High		Sufficient	S/R				+			
1102 Clear Creek above Tidal	Noncontact	High			S/R							
	Noncontact			Virgin Coastal Prairie	Ç				+			
ve lidal	Noncontact	I		Insufficient	S/R							
1105 Bastrop Bayou IIdal	Noncontact	High		Sufficient usually, B, Sp	γ/Υ <del>+</del>		+	+	+			
1108 Chocolate Bayou above Tidal	Noncontact	High			+							
1109 Oyster Creek Tidal	Noncontact	High		Sufficient	S/R							
1110 Oyster Creek above Tidal	Noncontact	High	Public		S/R							

# Region H Table 3G-1: River Segments, Bays and Estuaries

Segment	Special Features
Neches-Trinity Coastal Basin	(Anahuac National WMA, Moody National WMA, Candy Abshier WMA)
702 Intracoastal Waterway Tidal	
Trinity River Basin	(Keechi Creek WMA, Menard Creek Unit of Big Thicket National Preserve)
801 Trinity River Tidal	Extensive freshwater wetland habitat, Prime spawning area for striped bass restoratior
802 Trinity River below Lake Livingston	Prime spawning area for striped bass restoration, Unique state holdings (Davis Hill State Park), USFWS
803 Lake Livingston	Paddlefish stocking area
804 Trinity River above Lake Livingston	Paddlefish stocking area, Unique state holding (Richland Creek WMA, Big Lake Bottom WMA
Trinity-San Jacinto Coastal Basin	
901 Cedar Bayou Tidal	
902 Cedar Bayou aboveTidal	
San Jacinto River Basin	(Sheldon WMA)
1001 San Jacinto River Tidal	
1002 Lake Houston	Lake Houston State Park
1003 East Fork San Jacinto River	Sam Houston National Forest, bottomland hardwood habitats
1005 Houston Ship Channel/San Jacinto River Tidal	Unique state holdings (San Jacinto State Park)
1006 Houston Ship Channel Tidal	Unique state holdings (San Jacinto State Park)
1007 Houston Ship Channel/ Buffalo Bayou Tidal	
1008 Spring Creek	bottomland hardwood habitats
1009 Cypress Creek	bottomland hardwood habitats
1010 Caney Creek	
1011 Peach Creek	bottomland hardwood habitats
1012 Lake Conroe	
1013 Buffalo Bayou Tidal	
1014 Buffalo Bayou above Tidal	
1015 Lake Creek	bottomined hardwood habitate Doobs Live DO
1016 Greens bayou above ridar	DUMINIATION DUMINIATS SAUDE TIMY SU.
1017 White Oak Bayou above Tidal	
San Jacinto-Brazos Coastal Basin	(Galveston Island State Park, Bryan Beach State Park, Christmas Bay State Park, Atkinson Island WMA, Christmas Bay Coastal Preserve)
1101 Clear Creek Tidal	
1102 Crear Creek above Tidal  1103 Dickinson Bayou Tidal	
1104 Dickinson Bayou above Tidal	
1105 Bastrop Bayou Tidal	Extensive freshwater wetland habitat, Unique Federal Holdings (Brazoria National Wildlife Refuge
1108 Chocolate Bayou above Tidal	
1109 Oyster Creek Tidal	
1110 Oyster Creek above Tidal	

August 2010 Page 2 of 4

### Table 3G-1: River Segments, Bays and Estuaries Region H

	Segment	Recreation	Aquatic Life	Water	Uses	Boating & Water Sports	Camping & Picnicking	Fishina	Hunting	Nature & Wildlife Viewing	Restrooms & Showers	Campsite	Visitor
111	1111 Old Brazos River Channel Tidal	Contact	High				)			•		,	
1113	1113 Armand Bayou Tidal	Noncontact	High		Unspoiled Vegetation, B	S/R				+			
Brazo	Brazos River Basin												
120.	1201 Brazos River Tidal	Contact	High	Public	B, E								
1202	1202 Brazos River below Navasota River	Noncontact	High	Public	B, E, Sp		+	+		+	I/S	۵	+
120	1209 Navasota River below Lake Limestone	Contact	High	Public	В	S/R				+			
124	1245 Upper Oyster Creek	Contact	Intermediate	Public									
125	1252 Lake Limestone	Contact	High	Public	Mun, In, Ir, Rec	+	+	+					
Braze	Brazos-colorado coatal basin												
130′1	1301 San Bernard River Tidal	Noncontact	High		E, Rec, Sp			+	+	+			
1302	1302 San Bernard River above Tidal	Contact	High		E, Rec, Sp					+			+
			,										
Bays	Bays and Estuaries												
242,	2424 I Inner Galveston Bav	Contact	Ę		Ovster Waters	+	4		+	4			
242	2422 Trinity Bay	Contact	High		Oyster Waters	+	+	+	+	+			
242	2423 East Bay	Contact	High		Oyster Waters	+		+		+			
245	2424 West Bay	Contact	High		Oyster Waters	+	+	+		+			
242	2425 Clear Lake	Noncontact	High			+	+						
242(	2426 Tabbs Bay	Noncontact	High			+	+			+			
242.	2427 San Jacinto Bay	Contact	High										
2428	2428 Black Duck Bay	Contact	High										
242	2429 Scott Bay	Noncontact	High										
243	2430 Bullett Bay	Contact	High			4				4			Ī
2432	2432 Chocolate Bay	Contact	High		Oyster Waters	+				-			
243	2433 Bastrop Bay/Oyster Lake	Contact	High		Oyster Waters	+							
243	2434 Christmas Bay	Contact	High		Oyster Waters	+	+	+					
243	2435 Drum Bay	Contact	High		Oyster Waters								
243(	2436 Barbours Cut	Contact	High			+		-					
243,	2437 Texas City Ship Channel	Noncontact	High			+		+		+			
2438	2438 Bayport Channel	Noncontact	High			+		+					
243	2439 Lower Galveston Bay	Contact	High		Oyster Waters	+		+		+			
244,	2442 Cedar Lakes	Contact	High		Oyster Waters			+	+	+			
	B Biological Function	Mun Municipal		Mi Mining		d day use only		+	this recrea	this recreation activity is available in this area	able in this are	æ	
	E Unique Communities	Ir Irrigation		FH fish hatchery		r restrooms			not recommended	nended			
	Rec recreation	In Industry		S/R Seaso	S/R Seasonal and Restrictive	s showers							
	and and letter marries of an itematical waste in any												

Sp Acquisition/Mitigation/Governmental Open Space For the specific feature refered to by the symbols (B, E, and Sp) above see Sheet "Special Features"

s showers D dump

<sup>1</sup> The information used for this column was obtained from the Texas Commission for Environmental Quality 'The State of Texas Water Quality Inventory: Surface Water Quality Monitoring Program" Volumes 1-4 published in December 1996, and the Texas Clean Rivers Program & TNRCC "Texas Water Quality: A Summary of River Basin Assessments" published in December 1996. The complete bibliography is attached after the tables.

# Region H Table 3G-1: River Segments, Bays and Estuaries

August 2010 Page 4 of 4

B Biological Function
E Unique Communities
Rec recreation
Sp Acquisition/Mitigation/Governmental Open Space
For the specific feature refered to by the symbols (E

The information used for this column was obtaine Volumes 1-4 published in December 1996, and the The complete bibliography is attached after the tabl

Region H Table 3G-2: Recreational Areas

Area	County	Boating & Water Sports	Camping & Picnicking	Fishing	Hunting	Nature & Wildlife Viewing	Restrooms & Showers	Campsite Sewage	Exhibit Center
Wildlife Refuges									
Anahuac NWR	Chambers	+		+	+	+	r		
Attwater Prairie Chicken NWR	in Colorado, but borders Austin					+			+
Brazoria NWR	Brazoria	+		+	+	+			
WR	Brazoria			+	+	+			
Trinity River NWR	Liberty					+			
Big Thicket National Preserve	Liberty, Polk					+	_		+
Lakes & Reservoirs									
Addicks Reservoir	Harris		+p	+		+	r		+
Anahuac Lake	Chambers								
	Harris		+p	+		+	r		
Brazoria Reservoir	Brazoria								
Eagle Nest Lake	Brazoria								
	Galveston								
HL&P Cooling Lake	Chambers								
Harris Reservoir	Brazoria								
Lake Charlotte	Chambers								
Lake Conroe	Montgomery, Walker	+	+	+					
Lake Houston	Harris								
Lake Limestone	Leon	+		+			ŗ		
Lake Livingston	Polk, San Jacinto, Trinity, Walker	+	+	+		+	r/s	D	
Lewis Creek Reservoir	Montgomery								
Lost Lake	Chambers								
Manor Lake	Brazoria								
	Brazoria								
East & Mustang Lake West	Brazoria								
	Chambers								
San Bernard Reservoir 1, 2, 3	Brazoria								
Sheldon Reservoir	Harris	+	+p	+					
Smithers Lake	Fort Bend								
Wallisville Reservoir	Chambers, Liberty	+		+	+	+			+
National Forests									
Davy Crockett National Forest	Trinity	+	+	+		+	_	۵	+
Sam Houston National Forest	Montgomery, San Jacinto, Walker	+	+	+	+	+	٦	۵	+

## Region H Table 3G-2: Recreational Areas

Wildlife Refuges	Coort of column columns
Anahuac NWR	geese, waterfowl, peregrine falcon, bald eagle, alligator, mottled duck, wood stork, least tern
Attwater Prairie Chicken NWR	attwater prairie chicken, bald eagle, white-tailed hawk, wood stork, migrating geese
Brazoria NWR	wintering waterfowl(snow geese, ducks), migratory birds, marsh and water birds(roseate spoonbills, great blue herons, white ibis, sandhill cranes)
San Bernard NWR	migrating waterfowl, snow geese
Trinity River NWR	wintering, migrating, and breeding waterfowl, wetland dependent wildlife
Big Thicket National Preserve	Central and Mississippi Migratory Flyways
Lakes & Reservoirs	
Addicks Reservoir	
Anahuac Lake	lr, In, Mi
Barker Reservoir	
Brazoria Reservoir	ln ln
Eagle Nest Lake	
Galveston County Industrial Water Res.	In, Mun
HL&P Cooling Lake	ln In
Harris Reservoir	ln
Lake Charlotte	Cypress swamp
Lake Conroe	Mun, In, Mi
Lake Houston	Mun, In, Ir, Mi, Rec, Lake Houston State Park, Eisenhower park, Duessen Park
Lake Limestone	Mun, In, Ir
Lake Livingston	Mun, In, Ir
Lewis Creek Reservoir	ln en
Lost Lake	
Manor Lake	
Moon Lake	
Mustang Lake East & Mustang Lake West	lr, In, Rec
Old River Lake	
San Bernard Reservoir 1, 2, 3	ln
Sheldon Reservoir	Rec, FH
Smithers Lake	lin
Wallisville Reservoir	Mun, In, Ir
National Forests	
Davy Crockett National Forest	endangered species: red-cockaded woodpecker hunting: squirrel, deer, quail, dove, turkey, and waterfowl Big Slough Wildemess Area, Ratcliff Lake Rec Area, Four C Rec Trail, additional riding trails
Sam Houston National Forest	endangered species: red-cockaded woodpecker hunting: white-tailed deer, feral hog, waterfowl, dove, migratory gamebirds, squirrel, quail, rabbits, predators, fur bearers, and frogs

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Region H Table 3G-2: Recreational Areas

Area	County	Boating & Water Sports	Camping & Picnicking	Fishing	Hunting	Nature & Wildlife Viewing	Restrooms & Showers	Campsite Sewage	Exhibit Center
Parks & Preserves									
Stephen F. Austin State Park	Austin		+	+	+	+	r/s	<b>†</b>	+
Bryan Beach State Park	Brazoria	+	+	+					
Christmas Ray Coastal Preserve	Brozorio	4		4	4	-1			
Christmas Day Coastan I reserve	חומבטומ				+	+ -			
Official bay state Park	Diazula	+	+	+		+			
Peach Point Wildlife Mgmt. Area	Brazoria		+		+	+			
Varner-Hogg State Park	Brazoria		+				٦		+
Candy Abshier WMA	Chambers		р			+			
Brazos Bend State Park	Fort Bend		+	+		+	r/s	٥	+
Galveston Island State Park	Galveston	+	+	+		+	r/s	D	
Armand Bayou Coastal Preserve	Harris	+	Ф	+		+	ı		+
Atkinson Island WMA	Harris	+	р		خ	+			
Lake Houston State Park	Harris, Montgomery		+			+	r/s		
San Jacinto State Historical Park	Harris		+p	+		+	r		+
Sheldon Lake State Park and Wildlife	7		-						
Wanagement Area	Harris	+ -	<del>t</del> -	+ -	-	+ -			
W.G. Jones State Forest	Montgomery	+	+	+	+	+ +			
Lake Livingston Sate Park	Polk	+	+	+		+	r/s	۵	
Alabama Creek WMA	Trinity		+	+	+	+	_		
Huntsville State Park	Walker	+	+	+		+	s/ı	Ω	+
Rec Recreation	In Industry	d day use only		+	this recre	this recreation activity is available in this area	ilable in this a	rea	
Mun Municipal	Mi Mining	r restrooms			not recommended	ımended			

Mun Municipal Mi Mining rot restrooms . not re PH Fish hatchery s showers

To see the types of animals that live in certain parks, and which animals can be hunted refer to the sheet "Special Features"

The complete bibliography is attached after the tables.

## Region H Table 3G-2: Recreational Areas

Parks & Preserves	
Stephen F. Austin State Park	
Bryan Beach State Park	
Christmas Bay Coastal Preserve	migratory and resident waterfowl, shorebirds, finfish, designated a nursery area by the TPWD, unaltered habitat
Christmas Bay State Park	
	oak/hackberry motte and grassland typical of the Gulf Coast Prairies, hunting: waterfowl, rail, gallinule, snipe, and
Peach Point Wildlife Mgmt. Area	feral hogs
Varner-Hogg State Park	
Candy Abshier WMA	spring migration- bird "fall out"
Brazos Bend State Park	
Galveston Island State Park	
Armand Bayou Coastal Preserve	migratory and resident waterfowl, American alligator, osprey, bluestem, little bluestem, designated a nursery area by the TPWD, unaltered habitat
Atkinson Island WMA	shore and wading birds, racoons, and rattlesnakes
Lake Houston State Park	
San Jacinto State Historical Park	
Sheldon Lake State Park and Wildlife	last fresh water marsh within greater Houston city limits, deer, raccoon, mink, opossum, rabbit, alligator, bald
Management Area	eagles, ducks, geese, and other waterfowl, heron/egret rookeries, Florida bass, crappie, sunfish, and catfish
Keechi Wildlife Management Area	hunting: white-tailed deer, feral hog, squirrel, rabbit, hare, waterfowl, woodcock, gallinule and snipe
W.G. Jones State Forest	endangered species: red-cockaded woodpecker
Lake Livingston Sate Park	
Alabama Creek WMA	endangered species: red-cockaded woodpecker hunting: white-tailed deer, feral hog, waterfowl, dove, migratory gamebirds, squirrel, quail, rabbits, predators, fur bearers, and frogs
Huntsville State Park	bottomland hardwood habitats

Rec Recreation
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To see the types of animals that live in certai

The complete bibliography is attached after t

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### Appendix 3H

Current Water Supplies Available to Region H by City and Category

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SOURCE Basin	BRAZOS	BRAZOS-COLORADO	COLORADO	BRAZOS-COLORADO	BRAZOS	COLORADO	COLORADO	BRAZOSCOLORADO	BRAZOSCOLORADO	COLORADO	BRAZOS	BRAZOS-COLORADO	SAN JACINTO-BRAZOS BRAZOS	SANJACINTO-BRAZOS	SANJACINTORRAZOS	BRAZOS	BRAZOS 644 HCHATO BRAZOS	SANJACINTO-BRAZOS BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SAN JACINTO BRAZOS	BRAZOS	BRAZOS BBAZOSCOLOBADO	BRAZOS	SAN JACINTO-BRAZOS	SAN JACINIO-BHAZOS BRAZOS	BRAZOS	SAN JACINTO-BRAZOS	SAN JACINTO-BRAZOS	BRAZOS	BRAZOS	BRAZOSCOLORADO	SAN JACINTO-BRAZOS	SAN JACINTO-BRAZOS	SAN JACINTO-BRAZOS	SAN JACINTO-BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	BRAZOS	BRAZOS-COLORADO	SAN MCINTORBAZOS	BRAZOS	BRAZOS	BRAZOS-COLORADO	SAN JACINTO-BRAZOS	SAN JACINTO-BRAZOS BRAZOS	BRAZOS	SAN JACINTO-BRAZOS	BRAZOS	BRAZOS-COLORADO BRAZOS-COLORADO	BRAZOS	SAN JACINTO-BRAZOS	BRAZOS	SAN MOINTO BRAZOS	BRAZOS	BRAZOS COLORADO	BRAZOS-COLORADO	SAN MCINTO-BRAZOS	BRAZOS-COLORADO	SAN JACINTO BRAZOS	SAN JACINTO-BRAZOS	BRAZOS	TRINITY	BRAZOS	SAN JACINTO-BRAZOS	BRAZOS	BRAZOS COLORADO	BRAZOS	BRAZOS-COLORADO	TRINITY	TRINTY-SAN JACINTO	TRINITY	TRINTY-SAN JACINTO
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WUG Basin	BRAZOS	BRAZOS-COLORADO	COLORADO	BRAZOS-COLORADO	BRAZOS	COLORADO	COLORADO	BRAZOS-COLORADO	BRAZOS-COLORADO	COLORADO	BRAZOS	BRAZOS-COLORADO	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SANJACINTOBRAZOS	BRAZOS	BRAZOS-COLORADO	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	BRAZOS	BRAZOS-COLORADO BRAZOS-COLORADO	SANJACINTOBRAZOS	SANJACINTO-BRAZOS	BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	BRAZOS	BRAZOS	BRAZOS-COLORADO	BRAZOS-COLORADO	SAN JACINTO-BRAZOS	SANJACINTOBRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SANJACINTOBRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	BRAZOS-COLORADO	SANJACINTOBRAZOS	BRAZOS	BRAZOS	BRAZOS-COLORADO BRAZOS-COLORADO	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	BRAZOS	BRAZOS	BRAZOS	BRAZOS-COLORADO	SANJACINTO-BRAZOS SANJACINTO-BRAZOS	SAN JACINTO-BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	BRAZOS	BRAZOS COLORADO	BRAZOS-COLORADO	SANJACINTO-BRAZOS	BRAZOS-COLORADO	SANJACINTOBRAZOS	SANJACINTO-BRAZOS	SAN JACINTO-BRAZOS	SANJACINTOBRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	BRAZOS	BRAZOS-COLORADO	BRAZOS	BRAZOS-COLORADO	NECHES-TRIVITY TRIVITY	TRINTY-SAN JACINTO	TRINITY-SAN JACINTO	TRINITY-S AN JACINTO
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WUG NAME	BEUVILE	COUNTY-OTHER	COUNTY-OTHER	IRRIGATION	LNESTOCK	LNESTOCK	LINESTOCK MANUFACTURING	MANUFACTURING	MNING	MNING CAN ED INC	SEALY	SITTM	ALVIN	ANGLETON	BALEYS PRARIE	BRAZORA	BRAZORA DO A TOGRA CON INTO AN IN MA	BRAZORIA COUNTY MUDAT BRAZORIA COUNTY MUDAZ	BRAZORIA COUNTY MUD#3	BRAZORIA COUNTY MUDA4 BRAZORIA COUNTY MUDA5	BROOKS DE VILLAGE	CLUTE	COUNTY-OTHER	COUNTY-OTHER	COUNTY-OTHER	COUNTY-OTHER	PREBORT	FREEPORT	HILLCREST HOLIDAY LAGES	IOMACOLONY	IRRIGATION	IRRIGATION	IRRIGATION	IRRIGATION	IRRIGATION	IRRIGATION	IRRIGATION	IRRIGATION	IRRIGATION	IRRIGATION	IRRIGATION	JONES CREEK	LAKE JACK SON	LINESTOCK	LNESTOCK	LINESTOCK	LNESTOCK	LINESTOCK	MANUFACTURING	MANUFACT URING MANUFACT URING	MANUFACTURING	MANUFACT URING	MANUFACT URING MANUFACT URING	MANUFACTURING	MANUFACTURING MANUFACTURING	MANUFACT URING MANNET	MNING	MINING	MNING	MNING	ORBIT SYSTEMS INC	ORBIT SYSTEMS INC	OVSTER CREEK	PEARLAND por son	PEARLAND	RICHWOOD	SOUTHWEST UTILITIES	SUR SIDE BEACH	WARKER CREEK UD	WEST COLUMBIA	WESTCOLUMBIA	ANAHUAC	BAYTOMN	BAYTOMN	BEACH CITY

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year) 205	2 39	33	387	252	1630	1031	701	111.	181	386	101	806	177	717	4000	3800	1594	408	976	1200	317	0	16	83	353	90	480.	1898	244	116	8	35	133.	3000	202	115	324	180 e	0 8	194	313	47	122	260	28 28	228	308	906	326	340	191	88	98 88	216	151	980	1200	753	669	76	181	276	211	23	47	138	538	400	168	1001	724	25.00	140	116	830	513	187	188	152	31	261
ze-feet per y	40 2	38	3879	2528	1626	1037	1196	1173	1818	2663	1012	808	12.	711	4000	38000	16770	439	976	1209	317	0	2 2	62	3538	00 30	4807	18989	2511	116	8	35	1208	30000	623	1166	284	180	. 2	1942	235	149	12	260	187	228	308	806	325	240	191	88	88 46	6136	1513	5907	12000	7538	8669	97	151	276	211	23	44	139	538	400	1684	1000	727	72	140	116	822	517	187	188	1527	31	1540
Supply (acre 2030	2 41	37	3880	2528	1626	1037	1196	1173	1818	2663	1012	808	12.	711	40000	38000	16370	472	976	1209	317	10	8 8	- 21	3538	00 300	4807	18989	2561	130	8	35	1104	3000	2071	1166	249	g =	. 2	1942	177	149	22	200	387	230	309	806	328	240	191	88	88	6386	1513	5907	12000	7538	8669	97	151	278	211	23	42	138 80	538	400	159A	1000	736	73	140	116	914	517	187	187	1527	31	1639
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SOURCE County ID	900	900	900	038	980	036	900	900	939	036	036	989	036	900	900	000	000	900	038	900	900	900	900	900	900	900	900	900	900	900	900	036	900	900	000	900	000	670	620	620	620	800	670	679	670	0.00	62.0	620	620	0.79	60	679	670	000	600	620	079	079	620	101	0.79	620	620	62.0	0.79	620	620	000	0.00	0.79	620	620	670	620	620	0.79	800	60	670	62.0	62.0
SOURCE Basin ID	07	90	00 00	07	70	07	07	20	07	20	0.0	20	20	07	88	90	88 8	88	60	00	07	80	80	60	60	20	88	80	60	80	80	08	60	8 8	8 8	90	90	11 22	13	12	13	11 0	12	12	12	12	12	11	12	12	12	12	: :	80	11	12	12	10	11	10 12	13	12	13	10	10	= =	12	12	11	11	10	11	13	10	11	12	12	12	10	12	12
SOURCE County	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	RESERVOIR	RESERVOIR	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	RESERVOIR	CHAMBERS	RESERVOIR	FORT BEND	FORT BEND	FORT BEND	FORT BEND	FORT BEIND	FORT BEND	FORT BEND	FORT BEND	FORT BEND	FORT BEND	FORT BEND	FORT BEND	FORT BEND	FORT BEND	FORT BEND	FORT BEND	RESERVOIR	FORT BEND	FORT BEND	FORT BEND	FORTBEND	FORT BEND	HARRIS	FORT BEND	FORT BEND	FORT BEND	FORT BEND	FORT BEND	FORT BEND	FORT BEND	RESERVOIR	FORT BEIND	FORT BEND	FORT BEND	FORTBEND	FORT BEND	FORT BEND	FORT BEND	FORT BEND	FORT BEND	FORT BEND	FORT BEND	FORT BEND	FORT BEND
SOURCE Basin	NECHES-TRINITY NECHES-TRINITY	TRNITY	TRINTY-SAN JACINTO NECHES-TRINITY	NECHES-TRIVITY	NECHES-TRIVITY	NECHES-TRIVITY	NECHES-TRIVITY	NECHES-TRINITY	NECHES-TRIVITY	NECHES-TRIVITY	NECHES-TRINITY	NECHES-TRIVITY	NECHES-TRIVITY	NECHES-TRIVITY NECHES-TRIVITY	TRINITY	NECHES	TRINITY	TRINITY-SAN JACINTO	TRINTY-SAN JACINTO	TRINTY-SAN JACINTO	NECHES-TRNITY	TRINITY	TRINITY TRINITY-SAN-MOINTO	TRINITY-SAN JACINTO	TRINITY-SAN JACINTO	NECHES-TRIVITY	TRINITY	TRINITY	TRINITY-SAN JACINTO	TRINITY	TRINTY-SAN JACINTO	TRINITY	TRINITY-SAN JACINTO	TRINITY-SAN JACINTO	NEOHES	TRINITY	NECHES	SAN JACINTO-BRAZOS	BRAZOS-COLORADO	BRAZOS	BRAZOS-COLORADO	SAN JACINTO SAN JACINTO-BRAZOS	BRAZOS	BRAZOS	BRAZOS	BRAZOS	BRAZOS	SAN JACINTO-BRAZOS	BRAZOS	BRAZOS	BRAZOS	BRAZOS	SAN JACINTO-BRAZOS SAN JACINTO-BRAZOS	TRINITY	SANJACINTO-BRAZOS	BRAZOS	BRAZOS	SAN JACINTO	SANJACINTO-BRAZOS	SANJACINTO	BRAZOS-COLORADO	BRAZOS	BRAZOS-COLORADO	SAN JACINTO	SAN JACINTO	SANJACINTO-BRAZOS	BRAZOS	BRAZOS	SAN JACINTO-BRAZOS	SAN JACINTO-BRAZOS	SANJACINTO	SAN MCINTO-BRAZOS	BRAZOS-COLORADO	SANJACINTO	SAN JACINTO BRAZOS	BRAZOS	BRAZOS	BRAZOS	SAN JACINTO	BRAZOS	BRAZOS
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106			+	346	346	341	24 34	341	2 2	346	341	346	346	36 36	346	SYSTEM	1		348	346	8		8 -	86		18	B -	36	- 18	8 -				346	SYSTEM	346	SYSTEM	1	1		1	+	346		1	-							1				346		000	5		- 1	8 -		8	8		STEM	1	ÆR 346		1			8 -	346	- 37	348	-	346	340
SOURCE Name	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	NECHES-TRINITY RIVER RUN-OF-RIVER	NECHES-TRINITY RIVER RUN-OF-RIVER	NECHES-TRINITY RIVER RUN-OF-RIVE	NECHES-TRINITY RIVER RUNOF-RIVER NECHES-TRINITY RIVER RUNOF-RIVER	NECHES-TRINITY RIVER RUN-OF-RIVE	NECHES-TRINITY RIVER RUN-OF-RIVER NECHES-TRINITY RIVER RUN-OF-RIVER	NECHES-TRINITY RIVER RUN-OF-RIVE	NECHES -TRINITY RIVER RUNOF - RIVER NICHES - TRINITY BIVER DISIN OF BATTER	NECHES-TRINITY RIVER RUN-OF-RIVER	NECHES-TRINITY RIVER RUN-OF-RIVE	NECHES-TRINITY RIVER RUN-OF-RIVER NECHES-TRINITY RIVER RUN-OF-RIVER	TRINITY RIVER RUIN OF-RIVER	M RAYBURN-STEINHAGEN LANGIRESERVOIR	LIVINGS TOW/MALLISVILLE SYSTEM	GUF COAST AQUIFER	TRINITY: SAN JACINTO RIVER RUN-OF-RIV	TRINITY-SAN JACINTO RIVER RUN-OF-RIV	UVESTOCK LOCAL SUPPLY	GULF COAST AQUIFER	UVESTOCK LOCAL SUPPLY	UVESTOCKLOCAL SUPPLY	GULF COAST AQUIFER	OTHER COAST AQUIFER	GULF COAST AQUIFER	OTHER LOCAL SUPPLY	GULF COAST AQUIFER	GILLS COAST ACHIEFE	GUF COAST AQUIFER	QUE COAST AQUIFBR	GULF COAST AQUIFER	TRINITY: SAN JACINTO RIVER RUNOF-RY	M BAYBURN STEINHAGEN LAKERESSENCIR	TRNITY RVER RUN-OF-RIVER	MRAYBURN-STEINHAGEN LAKE/RESERVOIR	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	QUE COAST AQUIFER	GULF COAST AQUIFER	BRAZOS RIVER RUN-OF-RIVER	GULF COAST AQUIFER	GULF COAST AQUIFER	GUIF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER GULF COAST AQUIFER	GULF COAST AQUIFER	GUIF COAST AQUIFER GUIF COAST AQUIFER	LIVINGS TON-MALLIS VILLE SYSTEM	GULF COAST AQUIFER	BRAZOS RIVER ALLUMUM AQUIFER	BRAZOS RIVER RUN-OF-RIVER	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	BRAZOS RIVER ALLUMUM AQUIFER	GUIF COAST AGUIFER	GULF COAST AQUIFER	UVESTOCK LOCAL SUPPLY	UVESTOCK LOCAL SUPPLY	GULF COAST AQUIFER	BRAZO S RIVER AUTHORITY MAIN STEM ST	GULFCOASTAQUIFER	SAN JACINTO-BRAZOS RIVER RUN-OF-RI	GULFCOASTAQUIFER	GULFCOASTAGUIER	GULFCOASTAQUIFER	GULFCOASTAQUIFER	GULF COASTAQUIFER	BRAZ OS RIVER RUN-OF-RIVER	GULFCOASTAQUIFER	BRAZOS RIVER RUN-OF-RIVER	GUF COAST AQUIFER	BRAZO S RIVER RUN-OF-RIVER	BRAZOS RIVER RUN-OF-RIVER
SOURCE Type	Groundwater	Groundwater	Groundwaler	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water Surface Water	Surface Water	Surface Water S.A.	Surface Water	Groundwaler	Surface Water	Surface Water	Surface Water	Groundwater	Surface Water Geoundwater	Surface Water	Groundwater	Groundwater Surface Water	Groundwaler	Surface Water	Groundwaler	Goundwaler	Groundwaler	Groundwaler	Groundwater	Surface Water	Surface Water SA	Surface Water	Surface Water S.A.	Groundwater	Groundwater	Groundwaler	Groundwater	Groundwater	Surface Water	Groundwaler	Groundwater	Groundwaler	Groundwaler	Groundwater	Groundwater	Groundwater	Groundwaler	Groundwaler	Groundwaler	Surface Water	Groundwater Surface Water	Groundwater	Surface Water	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwitter	Groundwaler	Surface Water	Surface Water	Groundwater	Surface Water	Groundwaller	Surface Water	Groundwater	Groundwater	Groundwater	Groundwaler	Groundwaler	Surface Water	Groundwater Surface Mater	Surface Water	Groundwalter	Surface Water	Surface Water
WWP Name	None	None	None	None	None	None	None	None	None	None	None	None	None	None	DISTRICT	LOWER NECHES VALLEY AUTHORITY	TRINITY RIVER AUTHORITY	None	None	None	None	None	None	None	None	None	None	None	None	engy engy	ondo	None	None	NRG	LOWER NECHES VALLEY AUTHORITY	DISTRICT	LOWER NECHES VALLEY AUTHORITY	Note	None	None	None	None	GULF COAST WATER AUTHORITY	None	None	None	None	None	None	None	None			CITY OF HOUSTON	CITY OF HOUSTON	None	NRG	None	None	None None	None	None	None None	None	None	None enough	None	BRAZOS RIVER AUTHORITY	Sport Sport	FORT BEND CO. WCID 1	FORT BEND COUNTY WCID #2	FORT BEND COUNTY WCID AZ	None	None	None	GULF COAST WATER AUTHORITY	MSSOURI CITY	MISSOURI CITY	MSSOURIGITY	MISSOURI OTY	MSSOURI OTY
WWP Number				l										T	150	340	287	t								t			1	T	l			398300	340	150	340	t	T		1	t	325			t							l	395200	395200		398300		200	9		1			1	T		33.1	T	380	821000	821000			l	352	989803	999903	999903	999903	989903
USE	-	MUN	MUN	IRR	BR 60	IRR	BB BB	IRR	IRR IRR	IRR	IRR	IBR	IRR	IRR	IR IR	IRR	BR I	IRR IRR	IRR	IRR	3 3	ΛI	3 3	ΓΙΛ	MAN	N N	MN	NW	NN N	MIN	MUN	MUN	STE	STE	MUN	MUN	MUN	MUN MIN	MUN	MUN	MUN	MAIN	MUN	MUN	MIN	MUN	MUN	MUN	MUN	MUN	MUN	MUN	MUN	MUN	MUN	IRR	IRR	IRR	IRR I	MUN	MUN	<u>ا</u>	3 3	ΓΙΛ	3	3 3	MAN	MAN	MAN	MAN	MUN	WW WW	NN	NW	N N	NIN	MUN	MUN	MUN	MUN	WN
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WUG County	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	$\Box$	П		CHAMBERS	П	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS	CHAMBERS						FORTBEND	FORTBEND	FORT BEND	FORT BEND	FORTBEND	FORT BEND	FORTBEND	FORT BEND	FORTBEND	FORT BEND	FORTBEND	FORT BEND	FORT BEND	FORTBEND	FORTBEND	FORT BEND	FORTBEND	FORTBEND	FORT BEND	FORT BEND	FORTBEND	FORTBEND	FORTBEND	FORT BEND	FORT BEND	FORT BEND	FORTBEND	FORT BEND	FORTBEND	FORTBEND	FORTBEND	FORTBEND	FORT BEND	FORT BEND	FORT BEND	FORTBEND	FORT BEND	FORT BEND	FORT BEND	FORTBEND
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WUG NAME	COUNTY-OTHER				IRRIGATION								IRRIGATION	IBBIGATION	IRRIGATION	IRRIGATION	IRRIGATION	IPPEGATION	IRRIGATION	IRRIGATION	LINESTOCK	LNESTOCK	LINESTOCK	LINESTOCK	MANUFACTURING	$\dagger$			MNING					t	T		RINITY BAY CONSERVATION DISTRICT	ARCOLA BEASIEV	BEASLEY	COUNTY-OTHER	COUNTY-OTHER	COUNTY-OTHER	COUNTY-OTHER	FAIRCHLDS	FIRST COLONY MUD #9	FORT BEIND COUNTY MUD #108	FORT BEND COUNTY MUD #111	FORT BEND COUNTY MUD #23	FORT BEND COUNTY MUD #67	FORT BEIND COUNTY MUD #88	FORT BEND COUNTY MUD #89 FORT BEND COUNTY MUD #81	FULSHEAR	FULSHEAR	HOUSTON	HOUSTON	IRRIGATION	IRRIGATION									LWESTOCK	MANUFACTURING	MANUFACT URING	MANUFACTURING											MISSOURICITY	

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SOURCE Basin	SANJACINTO-BRAZOS	BRAZOS	BRAZOS	BRAZOS-COLORADO BRAZOS	TRINITY	SAN JACINTO TRINITY	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	BRAZOS	BRAZOS	BRAZOS	BRAZOS	BRAZOS	SAN JACINTO	SANJACINTO-BRAZOS	BRAZOS	BRAZOS	BRAZOS	BRAZOS	BRAZOS SAN LACINTO	BRAZOS	SAN JACINTO-BRAZOS	BRAZOS	SAN JACINTO	BRAZOS	SANJACINTO-BRAZOS	NECHES	SAN JACINTO-BRAZOS	NECHES	SAN JACINTO-BRAZOS	TRINITY	SAN JACINTO BRAZOS	SAN JACINTO-BRAZOS	TRINITY	SAN JACINTO-BRAZOS BRAZOS	SAN JACINTO-BRAZOS	SAN MCINTO-BRAZOS	BRAZOS	SAN JACINTO-BRAZOS	SAN JACINTO-BRAZOS	BRAZOS	SAN JACINTO-BRAZOS BRAZOS	SAN JACINTO-BRAZOS	SAN JACINTO-BRAZOS	BRAZOS	SAN ACINIOSHAZOS BRAZOS	BRAZOS	NECHES-TRINITY	SANJACINTOBRAZOS	SAN JACINTO-BRAZOS BRAZOS	BRAZOS	NECHES-TRNITY	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS SANJACINTO-BRAZOS	BRAZOS	SAN JACINTO-BRAZOS BRAZOS	BRAZOS	BRAZOS	SAN JACINTO-BRAZOS	BRAZOS	TRINITY	TRINITY-SAN JACINTO	SANJACINTO	TRINITY	SANJACINTO	SANJACINTO	SAN LACINITY	SAN JACINTO	SAN JACINTO
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SOURCE Name	GULF COAST AQUIFER	BRAZO S RIVER RUN-OF-RIVER BRAZO S BIVER BI IN-OF-BIVER	GUE COAST AQUIFER	GULF COAST AQUIFER	LININGSTON-WALLISVILLE SYSTEM	COUP COAST AQUIFER	GUE COAST AQUIFER	LIVINGS TON-WALLIS VILLE SYSTEM GULF COAST AQUIFER	GULF COAST AQUIFER	GUE COAST AQUIFER	RAZOS RIVER AUTHORITY MAIN STEM STYSTI	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	RAZOS RIVER AUTHORITY MAIN STEM STYSTI	GUL COAST AGUIFER	GUIF COAST AQUIFER	GULF COAST ACUIFER	BRAZOS RIVER RUN-OF-RIVER	RAZOS RIVER AUTHORITY MAIN STEM STYSTI BRAZOS RIVER RUN-OF-RIVER	GULF COAST AQUIFER BAZOS BINERA LITHORITY MAIN STEM STYST	GULF COAST AQUIFER	BRAZOS RIVERRUN-OF-RIVER	BRAZOS RIVERRUN-OF-RIVER	GULF COAST AQUIFER	BRAZOS RIVERRUN-OF-RIVER	GULF COAST AQUIFER	BRAZO S RIVER RUN-OF-RIVER	GULF COAST AQUIFER	A RAYBURN-STEINHAGEN LAKERESERVOIR SYS	GULF COAST AQUIFER	BRAZOS HOVERHUN-CP-HOVER A RAYBURN-STEINHAGEN LAIGERESERVOR SYS	GUIF COAST AQUIFER	LIMINGSTON-WALLISVILLE SYSTEM	GULF COAST AQUIFER	GULF COAST AQUIFER	LIVINGS TOW/MALLIS VILLE SYSTEM	GULF COAST AQUIFER BRAZOS RIVER RUIN-OF-RIVER	GULF COAST AQUIFER	GRAZOS RIVER RUN-OF-RIVER	BRAZOS RIVER RUN-OF-RIVER	GULFCOASTAQUIFER	GULF COAST ACUIFER	BRAZOS RIVERRUN-OF-RIVER	GULFCOASTAQUIFER RRAZOS RIVER RI IN. OF. BINER	GULFCOASTAQUIFER	BRAZOS RIVER RUIN-OF-RIVER GULF COAST AQUIFER	BRAZOS RIVER RUN-OF-RIVER	BRAZOS RIVER RUN-OF-RIVER	BRAZOS RIVERRUN-OF-RIVER BRAZOS RIVERRUN-OF-RIVER	GULF COAST AQUIFER	UVESTOCK LOCAL SUPPLY	GULF COAST AQUIFBR BRAZO S RIVER RUN-OF-RIVER	BRAZOS RIVERRUN-OF-RIVER BAZOS BIVER AUTHORITY MAIN STEM STYST	GULF COAST AQUIFER	GULF COAST AQUIFER	GHER LOCAL SUPPLY	BRAZO S RIVER RUN-OF-RIVER	GULF COAST AQUIFER BRAZOS RIVER RUN-OF-RIVER	GRAZOS RIVER RUN-OF-RAFIR	BRAZOS RIVERRUN-OF-RIVER	GULF COAST AQUIFBR	BRAZOS RIVER RUN-OF-RIVER	LIVINGS TON-WALLIS VILLE SYSTEM	GULF COAST AQUIFER	CIVINGS TOW/MALLIS WILLE SYSTEM GULF COASTAQUIFER	LIVINGS TOW/MALLISVILLE SYSTEM	GULFCOASTAQUIFER	GULF COAST AQUIFER	LININGS TON-WALLIS VILLE SYSTEM	GULF COAST AQUIFER	HOUSTON LAKE/RESERVOIR
SOURCE Type	Groundwaler	Surface Water	Groundwater	Groundwater	Surface Water	Groundwater Surface Water	Groundwaler	Surface Water Groundwater	Groundwater Surface Water	Groundwaler	Surface Water B	Groundwater	Groundwater Surface Water	Groundwater	Surface Water E	Groundwater	Groundwaler	Surface Water Groundwater	Surface Water	Surface Water E	Groundwater Surface Water	Groundwaler	Surface Water	Surface Water	Groundwater	Surface Water	Groundwater Surface Mater	Surface Water	Groundwaler	Surface Water SA	Groundwaler	Surface Water S.A.	Groundwaler	Surface Water	Groundwater	Surface Water Groundwater	Surface Water	Groundwater Surface Water	Groundwaler	Surface Water	Surface Water	Groundwaler	Surface Water Groundwater	Surface Water	Groundwaler Surface Water	Groundwaler	Surface Water Groundwater	Surface Water	Surface Water	Surface Water Surface Water	Groundwater	Surface Water	Groundwaler Surface Water	Surface Water	Groundwater Surface Water	Groundwater	Surface Water Groundwaler	Surface Water	Groundwater Surface Water	Surface Water Goundwaler	Surface Water	Groundwaler	Surface Water	Surface Water	Groundwater Surface Mater	Surface Water Groundwater	Surface Water	Groundwater	Groundwaler	Surface Water	Groundwater	Surface Water
WWP Name	MISSOURI CITY	MISSOURI OTY	None	None	NFBWA	NFBWA	NFBWA	NFBWA	None VTHORATOR BANES AUTHORITY	None	BRAZOS RVER AUTHORITY None	None	RICHMOND-ROSENBERG BICHMOND-BOSENBERG	RICHMOND-ROSENBERG	RICHMOND-ROSENBERG	None	None None	SULP COAST WATER AUTHORITY None	GULF COAST WATER AUTHORITY	NRG	None	SUS/R L/ND	SUGARLAND	SUGAR LAND	SUSAR LAND	SUGAR LAND	WHCRWA	GULF COAST WATER AUTHORITY	None Annual Market Mark	LOWER NECHES VALLEY AUTHORITY	None	LOWER NECHES VALLEY AUTHORITY	None or on the state of the sta	CITY OF HOUSTON	GALVESTON COUNTY WCID #1	GALVESTON COUNTY WCID #1	CITY OF HOUSTON	CITY OF GALVESTON	None	CITY OF GALVESTON	GULF COAST WATER AUTHORITY	None	GULF COAST WATER AUTHORITY None	GULF COAST WATER AUTHORITY	None CITY OF CALVESTON	None	GULF COAST WATER AUTHORITY None	GULF COAST WATER AUTHORITY	GULF COAST WATER AUTHORITY	GULF COAST WATER AUTHORITY GALVESTON COUNTY WCID #1	None	None	None GULF COAST WATER AUTHORITY	GULF COAST WATER AUTHORITY	None	None	None	GULF COAST WATER AUTHORITY	OULF COAST WATER AUTHORITY	GULF COAST WATER AUTHORITY None	GULF COAST WATER AUTHORITY	SALVES LON COUNTY WALD AT	GULF COAST WATER AUTHORITY	BAYTOMN AREA WATER AUTHORITY	VIOCUTION ADDR. M. M. ATCO. M. M. M. ATCO. M. M. M. ATCO. M. M. ATCO. M. M. M. ATCO. M. M. M. ATCO. M. M. ATCO. M. M. M. ATCO. M. M. ATCO. M.	BAYTOWN ANEA WATER AUTHORITY None	CITY OF HOUS TON	None	None	CITY OF HOUS TON	CHCRWA	CHCRWA
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WUG County	DS FORTBEN	DS FORTBEN	FORTBEN	D FORTBEN	FORTBEN	FORT BEN	DS FORTBEN	DS FORTBEND	FORTBEN	DS FORTBEND	+	Н	FORT BEND	Н	+	+	FORTBEND	+	en .	+	FORT BEND	H	FORTBEN	Н	90 0	DS FORTBEND	+	OS GALVESTON	80 0		S	GALVESTO	Н	OS GALVESTON	DS GALVESTO	DS GALVESTO	OS GALVESTO	OS GALVESTO	OS GALVESTO		11			OS GALVESTON		OALVESTO	OS GALVESTO	OS GALVESTO	DS GALVESTO	OS CALVESTO	GALVESTON	DS GALVESTO	OS GALVESTON	S	H	Н	+	OS GALVESTON	Н	OS GALVESTON	ONLYESTC	OS GALVESTO	OS GALVESTO	Ш	0 0		Ш				HARRIS	
WUG Basin	SANJACINTO-BRAZO	SAN JACINTO-BRAZO	BRAZOS	BRAZOS-COLORAD	BRAZOS	SANJACINTO	SANJACINTO-BRAZO	SAN JACINTO BRAZO SAN JACINTO BRAZO	BRAZOS	SANJACINTO-BRAZO	SANJACINTO-BRAZO	BRAZOS	BRAZOS	BRAZOS	BRAZOS	BRAZOS	SANJACINTO	SANJACINTO-BRAZ	SANJACINTO-BRAZO	BRAZOS	BRAZOS	BRAZOS	BRAZOS SAN IACINTO	SANJACINTO	SANJACINTO-BRAZO	SAN JACINTO-BRAZO SAN JACINTO-BRAZO	SAN JACINTO	SAN JACINTO-BRAZK	SAN JACINTO BRAZO	NECHES-TRIVITY	SANJACINTO-BRAZO	NECHES-TRIVITY	SANJACINTO-BRAZ	SANJACINTO-BRAZOS	SANJACINTO-BRAZO	SAN JACINTO-BRAZO SAN JACINTO-BRAZO	SANJACINTO-BRAZO	SANJACINTO-BRAZOS GALVESTON SANJACINTO-BRAZOS GALVESTON	SANJACINTO-BRAZO	SAN JACINTO-BRAZO	SANJACINTOBRAZOS	SANJACINTO-BRAZO	SANJACINTO-BRAZO	SANJACINTO-BRAZO	SAN JACINTO-BRAZZ SAN JACINTO-BRAZZ	SANJACINTO-BRAZO	SAN JACINTO-BRAZO SAN JACINTO-BRAZO	H SANJACINTOBRAZOS	SANJACINTOBRAZO	SANJACINTO-BRAZO	NECHES-TRIVITY	SANJACINTO-BRAZO	SANJACINTO-BRAZC SANJACINTO-BRAZC	SANJACINTO-BRAZO	NECHES-TRNITY NECHES-TRNITY	SANJACINTO-BRAZO	SAN JACINTO-BRAZO SAN JACINTO-BRAZO	SANJACINTO BRAZOS	SAN JACINTO BRAZO SAN JACINTO BRAZO	SAN JACINTO-BRAZOS SAN JACINTO-BRAZOS	SANJACINTO-BRAZO	SANJACINTO-BRAZOS	SANJACINTO-BRAZO	SAN JACINTO	TRINTY-SAN JACK	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SANJACINTO	SAN JACINTO
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WUG NAME	MISSOURICITY	MISSOURICITY	NEEDWITE	NEEDVALLE	NEBWA	NFBWA	NFBWA	NFBWA ORBIT SYSTEMS INC	PECANGROVE MUD #1	PECANGROVE MUD #1	PECAN GROVE MUD #1	PLEAK	RICHMOND	ROSENBERG	ROSENBERG	SIMONTON MODIFIC	STAFFORD	STAFFORD	STAFFORD	STEAM BLECTRIC POWER STEAM BLECTRIC POWER	STEAM BLECTRIC POWER	SUGAR LAND	SUGARLAND	SUGARIAND	SUGAR LAND	SUGAR LAND SUGAR LAND	WHORMA	BACLIFF MUD	BAYOU VISTA	BOLIVARPENINSULARSUD	CLEARLAKE SHORES	COUNTY-OTHER	COUNTY-OTHER	COUNTY-OTHER	DICHUNON	DICKINSON FRIENDSW.CCD	FRIENDSWOOD	GALVESTON	GALVESTON COUNTY MJD #1	GALVESTON COUNTY MUD #1	GALVESTON COUNTY WCD #12	HITCHCOCK	HITCHCOCK	IRRIGATION	JAMACABEACH	KEMAH	KEMAH	LAMARQUE	LEAGUE CITY	LEAGUE CITY	LNESTOCK	LINESTOCK	MANUFACTURING MANUFACTURING	MANUFACTURING	MINING	MINING	MINING SAN LEON MUD	SANLEONMUD	SANTA FE SANTA FE	STEAM BLECTRIC POWER TEXASCITY	TEMSCITY	TKIISLAND	TKHSLAND	BAYTOWN	BAYTOMN	BBLARE	BELARE	BLUE BELL MANOR UTLITT COMPANY BRITMOORE UTLITTES	BUNKER HLL VILLAGE	BUNKER HIL VILLAGE	CHARLELIGHT PILLS SUBDIVISION CHORWA	CHCRWA

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SOURCE County	HARRIS	HARRS	HARRS	HARRIS	RESERVOIR FORT BEND	RESERVOIR	HARRIS	RESERVOIR	RESERVOIR	RESERVOIR	RESERVOIR	HARRIS	HARRIS	RESERVOIR	HARRIS	HARRIS	HARRIS	HARRIS	RESERVOIR	HARRIS	HARRIS	HARRIS	RESERVOIR	RESERVOIR	RESERVOIR	HARRIS	HARRS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	RESERVOIR	HARRIS	RESERVOIR	HARRIS	HARRIS	HARRIS	RESERVOIR	HARRIS	RESERVOIR	RESERVOIR	HARRIS	HARRIS	RESERVOIR	RESERVOIR	HARRIS	HARRIS	RESERVOIR	RESERVOIR	RESERVOIR	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRS	RESERVOIR	HARRIS	HARRIS	FORT BEND HARRS	HARRIS	HARRIS
SOURCE Basin	SAN JACINTO SAN JACINTO	SAN JACINTO	SANJACINTO	SANJACINTO	TRINITY	TRINITY	SAN JACINTO-BRAZOS	SAN JACINTO-BRAZOS TRINITY	TRINITY TRINITY-6 AN IACRITO	TRINITY	SANJACINTO	SAN JACINTO	SAN JACINTO	TRINITY	SAN JACINTO-BRAZOS TRINITY	SAN JACINTO	SANJACINTO-BRAZOS	SAN JACINTO	SANJACINTO-BRAZOS TRINITY	SAN JACINTO	SANJACINTO	SANJACINTO	SANJACINTO	TRINITY	TRINITY	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	TRINITY	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	TRINITY	SAN JACINTO	TRINITY	TRINITY	SAN JACINTO	SAN JACINTO	SAN LICINTO	TRINITY	SAN JACINTO SAN JACINTO	SAN JACINTO	SAN JACINTO	TRINITY	TRINITY	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	TRINITY-SAN JACINTO	TRINTY-SAN JACINTO	SAN JACINTO	SANJACINTO	SANJACINTO	SANJACINTO	TRINITY	SAN JACINTO-BRAZOS TRINITY	SAN JACINTO-BRAZOS	BRAZOS	SANJACINTO	SAN JACINTO-BRAZOS
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SOURCE Name	GULF COAST AQUIFER	GUF COAST AQUIFIER	GUF COAST AQUIFER	SAN JACINTO RIVER RUN-OF-RIVER GULF COAST AQUIFER	LIVINGS TON-WALLIS VILLE SYSTEM BRAZOS BINER BLINGE-BYFER	LIVINGS TOW/MALLIS VILLE SYSTEM	GULF COAST AQUIFER	GULFCOAST AQUIFER LIVINGSTON-WALLISVILLE SYSTEM	LIMINGS TOW/MALLIS VILLE SYSTEM	LIVINGS TOW/WALLIS VILLE SYSTEM	LIVINGS TOW/MALLIS VILLE SYSTEM CALLF COAST A CUIFER	SAN JACINTO RIVER RUN-OF-RIVER	GUIF COAST AQUIFER	LIVINGS TON-WALLIS VILLE SYSTEM	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER LIVINGS TOW-MALLIS VILLE SYSTEM	GULF COAST AQUIFER	LIVINGS TOW/MALLIS VILLE SYSTEM GULF COAST AQUIFER	GULF COAST AQUIFER	LIVINGSTOW/MALLISVILLE SYSTEM GULF COAST AQUIFER	LIMINGS TON-MALLIS VILLE SYSTEM	LIVINGS TOW/MALLIS VILLE SYSTEM	GULF COAST AQUIFER	GUE COAST AQUIFER	GUUF COAST AQUIFER	GUIF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER		GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFBR	GUE COAST AQUIFER	SAN JACINTO RIVER RUN-OF-RIVER	LIVINGS TOW-WALLIS VILLE SYSTEM	GULF COAST AQUIFER	LIMINGS TON-WALLIS VILLE SYSTEM	GULF COAST AQUIFER	QUIF COAST AQUIFER	GUE COAST AQUIFER	LIMINGS TOWMALLIS WILLE SYSTEM	GUIF COAST AQUIFER	LIVINGS TOW-WALLIS VILLE SYSTEM	UNINGSTON-MALLISVILLE SYSTEM	GULF COAST AQUIFER	GUF COAST AQUIFER	LIMINGS TOW/MALLIS VILLE SYSTEM	LIVINGS TON-WALLIS VILLE SYSTEM	GULF COAST AQUIFER	GULF COAST AQUIFER	LIMINGS TON-WALLIS VILLE SYSTEM	LIVINGS TON-WALLIS VILLE SYSTEM	LIMINGS TON-MALLIS VILLE SYSTEM	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	SAN JACINTO RIVER RUN-OF-RIVER	GULF COAST AQUIFER	UNITY-SAN JACINTO RIVER RUN-OF-RI	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER GULF COAST AQUIFER	LIVINGS TON-WALLIS VILLE SYSTEM	GULFCOASTAQUIFER	GULFCOASTAQUIFER	BRAZOS RIVERRUN-OF-RIVER	UVESTOCK LOCAL SUPPLY	GULF COAST AQUIFER
SOURCE Type	Groundwater	Groundwaler	Groundwaler	Surface Water Groundwater	Surface Water	Surface Water	Groundwaler	Groundwater Surface Water	Surface Water	Surface Water	Surface Water Groundwater	Surface Water	Groundwater	Surface Water	Groundwater Surface Water	Groundwaler	Groundwater Surface Water	Groundwater	Groundwaler Surface Water	Groundwater	Surface Water Groundwater	Groundwater	Surface Water Groundwater	Surface Water	Surface Water	Groundwater	Groundwater	Groundwater	Groundwaler	Groundwaler	Groundwaler	Groundwalter	Groundwaler	Groundwaler	Groundwater	Groundwaler	Groundwater	Surface Water	Surface Water	Groundwaller	Surface Water Groundwater	Groundwater	Groundwater	Groundwater	Surface Water	Groundwaler	Surface Water	Surface Water	Groundwater	Groundwater	Surface Water	Surface Water	Groundwater	Groundwaller	Surface Water Groundwater	Surface Water	Surface Water	Groundwaler	Groundwaler	Groundwater	Surface Water	Groundwaler Sudom Mater	Surface Water TF	Groundwater	Groundwaler	Groundwaler	Groundwaler	Surface Water	Groundwater Surface Water	Groundwaler	Surface Water Gerundwaler	Surface Water	Groundwater
WWP Name	None CITY OF HOUSTON	None None	None	SAN JACINTO RIVER AUTHORITY CITY OF HOUSTON	NORTH CHANNEL WATER AUTHORITY GLIF COAST WATER AUTHORITY	OTY OF PASADENA	None Man Mone	LA PORTE AREA WATER AUTHORITY	OTY OF PASADBNA	BAYTOWN AREA WATER AUTHORITY	CITY OF HOUSTON	SAN JACINTO RIVER AUTHORITY	None	CITY OF HOUSTON	None CITY OF HOLISTON	None	None OTV OF PASADENA	None	None CITY OF HOUSTON	None	CITY OF HOUSTON	NORTH CHANNEL WATER AUTHORITY	NORTH CHANNEL WATER AUTHORITY NORTH CHANNEL WATER AUTHORITY	NORTH CHANNEL WATER AUTHORITY	NORTH CHANNEL WATER AUTHORITY NORTH CHANNEL WATER AUTHORITY	None	None	None	None	None	None None	None	None	None CITY OF HOLISTON	None	None	None	SAN JACINTO RVER AUTHORITY	NORTH CHANNEL WATER AUTHORITY	None	CITY OF HOUS TON	CITY OF HOUSTON	None	None	BAYTOWN AREA WATER AUTHORITY	NORTH CHANNEL WATER AUTHORITY	NORTH CHANNEL WATER AUTHORITY	NORTH CHANNEL WATER AUTHORITY NORTH CHANNEL WATER AUTHORITY	None	NORTH CHANNEL WATER AUTHORITY	NORTH CHANNEL WATER AUTHORITY	CITY OF HOUSTON	None CITY OF HOUSTON	CITY OF HOUBTON	CITY OF HOUS TON	CITY OF HOUSTON	CLEAR LAKE CITY WATER AUTHORITY	CITY OF HOUSTON	None	None	SAN JACINTO RIVER AUTHORITY	None	None	None	None	CITY OF HOUSTON	None	LA PORTE AREA WATER AUTHORITY	None and water and a second as a	None	GULF COAST WATER AUTHORITY None	None	None
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WUG County	HARRI	HARRIS	HARR	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARR	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI	HARRI
WUG Basin	SAN JACINTO SAN JACINTO	SANJACINTO	SANJACINTO	SAN JACINTO SAN JACINTO	SANJACINTO	SAN JACINTO	SANJACINTO-BRAZOS	SAN JACINTO-BRAZOS SAN JACINTO-BRAZOS	SANJACINTO-BRAZOS TRIMITY-GAN ISCINTO	TRINTY-SAN JACINTO	TRINITY-SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SANJACINTO-BRAZOS	SAN JACINTO	SANJACINTO-BRAZOS	SAN JACINTO	SANJACINTO-BRAZOS SANJACINTO-BRAZOS	SAN JACINTO	SAN JACINTO	SAN JACINTO	SANJACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SANJACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SANJACINTO-BRAZOS	SAN JACINTO-BRAZOS SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO SAN JACINTO	SAN JACINTO	SANJACINTO	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	TRINTY-SAN JACINTO	TRINTY-SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SANJACINTO-BRAZOS SANJACINTO-BRAZOS	SANJACINTOBRAZOS	SANJACINTO-BRAZOS SANJACINTO	SAN JACINTO	SANJACINTO-BRAZOS
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WUGID	084053000	084053000	084072000	080757101	080757101	080757101	080757101	080757101	080757101	080757101	080757101	084078001	084081000	080154000	080154000	084101000	080898000	084132000	080219000	080228000	080226000	084148000	08419000	084150000	084151000	084153000	084157000	084159000	084160000	084162000	084185000	084170000	084174000	084179000	084182000	084183000	084185000	084185000	084186000	084187000	08438700	084189000	084 90000	084193000	084193000	084196000	084196000	084197000	084198000	06420000	08420000	000383000	081025000	080285000	080285000	080285000	080285000	080289000	080280000	081004101	081004101	081004101	081004101	080301000	080708000	080708000	080312000	080346001	080346000	090320000	080350000	081005101	081005101
WUG NAME	CHIMMEY HILL MUD	CLEARBROOK CITY MJD WOODMEADOWS	CONSUMERS WATER INC	COUNTY-OTHER	COUNTY-OTHER				COUNTY. OTHER	COUNTY-OTHER	CROSBY MUD	CROSBYMUD	CRYSTAL SPRIGS WATER COMPANY DEER PARK	DEER PARK	DEER PARK	ELDORADO UD	B 1400	FOUNTAINMEM SUBDIVISION	FRIENDSWOOD	GALENA PARK	GALENA PARK GREEN TRAILS MUD	HARRIS COUNTY FWSD M7	HARRIS COUNTY FWSD M7 HARRIS COUNTY FWSD #51		HARRIS COUNTY FWSD 765 HARRIS COUNTY FWSD 765	rance	DRIH		HARRIS COUNTY MLD #152 HARRIS COUNTY MLD #153	HARRIS COUNTY MUD #154	HARRIS COUNTY MUD #168	HARRIS COUNTY MUD #180	HARRIS COUNTY MUD #189	HARRIS COUNTY MLD A261 HARRIS COUNTY MLD A261	HARRIS COUNTY MUD #345	HARRIS COUNTY MUD #46	HARRIS COUNTY MAD 450	HARRIS COUNTY MUD 460	HARRIS COUNTY MUD #53	HARRIS COUNT Y MUD #56	HARRIS COUNTY MUD #56 HARRIS COUNTY MID #8	HARRS COUNTY MUD #8	HARRIS COUNTY UD #14	HARRIS COUNTY WCID M	HARRIS COUNTY WOLD M	HARRIS COUNTY WCID #133 HARRIS COUNTY WCID #21	HARRIS COUNTY WCID A21	HARRIS COUNTY WCID KIS HARRIS COUNTY WCID KIS	HARRIS COUNTY WCID MO	HARRIS COUNTY WCID #84	HARRIS COUNTY WCID 864 HERMAC VIII A CE	HEDWIG VILLAGE	HILLSHIRE VILLAGE	HOUSTON	HOUSTON	HOUSTON	HOUSTON	HUMBLE	HUNTERS CREEK VILLAGE	HUNTERS CREEK VILLAGE IRRIGATION	IRRIGATION	IRRIGATION	IRRIGATION	MCNTO OTY	JERSEY WILLAGE	JERSEY WLAGE	KATY				LEAGUE CITY LIVESTOCK		

Region H	ant Water Sundies Available to Region H by City and Category
	le 3H 1: Current Water S

0 2060	82	18	22	222	0 01280	R	31503	31223	3936	25	34849	42 207642	2 0092	1104	33 52803	1792	1201	20000	462	126	895	2	64	714	816	100	4 2184	311	316	3474	246	101	175	999	99	1500	34 22654	2 7480	448	6340	1136	116	282	188	- 4.5	188	480	255	3 242	161	242	2012	406	458	9 4199	310	176	189	7	32	44	1184	187	239	62.50	388	388	38	53	242	5 4535	5 4475	108	000	2,003	0688.	124	201	2 02	348	489	195	200	143	143	142	418
feet per year) 2040 205	82 82	18 18	73	222 22	1046 1046	70 70	31503 3150	31223 3122	3933	54	34849 3484	207642 2076	0092 009	1107 110	52803 5280	1722 179	1261	1287 1287	464 465	126 126	992 992	2 2	19 %	714 714	871 886	100	2184 218	311	393 304	3474	146 146	87 93	175 175	672 665	99	1500	22654 2265	7.00.7	448 446	6340 634	1136 113	116 116	295 288	196 192	18 17	188 186	480 480	255 255	244 245	151 15	242 245	367 300	406 406	458 458	4199 419	210	176	189 189	8	14360 1439	44 44	1184 118	187 187	299 296	00 00	768 765	268 286	38 38	29 29	242 245	4535 453	4475 447	110 106	620	14781 14781	19357 191	126 124	201 20-	02 000	348 34	189 180	196 196	200 200	143 145	143 143	142 145	418 418
Supply (acre	82 82	18 18	73	257 222	1046 1048	70 70	1603 31603	1223	3924	54 54	4849 34849	77642 207642	1692 6692	1118	2803 62803	1702	7201	12977	5000 450 695 450	128	992 992	2 2	19 19	7.14	9.69 891	101	1184 2184	311	900 400	4714 34714	180 146	18 81	28 175	027 685	89	1500	2054 22054	7402	448 448	340 6340	1136	103 116	312 301	203 200	19 18	188	480 480	255 255	245 244	219 151	242 242	947	405	458 458	199 4199	18 21	239 178	275 189	6	4960 14960	44 44	1184	187 187	280	7.50 4.750	268	413 273	46 38	29 29	26 26	4535 4535	4475 4475	168 172	620	2,003	9496 19513	138 128	310 203	02 00	348 348	189 189	195 195	200 200	143 143	143 143	142 142	418 418
2010	82	18	22	417	1048	20	31503	31223	3898	25	34849	207642 2	6692	1144	52803	1782	1200	16367	1646	126	992	2	19	1308	898	103	2184	1636	0000	34714	322	244	411	2063	61	1600	22854	2462	448	6340	1136	89	338	225	20	188	480	255	247	494	242	210	406	458	4199	81	497	622	10	14360	44	3142	187	299	67.50	1836	686	83	29	242	4835	4475	396	620	42047	19.89	466	563	200	348	189	195	200	143	143	142	418
SOURCE County ID	П	101	101	101	0 80	101	101	148	800	000	000	000	101	00	8 :	8	101	2 00	104	101	101	101	101	679	62.0	101	00	101	000		101	101	101	101	101	104	000	000	101	000	000	101	0.09	62.0	000	101	000	101	000	101	101	000	80	101	8	104	101	101	670	800	101	101	101	8 5	5 8	101	101	101	237	101	000	000	101	104	101	00	101	101	101	145	145	145	145	145	145	145	145
y SOURCE y Basin ID	11	60	60	9 9	90	10	0 :	8 9	88	80	10	88	11	80	8 ;	80 ;	8 9	2 8	8 6	2 2	10	11	11	10	12	11	88	0 1	99 99	10	10	10	01	10	10	9 9	80	100	11	80	90	11	12	12	90	10	88	10	90	10	11	88 2	8	10	88 :	9 9	9 0	10	9	27 05	11	10	10	80 5	8	10	10	10	10	11	90	90	10	9 9	9 9	88	10	10	9 9	90	80	12	12	88	90	90	80
SOURCE County	HARRS	HARRIS	HARRIS	HARRIS	RESERVOIR	HARRIS	HARRIS	UBBRTY	RESERVOIR	RESERVOIR	RESERVOIR	RESERVOIR	HARRIS	RESERVOIR	RESERVOIR	RESERVOIR	HARMS	MONIGORINE DECEMBRICA	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	FORT BEND	FORT BEND	HARRIS	RESERVOIR	HARRES	HESEKVOIK	RESERVOIR	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	RESERVOIR	RESERVOIR	HARRIS	RESERVOIR	RESERVOIR	HARRES	FORT BEND	FORT BEND	RESERVOIR	HARRIS	RESERVOIR	HARRIS	RESERVOIR	HARRIS	HARRIS	HESENOR	RESERVOIR	HARRS	RESERVOIR	HARRIS	HARRIS	HARRS	FORT BEND	POKI BEND	HARRIS	HARRIS	HARRIS	RESERVOIR	BESEBVOIR	HARRIS	HARRIS	HARRIS	WALLER	HARRES	RESERVOIR	RESERVOIR	HARRIS	HARRIS	HARRIS	RESERVOIR	HARRIS	HARRIS	HARRIS	LEON	IEON	IEON	LEON	IEON	LEON	LEON	IEON
SOURCE Basin	SANJACINTO-BRAZOS	TRINTY-SAN JACINTO	TRINTY-SAN JACINTO	SAN JACINTO	TRINITY	SAN JACINTO	SAN JACINTO	TRINITY	TRINITY	TRINITY	SAN JACINTO	TRINITY	SANJACINTO-BRAZOS	TRINITY	TRINITY	TRINITY	HUNITY-SAN JACINIO	TOWN	SAN JACINTO	SAN JACINTO	SAN JACINTO	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SAN JACINTO	BRAZOS	SAN JACINTO-BRAZOS	TRINITY	SANJACINTO	PART HOUSE	SANJACINTO	SANJACINTO	SANJACINTO	SANJACINTO	SANJACINTO	SAN JACINTO	SAN JACINTO	TRINITY	TRINITY	SANJACINTO-BRAZOS	TRINITY	TRINITY	SANJACINTO-BRAZOS	BRAZOS	BRAZOS	TRINITY	SAN JACINTO	TRINITY	SAN JACINTO	TRINITY	SAN JACINTO	SANJACINTO-BRAZOS	OAN IACINITY DRAZOS	TRINITY	SAN JACINTO	TRINITY	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN IACINTO	SAN JACINTO-BRAZOS	SANJACINTO	SANJACINTO	OAN MOINTY	TRINITY TRINITY	SANJACINTO	SANJACINTO	SANJACINTO	SANJACINTO	SAN JACINTO-BRAZOS	TRINITY	TRINITY	SANJACINTO	SANJACINTO	SANJACINTO	TRINITY	SANJACINTO	SANJACINTO	SANJACINTO	TRINITY	TRINITY	BRAZOS	BRAZOS	TRINITY	TRINITY	TRINITY	TRINITY
SOURCE	н	I	Ι.	x :	r x	I	r	x :	ı	I	I	I	I	I		<b>x</b> :				ı	×	ı	ı	I	I	I	ı	x :	E 2		I	r	I	I	ı		ı	ı	ı	I	I	I	I	I	I	I	I	I	I	r	x :		ı	I	Ξ.	z :	ı	I	Ι:		r	I	I	x 3	. 1	ı	ı	+	r	I	н	×	ı	z :	. 1	ı	I	r	x :	r x	ı	I	I	I	I	I	I
SOURCE ID	99711101	10115	99709101	10115	08440	3451004964	3451004964	34108052718	08440	08440	10030	08410	10115	08/410	08/840	08440	er tot	10000	10118	10115	1010101666	10115	99911101	07915	3451205168	10115	08/840	10115	08490	10030	10115	10115	10115	10115	10115	10115	08/840	08/840	10115	08440	084H0	10115	34612053228	3481205168	084H0	10115	08410	10115	08410	10115	10115	10146	08440	10115	084H0	10115	10115	10115	07915	3461205168	10115	10115	10115	084H0	ORAHO	10116	10115	10115	23715	10115	08440	08440	10115	10115	10115	08440	10115	10115	10115	14510	14510	14510	14524	14527	14524	14510	14510
SOURCE Name	UVESTOCK LOCAL SUPPLY	GULF COAST AQUIFER	UVESTOCKLOCALSUPPLY	GUE COAST AQUIFER	LIVINGSTON-WALLISVILLE SYSTEM	SAN JACINTO RIVER RUN-OF-RIVER	SAN JACINTO RIVER RUN-OF-RIVER	TRNITY RVER RUN OF RIVER	LIMINGS TON/MALLISVILLE SYSTEM	LIVINGS TON-WALLIS VILLE SYSTEM	HOUSTON LAKE/PESERVOIR	LIVINGS TON-WALLIS VILLE SYSTEM	GULF COAST AQUIFER	LININGS TON-WALLISVILLE SYSTEM	LININGS TON-WALLIS VILLE SYSTEM	LININGS TON-WALLIS VILLE SYSTEM	GUL COAST ACUIFER	CONNOCTABLE PARTIES	CALLE COAST ACHIEFTS	GULF COAST ACUIFER	OTHER LOCAL SUPPLY	GUIF COAST ACHIEFR	OTHER LOCAL SUPPLY	GULF COAST AQUIFER	BRAZO S RIVERRUN-OF-RIVER	GULF COAST AQUIFER	LIMINGS TOW/MALLISVILLE SYSTEM	GULFCOAST AQUIFER	LIMINGS TON-MALLIS WILLE SYSTEM	HOUSE GOOD TO HOUSE OF BUILDING	GLIFCOASTACHER	GULFCOAST AQUIFER	GULFCOAST AQUIFER	GULFCOASTAQUIFER	GUIF COAST AQUIFER	Call COAST ACAILER	MHYSYS ET HANGET CONTROLLE SYSTEM	LIMINGS TON/MALLISVILLE SYSTEM	GULF COAST AQUIFER	LIVINGS TON-WALLIS VILLE SYSTEM	LIVINGS TON-WALLIS VILLE SYSTEM	GULF COAST AQUIFER	BRAZOS RIVER RUN-OF-RIVER	BRAZO S RIVER RUN-OF-RIVER	LININGS TON-WALLIS VILLE SYSTEM	GULF COAST AQUIFER	LIVINGS TON-WALLIS VILLE SYSTEM	GULF COAST AQUIFER	LIVINGS TON-WALLIS VILLE SYSTEM	GULF COAST AQUIFER	GULF COAST AQUIFER	LIVINGS TON-WALLIS VILLE SYSTEM	LIVINGSTON-WALLISVILLE SYSTEM	GULF COAST AQUIFER	LIVINGS TON-WALLISVILLE SYSTEM	GUE COAST AQUIFER	GUIF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	MAZOS RIVER RUN-OF-HIVER	GUE COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	LIMINGS TON-WALLIS VILLE SYSTEM	LIVENCETON MALIEVEL E SVETEM	CALLE COAST ACHIEFE	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	LIMINGS TON-WALLIS VILLE SYSTEM	LININGS TON-WALLISVILLE SYSTEM	GULFCOASTAQUIFER	GULFCOASTAQUIFER	GULFCOASTACHER	LIMINGSTON/MALLISVILLE SYSTEM	O	GULFCOASTAQUIFER	GULFCOASTAQUIFER	CARRIZO-WICOX AQUIFER	CARRIZO-WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER	QUEENCITY AQUIFER	SPARTA AQUIFER	QUEENCITY AQUIFER	CARRIZO-WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER
SOURCE Type	Surface Water	Groundwaler	Surface Water	Groundwater	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Groundwaler	Surface Water	Surface Water	Surface Water	Godnowally	Surface Mater	Governdwater	Groundwaller	Surface Water	Groundwaller	Surface Water	Groundwater	Surface Water	Groundwater	Surface Water	Groundwater	Surrace Water	Surface Water	Groundwaler	Groundwater	Groundwater	Groundwater	Groundwaler	Government	Surface Water	Surface Water	Groundwater	Surface Water	Surface Water	Groundwater	Surface Water	Surface Water	Surface Water	Groundwater	Surface Water	Groundwater	Surface Water	Groundwater	Groundwaler	Surface Water	Surface Water	Groundwater	Surface Water	Groundwater Surface Masse	Groundwaler	Groundwater	Groundwater	Surface Water	Groundwater	Groundwaler	Groundwater	Surface Water	Surface Water	Groundwahr	Groundwater	Groundwater	Groundwater	Groundwaler	Surface Water	Surface Water	Groundwater	Groundwater	Groundwater	Surface Water	Groundwaler	Groundwater	Groundwater	Groundwaler	Groundwater	Groundwaler	Groundwaller	Groundwaler	Groundwater	Groundwaler	Groundwaler
WWP Name	None	None	None	None	NORTH CHANNE, WATER AUTHORITY	SAN JACINTO RIVER AUTHORITY	SAN JACINTO RIVER AUTHORITY	SAN JACINTO RIVER AUTHORITY	CITY OF PASADENA	CITY OF HOUSTON	CITY OF HOUSTON	CITY OF HOUSTON	None	OTY OF PASADENA	CITY OF HOUSTON	CLEAR LAKE CITY WATER AUTHORITY	Note or an and a second as a s	SAN ACINI DINVER ADINOMIT	None	None	None	ebook	None	MISSOURI CITY	MSSOURI OTY	None	CLEAR LAKE CITY WATER AUTHORITY	NFBWA	NEWA	NHCBWA	ebcg	None	9000	Sign	9000	CITY OF PASADENA	CITY OF PASADENA	CIFAR LAKE CITY WATER AUTHORITY	CITY OF PASADENA	CITY OF PASADENA	CLEAR LAKE CITY WATER AUTHORITY	None	GULF COAST WATER AUTHORITY	GULF COAST WATER AUTHORITY	CITY OF HOUSTON	NORTH CHANNEL WATER AUTHORITY	NORTH CHANNEL WATER AUTHORITY	None	CITY OF HOUSTON	None	None	CITY OF PASADENA	LA PORTE AREA WATER AUTHORITY	None	CITY OF HOUSTON	None None	None	None	None	CITY OF HOURTON	None	None	CITY OF HOUSTON	CITY OF HOUSTON	CIEAR LAKE CITY WATER ALITHORITY	eog	None	None	None	None	CITY OF HOUSTON	CLEAR LAKE CITY WATER AUTHORITY	None	None	WHICHWA	WHICHWA	None	None	CITY OF HOUSTON	None	None	None	None	None	None	None	None
Number Number					607473	340	340	300300	651900	396200	396200	396200		651900	398200	189000	040	200200	000000	l				999903	999903		159000	999901	100000	Notice						661900	651900	1,99000	651900	651900	199000		325	325	395200	607473	607473		395200		000000	008169	1096		396200	000000	007000			300000			395200	396200	140000						395200	159000		000000	330200	208666			398200								
G USE	-	rıv	3	MUN	WW	MAN	MAN	WW	WW	WW	WW	MAN	MAN	WW	WWN	WWN	MAN	MAN	WW	MN	NW	NN	MN	MUN	MUN	MUN	MUN	MON	WOW	NW	WIN	MUN	WON	WON	WIN	MIN	WIN	WIN	WON	WIN	MUN	MUN	MUN	MUN	MUN	MUN	MUN	MUN	MUN	MUN	MUN	NON SE	MUN	MUN	MUN	NON S	MUN	MUN	MUN	NON STE	STE	MUN	MUN	WON I	MIN M	WIN	MUN	MUN	MUN	MUN	MUN	MUN	MUN	MON	MIN	WON	MUN	MUN	NON S	MUN	MUN	MUN	MUN	MUN	MUN	MUN	MUN
WUG WUG		101 00	101	101	101	101 10	+	101	H	101	101	101	101	101	101	101	100	100	100	101	101 %	101	101	101 10	101 10	101	101	101	T. 101	30.1	101	101		101	101	301	101	101	101	101	101	101 11	101 1	101	101	101	101	101 10	101 10	101	101	101	101	101 10	30.1	101	101	101 10	101	701	101	101 10	101 %	101	101	101	30.1	101 %	101 1	101	101	101	101 1	101	101	101	101 10	101 10	101	101	345 00	45 2	745 T	945 00	145 08		345
WUG County	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	CDOWN	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HAROGS	HABBIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HABBIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HABBIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	HARRIS	LEON	LEON	LEON	LEON	LEON	LEON	LEON	LEON
WUG Basin	SANJACINTO-BRAZOS	TRINTY-SAN JACINTO	TRINTY-SAN JACINTO	SAN JACINTO	SANJACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SANJACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	TOTAL SAN JACKED	TRIMIT SAN MOINTO	SAN JACINTO	SANJACINTO	SANJACINTO	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SAN JACINTO	SAN JACINTO	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SAN JACINTO	SAN JACINIO	SAN JACINTO	SANJACINTO	SANJACINTO	SANJACINTO	SANJACINTO	SAN JACINTO	SAN JACINTO	SANJACINTO	SAN JACINTO	SANJACINTOBRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SANJACINTO-BRAZOS	SAN JACINTO-BRAZOS	SANJACINTOBRAZOS	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SANJACINTO-BRAZOS	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN IACINTO RRAZOS	SAN JACINTO	SANJACINTO	SANJACINTO	SANJACINTO	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SANJACINTO-BRAZOS	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	TRINITY	TRINITY	BRAZOS	BRAZOS	TRINITY	TRINITY	TRINITY	TRINITY
WUG	ı	x	Ι.	x 3	ı ı	I	r	x 3	ī	ı	I	I	I	ı		x :	z :		1	1	I	I	ı	I	I	I	ı	x :	Ε 2	1	I	I	I	I	1		I	1	ī	1	I	ı	I	I	I	I	I	I	I	ı	Ξ:	x 3	ı	r	Ξ:	x ,	ı	r	Ξ.	z z	I	I	x	x 3	. 1	1	ı	I	ı	I	I	I	I	z :	. 1	ī	I	x	x 3	ı ı	x	I	I	r	ı	I	I
WUGID	101005101	081005101	081005101	084235000	081001101	081001101	081001101	081001101	081001101	1011001101	081001101	081001101	081001101	081001101	081001101	081001101	101100100	061001001	084247000	081003101	081003101	1081003101	1081003101	080408000	080408000	080424000	080424000	NFBWA	NEBWA	00000000	084275000	084279000	084286000	084287000	084298000	080456000	080456000	00000000	080456000	080456000	080456000	080457000	080457000	080457000	080457000	084302000	084302000	080488000	080488000	084411000	080545000	08099900	00000000	040669000	080888000	080672000	084343000	080675000	080577000	0805/7000	081002101	084350000	084350000	084350000	080751000	000000000	084355000	080629000	080629000	080635000	080635000	080635000	064387000	080643000	090993000	088002000	084398000	084401000	084401000	080083000	080106000	080757145	080757145	080757145	080757145	080757145	084114000
WUG NAME	LNESTOCK	LNESTOCK	LNESTOCK	LONGHORN TOWN UD	MANUFACTURING	MANUFACTURING	MANUFACTURING	MANUFACTURING	MANUFACTURING	MANUFACTURING	MANUFACTURING	MANUFACTURING	MANUFACTURING	MANUFACTURING	MANUFACTURING	MANUFACTURING	MANUFACT UNING	MANUFACI DRING	MASON CREBA LID	MNING	MNING	SHIM	MNING	MISSOURICITY	MISSOURICITY	NASSAU BAY	NASSAU BAY	NFBWA	NEBWA	WHO THE	GT T THE PLEON	NORTH GREEN MJD	NORTHWEST HARRIS COUNTY MUD #23	NORTHWEST PARK MUD	PABKWAY UD	PASADENA PASADENA	PASADENA	PASADENA	PASADENA	PASADENA	PASADENA	PEARLAND	PEARLAND	PEARLAND	PEARLAND	PINE TRALS UTILITY	PINE TRALS UTILITY	PINEY POINT VILLAGE	PINEY POINT VILLAGE	ROLLING FORK PUD	SEABROOK	SEABROOK	SHOREAGES	SOUTH HOUSTON	SOUTH HOUSTON	SOUTHSIDE PLACE	SOUTHWEST UTLITIES	SPRING VALLEY	STAFFORD	STEAM B ECTRIC BOWER	STEAM BLECTRIC POWER	SUNBELT FWSD	SUNBELT FWSD	TAN COLLEGE VILLAGE	TAN OR LAKE WILLAGE	TOMBALL	TRAL OF THE LAKES MUD	WALER	WALER	WEBSTBR	WEBSTER	WEBSTER	WEST HARRIS COUNTY MUD #6	WEST UNIVERSITY PL.	WHOSWA	WHORWA	WLLOW RUN SUBDIVISION	WINDFERN FOREST UD	WINDFERNFORESTUD	WOOCKEEN MOD BUFF ALO	CBNTERVILLE	COUNTY-OTHER	COUNTY-OTHER	COUNTY-OTHER	COUNTY-OTHER	COUNTY-OTHER	FLO COMMUNITY WSC

				work county Coun	County ID Basin ID	_	ISCHINA!		acounce 1999	SOOKOE INBILIE		RWPG	10000	,	Basin ID	County ID 2010	2020	2030 2040	2050 Zueu
1   1   1   1   1   1   1   1   1   1			TRINITY	LEON W	45 03	RR RR		None	Groundwaler	CARRIZOWILCOX AQUFER SPARTA AQUIFBR	14570	ı :	TRINITY	LEON	80 80	145 281	281	281 281	281 281
1	1		BRAZOS	+	45 22	MUN		None	Groundwater	CARRIZO-WILCOX AQUIFER CARRIZO-WILCOX AQUIFER	14510	ı 1	TRINITY	LEON	8 8	145 51	151	151 51	151 151
1			BRAZOS		45	N.		None	Groundwaller	CARRIZOWILCOXAQUFER	14510	x :	BRAZOS	LEON	12	145 200	200	200 200	200 200
1	1		BRAZOS	LEON W	45 08	LIV		None	Groundwaler	SPARTA AQUIFER CARRIZOWILCOX AQUIFER	14527	ı .	BRAZOS	LEON	12	145 223	484	484 484	484 484
1	1		TRINITY	LEON	46 88	LIV		None	Groundwaller	SPARTA AQUIFER	14527	1 1	TRINITY	LEON	8 8	145 784	784	784 784	784 784
1	Marchiel		BRAZOS	TEON 78	45 22	MN		None	Groundwaler	CARRIZO-WICOX AQUIFER	14510	ı ı	BRAZOS	re on	12	145 221	2.0	209 208	201 198
1	1		TRINITY	LEON	45 08	MIN		None	Groundwater	CARRIZO-WILCOX AQUIFER CARRIZO-WILCOX AQUIFER	14510	ıı	TRINITY	LEON	8 8	145 1296	1,251	1,226 1,204	1183 1,166
1971   1971	1		TRINITY	LEON %	45 08	MUN		None	Groundwaller	CARRIZO-WILCOX AQUIFER	14510	ı	TRINITY	IEON	80	145 106	106	106 106	106 106
1	1		SANJACINTO	LIBERTY W	46 93	MUN		None	Groundwater	GULF COAST AQUIFER GULF COAST AQUIFER	14615	ı	SAN JACINTO	LBERTY	10	146 1341	1341	1,341 1,341	1341 1341
1	1		NECHES NECHES.TBINITY	LIBERTY	46 08	MUN		None	Groundwater	GULF COAST AQUIFER	14615	I 3	NECHES TOWITY	LBERTY	90	148 154	154	164 164	154 154
1971   1971	10,000,000,000,000,000,000,000,000,000,	COUNTY-OTHER 08075746 H	SAN JACINTO	LIBERTY 14	46 30	MUN		None	Groundwater	GULF COAST AGUIFER	14615		SAN JACINTO	LBERTY	10	148 1294	1294	1294 1294	1294 1294
1	1		TRINITY OWN INCOME.	LIBERTY	46 08	MUN		None	Groundwater	GULF COAST ACUIFER	14615	Ξ.	TRINITY CAN IACRET	UBERTY	88 88	146 2787	2,787	2,787 2,787	2787 2,787
1971   1971	Mathematical   Math		NECHES	LIBERTY	8 8	MUN	İ	None	Groundwaler	GUF COAST AGUIFER	14615	ı	NECHES	UBBRTY	8 8	148	88	88	88
1	1		TRINITY	LIBERTY	46 08	MUN		None	Groundwater	GULF COAST AQUIFER	14615	1	TRINITY	UBERTY	80	145 91	16	91 91	91 91
10,000, 10,0	1	HARDIN 080678000 H	TRINITY	LIBERTY	8 8	MUN		None	Groundwater	GULF COAST AQUIFER	14615		TRINITY	LBERTY	8 8	146 136	138	136 136	136 136
1		HARDIN WSC 084 M8000 H	TRINITY	LIBERTY M	46 08	MUN		None	Groundwaler	GULF COAST AQUIFER	14615	ı	TRINITY	LBERTY	88	148 567	299	567 567	567 567
14.000   1.00000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.00000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.00000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.00000   1.0000   1.0000   1.0000   1.00000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.000	14.000   1.00000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.00000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.00000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.00000   1.0000   1.0000   1.0000   1.00000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.0000   1.000		NECHES	LIBERTY	8 8	IRR IRR	340	LOWER NECHES VALLEY AUTHORITY	Surface Water S.M.	BAYBURN STEINHAGEN LAKERESSENVIR SYSTEM	14675	z -	NEONES	RESERVOIR	8 8	148 12	12	2500 2500	2500 2500
10,000,000,000,000,000,000,000,000,000,			NECHES-TRINITY	LIBERTY %	46 07	IRR		None	Groundwater	GULF COAST AQUIFER	14615	I	NECHES-TRINTY	LBERTY	20	148 376	374	372 369	368 367
10,000,   10,0	10,000,000,000,000,000,000,000,000,000,		NECHES-TRIVITY	LIBERTY	46	IRR	VIV	None None None visit av attracement	Surface Water	TRNITY RVER RUN OF-RIVER	3410805271A	r -	TRINITY	LBERTY	88 8	146 392	377	367 356	344 330
10,000,000,000,000,000,000,000,000,000,	1		NECHES-TRIVITY	LIBERTY	46 07	IRR	187	TRINITY RIVER A UTHORITY	Surface Water	LININGS TOW/MALLIS VICTOR	084H0	ı	TRINITY	RESERVOIR	8 8	000	1,681	1,632 1,614	1590 1,563
10,000,000,000,000,000,000,000,000,000,	1		SAN JACINTO	LIBERTY M	46 10	IRR		None	Groundwaler	GULFCOASTAQUIFER	14615	I	SANJACINTO	LBERTY	10	148 830	830	830 830	830 830
10,000, 10, 10, 10, 10, 10, 10, 10, 10,	10,000,000,000,000,000,000,000,000,000,		TRINITY	LIBERTY	46 98	IRR	000300	None	Groundwater Surface Water	TOWNER DAYS DAYS OF THE PERSON	14615	x 3	TRINITY	LBERTY	88 88	146 10,36	7 8,078	6,416 4,597	2447 0
100,000,000,000,000,000,000,000,000,000	10,000,000,000,000,000,000,000,000,000,		TRINITY	LIBERTY W	9 8	IRR	0.070000	None	Surface Water	TRAILT RVER RUN OF RVER	3410805271A	ı	TRINITY	LBBRTY	8 8	146 2108	2.53	2133 2144	2156 2170
1864   10,000, 10,00	10,000, 10, 10, 10, 10, 10, 10, 10, 10,		TRINITY	LIBERTY M	46 08	IRR	187	TRINITY RIVER AUTHORITY	Surface Water	LIVINGS TON-WALLIS VILLE SYSTEM	08440	ı	TRINITY	RESERVOIR	88	9008	7626	9498 9716	9969 10268
1971   1971	1971   1971		TRINTY-SAN JACINTO	LIBERTY	46 89 89	RR RR	İ	None	Groundwaler Surface Water	GULF COASTAQUIFER TRINITY, SAN, LACINTO BAFF RINGE, BAFF	340903909		TRINTY-SAN JACINTO	LBERTY	8 8	146 5683	5643	5608 5573	5535 5507
10,000,000,000,000,000,000,000,000,000,	10,000,000,000,000,000,000,000,000,000,		TRINITY	LIBERTY %	46 08	MUN		None	Groundwater	GULFCOASTAQUIFER	14615	н	TRINITY	LBERTY	90	145 94	94	94 94	94 94
1971   1971	1879   1979	R SERVICE COMPANY	TRINITY	LIBERTY 94	46 08	MUN	187	TRINITY RIVER AUTHORITY	Surface Water	LIVINGS TON-WALLIS VILLE SYSTEM	08410	I	TRINITY	RESERVOIR	80	000 72	12	72 73	77 80
1879,   1879	10,000,000,000,000,000,000,000,000,000,	R SERVICE COMPANY	TRINITY	LIBERTY	8 8	MIN	T	None	Groundwaler	GULFCOASTAQUIFER	14675		TRINITY	LBERTY	8 8	146 1606	108	1 500 1 500	1509 1509
10,000,000   10,	1.		NECHES	LIBERTY	8 8	LIV	İ	None	Groundwater	GULFCOASTAQUIFER	14615	ı	NECHES	LBBRTY	8 8	148 59	69	59 59	98 34
10,000,000   10,	10,000.000   10,		NECHES	LIBERTY 94	46 08	LIV		None	Surface Water	UVESTOCKLOCALSUPPLY	99706146	Ξ	NECHES	LBERTY	90	145 45	45	45 45	45 70
1,000,000,000,000,000,000,000,000,000,0	10,000,000,000,000,000,000,000,000,000,		NECHES-TRIVITY	LIBERTY	46 07	3		None	Groundwater	GULFCOASTAQUIFER	14615	I	NECHES-TRINTY	LIBERTY	20	146 35	36	35 35	35 35
1,000,000,000,000,000,000,000,000,000,0	10,000,000   10,		SAN JACINTO	LIBERTY	46	3		None	Groundwater	GULFCOASTAQUIFER	14615	x 3	SANJACINTO	LBBRTY	0 8	148	9 39	140	140
10,000,000,000,000,000,000,000,000,000,			TRINTY-SAN JACINTO	LIBERTY W	8 8	3		None	Groundwaler	GULFCOASTAQUIFER	14615		TRINTY-SAN JACINTO	LBBRTY	8 8	146 32	32	32 32	32 44
100,000   10,000	1879   1879		TRINTY-SAN JACINTO	LIBERTY %	46 09	LIV		None	Surface Water	UVESTOCK LOCAL SUPPLY	99709146	I	TRINTY-SAN JACINTO	LBBRTY	60	148 0	0	0 0	0 17
10,000, 10, 10, 10, 10, 10, 10, 10, 10,	1879   1879		SAN JACINTO	LIBERTY %	46 10	MAN		None	Groundwaler	GULF COAST AQUIFER	14615	I	SANJACINTO	LIBERTY	10	146 331	331	331 331	331 331
100,   100,	1879   1879		TRINITY	LIBERTY N	98	MAN		None	Groundwaler	GULF COAST AQUIFER	14615	Ι:	TRINITY	LBBRTY	8 9	148 62	62	62 62	62
10,000,000, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,	100.000.000.000.000.000.000.000.000.000		NECHES	LIBERTY	46 20	MIN		9000	Groundwater	GUE COAST AQUIEER	14615	. 1	NEOFES	LBERTY	2 8	148	0 00	20 00	0 00
1870   1870	1.   1.   1.   1.   1.   1.   1.   1.		NECHES-TRINITY	LIBERTY M	46 07	MN		None	Groundwaler	GULF COAST AQUIFER	14615	ı	NECHES-TRINITY	LBBRTY	20	148 23	23	23 23	23 22
1879   1879	1879   1879		SAN JACINTO	LIBERTY %	46 10	NW		None	Groundwaler	GULF COAST AQUIFER	14615	×	SANJACINTO	LIBERTY	10	145 34	34	34 34	34 34
	1		TRINITY	LIBERTY M	46 03	MN		None	Groundwater	GULF COAST AQUIFER	14615	I	NECHES	LBBRTY	90	148 4070	4026	3940	3893 3841
100,000,000,000,000,000,000,000,000,000	1879   1879		TRINITY	LIBERTY	8 8	NW		None	Groundwaler	GULF COAST AQUIFER	14615	Ξ.	TRINITY	LBBRTY	8 8	146 854	858	854 854	854 854
	10.00         10.00 <th< td=""><td>PLUM GROVE 081054000 H</td><td>SANJACINTO</td><td>LIBERTY</td><td>46 30</td><td>MUN</td><td></td><td>None</td><td>Groundwaler</td><td>GULF COAST AQUIFER</td><td>14615</td><td>ı</td><td>SANJACINTO</td><td>LIBERTY</td><td>0 0</td><td>146 141</td><td>141</td><td>141 141</td><td>141 141</td></th<>	PLUM GROVE 081054000 H	SANJACINTO	LIBERTY	46 30	MUN		None	Groundwaler	GULF COAST AQUIFER	14615	ı	SANJACINTO	LIBERTY	0 0	146 141	141	141 141	141 141
		SOUTHWEST UTILITIES 084343000 H	SAN JACINTO	LIBERTY S	46 10	MUN		None	Groundwallsr	GULF COAST AQUIFER	14615	ı	SANJACINTO	LBERTY	10	146 14	14	14 14	14 14
10,000,100,   10,   10,000,100,   10,000,100,   10,000	1975   1975	86	TRINITY	LIBERTY	46	STE		None	Groundwalar	GULF COAST AQUIFER	14615	Ξ:	TRINITY	LBERTY	88 8	145 2,962	2,962	2,962 2,962	2962 2962
1870   1870	Columbia   Columbia		RECHES	MADISON	9 42	MIN	T	None	Groundwaler	SOMPTA ACHIEFE	14675		RRAZOS	MADSON	2 88	157 106	106	104 104	23 23
1879   1879	1879   1879	COUNTY-OTHER 080787157 H	TRINITY	MADISON 15	87 08	MUN		None	Groundwaler	CARRIZO-WILCOX AQUIFER	15710	ı	TRINITY	MADISON	90	157 347	360	350 350	350 319
1879   1879	The column   The	COUNTY-OTHER 080757157 H	TRINITY	MADISON 15	57 08	MUN		None	Groundwalar	QUEENCITY AQUIFER	15724	ı	TRINITY	MADISON	80	167 96	96	96 96	96 96
1879   1879	Comparison   Com	COUNTY-OTHER 08075757 H	TRINITY	MADISON 15	67 68	MUN		None	Groundwaller	SPARTA AGUIFER	15727		TRINITY	MADISON	8 8	157 123	334	334 333	209 123
1879   1879	1865   1865	IRRIGATION 081004157 H	TRINITY	MADISON 15	8 8	IRR		None	Groundwaler	CARRIZO-WILCOX AQUIFER	15710	ı	TRINITY	MADISON	88	157 19	48	19 19	19 19
1879   1879	Control   Cont	LNESTOCK 081005157 H	BRAZOS	MADISON 15	2 25	ΛI		None	Groundwaler	CARRIZO-WILCOX AQUIFER	15710	×	BRAZOS	MDISON	12	157 120	120	120 120	020 020
1879   1879	1862   1862	LIVESTOCK 081005157 H	TRINITY	MADISON 15	67 88	MUN		None	Groundwater	CARRIZO-WILCOX AQUIFER SPARTA AQUIFER	15727		TRINITY	MADISON	8 8	157 781	78.7	781 781	781 781 781
1879   1879	1879   1879	MANUFACTURING 081001157 H	TRINITY	MADISON 15	57 08	MAN		None	Groundwater	CARRIZO-WILCOX AQUIFER	15710	I	TRINITY	MADISON	88	157 280	260	260 260	280 280
Controlled   1	Controlled   1	MINING 081003157 H	BRAZOS	MADISON TS	22 22	MN		None	Groundwaler	CARRIZO-WILCOX AQUIFER	15710	x :	BRAZOS	MADISON	12	6 5	0 ;	6	0
Controlled No. 10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	100.000.000.000.000.000.000.000.000.000	MNING 08103157 H	TRINITY	MADISON 15	20 88	NN		None	Groundwater	CARRIZO-WILCOX AQUIFER	15710	I :	TRINITY	MADISON	80 8	157 15	22 0	15 15	15
Controlled   Con	Controlled   Con	NORMANGEE 080927000 H	SAN JACINTO	MADNIGOMERY 12	20 88	MIN		None	Groundwater	CARRIZO-WILCOX AQUIFER	15710		SAN JACINTO	MADISON	88 0	130 8678	9 9	9 9	9 9
Control   Cont	100,   100,		SANJACINTO	MONTGOMERY	2 02	MUN	340	SAN JACINTO RVER AUTHORITY	Rouse	SJRA INDIRECT REUSE	3510170	ı	SAN JACINTO	MONTGOMERY	9	0.0	0	93 4,149	3,754 3,487
Marie   Mari	Controlled   Con	O.	SAN JACINTO	MONTGOMERY 17	0,00	MUN		None	Groundwater	GULF COAST AQUIFER	17015	ı	SAN JACINTO	MONTGOMERY	10	171 071	140	144 145	151 153
100,000,000,000,000,000,000,000,000,000	100   100		SAN JACINTO	MONTGOMERY	02 02	MUN	940	None VIECUTIA GRAND MACHINES AND  Groundwater	GULF COAST AQUIFER	17015	I 1	SAN JACINTO	MONTGOMERY	9 9	17,000	15,647	17,815 17,587	17,543 17,492	
1870   1870	The control of the	MPANY	SANJACINTO	MONTGOMERY	0, 0,	MUN	25	None	Groundwater	GUF COAST AQUIFER	17015	×	SAN JACINTO	MONTGOMERY	10	170 467	408	438 465	484 482
1770   1770	1879   1879	CUT AND SHOOT H	SAN JACINTO	MONTGOMERY 17	0, 0,	MUN		None	Groundwater	QUIF COAST AQUIFER	17015	Ξ	SAN JACINTO	MONTGOMERY	10	170 162	136	134 136	138 139
1770	The control   Control	CUT AND SHOOT H	SAN JACINTO	MONTGOMERY 17	70 10	MUN	240	SAN JACINTO RIVER AUTHORITY	Reuse	SJRA INDIRECT REUSE	3510170	r	SAN JACINTO	MONTGOMERY	10	0 001	0	1 63	56 52
1770   1770	100,000,000   11   100,000,000,000   10   1	EAST PLANTATION UD 084098000 H	SAN JACINTO	MONTGOMERY	2 2	MUN	000	None	Groundwater	GULF COAST AQUIFER	17015	I :	SAN JACINTO	MONTGOMERY	0 0	170	317	345 361	361 359
1879   1879	The control of the		SANJACINTO	MONTGOMERY 77	02	MUN	OHO	Note Note Note Note Note Note Note Note	Groundwater	GUIF COAST AQUIFER	17015		SAN JACINTO	MONTGOMERY	0 0	1305	1.074	1.071 1.083	1.099
1770   1770	100   100		SAN JACINTO	MONTGOMERY 17	70 10	MUN	240	SAN JACINTO RIVER AUTHORITY	Rouse	SJIPA INDIRECT REUSE	3510170	I	SAN JACINTO	MONTGOMERY	10	0 021	0	11 499	447 409
1700   11   1700   17	The control   The control		SAN JACINTO	MONTGOMERY 17	70 10	MUN	398200	CITY OF HOUS TON	Groundwaler	GULF COAST AQUIFER	17015	ı	SAN JACINTO	MONTGOMERY	10	178	178	178 178	17.8
1770   200	The control   The control		SANJACINTO	MONTGOMERY	2 2	IRR	340	SAN JACINTO RVER AUTHORITY	Surface Water	CONPOELAKERESERVOIR	10060	x 2	SAN JACINTO	MONTGOMERY	0 0	170	880	31 380	880 880
50 70 70 0         Membrood         Althorough         Make N         OR 100 00         Make N	1		SANJACINTO	MONTGOMERY	0,	N.		None	Surface Water	UVESTOCKLOCALSUPPLY	99710170	I	SAN JACINTO	MONTGOMERY	10	170 510	610	510 510	510 510
100,000.00   11   100,000.00   100,000.00   10   100,000.00   100,	1		SAN JACINTO	MONTGOMERY 17	70 10	ΓΙΛ		None	Groundwaler	GULF COAST AQUIFER	17015	I	SAN JACINTO	MONTGOMERY	10	170 393	233	239 199	161 132
100,000,000   11   100,000,000,000   10   1	20   20   20   20   20   20   20   20		SANJACINTO	MONTGOMERY	0, 10	MUN	1	None	Groundwaler	GULF COAST AQUIFER	17015	π:	SAN JACINTO	MONTGOMERY	0 5	170 338	338	337 337	336 335
100,000,000,000,000,000,000,000,000,000	Processing   Pro		SAN JACINTO	MONTGOMERT	2 2	NWN NWN		Norte	Goundwater	GUE COAST AQUIESS	170%	. 3	SAN JACINTO	MONTGOMERY	2 9	1,578	1,314	242	127 148
OLIGINA   CONTRACTOR   CONTRA	1000000000000000000000000000000000000		SANJACINTO	MONTGOMERY	02	MUN		None	Groundwaler	GUF COAST AQUIFER	17015	ı	SAN JACINTO	MONTGOMERY	0 0	192	92	191	191
1	1		SAN JACINTO	MONTGOMERY 77	70 10	MUN	240	SAN JACINTO RIVER AUTHORITY	Rause	SJIPA INDIRECT REUSE	3510170	I	SAN JACINTO	MONTGOMERY	10	170 0	0	0 0	320 287
OLIGATIVAS	1		SAN JACINTO	MONTGOMERY 17	70 10	MUN		None	Groundwater	GUE COAST AQUIFER	17015	I	SAN JACINTO	MONTGOMERY	10	170 1.441	1,370	1,438 1,436	1432 1,428
0.00000000000000000000000000000000000	Oracino   Orac		SAN JACINTO	MONTGOMERY 17	02 1	MUN	340	SAN JACINTO RIVER AUTHORITY	Reuse	SJRA INDIRECT REUSE	3510170	Ι:	SAN JACINTO	MONTGOMERY	0 5	0	0	0 882	869 852
COMPRIME         H         COMBRES           COMPRIME         H         COMBRES           COMPRIME         H         COMBRES           COMPRIME         H         COMBRES           COMBRES         H         COMBRES	1		SANJACINTO	MONTGOMERY 17	2 2	MIN	340	SAN MOINTO RIVER MITHORITY	Raine	SUB-COASI AQUIFER	3610470		SAN JACINTO	MONTGOMERY	2 9	100 0	780	2 81	AA 44
COLMENT WIS         H         COMMENT           COLMENT WIS         H         COMMENT           COLMENT WIS         H         COMMENT           COLMENT WIS         H         COMMENT           COLMENT WIS         H         COMMENT           COLMENT WIS         H         COMMENT           COLMENT WIS         H         COMMENT	064,85000 H SAM, ACHITO   064,85000 H SAM,		SAN JACINTO	MONTGOMERY	0,	MUN		None	Groundwater	GULF COAST AQUIFER	17015	r	SAN JACINTO	MONTGOMERY	10	170 649	631	622 546	441 358
OLINIOTY NAS	004284000 H SAM ALGWITO 004284000 H SAM ALGWITO 004280000  SAM ALGWITO 0042800 H S		SAN JACINTO	MONTGOMERY 77	0, 0,	MUN	340	SAN JACINTO RIVER AUTHORITY	Reuse	SJRA INDIRECT REUSE	3510170	I	SAN JACINTO	MONTGOMERY	10	170 0	0	0 159	113 84
COUNTY, LANG	06426000 H SAM JACINTO 06426000 H SAM JACINTO 06426000 H SAM JACINTO 06426000 H SAM JACINTO		SAN JACINTO	MONTGOMERY 17	70 10	MUN		None	Groundwaler	GULF COAST AQUIFER	17015	r	SAN JACINTO	MONTGOMERY	10	170 614	613	642 589	488 404
0448000 H SAN JACINTO 06438000 H SAN JACINTO 06438000 H SAN JACINTO 06438000 H SAN JACINTO	044265000 H SAN JACINTO 1044265000 H SAN JACINTO 1044365000 H SAN JACINTO 104436600 H SAN JACINTO 10443600	SANJACINTO	MONTGOMERY	2 2	MUN	340	SAN JACINTO RIVER AUTHORITY	Rause	SURA INDIRECT REUSE	3510170	I :	SAN JACINTO	MONTGOMERY	0 0	6 6	0	0 172	126 95	
094385000 H SAN JACINTO 094387000 H SAN JACINTO	OBASSEON H SAN INCINTO		SANJACINTO	MONTGOMERY	02	MIN		Note	Groundwater	COLF COAST ACHIERR	170%	. 1	SAN JACINTO	MONTGOMERY	2 0	130 431	310	280 210	23.5
084287000 H SAN JACINTO	Olympia and Olympi		SANJACINTO	MONTGOMERY	20 02	MUN	340	SAN JACINTO RVER AUTHORITY	Rause	SJRA INDIRECT REUSE	3510170	: =	SAN JACINTO	MONTGOMERY	2 0	0 01	. 0	0 114	96 83
201001000	08487000 H SAN JACINTO		SANJACINTO	MONTGOMERY 17	0,	MUN	ľ	None	Groundwaler	GULF COAST AQUIFER	17015	I	SAN JACINTO	MONTGOMERY	10	170 758	699	449 369	300 245

	T.	9	T	Π		T.	Ι.	П		Ι	Ι.	Ι.		П		I	I	Ι	П	Τ.	-   ~	6		Τ.	Π			Τ.	Ι	_	1	J	Τ	Γ		_	Ţ,	Ţ.		Τ	T	Ι.			T	Ţ		Τ	Ţ	T.	_			T	I.	Π	Τ	Π	П	I	T.,	П			T,				, ,	Ι.,		Τ	Τ	П	T	Ι	П	П				Ţ	Τ	T.	П	]
2050 206	241 255	1,118 1,11	414 414	247 211	102 80	44 43	1,060 868	719 583	296 22	253 206	1.025 996	419 370	804 673	328 25	174 178	144 144	174 410	61 60	284 23	116 87	3,864 3,86	8,974 7,35	3,652 2,72	415 429	91 87	20 20	1800 180	921 92	134 134	5,601 5,60	29 29	189 186	240	44	163 163	868 868	1110 124	135 138	532 533	je je	98 241	206 206	142 145	142 145	48 48	338 338	9	85 85	150 150	280 280	406 406	2739 274	1180 119	118 115	290 290	467 46	2 8	211 211	9 9	370 370	1106 110	8	158	9842 169	1503 141	1003 653	200 200	546 546	500 1000 4007 450	3633 363	586 561	000	0 5	28 28	9	301 296	174 166	577 67.	2362 236	9 9	218 218	310 310	8 8	477 465	276 276	673 675
feet per year) 2040	254	1,060	193	280	135	45	1,309	884	409	312	1.064	493	974	450	169	144	186	19	348	162	3,873	11,041	5,093	185	26	20	1600	880	134	5,601	29	189	33	44	163	868	1130	135	532	12	36 26	306	142	142	48	338	9	92	150	280	406	2729	1190	123	290	467	8 10	211	9	370	1118	8	422	1538	1578	256	200	946	10009	3834	608	000	0 5	29	80 8	302	179	577	2312	. 9	218	310	9 9	977 496	276	673
pply (acre-fee 2030	27.1	1,012	5	333	4	48	1,286	1,083	11	380	1.107	12	1,134	12	165	140	376	- 19	421	0	3,879	11,279	275	388	100	20	1,600	880	134	5,001	53	189	240	44	163	998	099	135	532	22	8 9	308	142	1/2	48	338	9	98	150	280	408	2721	1190	127	230	467	109	211	9	370	1118	80	1376	1808	1624	1826	200	546	4607	3636	64)	90 0	0 4	29	12	118	184	22.5	2111	. 9	218	310	12	924	278	673
2020	289	948	431	388	0	£30	1,342	1,317	0	6 1	1.88	0	1,384	0	291	128	395	- 19	521	0	3,885	11294	0	374	117	20	1,600	880	134	5,001	59	68 5	22	44	163	908	1,110	138	522	02	8 8	508	142	142	48	338	9	98	98 0	280	408	2723	1180	138	280	467	100	211	9	370	121	80	1341	1516	1659	1671	200	999	15810	3633	299	90 0	0 %	29	- 1	309	195	577	2422	. 9	2.8	300	8 8	375	276	673
2010	385	1,125	527	909	0	67	1,498	1,779	0	644	1345	0	1,465	0	196	145	#14 c	- 19	574	0	3,888	11,303	0	438	141	20	1600	890	134	6,601	53	189	240	4	163	868	2130	136	532	63	117 88	206	142	142	48	338	7	98	180	280	406	2737	1180	119	230	467	109	211	9	370	1127	89	1737	3640	1263	1398	200	610	4607	3634	686	90 0	0 9	29	0	310	216	577	7	. 9	218	310	20 88	89	276	673
SOURCE County ID	5 61	170	5 5	02.1	02.1	6 6	100	02.1	U2	5 5	5 5	8	170	170	170	55	5 6	130	130	5 5	5 6	170	02.1	5 5	02.1	000	187	187	187	000	187	187	000	204	204	204	000	000	204	000	308	204	204	204	204	208	204	208	500	000	204	to 00	000	238	00	822	238	228	228	000	000	238	000	236	000	238	238	238	2.86	000	238	238	000	238	238	236	236	238	238	238	236	238	8 8	738	238	237
SOURCE Basin ID	0 0	10	5 5	10	10	9 9	9	10	10	0 9	2 2	0	10	10	10	0 5	2 9	10	10	0 0	0 0	10	10	5 5	10	90	90	8 8	80	90	90	80 8	8 8	10	80	10	8 8	8 8	80	80	0 10	8 8	10	88	0 0	0 6	80	88 8	80 80	88	80	8 8	80	88 80	8 8	80	8 8	90	90	80 80	8 8	90	90	0 0	88	90	90	88 ;	8 9	88	90	10	8 8	80	0 5	0 80	80	10	10 08	90	10	88 8	80 80	9 89	80	12
SOURCE County	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	RESERVOIR	POLK	POLK	POLK	RESERVOIR	POLK	POLK	DECEDATOR	SAN JACINTO	SAN JAGINTO	SAN JAGINTO	RESERVOIR 64AL MONTO	RESERVOIR	SAN JACINTO	RESERVOIR	SAN JAGNTO	SANJAGINTO	SAN JAGINTO	SAN JACINTO	SAN JAGINTO	SAN MONTO	SAN JACINTO	SAN JAGINTO	SANJAGINTO	RESERVOIR	SAN JACINTO	RESERVOR	RESERVOIR	TRINITY	RESERVOIR	TRINITY	RESERVOIR	TRINITY	TRINITY	RESERVOIR	RESERVOIR	WALKER	RESERVOIR	WALKER	RESERVOIR	WALKER	WALKER	WALKER	WAKER	RESERVOIR	WALKER	WALKER	RESERVOIR	WALKER	WALKER	WAKE	WALKER	WALKER	WAKER	WALKER	WALKER	WALKER	RESERVOIR	WAKER	WALKER	WALLER
SOURCE Basin	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	SAN JACINTO	TRINITY	TRINITY	TRINITY	TRINITY	TRINITY	TRINITY	TRINITY	TOWNT	SAN JACINTO	TRINITY	SANJACINTO	TRNITY	TRINITY	TRINITY	TRINITY	SANJACINTO	TRINITY	SAN JACINTO	TRINITY	SANJACINTO	SANJACINTO	TRINITY	TRINITY	TRINITY	TRINITY	TRINITY	TRNITY	TRNITY	TRNITY	TRNITY	TRNITY	TRINITY	TRNITY	TRNITY	TRNITY	TRINITY	TRINITY	TRINITY	SANJACINTO	TRINITY	TRINITY	TRINITY	TRINITY	SAN IACINTO	TRINITY	TRINITY	SANJACINTO	TRINITY	TRINITY	SANJACINTO	SANJACINTO	TRINITY	SANJACINTO	SANJACINTO	TRINITY	SANJACINTO	TRINITY	TRINITY	TRINITY	TRINITY	BRAZOS
SOURCE	r r	I	I I	ı	I	x 3	ı	I	I	x :	E I	ı	I	r	x	x :		ı	ı	I 3	E I	I	x	I I	ı	I	x :	1 1	ı	ı	x	<b>x</b> :		ı	ı	r	I 2		ı	x	x 2	ı	ı	ı	I :	ı .	I	x :	<b>1</b> 1	x	x :	r r	I	I I	ı ı	x	ı ı	ı	x	E 3	r r	I	I	I 3	ı z	I	ı	I :	. 1	ı	I	x :	ı	I	I :	ı 1	I	r	ı 1	ı	I	I :	ı 1	EE	ı	I
SOURCEID	17015	17015	3510170	17015	3510170	17015	17015	17015	3510170	17015	17015	3510170	17015	3510170	17015	17015	3610470	17015	17015	3510170	17015	17015	3510170	3510170	17015	08410	18715	18715	18715	08440	18715	18715	107.10	20415	20M15	20415	084HD	08410	20415	08410	20415	20415	20M15	20415	20415	20415	20415	20415	20415	084H0	20415	204 IS	084HD	22815 084HD	084H0	22815	08440	99708228	22815	084HD	08440	23631	08410	23615	08410	23615	23622	23631	21616	08490	23615	23615	230 ED	23615	99710236	23615	23615	23615	23615	23615	23615	23615	08440	23615	23627	23715
SOURCE Name	GULF COAST AQUIFER	GULF COAST AQUIFER	SUR INDIRECT REUSE	GULF COAST AQUIFER	SJRA INDIRECT REUSE	GUL COAST AQUIFER	GUIF COAST AQUIFER	GULF COAST AQUIFER	SJRA INDIRECT REUSE	GULF COAST AQUIFER	GUE COAST AGUIFER	SJRA INDIRECT REUSE	GULF COAST AQUIFER	SJRA INDIRECT REUSE	GULF COAST AQUIFER	GULF COAST AQUIFER	SUBA INDIRECT BEINE	GULF COAST AQUIFER	GULF COAST AQUIFBR	SJRA INDIRECT REUSE	GULF COAST AQUIFER	GULF COAST AQUIFER	SJPA INDIRECT REUSE	SUR INDIRECT REUSE	GULF COAST AQUIFER	LIVINGS TON-WALLIS VILLE SYSTEM	GULF COAST AQUIFER	CALF COAST ACHIEFE	GULF COAST AQUIFER	LIVINGS TOW-WALLIS VILLE SYSTEM	GULF COAST AQUIFER	GULFCOASTAQUIFER	I MANOS TOWNALLISM I E SYSTEM	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	LININGS TOW/WALLIS VILLE SYSTEM	LININGSTON-WALLISVILLE SYSTEM	GULFCOAST AQUIFBR	LIVINGS TON-WALLIS VILLE SYSTEM	GULF COASTAQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	QUIF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	GULF COAST AQUIFER	GULFCOASTAQUIFER	UNINGSTON/MALISMLE SYSTEM	LININGSTON-WALLISVILLE SYSTEM	GULF COAST AQUIFER	LIVINGSTON/MALLISVILLE SYSTEM	LININGS TOW/MALLIS VILLE SYSTEM	GULF COAST AQUIFER	LIVINGS TOW-WALLIS VILLE SYSTEM LIVINGS TOW-WALLIS VILLE SYSTEM	GULF COAST AQUIFER	CALF COAST ACHIEFE	UVESTOCK LOCAL SUPPLY	GULF COAST AQUIFER	LININGS TON-MALLISVILLE SYSTEM	LININGSTON-MALLISVILLE SYSTEM	YEGUAJACKSON AQUEBR	LIVINGS TON-WALLISVILLE SYSTEM	GULFCOASTAQUIFER	LININGSTON-MALUSVILLE SYSTEM	GULF COAST AQUIFER	UNDEFERENTIATED AQUIFER	YEGUAJACKSON AQUPER	CHIECOAST ACHERD	LININGS TOW/WALLIS WILLE SYSTEM	GULFCOASTAQUIFER	GULFCOASTAQUIFER	LINNOSTON/MALLISVELE SYSTEM	GULFCOASTAQUIFER	UVESTOCK LOCAL SUPPLY	GULFCOASTAQUIPER	GULFCOASTAQUIFER	GULFCOASTAQUIFER	GULFCOASTAGUIFER	GULFCOASTAQUIFER	GULFCOASTAQUIFER	GULFCOASTAQUIFER	LIMINGSTON-WALLSVILLE SYSTEM	CALF COAST AQUIFIER	SPARTAAQUIFER	GULFCOASTAQUIFER
SOURCE Type	Groundwater	Groundwaler	Groundwater	Groundwaler	Rouse	Groundwater	Groundwaler	Groundwaler	Rouse	Groundwalter	Groundwater	Rause	Groundwaler	Rause	Groundwater	Groundwaler	Raine	Groundwater	Groundwater	Reuse	Groundwater	Groundwaler	Rouse	Groundwater	Groundwater	Surface Water	Groundwaler	Surface Water Groundwaler	Groundwaler	Surface Water	Groundwaller	Groundwaller	Grandwater Surface Water	Groundwater	Groundwater	Groundwater	Surface Water	Surface Water	Groundwaler	Surface Water	Groundwater	Groundwaler	Groundwater	Groundwalter	Groundwaler	Groundwaler	Groundwater	Groundwater	Groundwater Surface Water	Surface Water	Groundwater	Surface Water	Surface Water	Groundwaler Surface Water	Surface Water	Groundwaler	Surface Water Groundwaler	Surface Water	Groundwater	Surface Water	Surface Water	Groundwaler	Surface Water	Groundwaler	Surface Water	Groundwater	Groundwater	Groundwater	Onumbration	Surface Water	Groundwater	Groundwaller	Surface Water	Groundwaler	Surface Water	Groundwater Surface Water	Groundwater	Groundwaler	Groundwaler	Groundwater	Groundwater	Groundwaler	Surface Water	Surrace water Groundwater	Groundwaler	Groundwaler
WWP Name	SAN JACINI O RVEX AD HORSTY None	None	SAN LACINTO BIVER AUTHORITY	None	SAN JACINTO RIVER AUTHORITY	None	None	None	SAN JACINTO RVER AUTHORITY	None	None	SAN JACINTO RVER AUTHORITY	None	SAN JACINTO RIVER AUTHORITY	None	None	SAN MOUNT O BIVER AUTHOBITY	None	None	SAN JACINTO RVER AUTHORITY	SAN JACINI O NOTE ACTRONES	SAN JACINTO RIVER AUTHORITY	SAN JACINTO RIVER AUTHORITY	SAN LACINTO BIVER AUTHORITY	None	TRINITY RIVER AUTHORITY	None	TRINITY POVER A UTHORSTY	None	TRINITY RIVER AUTHORITY	None	None	TOWN TOWN OF THE PROPERTY AND A STATE OF THE PARTY OF THE	None	None	None	TRINITY RIVER AUTHORITY	TRINITY RIVER AUTHORITY	None	TRINITY RIVER AUTHORITY	TOWITY DIVERSITY OF THE PARTY O	None	None	None	None	None	None	None	TRINITY BIVE BAUTHORITY	TRINITY RIVER AUTHORITY	None	TRINITY RIVER AUTHORITY	TRINITY RIVER AUTHORITY	None TRINITY RIVER AUTHORITY	TRINITY RIVERAUTHORITY	None	TRINITY RIVER AUTHORITY None	None	None	TRINITY RIVER AUTHORITY	TRINITY RIVER AUTHORITY	None	CITY OF HUNTS WILLE	None	CITY OF HUNTSWILLE	None	None	None	CITY OF HINTSVILE	TRINITY RIVER AUTHORITY	CITY OF HUNTSWILE	None	TRINITY BIVE RAUTHORITY	None	None	None	None	None	None	None	None	None	TRINITY RIVER AUTHORITY	TRINITY RIVER AUTHORITY None	None	None
WWP Number	ONO		340		340		t		340		T	340		340		1	340			340	040	340	240	340		187		181		187		†	48.7				187	187		187	48.2				1			1	187	187		187	187	38.7	187		187			187	187		410000	t	4,0000				42000	187	410000		187										187	181		
3 USE ID Type	MUN	MUN	MUN	MUN	MUN	WIN N	MUN	MUN	MUN	MUN	MIN	MUN	MUN	MUN	MUN	MUN	MAIN	MUN	MUN	MUN	STE	MUN	MUN	MUN	MUN	MUN	MUN	MAIN	ΓN	MUN	MN	MUN	MAIN	MUN	MUN	MUN	MUN	IRR	IRR	MUN	MUN	MUN	ΓΙΛ	ΓΙΛ	MAN	MUN	MN	MUN	MON	MUN	MUN	MUN	MUN	MUN	IRR	IRR	MUN	LIV	MN	MUN	MUN	MUN	MUN	MUN	MUN	MUN	MUN	MUN	MAIN	MUN	MUN	RB G	MIN	MUN	A :	2	'n	MAN	WW	MIN	MUN	Т	Τ	Т	MUN	MUN
WUG WUG County ID Basin ID	0.00	0,	70 20	0,	0. 0.	2 2	170	0,	0,	0.0	9 9	0.0	10 10	70 30	0,	0 1	2 2	0.0	0,	8 8	0.00	10 10	0, 0,	5 5	0,	82 08	22 23	8 8	8 21	87 08	87 08	22 23	8 8	8	8	Z Z	8 8	304	N 88	20	204	8 8	g z	8	2 2	2 2	8	8 1	8 8	8 8	8 8	8 8	88	88 88	8 8	88	8 8	18	80 08	88 8	8 8	99	0, 91	8 8	2 8	99	80 98	88	2 8	8 9	10 03	8 8	8 8	236 08	99	9 9	80	0, 91	9 9	89	0, 91	+	+	8 8	H	22
WUG County Coun	MONTGOMERY T	П	MONTGOMERY 1	П		$\perp$	MONTGOMBRY	Ш	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY	MONTGOMERY 1	MONTGOMERY	NOUK #	POLK	POUK	POUK	POLK	POLK #	POLK	NOW W	SAN JACINTO 2	SAN JACINTO 20	4	+	+	H	4	+	╀	SAN JACINTO 20	SAN JACINTO 20	SAN JACINTO 2	SAN JACINTO 20	SAN JACINTO 204	+	SAN JACINTO 204 SAN JACINTO 204	+	SAN JACINTO Z	TRINITY	TRNITY 228	$^{+}$	TRNIT	TRNITY	TRNITY	TRNITY	TRINTY 2:	TRINITY	TRNIT	WALKER	WALKER	WALKER	WALKER	WALKER	WALKER	WALKER	WALKER 2	WALKER	WALKER	WALKER	+	WALKER	+	WALKER	WALKER	WALKER	WALKER	WALKER	Н	+	+	WALKER 236	WALKER	WALER
WUG Basin	SANJACINTO			П		Ť	t	П	SAN JACINTO	SAN JACINTO	SANJACINTO	SAN JACINTO	SAN JACINTO	H	T	†	t		Н			Ш	SANJACINTO			TRINITY	TRINITY	TRINITY	TRINITY	TRINITY	TRINITY	TRINITY	TRINITY	SAN JACINTO	TRINITY	SANJACINTO	TRNITY	TRINITY	TRINITY	SAN JACINTO	SWUJACINTO	T	П	T	T	T	ı	1					TRINITY	TRINITY	TRINITY	TRINITY	TRINITY	TRINITY	TRNITY	TRNITY	TRINITY	TRINITY	SAN JACINTO	SAN JACINTO	TRINITY	TRINITY	TRINITY	TRINITY	SAN LACINTO	TRINITY	TRINITY	SAN JACINTO	TRINITY	TRINITY	SAN JACINTO	SWUJCINTO	TRINITY	SAN JACINTO	SAN JACINTO	TRINITY	SAN JACINTO	TRINITY	TRINITY	TRINITY	TRINITY	BRAZOS
WUG RWPG	ı ı	ı	ı :	ı	ı	x 3	ı	I	I	x :	z z	ı	I	r	r	Ξ:			ı	Ι,	ı ı	I	н:	ı :	ı	ı	π:	1	ı	I	r	Ξ:		ı	r	ı	x 3	ı	I	r	x 3	ı	ı	r	Ξ:	x 2	ı	Ξ:		x	Ξ:		ı	1 1	ı ı	н	ı :	ı	Ξ	x :	ı	I	ı		z z	r	r	Ξ.		ı	I	Ξ:	= =	I	Ξ:	ı 1	r	I	ı 1	r	I	Ι:	ı 1	ı ı	I	I
WUGID	064268000	084272000	080726000	080732000	080732000	080734000	084307000	084312000	084312000	084322000	080745000	080745000	084339000	084339000	084343000	080982000	084344000	STAGECOACH	084347000	084347000	081002170	+	Н	080655000	_	080757187	-		+	080382000	081003187	080933000	004263000	080122000	080122000	080757204	080757204	081004204	$\perp$	NY 084226000	WY 084226000	NY 084226000	081005204	081005204	081001204	084253000	081003204	081056000	084223000	084328000	084328000	080757228	080757228	080757228	081004228	081004228	NY 084226000 NY 084226000	081005228	081003228	080610000	084363000	084071000	080757236	080757236	080757236	080757236	080757236	080757236	080238000	080282000	080292000	081004236	$\perp$	NY 084226000	4	081005236	081005236	081001236	081001236	081003236	080926000	084323000	084323000	084372000	084372000	090077000
WUG NAME	MONTGOMERY COUNTY UD #1	NEW CANEY MUD	OW REGENORTH	PANORAMA VILLAGE	PANORAMAVILLAGE	PATTON VILLAGE	PORTER WSC	RAYFORD ROADMUD	RAYFORD ROADMUD	RNER PLANTATION MUD	SHEWANDAM	SHENANDOW	SOUTHERN MONTGOMERY COUNTY MUD	SOUTHERN MONTGOMERY COUNTY MUD	SOUTHWEST UTLITIES	SPLENDORA	SPINIO CHEEK UD	STAGECOACH	STANLEYLAKEMUD	STANLEY LAKE MUD	STEAM BLECTRIC POWER	THE WOODLANDS	THE WOODLANDS	WILUS	WOODBRANCH	COUNTY-OTHER	COUNTY-OTHER	LANG LIVINGSTON WATER SUPPLY & SEWER SERVICE COMP.  A SEWER SERVICE COMP.	LNESTOCK	UVNGSTON	MNING	ONALASKA	TOWARD NEW WOO	COLDSPRING	COLDSPRING	COUNTY-OTHER	COUNTY-OTHER	IRRIGATION	IRRIGATION	LAKE LIVING STON WATER SUPPLY & SEWER SERVICE COMPA	LANCE LIVING STON WATER SUPPLY & SEWER SERVICE COMPA	LAKE LIVINGSTON WATER SUPPLY & SEVERSERVICE COMPANY	LNESTOCK	LNESTOCK	MANUFACTURING	MERCYWSC	MNING	POINT BLANK	RIVERSIDE WSC	SAN JACINTO WSC	SAN JACINTO WSC	COUNTY-OTHER	COUNTY-OTHER	COUNTY-OTHER	GROVETON	IRRIGATION	LAKE LIVING STON WATER SUPPLY & SEWER SERVICE COMPANY LAKE LIVING STON WATER SUPPLY & SEWER SERVICE COMPANY	LNESTOCK	MNING	TRINITY	TRINITY RURAL WSC	CONSCLIDATEDWSC	COUNTY-OTHER	COUNTY-OTHER	COUNTY-OTHER	COUNTY-OTHER	COUNTY-OTHER	COUNTY-OTHER	HUNTSVILLE	HUNTSVILLE	HUNTSVILLE	IRRIGATION	INDICATION WATER SUPPLY A SEVER SERVICE COMPA	LAKE LIVING STON WATER SUPPLY & SEMER SERVICE COMPANY	LNESTOCK	LIVESTOCK	LINESTOCK	MANUFACT URING	MANUFACT URING MINING	MNING	NEW WAVERLY	RVBRSDE WSC	TRINITY BIBAL WSC	WALKER COUNTY RUBAL WSC	WALKER COUNTY RURAL WSC	BROOKSHIRE

### Region H Table 3H 1: Current Water Sunding Available to Region H by City and Category

Ci Cinn	MUG WUG	9	The Court	WUG	WUG UR	JSE WWP	- THE COUNTY	- Thousan	N House	O TOUR IO	SOURCE	since best	- College	SOURCE	SOURCE		Sur	Supply (acre-feet per year	per year)	
NOON.	RWPG		woo county	County ID	Basin ID Ty	Type Number		aconoce 19pe	SOUNDE INSIDE	300000	RWPG	DOUGCE BRSIII	SOURCE COUNTY	Basin ID (	County ID	2010	2020	2030	2040 2	2050 2060
COUNTY-OTHER 080757231	H H	BRAZOS	WALLER	237	75 M	MUN	None	Groundwaler	GULF COAST AQUIFER	23715	I	BRAZOS	WALLER	12	237	685	999	999	685	685
COUNTY-OTHER 080757231	H H	SAN JACINTO	WALLER	23.7	30 NA	MUN	None	Groundwater	GULF COAST AQUIFER	23715	Ι	SAN JACINTO	WALLER	10	237	841	841	841	841	841
HEMPSTEAD 080271000	H 00	BRAZOS	WALLER	23.7	2 M	MUN	None	Groundwater	GULF COAST AQUIFER	23715	Ι	BRAZOS	WALLER	12	237	1,457	1,457	1,457	1,457	1,457
IRRIGATION 081034231	37 H	BRAZOS	WALLER	237	2 16	IRR	None	Groundwater	BRAZOS RIVER ALLUMUM AQUIFER	23705	Ι	BRAZOS	WALLER	12	237	4825	4825	4825	4825	4825 4825
IRRIGATION 081004231	H H	SAN JACINTO	WALLER	237	30	IRR	None	Groundwater	GULF COAST AQUIFER	23715	I	BRAZOS	WALLER	12	237	2700	7226	1011	3100	6824 5218
IRRIGATION 081004237	H H	SAN JACINTO	WALLER	237	30	IRR	None	Groundwaler	GULF COAST AQUIFER	23715	I	SAN JACINTO	WALLER	10	233	10,453	10,453	10,462	10,040	9,737
KATY 080312000	Н 000	SAN JACINTO	WALLER	237	00	MUN	None	Groundwaler	GULF COAST AQUIFER	10115	Ξ	SAN JACINTO	HARRIS	10	101	189	121	130	110	110
LNESTOCK 081005231	37 H	BRAZOS	WALLER	23.7	7 Z	rıv.	None	Surface Water	A TAIL STOCK LOCAL SUPPLY	99712237	Ι	BRAZOS	WALLER	12	237	232	232	232	232	342
LNESTOCK 081005231	37 H	BRAZOS	WALLER	237	7 2	ΓΙΛ	None	Groundwater	GUUF COAST AQUIFER	23715	I	BRAZOS	WALLER	12	237	444	444	444	444	434
LNESTOCK 08100523	37 H	SAN JACINTO	WALLER	23.7	10 F	LIV	None	Surface Water	UVESTOCK LOCAL SUPPLY	99710237	×	SAN JACINTO	WALLER	10	237	08	08	06	06	102
LIVESTOCK 081036231	H 18	SAN JACINTO	WALLER	23.7	10 (1	ΛI	None	Groundwaler	GULF COAST AQUIFER	23715	I	SAN JACINTO	WALLER	10	237	173	173	173	173	161
MANUFACTURING 081001237	H 151	BRAZOS	WALLER	237	72 W	NWN	None	Groundwater	GULF COAST AQUIFER	23715	I	BRAZOS	WALLER	12	237	17	17	17	- 21	- 21
MANUFACTURING 081001231	37 H	SAN JACINTO	WALLER	23.7	30 W	WWN	None	Groundwater	GUUF COAST AQUIFER	23715	Ξ	SAN JACINTO	WALLER	10	237	7.2	7.2	7.2	7.2	7.2
MNING 081003231	37 H	BRAZOS	WALLER	237	n a	NN	None	Groundwater	GUUF COAST AQUIFER	23715	Ι	BRAZOS	WALLER	12	237	6	6	6	6	6
MNING 081003231	37 H	SAN JACINTO	WALLER	237	OL OL	MN	None	Groundwater	GULF COAST AQUIFER	23715	I	SAN JACINTO	WALLER	10	237	1.1	1.2	1.2	12	1.2
PINE ISLAND 080938000	H 00	BRAZOS	WALLER	23.7	75 M	MUN	None	Groundwaler	GULF COAST AQUIFER	23715	I	BRAZOS	WALLER	12	237	117	117	117	117	117
PRAIRIE VEW 060485000	H 00	BRAZOS	WALLER	237	72 M	MUN	None	Groundwater	GULF COAST AQUIFER	23715	I	BRAZOS	WALLER	12	237	1129	1.23	1129	1129	1129
PRAIRIE VEW 080485000	Н 000	SAN JACINTO	WALLER	23.7	00 OE	MUN	None	Groundwater	GUUF COAST AQUIFER	23715	Ξ	SAN JACINTO	WALLER	10	237	124	124	124	124	124
WALER 080629000	H 000	SANJACINTO	WALIER	23.7	W (I	MIN	None	Government	desiliov 15voo siiro	23.7.16	3	OTMINE DAY	0211777	40	222	440	100	100	440	410

#### Appendix 3I

Current Water Supplies Available to Region H by Wholesale Water Provider

Region H Table 31: Current Water Supplies Available to WUGs in Region H by Wholesale Water Provider

	The Contract of the Contract o							S	Supply (acre-feet per year)	feet per year	<u>-</u>	
	WWW Number	ř	Source WWVP=	WWP Number	"	Source Name	2010		2030	2040		2060
BAYTOWN AREA WATER AUTHORITY	15	-	CITY OF HOUSTON	396200	084H0	LIVINGSTON-WALLISVILLE SYSTEM	17,534	17,534	17,534	17,534	17,534	17,534
BRAZOS RIVER AUTHORITY	331	ŋ	SELF SUPPLIED	331	120E0	BRAZOS RIVER AUTHORITY MAIN STEM STYSTEM	19,501	19,501	19,501	19,501	19,501	19,501
BRAZOSPORT WATER AUTHORITY	2000	Ξ	SELF SUPPLIED	2000	3461205366	BRAZOS RIVER RUN-OF-RIVER	8,742	8,742	8,742	8,742	8,742	8,742
CHAMBERS LIBERTY COUNTIES NAVIGATIONAL DISTRICT	150	I	SELF SUPPLIED	150	3460804279B	TRINITY RIVER RUN-OF-RIVER	44,788	44,788	44,788	44,788	44,788	44,788
CHCRWA	999902	Ι	CITY OF HOUSTON	396200	10030	HOUSTON LAKE/RESERVOIR	2,375	2,375	2,375	2,375	2,375	2,375
		I	SELF SUPPLIED	898902	10115	GULF COAST AQUIFER	3,246	1,930	1,287	1,287	1,287	1,287
CITY OF GALVESTON	316200	I	GULF COAST WATER AUTHORITY	325	3461205168	BRAZOS RIVER RUN-OF-RIVER BRAZOS RIVER RUN-OF-RIVER	24.217	1,034	1,111	1,147	1,173	1,189
		I	SELF SUPPLIED	316200	08415	GULF COAST AQUIFER	1,610	1,590	1,571	1,552	1,539	1,539
					07915	GULF COAST AQUIFER	2,857	2,294	1,513	1,513	1,513	1,513
					084H0	LIVINGSTON-WALLISVILLE SYSTEM	644,906	677,937	711,220	750,090	791,642	799,573
CITY OF HOUSTON	396200	I	SELF SUPPLIED	396200	10030	HOUSTON LAKE/RESERVOIR	103,868	103,868	103,868	103,868	103,868	103,868
					17015	GULF COAST AGUIFER	178	178	178	178	178	178
					3460804277	TRINITY RIVER RUN-OF-RIVER	33,000	33,000	33,000	33,000	33,000	33,000
1 1 1 1 2 C > F C	440000	I	TRINITY RIVER AUTHORITY	187	084H0	LIVINGSTON-WALLISVILLE SYSTEM	22,403	22,403	22,403	22,403	22,403	22,403
	1000	I	SELF SUPPLIED	410000	23615	GULF COAST AQUIFER	5,283	5,264	5,237	5,205	5,183	5,164
CITY OF PASADENA	651900	<b>.</b>	CITY OF HOUSTON	396200	084H0	LIVINGSTON-WALLISVILLE SYSTEM	38,514	38,514	38,514	38,514	38,514	38,514
1 100 100 100 100 100 100 100 100 100 1		Ξ:	SELF SUPPLIED	651900	10115	GULF COAST AQUIFER	2,047	2,047	2,047	2,047	2,047	2,047
CLEAR LAKE CITY WATER AUTHORITY	159000	= =	CITY OF HOUSTON	396200	084H0	LIVINGSTON-WALLISVILLE SYSTEM	26,876	26,876	26,876	26,876	26,876	26,876
	000		SELF SUPPLIED	821000	07915	GULF COAST AQUIFER	2.075	1.431	808	200,1	962	962
FORT BEND COUNTY WCID #2	821000	I			3461205168	BRAZOS RIVER RUN-OF-RIVER	6.384	6.384	6.384	6.384	6.384	6.384
		:	GULF COAST WATER AUTHORITY	325	3461205171	BRAZOS RIVER RUN-OF-RIVER	195	195	195	195	195	195
		3	VEIGOUTIN GETAW TOACO E HIO	325	3461205168	BRAZOS RIVER RUN-OF-RIVER	2,091	2,091	2,091	2,091	2,091	2,091
GALVESTON COUNTY WCID #1	316325	Е	GULF COAST WATER AUTHORITY	325	3461205171	BRAZOS RIVER RUN-OF-RIVER	1,141	1,141	1,141	1,141	1,141	1,141
		I	SELF SUPPLIED	316325	08415	GULF COAST AQUIFER	309	309	309	309	309	309
					3461105357A	SAN JACINTO-BRAZOS RIVER RUN-OF-RIVER	13,541	13,541	13,541	13,541	13,541	13,541
		I	GULF COAST WATER AUTHORITY	325	3461205168	BRAZOS RIVER RUN-OF-RIVER	58,773	58,773	58,773	58,773	58,773	58,773
GULF COAST WATER AUTHORITY	325				3461205322B	BRAZOS RIVER RUN-OF-RIVER	34.063	34.063	34.063	34.063	34.063	34.063
			VEIGOUTH'S GRAND SOCKAGE	100	43000	METOVEO METO MINN VEIGOUTLIN GRAND SOCKAGE	000 00	00000	000 00	000 00	000.00	090 80
		9	BRAZOS KIVEK AUTHORITY	331	120E0	BRAZOS KIVEK AUTHORITY MAIN STEM STYSTEM	38,260	38,260	38,260	38,260	38,260	38,260
LA PORTE AREA WATER AUTHORITY	1095	I	CITY OF HOUSTON	396200	084H0	LIVINGSTON-WALLISVILLE SYSTEM	9,750	9,750	9,750	9,750	9,750	9,750
LOWER NECHES VALLEY AUTHORITY	140	-	SELF SUPPLIED	140	060A0	SAM RAYBURN-STEINHAGEN LAKE/RESERVOIR SYSTEM	63,863	63,898	63,946	64,007	64,083	64,177
VEI O IGII COOTIN	00000	Ξ	GULF COAST WATER AUTHORITY	325	3461205168	BRAZOS RIVER RUN-OF-RIVER	9,672	9,663	9,659	9,656	9,658	9,645
MISSOOKICE	999903	I	SELF SUPPLIED	999903	07915	GULF COAST AQUIFER	15,862	13,713	9,340	9,340	9,340	9,340
		I	CITY OF HOUSTON	396200	084H0	LIVINGSTON-WALLISVILLE SYSTEM	0	21,434	21,434	21,434	21,434	21,434
NFBWA	999901	I	SELF SUPPLIED	999901	07915	GULF COAST AQUIFER	33,373	32,083	26,332	26,332	26,332	26,332
			SELF SUPPLIED		10115	GULF COAST AQUIFER	1,636	470	311	311	311	311
NHCRWA	999904	Ξ.	CITY OF HOUSTON	396200	10030	HOUSTON LAKE/RESERVOIR	34,714	34,714	34,714	34,714	34,714	34,714
			SELF SUPPLIED	398904	10115 084H0	GULF COAST AGUILER	81,243	41,071	30,556	30,558	30,558	30,558
NORTH CHANNEL WATER AUTHORITY	607473	Ξ.	SELF SUPPLIED	607473	10115	GULF COAST AQUIFER	1,673	1,652	1,650	1,647	1,645	1,645
		9	BRAZOS RIVER AUTHORITY	331	120E0	BRAZOS RIVER AUTHORITY MAIN STEM STYSTEM	83,000	83,000	83,000	83,000	83,000	83,000
NRG	398300				3460903926	TRINITY-SAN JACINTO RIVER RUN-OF-RIVER	30,000	30,000	30,000	30,000	30,000	30,000
		I	NRG	398300	3461205320	BRAZOS RIVER RUN-OF-RIVER	12,000	12,000	12,000	12,000	12,000	12,000
					3461205325	BRAZOS RIVER KON-OT-RIVER	111/97	11/97	11,782	717,82	111/97	11/'97
RICHMOND-ROSENBERG	999905	g	BRAZOS RIVER AUTHORITY	331	120E0	BRAZOS RIVER AUTHORITY MAIN STEM STYSTEM	7,500	7,500	7,500	7,500	7,500	7,500
		I	SELF SUPPLIED	999905	07915	GULF COAST AQUIFER	7,408	6,111	4,279	4,279	4,279	4,279
					10060	CONROE LAKE/RESERVOIR	21,698	21,698	21,698	21,698	21,698	21,698
SAN JACINTO RIVER AUTHORITY	240	I	SELF SUPPLIED	240	17015 3410805271B	GULF COAST AQUIFER TEINITY BIVED BLIN OF BIVED	11,303	11,294	11,279	11,041	8,974	7,359
					3461004964	SAN JACINTO RIVER RUN-OF-RIVER	37.627	37.627	37.627	37.627	37.627	37.627
		Ξ	GULF COAST WATER AUTHORITY	325	3461205168	BRAZOS RIVER RUN-OF-RIVER	12,563	12,563	12,563	12,563	12,563	12,563
SUGAR LAND	999906	Ι	SELF SUPPLIED	906666	07915	GULF COAST AQUIFER	20,281	17,020	9,974	9,927	9,927	9,027
THE DOW CHEMICAL CO.	237200	I	SELF SUPPLIED	237200	3461205328B	BRAZOS RIVER RUN-OF-RIVER	137,475	137,475	137,475	137,475	137,475	137,475
TRINITY RIVER AUTHORITY	187	Ι:	SELF SUPPLIED	187	084H0	LIVINGSTON-WALLISVILLE SYSTEM	41,016	41,009	41,009	41,012	41,017	41,021
WHORWA	206666	ı	CILY OF HOUSI ON	396200	084H0	CIVINGS I ON-WALLISVILLE SYSTEM	3 208	20,43/	1740	1740	1 740	1 740
		I	SELF SUPPLIED	206666	10115	GULF COAST AQUIFER	42,047	20,324	14,781	14,781	14,781	14,781
Notes:												

Notes:

1) WWPs with contracts to supply wholesale water directly to WUGs
2) WWPs with contracts to supply another WWP

#### Appendix 3J

Current Surface Water Supplies by Category of Use by Basin by Wholesale Water Provider

MUNICIPAL 2.375 2.375 2.376 MUNICIPAL 3.246 1.930 1.237 1.537 MUNICIPAL 1.610 1.537
MUNICIPAL 2,376 MUNICIPAL 3,246 MUNICIPAL 1,610 MUNICIPAL 1,610 MUNICIPAL 2,011 MUNICIPAL 2,011
MUNICIP MUNICIP MUNICIP MUNICIP
SAN JACINTO SAN JACINTO SAN JACINTO-BRAZOS BRAZOS BRAZOS SAN JACINTO-BRAZOS
RESERVOIR HARRIS GALVESTON FORT BEND FORT BEND FORT BEND
HOUSTON LAWE RESERVOR GULF COAST AGUIFER GULF COAST AGUIFER GULF COAST AGUIFER HAAZOS RAVER RINACI-RIVER RAAZOS RAVER RINACI-RIVER
180-
10030 10115 08415 346120516 3461205171 07915
999902 10030 10115 005162 3461 205162 3461 205171 07915 084H0