3.0 Evaluation of Current Water Supplies in the Region

A key task in the preparation of the water plan for the North East Texas Region is to determine the amount of water that is currently available to the region. In Chapter 4, this information will be compared to the water demand projections presented in the previous chapter to identify water user groups with projected needs.

According to Texas Water Development Board requirements, the analysis of currently available water supply is to be presented in three parts:

- Estimates of available supply by source;
- Estimates of the supplies currently available to each water user group; and
- Estimates of the supplies currently available to each designated major water provider.

The following sections of this chapter present the supply availability estimates accordingly.

3.1 Surface Water Supplies

The North East Texas Regional Water Planning Area includes all or a portion of 19 counties that encompass major portions of four river basins: the Cypress Creek Basin, the Red River Basin, Sulphur River Basin and the Sabine River Basin. Relatively small portions of the Neches River Basin and the Trinity River Basin also extend into the North East Texas Region. Surface water sources within the region include rivers, streams, lakes, ponds, and tanks.

Surface water in Texas is owned by the State, and its use is regulated under the legal doctrine of prior appropriation. This means that water rights that are issued by the state for the diversion and use of surface water have priority according to the date that the right was issued. The oldest issued water right has priority over all subsequently issued water rights, regardless of the type of use. Water rights issued by the state generally are one of two types, run-of-the-river rights and stored water rights.

Run-of-the-river water rights permits allow diversions of water directly from a river or stream provided there is water in the stream and that the water is not needed to meet senior downstream water rights. Run-of-the-river rights are greatly impacted by drought conditions, particularly in the upper portions of a river basin.

Stored water rights allow the impoundment of water by a permittee in a reservoir. Water can be held for storage as long as the inflow is not needed to meet a senior downstream water right or other condition, such as release requirements for maintenance of instream flows. Water stored in the reservoir can be withdrawn by the permittee at a later date to meet water demands. Stored water rights are generally based on a reservoir's firm yield and are therefore less sensitive to drought conditions.

In addition to water rights issued by the state, individual land owners are allowed to use certain surface waters without a permit. Specifically, land owners are allowed to construct impoundments with up to 200 acre-feet of storage or use water directly from a stream for domestic and livestock purposes. These types of water supplies are referred to as "local supply sources."

A summary of the available surface water supplies for each of the river basins within the region is presented below. In accordance TWDB requirements, the estimates of available water supply are based on the following key assumptions:

- Water supply is to be evaluated as the amount of water that a user can depend on obtaining during drought of record conditions. For reservoirs, this corresponds to the firm yield. For run-of-the-river sources this corresponds to the amount of water available for diversion during the driest period of record.

- Water availability is to be based on the assumption that all senior downstream water rights are being fully utilized.

- Water availability is to be based on the infrastructure that is currently in place. For example, water would not be considered available from a reservoir if a user needs to construct the water intake and pipeline required for diverting and conveying water from the reservoir to the area of need.

It is important to note that the description of available surface water supplies described in the subsequent sections is limited by the availability of information. This is particularly true in the case of run-of-the-river supplies. At present, information is not available to estimate the amount of run-of-the-river supply available for the conditions described above. The state is currently in the process of developing new water availability models for 21 river basins in Texas. Once completed, these models will allow for better estimation of run-of-the-river supply availability during drought of record conditions. Of the six river basins in the region, only the Sulphur River Basin has been modeled to date. Water availability models for the other basins are scheduled to be completed by December 2001.

In addition to the data limitations for run-of-the-river water availability, there is also only limited information available to characterize the supply available under drought of record conditions from small impoundments and from local water sources. Consequently, river basin supply estimates are based largely on the estimated firm yield of existing reservoirs. However, it should be noted that run-of-the-river supplies do constitute another important component of the total water supply available to users within the region.

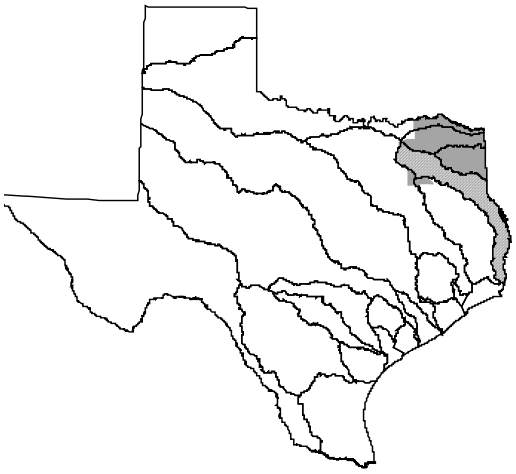
The following surface water supply descriptions include the most current available firm yield estimates. In most cases, the yield analyses were performed by the TWDB and are included in the current State Water Plan. For several of the reservoirs in the North East Texas Region, the TWDB has performed more recent hydrographic surveys to determine current reservoir storage capacities. These revised storage capacity estimates differ from previous estimates due to more accurate hydrographic survey methods and/or the effects of sedimentation. However, this information has not yet been used to reevaluate firm yield of these reservoirs. For these reservoirs, the actual firm yield may be less than presented in this chapter. The following table presents the summarized results of recent hydrographic surveys for reservoirs in the North East Texas Region.

Table 3.1 - TWDB Reservoir Volumetric Surveys for Reservoirs in the North East Texas Region

Reservoir Name	TWDB Survey Date	Conservation Storage Capacity (ac-ft)	Last Prior Survey Date	Percent Change in Storage Capacity Since Last Survey
Lake Cherokee	October 1996	41,506	1986	-8.1
Wright Patman Reservoir	January 1997	110,900	1956	-23.7
Lake Tawakoni	April 1997	888,140	1960	-5.1
Lake Bob Sandlin	February 1998	192,350	1978	-4.0
Lake Monticello	February 1998	34,740	1972	-23.7
Lake Cypress Springs	April 1998	67,690	1972	-7.0
Lake O' the Pines	October 1998	238,933	1959	-6.0

3.1 (a) Sabine River Basin

The Sabine River Basin originates in Collin County, just west of the North East Texas Region, and extends to Sabine Lake in the far southeastern portion of Texas. The total drainage area of the basin is nearly 9,800 square miles. Of this area, approximately 7,400 square miles are in Texas while the remaining 2,400 square miles of drainage area are in Louisiana. Within the North East Texas Region, all or portions of Hunt, Hopkins, Franklin, Rains, Wood, Upshur, Gregg, Harrison, Smith, and Van Zandt counties are in the Sabine Basin.



The existing surface water supplies in the Sabine Basin include 10 water supply reservoirs and run-of-the-river supplies from the Sabine River. Table 3.2 presents the estimated available water supply for these sources during drought of record conditions by decade.

Table 3.2 - Sabine Basin Surface Water Supplies*

	Supply Available (ac-ft/yr)					
Name of Source	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Greenville City Lakes**	1,205	1,205	1,205	1,205	1,205	1,205
Lake Tawakoni	238,100	229,005	227,118	225,232	223,345	221,459
Lake Fork	188,600	187,776	187,590	187,403	187,217	187,031
Lake Gladewater**	1,679	1,679	1,679	1,679	1,679	1,679
Lake Cherokee**	18,000	18,000	18,000	18,000	18,000	18,000
Lake Quitman***	0	0	0	0	0	0
Lake Holbrook***	0	0	0	0	0	0
Lake Hawkins***	0	0	0	0	0	0
Lake Winnsboro***	0	0	0	0	0	0
Toledo Bend****	0	0	0	0	0	0
Sabine ROR	166,156	166,156	166,156	166,156	166,156	166,156
TOTAL	**613,740**	**603,821**	**601,748**	**599,675**	**597,602**	**595,530**

** Based on criteria described in Section 3.1.*
*** Sedimentation effects on available supply not available.*
**** Firm yields of Lake Quitman, Holbrook, Hawkins, and Winnsboro are 3,710, 3,285, 8,035, 5,760 ac-ft/yr, respectively. No available supply is shown since none is permitted and no infrastructure is in place.*
***** Firm yield for Texas' portion of Toledo Bend is 1,043,300 acre-feet per year, however the NETRWP Group elected to include no supply available due to the lack of infrastructure to import water from the reservoir to the region.*

Greenville City Lakes: These lakes consist of a series of off-channel reservoirs that are used to impound diversions from the Cowleech Fork of the Sabine River. The Comprehensive Sabine Water Management Plan (1999) states that operational modifications could increase the firm yield from 1,205 ac-ft/yr to 2,800 ac-ft/yr. Permitted use from the lakes is 4,159 ac-ft/yr which means that, even with operational improvements, the total permitted use would not be available during drought of record conditions. Supply from these lakes is used by the City of Greenville to meet municipal and steam electric water demands.

Lake Tawakoni: Lake Tawakoni is located in Rains, Van Zandt, and Hunt counties and contains the largest supply source in the region with a firm yield of approximately 230,890 ac-ft/yr. Permitted use is 238,100 ac-ft/yr (Freese and Nichols, 1999). Lake Tawakoni is owned and operated by the Sabine River Authority (SRA). Supply from this reservoir is used for municipal water supply, with the City of Dallas being entitled to 80 percent of the yield. The remaining supply from Lake Tawakoni is allocated by contract to municipal users within the North East Texas Region.

Lake Fork: Lake Fork is located on Lake Fork Creek, a tributary to the Sabine River, in Wood, Rains, and Hopkins counties. The firm yield of Lake Fork is estimated to be nearly 188,000 ac-ft/yr, of which approximately 70 percent is dedicated by contract to the City of Dallas (Freese and Nichols, 1999). However, 11,860 ac-ft/yr of this contract cannot be transferred outside of the Sabine Basin. The SRA, which owns and operates the reservoir, has committed all of the remaining supply through contracts and options with local entities.

Lake Gladewater: Owned and operated by the City of Gladewater, Lake Gladewater has an estimated firm yield of 6,900 ac-ft/yr (Freese and Nichols, 1999). The city currently holds a water right for 1,679 ac-ft/yr, although they have submitted a request to the TNRCC to increase this permitted right to 3,358 ac-ft/yr.

Lake Cherokee: Lake Cherokee is owned and operated by the Cherokee Water Company. The reservoir is located in Rusk and Gregg counties, approximately 12 miles southeast of Longview. Based on the owner's current operating conditions, the maximum available supply is estimated to be 18,000 ac-ft/yr, although firm yield for Lake Cherokee is estimated to be 39,400 acre-feet per year (Freese and Nichols, 1999). Water supply from Lake Cherokee is used for municipal and industrial purposes.

Wood County Lakes (Lake Quitman, Holbrook, Hawkins, and Winnsboro): The Wood County Lakes are owned and operated by Wood County, primarily for recreation and flood control purposes. The firm yield for these lakes was estimated by the Sabine River Authority to be 3,710 ac-ft/ yr for Lake Quitman, 3,285 ac-ft /yr for Lake Holbrook, 8,035 acre-feet per year for Lake Hawkins, and 5,760 ac-ft/ yr for Lake Winnsboro. However, due to lack of infrastructure and water rights, no water is currently available from these reservoirs.

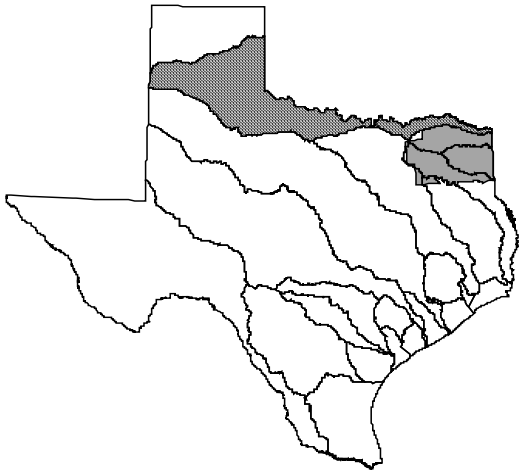
Toledo Bend: Toledo Bend Reservoir is located in Newton, Shelby, and Sabine counties in the East Texas Regional Water Planning Area. Firm yield of the Toledo Bend Reservoir is estimated at 1,043,300 ac-ft/yr. Current permits allow the Sabine River Authority to use 750,000 ac-ft/yr. Currently there is no infrastructure in place to transfer water from Toledo Bend for use in the North East Texas Region. The

North East Texas Regionalal Water Planning Group has elected not to show any of the supply from this reservoir as available to the region.

Sabine Run-of-the-River: Based on TNRCC water right information, 166,156 ac-ft/ yr of run-of-the-river supply is available in the Sabine Basin in the North East Texas Region. Of this supply, 153,606 ac-ft/yr is from the Sabine River, 1,100 ac-ft/yr from the Brandy Branch and 1,550 ac-ft/yr from Mill Creek. These supply estimates are based on TNRCC municipal and industrial water rights and may need to be revised subject to analysis with the Sabine River water availability model when it is available.

3.1 (b) Red River Basin

The Red River Basin originates in eastern New Mexico and extends eastward across north Texas and southern Oklahoma and into Louisiana. Approximately 24,460 square miles of the 48,030 square mile drainage area of the basin are within Texas. Within the North East Texas Region, all or part of Bowie, Red River, and Lamar counties are in the Red River Basin.



The existing surface water supplies in the Red River Basin include Lake Texoma, Pat Mayse Lake, and Lake Crook. Table 3.3 presents the estimated water supply that is available under drought of record conditions for each of these sources by decade. None of the water in Lake Texoma is considered available to the North East Texas Region due to lack of infrastructure and water rights. The salinity of Lake Texoma water is also a problem.

Table 3.3 - Red River Basin Surface Water Supplies*

	Supply Available (ac-ft/yr)					
Name of Source	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Lake Texoma***	0	0	0	0	0	0
Pat Mayse Lake	59,900	59,570	59,200	58,900	58,600	58,300
Lake Crook**	1,000	1,000	1,000	1,000	1,000	1,000
TOTAL	**60,900**	**60,570**	**60,200**	**59,900**	**59,600**	**59,300**

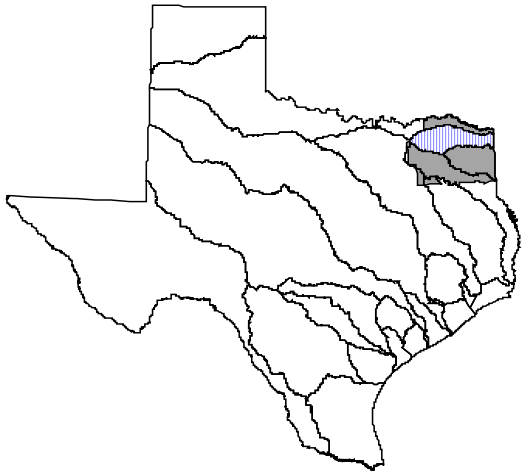
** Based on criteria described in Section 3.1.*
*** Sedimentation effects on available supply not available.*
**** Firm yield in 2000 is 932,950 AF/yr based on estimate from the Region C report entitled, "Task 3 Draft Report - Analysis of Current Water Supply in Region C."*

Lake Texoma: Lake Texoma was created for flood protection, water supply, hydroelectric power generation, and recreational purposes. Lake Texoma has an estimated firm yield of 932,950 acre-feet per year. Lake Texoma is located in Region C, in Grayson County, Texas, as well as in Oklahoma. While there is some supply from Lake Texoma that may be available for use in the North East Texas Region, currently there is no infrastructure in place to transfer this water into the region. Therefore, the North East Texas Regionalal Water Planning Group has elected to not show any of the supply from this reservoir as available to the region.

Pat Mayse Lake: Pat Mayse Lake is located in Lamar County on Sanders Creek, 10 miles north of Paris, Texas. Pat Mayse Lake is owned and operated by the USACE for flood control, water supply, and recreation purposes. The firm yield of Pat Mayse Lake is estimated to be 59,900 ac-ft/yr. The City of Paris holds the rights to all water from Pat Mayse Lake.

Lake Crook: Lake Crook is also located in Lamar County. It is a small lake with an estimated firm yield of 1,000 ac-ft/ yr. Yield from this reservoir also is used to meet the water demands of the City of Paris.

3.1 (c) Sulphur River Basin



The Sulphur River Basin begins in Fannin and Hunt counties and extends eastward to southwest Arkansas where it joins the Red River. Within the North East Texas Region, all or part of Hunt, Delta, Lamar, Hopkins, Franklin, Titus, Red River, Morris, Bowie, and Cass counties are within the Sulphur Basin. The Texas portion of the Sulphur River Basin covers approximately 3,600 square miles.

Due to high average rainfall and runoff, the Sulphur Basin has an abundant supply of surface water. Approximately 91 percent of the water used for all purposes in the basin is from surface water supplies, with groundwater supplying the remainder (Brandes, 1999). There are 29 impoundments in the Sulphur Basin with a normal storage capacity greater than 200 acre-feet. However, five reservoirs account for the majority of current supply in the basin. Table 3.4 presents the supply available in the Sulphur Basin during drought of record conditions for each of these sources by decade.

Table 3.4 - Sulphur River Basin Surface Water Supplies*

	Supply Available (ac-ft/yr)					
Name of Source	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Cooper Reservoir***	137,344	136,335	135,326	134,317	133,308	132,298
Lake Wright Patman****	180,000	180,000	180,000	180,000	180,000	180,000
Lake Sulphur Springs**	7,800	7,800	7,800	7,800	7,800	7,800
Big Creek Lake**	1,518	1,518	1,518	1,518	1,518	1,518
River Crest Lake**	10,000	10,000	10,000	10,000	10,000	10,000
Langford Lake	1,215	1,215	1,215	1,215	1,215	1,215
Sulphur ROR	10,000	10,000	10,000	10,000	10,000	10,000
TOTAL	**347,877**	**346,868**	**345,859**	**344,850**	**343,841**	**342,831**

** Based on criteria described in Section 3.1.*
*** Sedimentation effects on available supply not available.*
**** Firm yield based on estimate from the Region C report entitled, "Task 3 Draft Report - Analysis of Current Water Supply in Region C."*
***** Based on existing water rights permits. A 1973 firm yield estimate for the reservoir was 282,000 AF/yr.*

Cooper Reservoir: Cooper Reservoir, which is also known as Jim Chapman Lake, is owned and operated by the USACE for water supply, flood control, and recreation benefits. Lake Cooper is located on the

South Sulphur River in Delta and Hopkins counties. Firm yield from this reservoir is estimated to be 137,344 ac-ft/ yr in the year 2000. Major water right holders for this reservoir includes the City of Irving, the North Texas Municipal Water District, and the Sulphur River Municipal Water District.

Lake Wright Patman: Formerly known as Lake Texarkana, Lake Wright Patman is located on the Sulphur River in Bowie and Cass counties, approximately seven miles upstream of the Texas-Louisiana state line. In addition to providing water supply to Texarkana, Lake Wright Patman provides flood control protection and recreation benefits. This reservoir is owned and operated by the USACE and currently has permitted water rights of 180,000 ac-ft/ yr, although firm yield of the reservoir is estimated to be 282,000 ac-ft/yr (USACE, 1973). The planning group has elected to only show the permitted yield from the reservoir as currently available to the region. Unpermitted yield from the reservoir could become available for supply through future water right permit amendments.

Lake Sulphur Springs: Lake Sulphur Springs is located just north of the City of Sulphur Springs in Hopkins County. This reservoir is located on White Oak Creek, the largest tributary to the Sulphur River. Lake Sulphur Springs is owned by the Sulphur Springs Water District and is estimated to have a firm yield of 7,800 ac-ft/ yr.

Big Creek Lake: Big Creek Lake is estimated to have a firm yield of 1,518 ac-ft / yr. Supply from Big Creek Lake is used to meet water demands for the City of Cooper.

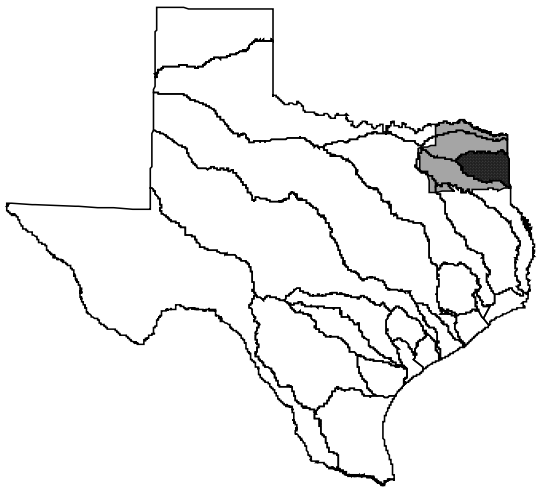
River Crest Lake: River Crest Lake is located just north of the Sulphur River in Red River County. The lake's firm yield is estimated to be 10,000 ac-ft/ yr. This water supply is currently used for steam electric power generation.

Langford Lake: Lanfgord Lake is located on Langford Creek, north of the City of Claksville, in Red River County. The lake is used for recreation, and as a partial water supply for the City of Clarksville.

Sulphur Run-of-the-River: Based on TNRCC water right information, 10,000 ac-ft/ yr of run-of-the-river supply is available in the Sulphur Basin in the North East Texas Region. This supply is a water right owned by Texas Utilities Electric Company. Available run-of-the-river supplies may need to be revised subject to analysis with the Sulphur River water availability model.

3.1 (d) Cypress Creek Basin

The Cypress Creek Basin originates in Hopkins County and extends eastward to northwest Louisiana, where it flows into the Red River. The Texas portion of Cypress Basin covers approximately 2,800 square miles and includes all or part of Hopkins, Gregg, Franklin, Wood, Titus, Camp, Upshur, Cass, Marion, Morris and Harrison counties in the North East Texas Region.



According to the 1997 State Water Plan, surface water resources account for approximately 89 percent of the water used in the Cypress Creek Basin, with groundwater supplying the remainder. The Cypress Basin contains nine reservoirs with yields available to the North East Texas Region. Table 3.5 presents estimates of the supply available

in the Cypress Basin during drought of record conditions for each of these sources by decade.

Table 3.5 - Cypress River Basin Surface Water Supplies*

	Supply Available (ac-ft/yr)					
Name of Source	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Lake O' the Pines**	130,600	130,600	130,600	130,600	130,600	130,600
Lake Bob Sandlin**	60,500	60,500	60,500	60,500	60,500	60,500
Lake Cypress Springs**	16,200	16,200	16,200	16,200	16,200	16,200
Monticello Lake**	7,700	7,700	7,700	7,700	7,700	7,700
Welsh Reservoir**	18,000	18,000	18,000	18,000	18,000	18,000
Ellison Creek Lake**	22,100	22,100	22,100	22,100	22,100	22,100
Johnson Creek Lake**	6,700	6,700	6,700	6,700	6,700	6,700
Caddo Lake**	10,000	10,000	10,000	10,000	10,000	10,000
Gilmer Lake**	7,470	7,470	7,470	7,470	7,470	7,470
Cypress ROR	84,607	84,607	84,607	84,607	84,607	84,607
TOTAL	**363,877**	**363,877**	**363,877**	**363,877**	**363,877**	**363,877**

** Based on criteria described in Section 3.1.*
*** Sedimentation effects on available supply not available.*

Lake O' the Pines: Located on Big Cypress Bayou in Marion, Morris, and Upshur counties, Lake O' the Pines covers 18,700 acres and has an estimated firm yield of 130,600 ac-ft/yr. Since its impoundment in 1956, USACE has owned and operated the lake. Northeast Texas Municipal Water District, which is the largest water right holder of supply from the reservoir, has water supply contracts with several cities in the region.

Lake Bob Sandlin: Lake Bob Sandlin is located on the Big Cypress River and occupies approximately 9,460 acres in Titus and Camp Counties. The lake was impounded in 1977 and is owned and operated by the Titus County Fresh Water Supply District Number 1. Firm yield for the reservoir is estimated by the TWDB to be 48,500 ac-ft/yr. The Tri-Lateral agreement raises the firm yield to 60,500 ac-ft/yr due to transfer of 12,000 ac-ft/yr from Lake O' the Pines.

Monticello Lake: In the 1960's Dallas Power and Light Company, now Texas Utilities, constructed a dam across Blundell Creek in Titus County to form Monticello Lake. This lake is used for steam electric power generation and has an estimated firm yield of 7,700 ac-ft/yr. In addition to water use, Monticello Lake has a recreational benefit, having the distinction of producing more bass per acre than any other lake in Texas.

Lake Cypress Springs: Lake Cypress Springs is located in Franklin County, 11 miles southwest of Mount Vernon. The lake was impounded in 1970 and occupies 3,450 acres. Estimated firm yield for the reservoir is 16,200 ac-ft/yr. Franklin County Water District owns most of the water rights for yield from this reservoir.

Welsh Reservoir: Welsh Reservoir, also known as Welsh Lake, is owned by Southwestern Electric Power Company and is used for steam electric power generation. Welsh Reservoir is located in Titus County and is estimated to have a firm yield of 18,000 ac-ft/yr.

Ellison Creek Lake: Ellison Creek Lake is located in southern Morris County, south of Daingerfield, Texas. The reservoir dam was constructed by the United States Defense Plant in 1942 and was acquired by the Lone Star Steel Company in 1947. Impounded water in the reservoir comes from Ellison Creek,

which is also known as Brutons Creek. Firm yield for the reservoir is estimated to be 22,100 ac-ft/yr and is used to meet manufacturing water demands in the region.

Johnson Creek Lake: Johnson Creek Lake is located on Johnson Creek, approximately 13 miles northwest of Jefferson, Texas in northwestern Marion County. The reservoir is owned and operated by Southwestern Electric Power Company and is used for industrial cooling and steam electric power generation. The firm yield of the reservoir is approximately 6,700 ac-ft/yr. In order to maintain lake levels, water is purchased from Lake O' the Pines which is pumped to Johnson Creek Lake.

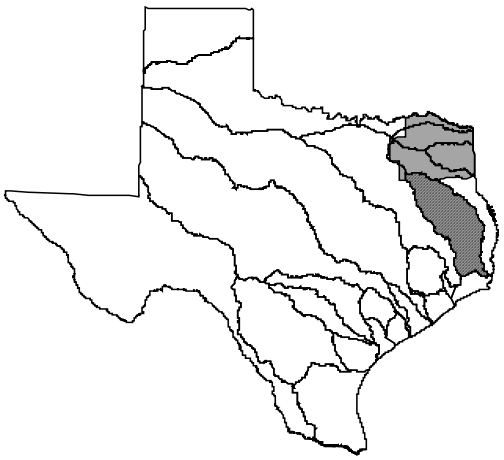
Caddo Lake: Impounded by Caddo Dam in Louisiana, Caddo Lake extends into Harrison and Marion Counties in Texas. The original dam forming the lake was constructed in 1914. In 1971 the USACE finished construction of a replacement dam that forms the current reservoir. The dam is now owned and operated by the Caddo Lake Levee District. Estimated firm yield for the lake is estimated to be 10,000 ac-ft/yr, some of which is used to supply local manufacturing demand.

Lake Gilmer: With impoundment beginning in 1997, Lake Gilmer is the newest major reservoir in the North East Texas Region. The lake is located on Kelsey Creek, northwest of Gilmer, Texas in Upshur County. Estimated firm yield from the reservoir is 7,470 ac-ft/yr. Water supply from Lake Gilmer is expected to supply water for a proposed power plant in Upshur County and for the City of Gilmer.

Cypress Run-of-the-River: Based on TNRCC municipal and industrial water right information, 84,607 ac-ft/yr of run-of-the-river supply is available in the Cypress Basin in the North East Texas Region. Of this supply, 57,523 ac-ft/yr is from Cypress Creek, 16,084 ac-ft/yr is from a tributary to Grays Creek and 11,000 ac-ft/yr is from Swauano Creek. These supply estimates may need to be revised subject to analysis with the Cypress River water availability model when it is available.

3.1 (e) Neches River Basin

The Neches River Basin originates in Van Zandt County and extends southeast to the Gulf of Mexico. The total drainage area of the basin is approximately 10,000 square miles, although the portion within the North East Texas Region is very small. Only small portions of Van Zandt and Smith Counties are located within the Basin.



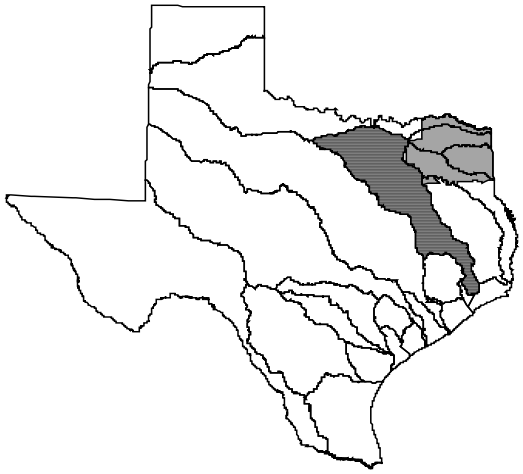
There are no major surface water supplies within the portion of the Neches Basin in the North East Texas Region. However, some supply from Lake Tyler may be available for future use in the North East Texas Region.

Lake Tyler: Located on Prairie Creek in eastern Smith County, Lake Tyler is located wholly within the East Texas Regional Water Planning Area (Region I). The reservoir is owned and operated by the City of Tyler as a water supply for domestic, municipal, and industrial use. The lake actually has two parts, referred to as Lake Tyler East and Lake Tyler West. In 1949 Lake Tyler West was completed with the construction of Whitehouse Dam. Lake Tyler East was completed in 1967 with the construction of Mud Creek Dam. The two lakes were joined by a canal in 1968. Estimated firm yield for the combined lake is 38,500 ac-ft/yr. However, currently there is no infrastructure in place to transfer water from Lake

Tyler for use in the North East Texas Region. The North East Texas Regionalal Water Planning Group has elected not to show any of the supply from this reservoir as available to the region.

3.1 (f) Trinity River Basin

The Trinity River Basin originates in Archer County and extends southeast to the Gulf of Mexico. The total drainage area of the basin is nearly 18,000 square miles and contains the largest population of any basin in the state. However, within the North East Texas Region only small parts of Hunt, and Van Zandt counties are located within the Trinity River Basin.



There are no major surface water supplies within the portion of the Trinity Basin in the North East Texas Region. However, some supply from Lake Lavon may be available for future use in the region. Table 3.6 presents the supply available in the Trinity Basin during drought of record conditions for each of these sources by decade.

Table 3.6 – Trinity River Basin Surface Water Supplies*

	Supply Available (ac-ft/yr)					
Name of Source	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Lake Lavon**	104,000	104,000	104,000	104,000	104,000	104,000
TOTAL	**104,000**	**104,000**	**104,000**	**104,000**	**104,000**	**104,000**

** Based on criteria described in Section 3.1.*

*** Sedimentation effects on available supply not available.*

Lake Lavon: Lake Lavon is located on the East Fork of the Trinity River and Pilot Grove Creek in southern Collin County. The reservoir is owned and operated by the USACE. The North Texas Municipal Water District is the local cooperative agency that helped fund the construction of the reservoir and subsequently has rights to 100,000 acre-feet of water in the lake. The lake was constructed for flood control, water supply, and recreational use. Estimated firm yield in the reservoir is 104,000 ac-ft/yr. While no North East Texas Region entities draw water directly from Lake Lavon, a number are supplied by the North Texas Municipal Water District.

3.2 Groundwater Supplies

Groundwater availability estimates for the North East Texas Region are presented in the sections that follow. This includes a brief discussion of the various methods that can be used to estimate groundwater availability, including the methodology used to develop estimates for this regional water plan, and the key assumptions and limitations of each method.

3.2 (a) Discussion of Groundwater Availability Estimation Methods

Previous estimates of groundwater availability for the North East Texas Region were developed by the TWDB and were based on numerous local and regional aquifer studies that employed various methods for estimating water supply availability. Under one common approach, which will be referred to as the

recharge method, groundwater availability is assumed equal to the long term average annual recharge to the aquifer. Recharge refers to the total of all sources by which an aquifer can be replenished with water, including precipitation, infiltration from streams, lateral or vertical inflow from other subsurface formations, and irrigation return flow.
After estimating groundwater availability based on average annual recharge estimates, assumptions must be made with regard to how a particular groundwater supply will be managed. In general, there are two management options. One option assumes that the "safe yield" of the aquifer will not be exceeded and that the overall static water level in the aquifer will not be continually decreased. The second option assumes that the long term water availability from an aquifer is equal to the annual recharge volume plus a specified volume of water held in storage within the aquifer. This management scenario is often referred to as "aquifer mining" in that a long term water level decline is expected, and the groundwater supply will be depleted over time. Both of these groundwater management approaches have been practiced in Texas based on the varying hydro-geologic, political, and socioeconomic factors found in different areas of the state. For example, aquifer mining has been an accepted policy throughout much of the Ogallala Aquifer in the Texas High Plains because the recharge is relatively low and groundwater demand for irrigation is relatively high. On the other hand, a "safe yield" policy has been adopted for the Edwards Aquifer in Central Texas in part because of potential impact to endangered species that are dependent on spring discharge from the aquifer.

For some areas of the state, previous state water plans have assumed that groundwater supply is equal to the historical groundwater usage in the particular geographical region plus the projected increase in demand by current users of the resource. This method was used in cases where there was great uncertainty in estimates of long term groundwater availability. Uncertain estimates may exist for many reasons, including aquifer complexity, lack of adequate recharge estimates, or lack of quantitative understanding of the flow system. This approach is considered conservative in terms of ensuring that groundwater resources are not over-allocated. However, in some areas, this approach is likely to underestimate long term groundwater availability, particularly if the historical use is only a fraction of the total recharge.

Another complexity of predicting long term groundwater availability under "mining" conditions is predicting future groundwater supply when the groundwater demand is unknown. For example, a severe drought may cause significantly more groundwater mining than under normal conditions, leaving a groundwater supply shortage for the future. In other words, it is difficult to know under mining scenarios how and when the groundwater in storage will be utilized and it is therefore difficult to predict what the available supply will be in the future.

TWDB guidelines for developing groundwater availability estimates state:

> *"…groundwater availability shall be reported in Table 4 as the largest annual amount of water that may be pumped from a given aquifer that does not violate the most restrictive physical or regulatory conditions limiting withdrawals during a drought of record period."*

TWDB guidelines also state:

> *"… that the method used to split the groundwater into county/basin units was an estimate based on the proportion of groundwater actually used from each aquifer in each county/basin. Therefore, these values do not necessarily represent the actual amount of groundwater available. Regional Water Planning Groups and their consultants are encouraged to evaluate different ways to arrive at county/basin groundwater availability estimates during drought of record conditions."*

TWDB guidelines do not mandate a specific policy with regard to methods for estimating groundwater availability. As such, the North East Texas Regional Water Planning Group is free to adopt a groundwater management approach based on either the safe yield or aquifer mining concepts.

3.2 (b) Method Selected for Estimating Groundwater Supply in the North East Texas Region

Groundwater availability can be defined in various ways. For this amount to be meaningful, however, it should be based on regionally accepted water use policy and regulatory considerations. For the North East Texas Region, groundwater availability estimates for each major and minor aquifer are based on a combination of methods as discussed below. The overall approach reflects the North East Texas Regional Water Planning Group's desire that there be only limited expansion of groundwater supplies to meet projected demands.

The groundwater availability for each river basin-aquifer-county is presented in Appendix A and in the following sections. Groundwater availability has been estimated differently for different aquifers. For the Carrizo-Wilcox Aquifer, groundwater availability estimates were determined by the TWDB through the utilization of a groundwater flow model. In utilizing the model, the TWDB first estimated groundwater demand to the year 2050. The model was then used to evaluate whether that demand could be met during the planning period. If the model indicated that the groundwater demand could be met, the groundwater availability was set equal to the groundwater demand. If the model indicated that the groundwater demand could not be met, the model was used to estimate the maximum groundwater availability over the planning period. Therefore, the Carrizo-Wilcox groundwater availability estimates in this chapter provide a relatively conservative estimate of long term availability. In some counties where historical use has been low due to small demand, the actual groundwater availability may be larger than those shown in the following tables. In other counties where the demand has been higher, the groundwater availability estimates may be very similar to actual long term supply for the county. The details of the TWDB modeling assessment have not been documented.

For the other aquifers in the North East Texas Region, groundwater availability was estimated by calculating the long term sustainable annual recharge to the aquifer. For these aquifers, the availability estimate provides a reasonable projection of long term groundwater availability that is not dependent on historical or projected groundwater demand.

It should not be assumed that the entire volume of available groundwater is necessarily available at any location in the county or to a particular water user. Determination of a user's access to the available groundwater requires a more thorough local evaluation, which is beyond the scope of this effort. A user in a particular county might not (and in most cases will not) have access to the entire volume of groundwater shown in Table 3.7 due to physical and infrastructure limitations. Likewise, the availability of groundwater is only one of many factors that will determine the water supply for a given entity. Political, infrastructure, financial, and other considerations must also be factored into the decision for determining the optimum water supply. For example, although there may be sufficient groundwater supply, dissatisfaction with groundwater quality may compel an entity to pursue surface alternate sources. In summary, the following groundwater availability estimates are meant to provide an overall summary and are not intended to be the sole basis for determining water usage scenarios for a region, county, or local water user.

3.2 (c) Summary of Groundwater Availability by Aquifer

Blossom Aquifer

The Blossom Aquifer occupies a narrow east-west band in parts of Bowie, Red River, and Lamar counties in the northeast corner of the North East Texas Region. The TWDB has historically assumed that the annual availability for the Blossom Aquifer is equal to the effective recharge that occurs primarily through infiltration of rainfall over the outcrop.

The Blossom Aquifer yields water in small to moderate amounts over a limited area on and south of the outcrop, with the largest well yields occurring in Red River County. Production decreases in the western half of the aquifer, where yields of 35 gal/min to 85 gal/min are typical. In addition, water quality from the Blossom Aquifer does not meet current drinking water standards for public water supplies but may be used for domestic and livestock purposes.

As shown in Table 3.7, the average annual effective recharge for the aquifer is estimated to be 811 ac-ft. Most of the outcrop area and therefore most of the groundwater availability of the Blossom Aquifer is located in Red River County. The groundwater usage from the Blossom Aquifer in 1996 (1,096 ac-ft/yr) was greater than the long term groundwater availability of 811 ac-ft / yr. Overall, the North East Texas Region is using 135 percent of the sustainable groundwater supply from the Blossom Aquifer. However, groundwater usage from the Blossom Aquifer is only about two percent of the total groundwater usage in the North East Texas Region and less than 0.2 percent of the total water usage in the North East Texas Region. Therefore, the North East Texas Region should have ample surface water supply to supplement or replace the existing groundwater supplies in areas where it is required.

Table 3.7 – Groundwater Availability by Basin and County for the Blossom Aquifer

County / Basin	Supply Available (ac-ft/yr)		
	Red	Sulphur	**County Total**
Bowie	73		**73**
Lamar	10	68	**78**
Red River	204	456	**660**
Basin Total	**287**	**524**	**811**

Carrizo-Wilcox Aquifer

The Carrizo-Wilcox group is the most extensive and productive aquifer in the North East Texas Region and is considered a major aquifer by the TWDB. The production capacity of the Carrizo-Wilcox Aquifer is variable because of the heterogeneous nature of the sediments that comprise the aquifer. Nevertheless, in general, it is a very productive aquifer and is recharged from infiltration from precipitation. The majority of municipal wells in the North East Texas Region produce from the Carrizo-Wilcox Aquifer.

Estimates of groundwater availability from the Carrizo-Wilcox Aquifer in the North East Texas Region are provided in Table 3.8. Total estimated groundwater availability from the Carrizo-Wilcox Aquifer in the North East Texas Region is over 489,000 ac-ft/yr. This represents 55 percent of the total groundwater availability in the North East Texas Region. Total groundwater pumpage from the Carrizo-Wilcox in the North East Texas Region for all usage categories was 40,700 acre-feet during 1996, or only about eight percent of the total estimated groundwater availability.

Regionally, water from the Carrizo-Wilcox Aquifer is fresh to slightly saline with quality problems in localized areas. It is difficult to make generalizations about the quality of the water in the Carrizo-Wilcox Aquifer because the quality changes significantly throughout the North East Texas Region. In the outcrop, the water is generally hard, yet usually low in dissolved solids. Downdip water is softer and contains more dissolved solids. On a local basis, hydrogen sulfide and methane may occur. In addition, corrosive water with a high iron content occurs naturally throughout the aquifer in the North East Texas Region. In the North East Texas Region, some instances of relatively high concentrations of dissolved solids, sulfate, manganese, and chloride have also been reported. These occurrences are often near areas where lignite is known to occur and may be due to mineralization by waters passing through the lignite, especially in the case of high sulfate.

Table 3.8 – Groundwater Availability by Basin and County for the Carrizo-Wilcox Aquifer

County / Basin	Supply Available (ac-ft/yr)					
	Cypress	Neches	Sabine	Sulphur	Trinity	**County Total**
Bowie				14,000		**14,000**
Camp	2,500					**2,500**
Cass	68,767			15,733		**84,500**
Franklin	2,155			545		**2,700**
Gregg	1,333		20,267			**21,600**
Harrison	71,429		112,071			**183,500**
Hopkins	68		4,033	1,100		**5,201**
Hunt			5			**5**
Marion	1,300					**1,300**
Morris	109,004			27,596		**136,600**
Rains			1,400			**1,400**
Red River				25		**25**
Smith			8,194			**8,194**
Titus	6,400			700		**7,100**
Upshur	4,027		1,473			**5,500**
Van Zandt		1,843	3,567		390	**5,800**
Wood	164		9,000			**9,164**
Basin Total	**267,147**	**1,843**	**160,010**	**59,699**	**390**	**489,089**

Nacatoch Aquifer

The Nacatoch Aquifer is classified as a minor aquifer by the TWDB. Table 3.9 shows the detailed groundwater availability by county and basin for the Nacatoch Aquifer. The total groundwater supply for the North East Texas Region based on estimates of annual recharge to the aquifer is 4,352 ac-ft/yr. In 1996, the total volume of groundwater pumped from the Nacatoch was 3,778 ac-ft/yr. Therefore, based on these estimates of recharge and usage, the aquifer is being mined in areas of heavy usage. Approximately 40 and 35 percent of the groundwater pumped from the Nacatoch Aquifer in the North East Texas Region is from Hunt and Bowie Counties, respectively.

Comparison of the water availability estimates with the groundwater demand estimates indicates that Bowie, Hopkins, and Hunt counties are overusing available groundwater supply from the Nacatoch. In 1996, groundwater usage in Hunt County was about four times higher than the estimated long term groundwater availability.

Table 3.9 – Groundwater Availability by Basin and County for the Nacatoch Aquifer

County / Basin	Supply Available (ac-ft/yr)				
	Red	Sabine	Sulphur	Trinity	**County Total**
Bowie	1050		584		**1,634**
Delta			227		**227**
Franklin			10		**10**
Hopkins		319	32		**351**
Hunt		197	400	2	**599**
Lamar	3		45		**48**
Rains		2			**2**
Red River	220		711		**931**
Titus			550		**550**
Basin Total	**1,273**	**518**	**2,559**	**2**	**4,352**

Queen City Aquifer

The Queen City Aquifer is classified as a minor aquifer by the TWDB. The Queen City Aquifer overlies the Carrizo-Wilcox Aquifer and is shallower and more prone to potential impacts of drought and overpumping as compared to the deeper Carrizo-Wilcox Aquifer. For these reasons, the aquifer has not been greatly developed for public water supply purposes. However, the Queen City Aquifer contains relatively large quantities of recoverable groundwater in the North East Texas Region.

Groundwater availability from the Queen City Aquifer is estimated to be 424,362 ac-ft/yr or about 45 percent of total groundwater availability in the North East Texas Region. This estimate is based on conservative recharge values over the areal extent of the aquifer. The groundwater availability shown herein assumes an average of about 3.5 percent of the total precipitation recharges the aquifer. Because the Queen City Aquifer is a shallow aquifer, some of this water discharges from the aquifer into streams. Based on 1996 groundwater usage statistics, only about two percent of the available groundwater from the Queen City aquifer is pumped. The largest potential utilization of groundwater from the Queen City Aquifer is for irrigation, livestock, and rural domestic use and limited public water supply. In the shallower portions of the aquifer water quality is impaired by high iron concentration and low pH.

Table 3.10 – Groundwater Availability by Basin and County for the Queen City Aquifer

County / Basin	Supply Available (ac-ft/yr)				
	Cypress	Neches	Sabine	Sulphur	**County Total**
Camp	11,725				**11,725**
Cass	86,765			7,000	**93,765**
Gregg	4,690		9,646		**14,336**
Harrison	23,450		2,756		**26,206**
Marion	30,485				**30,485**
Morris	16,415				**16,415**
Smith			46,852		**46,852**
Upshur	53,935		22,048		**75,983**
Van Zandt		7,839			**7,839**
Wood	7,035		53,742		**60,777**
Basin Total	**234,500**	**7,839**	**135,044**	**7,000**	**384,383**

Trinity Aquifer

Water quality in the Trinity Aquifer in the North East Texas Region, is typically not acceptable for public water supply because it does not meet current drinking water standards, but it may be used for domestic, irrigation, and livestock purposes. Although the Trinity Aquifer is classified as a major aquifer by the TWDB, groundwater availability and usage from the aquifer is limited in the North East Texas Region. Groundwater supplied from the Trinity Aquifer represents less than 0.3 percent of the total estimated groundwater availability for the region. Only the downdip, confined portions of the Trinity Aquifer, occurs in the North East Texas Region. There are only a few Trinity Aquifer public water supply wells in the North East Texas Region. Overall groundwater use from the Trinity Aquifer in the North East Texas Region is only about 30 percent of the estimated available supply. The total groundwater availability for the Trinity Aquifer in the North East Texas Region is 3,686 ac-ft/yr. On a county basis, the highest utilization of the available groundwater from the Trinity Aquifer is 41 percent in Lamar County.

Table 3.11 – Groundwater Availability by Basin and County for the Trinity Aquifer

County / Basin	Supply Available (ac-ft/yr)				
	Red	Sabine	Sulphur	Trinity	**County Total**
Delta			1,117		**1,117**
Hunt		433	19	8	**460**
Lamar	1,030		477		**1,507**
Red River	383		219		**602**
Basin Total	**1,413**	**433**	**1,832**	**8**	**3,686**

Woodbine Aquifer

The Woodbine Aquifer is classified as a minor aquifer by the TWDB. Water quality in the Woodbine Aquifer in the North East Texas Region is typically not acceptable for public water supply because it does

not meet current drinking water standards, but it may be used for domestic, irrigation, and livestock purposes. Table 3.12 presents the estimated groundwater availability by county and basin for the Woodbine Aquifer. The total water supply available from the Woodbine Aquifer in the North East Texas Region, based on estimates of annual recharge to the aquifer, is 3,309 ac-ft / yr. In 1996, the total volume of groundwater pumped from the Woodbine was 725 acre-feet. Therefore, based on these estimates of recharge and usage, the aquifer is not being mined from a general perspective. However, pumpage from the Woodbine Aquifer in Hunt County is approximately five times greater than the estimated long term groundwater availability.

Table 3.12 – Groundwater Availability by Basin and County for the Woodbine Aquifer

County / Basin	Supply Available (ac-ft/yr)		
	Red	Trinity	**County Total**
Hunt		89	**89**
Lamar	2,520		**2,520**
Red River	700		**700**
Basin Total	**3,220**	**89**	**3,309**

3.2 (d) Summary of Groundwater Availability by River Basin

Table 3.13 presents the groundwater availability estimates by river basin. Only a very small portion of the Trinity and Neches River Basins are included in the North East Texas Region, and therefore, the proportion of the total groundwater supply in these river basins is relatively small. Most of the groundwater supply in the North East Texas Region occurs in the Cypress and Sabine River Basins. The Red River Basin contains only a relatively small percentage of the total regional groundwater supply because the Carrizo-Wilcox and Queen City aquifers do not occur within the basin.

Table 3.13 – Groundwater Availability by Aquifer and River Basin for the North East Texas Region

Aquifer	River Basin						
	Cypress	Neches	Red	Sabine	Sulphur	Trinity	**Aquifer Total**
Blossom			287		524		**811**
Carrizo-Wilcox	267,147	2,143	111	159,710	59,588	390	**489,089**
Nacatoch			1,273	518	2,559	2	**4,352**
Queen City	234,500	7,839		135,044	7,000		**384,383**
Trinity			1,413	433	1,832	8	**3,686**
Woodbine			3,220	535	341	135	**4,231**
Basin Total	**501,647**	**9,982**	**6,304**	**296,240**	**71,844**	**535**	**886,552**

3.3 Supplies Currently Available to Each Water User Group

The water supplies available to the individual water user groups in North East Texas Region are presented in the following sections. Also included is a description of the methods used to determine the supplies available to each water user group for this regional water plan and the assumptions, if any, made in developing this data.

The first series of data presents water supply by use category. This is followed by the supply of the water user combined by county and by river basin.

3.3 (a) Discussion of Water User Supply Determination

As noted in Chapter 2, each water user group was surveyed to determine not only population and population growth pattern but also water use and water supply. Each water user group, and those water users within the "county other" category, was asked to identify their water supply source and supply volume.

The water user group was asked to provide the contract period if the water supply was provided by a contract with some other source. The water supply is assumed to end with the contract, although it is understood that contract renewal may likely continue the supply to meet future needs. In those instances where the water supply contract does not specify the contract expiration date, the contract is assumed to continue through at least year 2050. If a maximum quantity is not specified in the contract then the supply was set equal to the demand for each year of the contract.

TWDB water supply volumes were used if more current supply estimates were not available for the manufacturing, mining, livestock, irrigation and steam electric users. It was further assumed that, unless a specific source of supply was identified during the survey or in the field investigation, livestock and irrigation were from private supplies. These private supplies may be individual water wells on private property or local surface water supplies. In general, therefore, the plan has assumed that irrigation and livestock supply from local supplies will match the changes in livestock and irrigation water demand.

3.3 (b) Regional Municipal Supply

The major water providers supply municipal water from surface water. Groundwater supplies, primarily from the Carrizo-Wilcox Aquifer, provide water to other municipal users. Most of the supply shortages for the water users within the region who have contracts in water supply are the result of contract expiration. Contract expiration is the primary reason for the decrease in municipal water supply over the planning period.

The following table 3.15 summarizes the regional municipal water supply.

Table 3.15- Regional Municipal Water Supply

Supply Available, ac-ft/yr						
County Name	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Bowie	24,598	30,136	29,927	32,129	28,925	25,592
Camp	15,470	15,483	15,484	15,489	15,490	15,490
Cass	9,819	7,504	7,504	7,520	7,520	7,520
Delta	1,737	1,726	1,652	1,567	1,566	1,566
Franklin	6,614	6,569	6,569	3,569	74	74
Gregg	57,924	41,034	41,034	41,036	26,532	10,692
Harrison	43,063	37,507	37,507	37,323	37,323	32,043
Hopkins	21,478	21,619	20,362	20,227	19,511	22,481
Hunt	39,093	14,603	9,753	5,141	4,181	4,031
Lamar	36,723	35,751	35,309	34,467	33,261	31,822
Marion	12,749	12,749	12,749	12,749	12,749	12,749
Morris	17,182	17,094	17,094	17,080	17,080	17,080
Rains	2,894	2,894	1,854	749	749	749
Red River	2,624	2,474	2,015	1,645	1,643	1,639
Smith	5,000	5,065	5,121	5,182	5,242	5,309
Titus	14,448	14,655	15,333	15,221	14,956	14,674
Upshur	13,438	13,705	13,705	13,705	13,705	13,705
Van Zandt	11,212	11,215	5,503	4,453	4,454	4,456
Wood	12,015	12,015	12,015	12,015	7,393	7,393
Total	**348,081**	**303,797**	**290,489**	**281,266**	**252,353**	**229,064**

3.3 (c)Regional Manufacturing Supply

The regional manufacturing supply is from municipalities, major water providers, wells, reuse, and from local supplies. The following table 3.16 summarizes the regional manufacturing supply.

Table 3.16- Regional Manufacturing Water Supply

Supply Available, ac-ft/yr						
County Name	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Bowie	1,944	2,152	2,366	2,590	2,826	3,071
Camp	10	10	10	10	10	10
Cass	80,129	76,867	76,871	74,569	77,555	80,664
Delta	9,188	9,188	9,188	9,188	9,188	9,188
Franklin	7	7	7	7	7	7
Gregg	5,821	9,488	10,366	10,836	11,385	11,970
Harrison	202,255	206,720	207,440	207,732	208,436	209,379
Hopkins	2,668	2,864	3,027	3,155	3,414	3,673
Hunt	940	1,018	1,103	1,198	1,329	1,449
Lamar	5,422	6,213	6,932	7,575	8,590	9,608
Marion	20	20	20	20	20	20
Morris	133,551	136,364	130,969	125,543	120,227	115,029
Rains	2	2	2	2	2	2
Red River	11	15	17	19	21	25
Smith	262	298	325	346	377	403
Titus	44,897	45,068	45,199	45,302	45,540	45,772
Upshur	965	982	991	993	1,027	1,064
Van Zandt	280	344	396	451	508	566
Wood	244	290	341	391	468	544
Total	**488,616**	**497,910**	**495,570**	**489,927**	**490,980**	**492,444**

3.3 (d) Regional Irrigation Supply

The regional irrigation supply is from well water, primarily the Carrizo-Wilcox Aquifer, and from local supply. Irrigation water supply remains fairly constant throughout the planning period. Table 3.17 summarizes the regional irrigation supply.

Table 3.17- Regional Irrigation Water Supply

Supply Available, ac-ft/yr						
County Name	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Bowie	4,400	4,620	4,620	4,620	4,500	4,200
Camp	87	87	87	87	87	87
Cass	0	0	0	0	0	0
Delta	1,978	1,956	1,934	1,913	1,891	1,870
Franklin	33	33	33	33	33	33
Gregg	0	0	0	0	0	0
Harrison	100	100	100	100	100	100
Hopkins	0	0	0	0	0	0
Hunt	271	271	271	271	271	271
Lamar	4,368	4,319	4,271	4,223	4,176	4,129
Marion	0	0	0	0	0	0
Morris	190	188	186	184	182	180
Rains	20	20	20	20	20	20
Red River	99	98	97	96	95	94
Smith	446	468	491	516	542	569
Titus	0	0	0	0	0	0
Upshur	200	200	200	200	200	200
Van Zandt	220	220	220	220	220	220
Wood	354	354	354	354	354	354
Total	**12,766**	**12,934**	**12,884**	**12,837**	**12,671**	**12,327**

3.3 (e) Regional Steam Electric Supply

The regional steam electric supply is chiefly from major water providers, local municipalities or from the stream electric company's local surface water source. Table 3.18 summarizes the steam electric supply.

Table 3.18- Regional Steam Electric Water Supply

Supply Available, ac-ft/yr						
County Name	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Bowie	0	0	0	0	0	0
Camp	0	0	0	0	0	0
Cass	0	0	0	0	0	0
Delta	0	0	0	0	0	0
Franklin	0	0	0	0	0	0
Gregg	6,686	7,186	7,186	7,186	7,186	8,186
Harrison	29,000	29,000	29,000	29,000	29,000	29,000
Hopkins	0	0	0	0	0	0
Hunt	800	0	0	0	0	0
Lamar	12,209	12,209	12,209	12,209	12,209	12,209
Marion	6,700	6,700	6,700	6,700	6,700	6,700
Morris	12,000	12,000	12,000	12,000	12,000	12,000
Rains	0	0	0	0	0	0
Red River	11,500	11,500	11,500	11,500	11,500	11,500
Smith	0	0	0	0	0	0
Titus	45,000	45,000	45,000	37,300	37,300	37,300
Upshur	0	0	0	0	0	0
Van Zandt	0	0	0	0	0	0
Wood	0	7,500	7,500	7,500	7,500	7,500
Total	**123,895**	**131,095**	**131,095**	**123,395**	**123,395**	**124,395**

3.3 (f) Regional Mining Supply

The regional mining water supply is chiefly from local supplies or from wells primarily in the Carrizo-Wilcox, Queen City or Trinity Aquifers. Table 3.19 summarizes the mining supply.

Table 3.19- Regional Mining Water Supply

Supply Available, ac-ft/yr						
County Name	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Bowie	53	52	53	56	61	66
Camp	132	131	131	131	131	131
Cass	1,254	990	942	902	872	496
Delta	0	0	0	0	0	0
Franklin	1,479	1,384	1,338	1,278	1,297	1,359
Gregg	96	67	46	37	29	27
Harrison	890	890	890	890	890	890
Hopkins	125	122	120	117	116	116
Hunt	70	71	73	75	77	79
Lamar	25	24	24	25	25	25
Marion	71	43	30	24	20	34
Morris	31	16	12	10	10	11
Rains	0	0	0	0	0	0
Red River	0	0	0	0	0	0
Smith	425	178	91	32	18	6
Titus	2,772	1,991	1,796	1,722	1,705	1,744
Upshur	1	1	1	1	1	0
Van Zandt	1,359	1,167	1,099	1,077	1,084	1,115
Wood	2,102	17,584	17,344	17,107	16,107	4,641
Total	**10,885**	**24,711**	**23,990**	**23,484**	**22,443**	**10,740**

3.3 (g) Regional Livestock Supply

The regional livestock supply is chiefly from wells in the Carrizo-Wilcox Aquifer or from local surface supplies. Table 3.20 summarizes the livestock supply.

Table 3.20- Regional Livestock Water Supply

	Supply Available, ac-ft/yr					
County Name	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Bowie	3,671	3,850	3,850	3,850	3,500	3,000
Camp	800	800	800	800	800	800
Cass	851	851	851	851	851	851
Delta	770	770	770	770	770	770
Franklin	1,595	1,595	1,595	1,595	1,595	1,595
Gregg	265	265	265	265	265	265
Harrison	991	1,040	1,092	1,147	1,205	1,264
Hopkins	7,428	7,428	7,428	7,428	7,428	7,428
Hunt	1,237	1,237	1,237	1,237	1,237	1,237
Lamar	1,523	1,523	1,523	1,523	1,523	1,523
Marion	182	182	182	182	182	182
Morris	624	624	624	624	624	624
Rains	700	700	700	700	700	700
Red River	1,180	1,180	1,180	1,180	1,180	1,180
Smith	453	453	453	453	453	453
Titus	858	858	858	858	858	858
Upshur	1,928	1,928	1,928	1,928	1,928	1,928
Van Zandt	2,381	2,381	2,381	2,381	2,381	2,381
Wood	2,562	2,562	2,562	2,562	2,562	2,562
Total	**29,999**	**30,227**	**30,279**	**30,334**	**30,042**	**29,601**

3.4 Supply by County

3.4 (a) Bowie County Water Supply

Bowie County municipal water supply is from the City of Texarkana as the major water provider and from wells, primarily located in the Carrizo-Wilcox Aquifer. Some livestock supply is from the Nacatoch aquifer. Other livestock and irrigation water supply is from local supply. The City of Texarkana water supply is provided by a contract with the USACE from Lake Wright Patman.

Most of the water users' contracts with the City of Texarkana typically expire between the year 2000 and 2010. The water supply contract for the City of Texarkana from the reservoir continues through the study period.

Supplies for water users in the "County Other" are tabulated in the Appendix A. Generally, these water supplies are also from the City of Texarkana or from wells in the Carrizo-Wilcox Aquifer. The Burns Redbank Water Supply Corporation's supply is from the City of Hooks, which in turn receives its water from the City of Texarkana.

Table 3.21- Bowie County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of Dekalb	Contract	City Of Texarkana	439	0	0	0	0	0
City Of Hooks	Contract	City Of Texarkana	371	0	0	0	0	0
City Of Maud	Contract	City Of Texarkana	246	0	0	0	0	0
City Of Nash	Groundwater	Carrizo-Wilcox	13	13	13	13	13	13
City Of Nash	Contract	City Of Texarkana	368	0	0	0	0	0
City Of New Boston	Contract	City Of Texarkana	784	0	0	0	0	0
City Of Redwater	Contract	City Of Texarkana	64	0	0	0	0	0
City Of Redwater	Groundwater	Carrizo-Wilcox	45	45	45	45	45	45
City Of Texarkana	Contract	USACE	0	0	0	0	0	0
City Of Wake Village	Contract	City Of Texarkana	358	0	0	0	0	0
County Other	See Appendix A		1,587	9	11	14	17	20
Manufacturing			1,944	80	81	84	89	94
Mining			53					
Irrigation			4,400	4,909	4,909	4,909	4,789	4,489
Livestock			3,671	1,016	1,016	1,016	888	706
TOTAL			**14,343**	**6,072**	**6,075**	**6,081**	**5,841**	**5,367**

3.4 (b) Camp County Water Supply

The City of Pittsburg has the potential of obtaining water from Lake Bob Sandlin but the current water supply throughout the study period is from the Carrizo-Wilcox Aquifer and from the Northeast Texas Municipal Water District. The Camp County manufacturing supply is from the City of Pittsburg. Mining and irrigation supply is from the Carrizo-Wilcox Aquifer. Livestock water supply is from the Carrizo-Wilcox and Queen City Aquifers or from local supply.

"County Other" supply is tabulated in Appendix A. The water supply for the "County Other" water users is from the Carrizo-Wilcox Aquifer.

Table 3.22- Camp County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of Pittsburg	Contract	NETMWD	12,157	12,143	12,142	12,141	12,141	12,141
City Of Pittsburg	Contract	NETMWD	1,930	1,930	1,930	1,930	1,930	1,930
City Of Pittsburg	Contract	NETMWD	1,930	1,930	1,930	1,930	1,930	1,930
County Other	See Appendix A		1,383	1,410	1,412	1,418	1,419	1,419
Manufacturing			10	10	10	10	10	10
Mining			132	131	131	131	131	131
Irrigation			87	87	87	87	87	87
Livestock			800	800	800	800	800	800
TOTAL			**18,429**	**18,441**	**18,442**	**18,447**	**18,448**	**18,448**

3.4 (c)Cass County Water Supply

The municipal water supply in Cass County comes from three sources: City of Texarkana, Northeast Texas Municipal Water District, and groundwater from the Carrizo-Wilcox Aquifer. Manufacturing supplies are from Wright Patman Lake and Lake O' the Pines as well as the Carrizo-Wilcox Aquifer. Mining supplies are from groundwater wells and livestock supplies are either Queen City or Carrizo-Wilcox groundwater or local supply.

"County Other" supply is tabulated in Appendix A. The water supply for water users in "County Other" is from the same sources as for the major water users except for Holly Springs Water Supply Company which is supplied by the City of Hughes Springs which, in turn, is supplied by the Northeast Texas Municipal Water District. The City of Atlanta and Queen City water supply contracts with the City of Texarkana expire in 2002.

Table 3.23- Cass County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of Atlanta	Contract	City of Texarkana	1,878	0	0	0	0	0
City Of Hughes Springs	Contract	Netmwd	4,528	4,528	4,528	4,602	4,602	4,602
City Of Linden	Groundwater	Carrizo-Wilcox	231	231	231	231	231	231
City Of Queen City	Groundwater	Carrizo-Wilcox	279	279	279	279	279	279
City Of Queen City	Contract	City of Texarkana	348	0	0	0	0	0
County Other	See Appendix A		2,555	2,466	2,466	2,408	2,408	2,408
Manufacturing			80,129	76,867	76,871	74,569	77,555	80,664
Mining			1,254	990	942	902	872	496
Livestock			851	851	851	851	851	851
TOTAL			**92,053**	**86,212**	**86,168**	**83,842**	**86,798**	**89,531**

3.4 (d) Delta County Water Supply

Big Creek Lake and a contract with the Sulphur River Municipal Water District are the sources of supply of water to the City of Cooper. City of Cooper provides the water supply for the Delta County manufacturing component. Livestock and irrigation components get their water from local supplies and Nacatoch and Trinity aquifers.

"County Other" supply is tabulated in Appendix A. These supplies are from water supply companies, utility districts, City of Cooper, and Trinity aquifer. The West Delta WSC and the North Hunt WSC are also supplied by the City of Commerce and Woodbine Aquifer.

Table 3.24- Delta County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of Cooper	Contract	Sulphur River Mwd	0	0	0	0	0	0
City Of Cooper	Surface Water	Big Creek	992	992	992	1,510	1,510	1,510
County Other	See Appendix A		745	734	660	57	56	56
Manufacturing			9,188	9,188	9,188	9,188	9,188	9,188
Irrigation			1,978	1,956	1,934	1,913	1,891	1,870
Livestock			770	770	770	770	770	770
TOTAL			**13,673**	**13,640**	**13,544**	**13,438**	**13,415**	**13,394**

3.4 (e) Franklin County Water Supply

The Cities of Mount Vernon and Winnsboro have contracts with Franklin County Water District and get their water supply from Lake Cypress Springs. These contracts will expire after 2020 and 2030, respectively. Manufacturing water supply is from Lake Cypress Springs. Mining, irrigation and livestock supplies are from the Carrizo-Wilcox Aquifer or from local supplies.

"County Other" supply is tabulated in the Appendix A. "County Other" supplies are from Lake Cypress Springs through the Franklin County Water District, Carrizo-Wilcox Aquifer, and local supplies. The Tri Water Supply Corporation supply is from Mount Pleasant in Titus County.

Table 3.25- Franklin County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of Mount Vernon	Contract	*FCWD	3,000	3,000	3,000	0	0	0
City Of Winnsboro	Contract	*FCWD	450	450	450	450	0	0
County Other	See Appendix A		3,164	3,119	3,119	3,119	74	74
Manufacturing			5,640	5,640	5,640	5,640	5,640	5,640
Mining			1,479	1,384	1,338	1,278	1,297	1,359
Irrigation			33	33	33	33	33	33
Livestock			1,595	1,595	1,595	1,595	1,595	1,595
TOTAL			**15,361**	**15,221**	**15,175**	**12,115**	**8,639**	**8,701**

**Franklin County Water District*

3.4 (f) Gregg County Water Supply

The City of Gladewater owns Lake Gladewater and provides for its supply as well as the supply for Clarksville City, Warren City, and a portion of Starrville-Friendship WSC. The supply of the other municipal major water users' is from the Sabine River Authority, the Cherokee Water Company, the City of Longview, Northeast Texas Municipal Water District; from run-of-the-river permits on Big Sandy Creek and the Sabine River; and from the Carrizo-Wilcox Aquifer. Manufacturing supply sources include the Carrizo-Wilcox Aquifer, local supply sources, the City of Longview, and from direct reuse. Mining and livestock supplies are from the Carrizo-Wilcox Aquifer. Steam electric supply is from direct reuse and from the Cherokee Water Company.

"County Other" supply is tabulated in Appendix A. The "County Other" systems get their supplies from the Carrizo-Wilcox Aquifer, from the City of Longview, the City of Gladewater, and the Sabine River Authority. Many of the contracts for water supply with the City of Longview and the City of Gladewater expire before 2010.

Table 3.26- Gregg County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Clarksville City	Contract	City Of Gladewater	322	0	0	0	0	0
City Of Gladewater	Surface Water	Lake Gladewater	499	796	796	796	796	796
City Of Kilgore	Surface Water	Sabine River Authority	2,241	2,241	2,241	2,241	2,241	2,241
City Of Kilgore	Groundwater	Carrizo-Wilcox	490	490	490	490	490	490
City Of Lakeport	Contract	Elderville WSC	112	0	0	0	0	0
City Of Lakeport	Groundwater	Carrizo-Wilcox	22	22	22	22	22	22
Liberty City	Groundwater	Carrizo-Wilcox	356	356	356	356	356	356
City Of Longview	Surface Water	Sabine River (TNRCC Permits)	14,502	14,502	14,502	14,504	0	0
City Of Longview	Contract	Sabine River Authority	15,000	0	0	0	0	0
City Of Longview	Contract	Netmwd	15,000	15,000	15,000	15,000	15,000	0
City Of Longview	Surface Water	Big Sandy Creek (TNRCC Permits)	0	840	840	840	840	0
City Of Longview	Contract	Cherokee Water Co.	5,600	5,600	5,600	5,600	5,600	5,600
City Of East Mountain	Groundwater	Carrizo-Wilcox	18	18	18	18	18	18
City Of White Oak	Contract	City Of Longview	1,035	0	0	0	0	0
C&C Mobile Home Park	Contract	City Of Longview	18	18	18	18	18	18
Manufacturing	See Appendix A		3,009	4,746	5,193	5,193	5,193	5,193
Steam Electric			7,707	8,079	8,510	8,980	9,529	10,114
Steam Electric			2,500	3,000	3,000	3,000	3,000	4,000
Mining			96	67	46	37	29	27
Livestock			265	265	265	265	265	265
TOTAL			**68,792**	**56,040**	**56,897**	**57,360**	**43,396**	**29,139**

3.4 (g) Harrison County Water Supply

The municipal water supply in Harrison County is primarily from the City of Longview, the Cherokee Water Company, the Sabine River Authority, Northeast Texas Municipal Water District; from run-of-the-river permits in the Sabine River and Big Sandy Creek; from the Big Cypress Bayou, and from the Carrizo-Wilcox Aquifer. The water supply contracts for the City of Hallsville and the City of Longview expire before 2010.

Manufacturing supply is provided by the major water providers, as a permit from the Lake O' the Pines Reservoir and Caddo Lake, by direct reuse, and from the Carrizo-Wilcox Aquifer. Steam electric supply is from Lake O' the Pines. Mining, irrigation, and livestock supplies are from the Queen City, Nacatoch and Carrizo-Wilcox aquifers or from local supplies.

"County Other" supply is tabulated in Appendix A. "County Other" supply is either from the major water providers of City of Marshall or the City of Longview or directly or indirectly from the Carrizo-Wilcox Aquifer.

Table 3.27- Harrison County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of Hallsville	Contract	City Of Longview	368	0	0	0	0	0
City Of Hallsville	Groundwater	Carrizo-Wilcox	143	143	143	143	143	143
City Of Longview	Surface Water	Big Sandy Creek (TNRCC Permits)	0	280	280	280	280	0
City Of Longview	Contract	Netmwd	5,000	5,000	5,000	5,000	5,000	0
City Of Longview	Contract	Cherokee Water Company	10,400	10,400	10,400	10,400	10,400	10,400
City Of Longview	Surface Water	Sabine River (TNRCC Permits)	4,834	4,834	4,834	4,834	4,834	4,834
City Of Longview	Contract	Sabine River Authority	5,000	0	0	0	0	0
City Of Marshall	Surface Water	Big Cypress Bayou	13,815	13,815	13,815	13,815	13,815	13,815
City Of Waskom	Groundwater	Carrizo-Wilcox	291	291	291	291	291	291
County Other	See Appendix A		3,211	2,744	2,744	2,560	2,560	2,560
Manufacturing			198,755	203,220	203,940	204,232	204,936	205,879
Steam Electric			29,000	29,000	29,000	29,000	29,000	29,000
Mining			890	890	890	890	890	890
Irrigation			100	100	100	100	100	100
Livestock			991	1,040	1,092	1,147	1,205	1,264
TOTAL			**272,799**	**271,757**	**272,529**	**272,692**	**273,454**	**269,176**

3.4 (h) Hopkins County Water Supply

The Hopkins County municipal supplies are from the Carrizo-Wilcox and the Nacatoch Aquifers, the Sulphur River Municipal Water District, and Lake Sulphur Springs. Manufacturing water supplies are from the major water provider, City of Sulphur Springs, and from the Carrizo-Wilcox Aquifer. Mining supply is from a well in an unidentified aquifer. Livestock supply is primarily from the Carrizo-Wilcox and an unidentified aquifer or from local sources. The City of Sulphur Springs also provides some of the livestock water supply.

"County Other" supply is tabulated in Appendix A. "County Other" supply is from the City of Sulphur Springs, Northeast Texas Municipal Water District, the Sabine River Authority, Franklin County Water District, Cash Water Supply Company, and from the Carrizo-Wilcox Aquifer. Many of the "County Other" water users have contracts that expire prior to the year 2050.

Table 3.28- Hopkins County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of Como	Groundwater	Carrizo-Wilcox	103	103	103	103	103	103
City Of Cumby	Groundwater	Nacatoch	137	137	137	137	137	137
City Of Sulphur Spngs.	Contract	Sulphur River MWD	13,070	13,389	13,113	13,041	12,803	15,902
City Of Sulphur Springs	Surface Water	Lake Sulphur Springs	4,836	5,234	5,167	5,104	4,975	4,845
County Other	See Appendix A		3,332	2,756	1,842	1,842	1,493	1,494
Manufacturing			2,668	2,864	3,027	3,155	3,414	3,673
Mining			125	122	120	117	116	116
Livestock			7,428	7,428	7,428	7,428	7,428	7,428
TOTAL			**31,699**	**32,033**	**30,937**	**30,927**	**30,469**	**33,698**

3.4 (i) Hunt County Water Supply

Major water providers (City of Greenville, and Sabine River Authority) provide most of the municipal water supply in Hunt County. The City of Commerce, North Texas Municipal Water District, Cash Water Supply Corporation, and Sulphur River Municipal Water District also provide water supply. Groundwater is taken from the Nacatoch and Woodbine Aquifers. Manufacturing water supply is from the City of Greenville and from the Trinity Aquifer. Mining water supply is from Lake Tawakoni and the Trinity Aquifer. Steam electric water supply is from Lake Tawakoni and City of Greenville. Irrigation and livestock supply is from the Trinity Aquifer and from local supplies.

"County Other" supply is tabulated in Appendix A. "County Other" supply is either from the major water providers of City of Greenville, or the Sabine River Authority. The City of Pecan Gap, the Cash Water Supply Corporation, and City of Commerce also provide water to some communities. Groundwater is primarily from the Woodbine Aquifer with some additional supplies from the Carrizo-Wilcox, Trinity, and the Nacatoch Aquifers. Three water supply corporations, North Hunt Water Supply Corporation, Maloy Water Supply Corporation and Mac Bee Water Supply Corporation, have contracts that expire prior to 2010 or 2020.

Table 3.29- Hunt County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of Caddo Mills	Contract	City Of Greenville	166	166	0	0	0	0
City Of Caddo Mills	Contract	NTMWD	0	0	0	0	0	0
Campbell Water Supply Corp.	Groundwater	Nacatoch	147	147	147	147	147	147
City Of Celeste	Groundwater	Woodbine	159	159	159	159	159	159
City Of Commerce	Contract	Sabine River Authority	4,030	4,155	4,249	0	0	0
City Of Commerce	Groundwater	Nacatoch	340	351	351	130	130	130
Texas A&M University	Contract	City Of Commerce	221	221	221	221	221	221
Texas A&M University	Groundwater	Nacatoch	0	0	0	0	0	0
City Of Greenville	Surface Water	City Lakes	2,401	2,323	2,404	2,645	2,514	2,364
City Of Greenville	Contract	Sabine River Authority	21,283	0	0	0	0	0
City Of Lone Oak	Contract	Cash WSC	381	0	0	0	0	0
City Of Quinlan	Contract	Cash WSC	224	0	0	0	0	0
City Of West Tawakoni	Contract	Sabine River Authority	1,120	0	0	0	0	0
City Of Wolfe City	Groundwater	Woodbine	86	86	86	86	86	86
City Of Wolfe City	Surface Water	City Lakes	134	134	134	114	114	114
County Other	See Appendix A		8,401	6,861	2,002	1,639	810	810
Manufacturing			940	1,018	1,103	1,198	1,329	1,449
Steam Electric			800	0	0	0	0	0
Mining			70	71	73	75	77	79
Irrigation			271	271	271	271	271	271
Livestock			1,237	1,237	1,237	1,237	1,237	1,237
TOTAL			**42,411**	**17,200**	**12,437**	**7,922**	**7,095**	**7,067**

3.4 (j) Lamar County Water Supply

Municipal water supply for Lamar County is provided by the City of Paris, a major water provider. It is withdrawn from Pat Mayse Reservoir and Lake Crook. Contracts with Lamar County Water Supply

District expire in 2019 except for the City of Deport, whose contract expires prior to 2009. Manufacturing and steam electric water supply is provided by the City of Paris. Mining water is supplied from the Trinity Aquifer. Irrigation and livestock water supply is from the Trinity and Woodbine Aquifers, and also from local supplies.

"County Other" supply is tabulated in Appendix A. Lamar "County Other" supply is from the major water providers, City of Paris, from the Lamar County Water Supply District or taken from the Woodbine Aquifer. The water supply contracts expire in 2019 or in 2025.

Table 3.30- Lamar County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of Blossom	Contract	Lamar County WSD	223	230	0	0	0	0
City Of Deport	Contract	Lamar County WSD	113	0	0	0	0	0
City Of Paris	Contract	Pat Mayse Reservoir	30,705	29,839	28,966	33,467	32,261	30,822
City Of Paris	Surface Water	Lake Crook	1,000	1,000	1,000	1,000	1,000	1,000
City Of Reno	Contract	Lamar County WSD	411	562	0	0	0	0
City Of Roxton	Contract	Lamar County WSD	93	96	0	0	0	0
County Other	See Appendix A		4,178	4,024	5,343	0	0	0
Manufacturing			5,422	6,213	6,932	7,575	8,590	9,608
Steam Electric			12,209	12,209	12,209	12,209	12,209	12,209
Mining			25	24	24	25	25	25
Irrigation			4,368	4,319	4,271	4,223	4,176	4,129
Livestock			1,523	1,523	1,523	1,523	1,523	1,523
TOTAL			**60,270**	**60,039**	**60,268**	**60,022**	**59,784**	**59,316**

3.4 (k) Marion County Water Supply

The City of Jefferson's water supply is approximately 11 percent from a run-of-the-river permit on Big Cypress Creek and the remaining is from Northeast Texas Municipal Water District. Steam electric water supply is from Lake O' the Pines or as a run-of-the-river permit from Johnson Creek. Mining water supply is from the Carrizo-Wilcox Aquifer and livestock supply is from the Carrizo-Wilcox and the Queen City Aquifers.

"County Other" supply is tabulated in Appendix A. "County Other" supply is either from the major water provider, Northeast Texas Municipal Water District or the Carrizo-Wilcox Aquifer.

3.31- Marion County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of Jefferson	Surface Water	Big Cypress Creek	1,287	1,287	1,287	1,287	1,287	1,287
City Of Jefferson	Contract	NETMWD	9,760	9,760	9,760	9,760	9,760	9,760
County Other	See Appendix A		1,702	1,702	1,702	1,702	1,702	1,702
Manufacturing			20	20	20	20	20	20
Steam Electric			6,200	6,200	6,200	6,200	6,200	6,200
Mining			71	43	30	24	20	34
Livestock			182	182	182	182	182	182
TOTAL			**19,722**	**19,694**	**19,681**	**19,675**	**19,471**	**19,685**

3.4 (l) Morris County Water Supply

The municipal water users in Morris County obtain their water supply either from major water provider, Northeast Texas Municipal Water District, or from the Carrizo-Wilcox Aquifer. Manufacturing water supply is from Lake O' the Pines, Ellison Creek Lake, indirect reuse, and Queen City Aquifer. Mining supply is from the Queen City Aquifer; irrigation water supply is from local supply; and the livestock supply is from either local supply, or the Carrizo-Wilcox or Queen City Aquifers.

"County Other" supply is tabulated in Appendix A. "County Other" water users in Morris County obtain their water supply either from major water providers, City of Mount Pleasant and Northeast Texas Municipal Water District, or from the Carrizo-Wilcox Aquifer. The source of Holly Springs water supply is from the City of Hughes Springs, who in turn is supplied by the Northeast Texas Municipal Water District.

Table 3.32- Morris County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of Daingerfield	Contract	NETMWD	10,329	10,329	10,329	10,329	10,329	10,329
City Of Hughes Springs	Contract	NETMWD	28	28	28	29	29	29
City Of Lone Star	Contract	NETMWD	4,893	4,893	4,893	4,893	4,893	4,893
City Of Naples	Groundwater	Carrizo-Wilcox	249	249	249	249	249	249
City Of Omaha	Groundwater	Carrizo-Wilcox	191	191	191	191	191	191
County Other	See Appendix A		1,544	1,456	1,456	1,441	1,441	1,441
Manufacturing			132,451	135,264	129,869	124,443	119,127	113,929
Steam Electric			12,000	12,000	12,000	12,000	12,000	12,000
Mining			31	16	12	10	10	11
Irrigation			190	188	186	184	182	180
Livestock			814	812	810	808	806	804
TOTAL			**164,720**	**167,436**	**162,043**	**156,607**	**151,297**	**146,106**

3.4 (m)Rains County Water Supply

Rains County municipal water supply is either directly or indirectly from the Sabine River Authority. These contracts expire in 2013 or 2025. Manufacturing water supply is from City of Emory. Irrigation water is supplied from local supply and the livestock water supply is from local supply or from the nearby Lake Medina.

"County Other" supply is tabulated in Appendix A. "County Other" water users in Rains County obtain their water supply from major water provider Sabine River Authority, and North Texas Municipal Water District; from Cash Water Supply Corporation and City of Emory; directly from Lake Fork, Lake Tawakoni or Lake Lavon; or from the Carrizo-Wilcox Aquifer.

Table 3.33- Rains County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of East Tawakoni	Contract	City Of Emory	552	552	0	0	0	0
City Of Emory	Contract	*SRA	1,105	1,105	1,105	0	0	0
City Of Point	Contract	*SRA	224	224	0	0	0	0
County Other	See Appendix A		1,013	1,013	749	749	749	749
Manufacturing			2	2	2	2	2	2
Irrigation			20	20	20	20	20	20
Livestock			700	700	700	700	700	700
TOTAL			**3,616**	**3,616**	**2,576**	**1,471**	**1,471**	**1,471**

**Sabine River Authority*

3.4 (n) Red River County Water Supply

The Red River County municipal water supplies are from the Trinity, Nacatoch, or the Blossom Aquifers or from Langford Lake or from Wright Patman Lake via City of Texarkana. Manufacturing water supply is from the City of Clarksville. Steam electric water supply is from River Crest Lake and Sulphur River. Irrigation is from local supplies and livestock supply is from local supply or from the Woodbine and Blossom Aquifers.

"County Other" supply is tabulated in Appendix A. "County Other" water users in Red River County obtain their water supply from major water providers, City of Texarkana and City of Paris; (through the Lamar County Water Supply District); or from the Nacatoch, Blossom, or alluvium aquifers.

Table 3.34- Red River County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of Bogata	Groundwater	Nacatoch	373	373	373	373	373	373
City Of Clarksville	Surface Water	Langford Lake	390	390	390	390	390	390
City Of Clarksville	Groundwater	Blossom	369	365	363	361	359	355
City Of Detroit	Groundwater	Trinity	60	60	60	60	60	60
County Other	See Appendix A		1,432	1,286	829	461	461	461
Manufacturing			11	15	17	19	21	25
Steam Electric			11,500	11,500	11,500	11,500	11,500	11,500
Irrigation			99	98	97	96	95	94
Livestock			1,180	1,180	1,180	1,180	1,180	1,180
TOTAL			**17,414**	**17,277**	**16,829**	**16,470**	**16,479**	**16,488**

3.4 (o) Smith County Water Supply

The Smith County municipal water supply for the City of Lindale is from the Carrizo-Wilcox Aquifer. Manufacturing water supply is from the Carrizo-Wilcox Aquifer. Mining supplies are from the Carrizo-Wilcox and the Queen City aquifers. Irrigation supply is from local supply, and the livestock water supply is from the Carrizo-Wilcox and Queen City Aquifers.

"County Other" supply is tabulated in Appendix A. "County Other" water users in Smith County obtain their water supply from the City of Lindale, the City of Gladewater, and from the Carrizo-Wilcox Aquifer.

Table 3.35- Smith County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of Lindale	Groundwater	Carrizo-Wilcox	1,253	1,207	1,166	1,123	1,081	1,035
City Of Overton	Groundwater	Carrizo-Wilcox	16	18	19	20	21	22
County Other	See Appendix A		3,731	3,840	3,936	4,039	4,140	4,252
Manufacturing			262	298	325	346	377	403
Mining			425	178	91	32	18	6
Irrigation			446	468	491	516	542	569
Livestock			453	453	453	453	453	453
TOTAL			**6,586**	**6,462**	**6,481**	**6,529**	**6,632**	**6,740**

3.4 (p) Titus County Water Supply

The City of Mount Pleasant municipal water supply is from Lake Cypress Springs, Lake Tankersley, and Lake Bob Sandlin. Manufacturing water supply is from the City of Mount Pleasant or from the Carrizo-Wilcox Aquifer. Steam electric is from Lake O' the Pines, Monticello Lake, and Welsh Reservoir. Mining supply is from Lake Bob Sandlin and the Carrizo-Wilcox Aquifer. Livestock supply is from the Carrizo-Wilcox Aquifer and local supplies.

"County Other" supply is tabulated in Appendix A. "County Other" water users in Titus County obtain their water supply from major water providers, City of Mount Pleasant and Franklin County Water District; from Tri Water Supply Corporation; and from the Carrizo-Wilcox and Nacatoch aquifers. The Tri Water Supply Corporation water supply contract expires in 2006.

Table 3.36- Titus County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of Mount Pleasant	Surface Water	Lake Cypress Springs	2321	2641	2788	2797	2747	2686
City Of Mount Pleasant	Contract	Titus County Fresh Water District	6452	7341	7749	7774	7635	7465
City Of Mount Pleasant	Surface Water	Lake Tankersley	1936	2202	2325	2332	2291	2240
County Other	See Appendix A		3,739	2,471	2,471	2,318	2,283	2,283
Manufacturing			44,897	45,068	45,199	45,302	45,540	45,772
Steam Electric			45,000	45,000	45,000	37,300	37,300	37,300
Mining			2,772	1,991	1,796	1,722	1,705	1,744
Livestock			858	858	858	858	858	858
TOTAL			**107,975**	**107,572**	**108,186**	**100,403**	**100,359**	**100,348**

3.4 (q) Upshur County Water Supply

The Upshur County municipal water supply is from major water supplier Northeast Texas Municipal Water District; from Lake Gladewater, from Lake Gilmer, and from the Carrizo-Wilcox Aquifer. Manufacturing and mining water supplies are from the Carrizo-Wilcox Aquifer. Irrigation water supply is from Lake Loma, and livestock supply is from local supply and from the Carrizo-Wilcox Aquifer.

"County Other" supply is tabulated in Appendix A. "County Other" water users in Upshur County obtain their water supply from major water provider City of Longview, from Lake Loma, from the City of Gladewater, from run-of-the-river permit on Big Sandy Creek, and from the Carrizo-Wilcox Aquifer.

Table 3.37- Upshur County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of Big Sandy	Groundwater	Carrizo-Wilcox	328	328	328	328	328	328
City Of East Mountain	Groundwater	Carrizo-Wilcox	63	63	63	63	63	63
City Of Gilmer	Surface Water	Lake Gilmer	5,430	5,430	5,430	5,430	5,430	5,430
City Of Gilmer	Groundwater	Carrizo-Wilcox	1,145	1,145	1,145	1,145	1,145	1,145
City Of Gladewater	Surface Water	Lake Gladewater	499	796	796	796	796	796
City Of Ore City	Contract	Netmwd	2,690	2,690	2,690	2,690	2,690	2,690
City Of Ore City	Groundwater	Carrizo-Wilcox	243	243	243	243	243	243
County Other	See Appendix A		3,041	3,010	3,010	3,010	3,010	3,010
Manufacturing			965	982	991	993	1,027	1,064
Mining			1	1	1	1	1	0
Irrigation			200	200	200	200	200	200
Livestock			1,928	1,928	1,928	1,928	1,928	1,928
TOTAL			**18,532**	**18,826**	**18,845**	**18,857**	**18,901**	**18,947**

3.4 (r)Van Zandt County Water Supply

The Van Zandt County municipal water supply is from major water supplier Sabine River Authority; from Lake Canton or Edgewood City Lake; and from the Carrizo-Wilcox Aquifer. The City of Wills Point water supply contract expires in 2015. Manufacturing water supply is from the Carrizo-Wilcox Aquifer or from Lake Tawakoni. Mining supply is from either local supply or from the Carrizo-Wilcox Aquifer. Irrigation is from the Carrizo-Wilcox Aquifer and livestock supply is from the Carrizo-Wilcox Aquifer or local supply.

"County Other" supply is tabulated in Appendix A. "County Other" water users in Van Zandt County obtain their water supply either from major water provider Sabine River Authority or from the Carrizo-Wilcox Aquifer.

Table 3.38: Van Zandt County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of Canton	Groundwater	Carrizo-Wilcox	818	818	818	818	818	818
City Of Edgewood	Surface Water	City Lake	110	110	110	110	110	110
City Of Edgewood	Contract	Sabine River Authority	840	840	0	0	0	0
City Of Grand Saline	Groundwater	Carrizo-Wilcox	586	586	586	586	586	586
City Of Van	Groundwater	Carrizo-Wilcox	564	564	564	564	564	564
City Of Wills Point	Contract	Sabine River Authority	2,210	2,210	0	0	0	0
County Other	See Appendix A		6,085	6,088	3,426	2,376	2,377	2,379
Manufacturing			280	344	396	451	508	566
Mining			1,359	1,167	1,099	1,077	1,084	1,115
Irrigation			220	220	220	220	220	220
Livestock			2381	2381	2381	2381	2381	2381
TOTAL			**15,452**	**15,327**	**9,599**	**8,582**	**8,697**	**8,738**

3.4 (s) Wood County Water Supply

The Wood County municipal water supply is from major water suppliers, Sabine River Authority, and the Franklin County Water District, and also from the Carrizo-Wilcox Aquifer. The City of Winnsborro water supply contract expires after 2030. Manufacturing water supply is from the Carrizo-Wilcox Aquifer. Steam electric supply is from the Queen City Aquifer. Mining and irrigation supply is from the Carrizo-Wilcox and the Queen City Aquifers. Livestock supply is from local supply and from the Carrizo-Wilcox Aquifer.

"County Other" supply is tabulated in Appendix A. "County Other" water users in Wood County obtain their water supply either from major water provider, Franklin County Water District; from the City of Winnsboro, or from the Carrizo-Wilcox Aquifer. The Sharon Water Supply Corporation water supply contract expires between 2000 and 2010.

Table 3.39- Wood County Water Supply

			Supply Available, ac-ft/yr					
System Name	**Supply Source Type**	**Supply Source Name**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
City Of Hawkins	Groundwater	Carrizo-Wilcox	1,073	1,073	1,073	1,073	1,073	1,073
City Of Mineola	Groundwater	Carrizo-Wilcox	890	890	890	890	890	890
City Of Quitman	Contract	Sabine River Authority	560	560	560	560	560	560
City Of Quitman	Groundwater	Carrizo-Wilcox	69	69	69	69	69	69
City Of Winnsboro	Contract	Franklin County Water District	4,308	4,529	4,529	4,529	0	0
County Other	See Appendix A		5,115	4,894	4,894	4,894	4,801	4,801
Manufacturing			244	290	341	391	468	544
Steam Electric			0	7,500	7,500	7,500	7,500	7,500
Mining			2,102	17,584	17,344	17,107	16,107	4,641
Irrigation			354	354	354	354	354	354
Livestock			2,562	2,562	2,562	2,562	2,562	2,562
TOTAL			**17,277**	**40,305**	**40,116**	**39,929**	**34,384**	**22,994**

3.5 Supply by River Basin

As the data on water supply was collected from each water user, the data was also collected by river basin. The following tables summarize the water supply by river basin.

Table 3.40- Municipal Water Supplies by River Basin

	Supply Available, ac-ft/yr					
Basin Name	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Cypress	124,573	303,798	290,489	281,266	252,353	229,064
Neches	1,843	1,843	1,843	1,843	1,843	1,843
Red	38,131	37,173	36,300	35,200	33,994	32,555
Sabine	131,260	84,384	72,732	66,269	50,842	49,642
Sulphur	52,140	55,383	53,921	55,550	51,627	51,259
Trinity	134	134	134	134	134	134
Total	**348,081**	**482,714**	**455,419**	**440,262**	**390,793**	**364,497**

Table 3.41- Manufacturing Water Supplies by River Basin

	Supply Available, ac-ft/yr					
Basin Name	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Cypress	232,908	236,227	231,040	225,785	220,907	216,170
Neches	0	0	0	0	0	0
Red	562	574	586	596	638	690
Sabine	151,775	159,820	161,569	162,491	163,882	165,505
Sulphur	98,771	96,689	97,775	96,455	100,903	105,479
Trinity	0	0	0	0	0	0
Total	**484,016**	**493,310**	**490,970**	**485,327**	**486,330**	**487,844**

Table 3.42- Steam Electric Water Supplies by River Basin

	Supply Available, ac-ft/yr					
Basin Name	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Cypress	81,900	81,900	81,900	74,200	74,200	74,200
Neches	0	0	0	0	0	0
Red	12,209	12,209	12,209	12,209	12,209	12,209
Sabine	16,486	23,686	23,686	23,686	23,686	24,686
Sulphur	11,500	11,500	11,500	11,500	11,500	11,500
Trinity	0	0	0	0	0	0
Total	**134,095**	**141,295**	**141,295**	**133,595**	**133,595**	**134,595**

Table 3.43- Mining Water Supplies by River Basin

	Supply Available, ac-ft/yr					
Basin Name	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Cypress	4,360	3,520	3,309	3,204	3,197	2,943
Neches	80	48	28	19	14	14
Red	37	36	36	37	38	38
Sabine	4,636	19,671	19,273	18,944	17,942	6,497
Sulphur	1,725	1,389	1,298	1,235	1,206	1,202
Trinity	46	46	45	44	45	46
Total	**10,884**	**24,710**	**23,989**	**23,483**	**22,442**	**10,740**

Table 3.44- Irrigation Water Supplies by River Basin

	Supply Available, ac-ft/yr					
Basin Name	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Cypress	458	456	454	452	450	448
Neches	0	0	0	0	0	0
Red	8,822	8,993	8,944	8,896	8,728	8,381
Sabine	1,222	1,244	1,267	1,292	1,318	1,345
Sulphur	2,044	2,021	1,999	1,977	1,955	1,933
Trinity	220	220	220	220	220	220
Total	**12,766**	**12,934**	**12,884**	**12,837**	**12,671**	**12,327**

Table 3.45- Livestock Water Supplies by River Basin

	Supply Available, ac-ft/yr					
Basin Name	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Cypress	5,491	5,520	5,549	5,581	5,615	5,648
Neches	657	657	657	657	657	657
Red	2,775	2,840	2,840	2,840	2,712	2,530
Sabine	8,710	8,730	8,753	8,776	8,800	8,826
Sulphur	11,532	11,646	11,646	11,646	11,424	11,106
Trinity	634	634	634	634	634	634
Total	**29,799**	**30,027**	**30,079**	**30,134**	**29,842**	**29,401**

3.5 (a) Estimates of Supplies Currently Available to Each Designated Major Water Provider

Many of the water user groups depend on a water supply from the major water providers. Consequently, it is important to evaluate the water supply for each of the major water providers. For some of the major water providers, such as Greenville, Longview, Marshall, Mount Pleasant, Paris, Sulphur Springs, and Texarkana, water supply data was collected from the surveys sent to each water user group. This information was then verified with the major water providers once it was compiled. For nonmunicipal major water providers, the information was collected directly from the provider.
The following tables summarize the supply for each major water provider:

Table 3.46- Cherokee Water Company

		Supply Available, ac-ft/yr					
Source Name	**Source Type**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Lake Cherokee	Surface	18,000	18,000	18,000	18,000	18,000	18,000
Total		**18,000**	**18,000**	**18,000**	**18,000**	**18,000**	**18,000**

Table 3.47- Franklin County Water District

		Supply Available, ac-ft/yr					
Source Name	**Source Type**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Lake Cypress Springs	Surface	11,710	11,710	11,710	11,710	11,710	11,710
Total		**11,710**	**11,710**	**11,710**	**11,710**	**11,710**	**11,710**

Table 3.48- Northeast Texas Municipal Water District

		Supply Available, ac-ft/yr					
Source Name	**Source Type**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Lake O' The Pines	Surface	130,600	130,600	130,600	130,600	130,600	130,600
Lake Bob Sandlin	Surface	12,000	12,000	12,000	12,000	12,000	12,000
Johnson Creek Lake	Surface	6,700	6,700	6,700	6,700	6,700	6,700
Lake Monticello	Surface	7,700	7,700	7,700	7,700	7,700	7,700
Swauno Creek	Surface	4,500	4,500	4,500	4,500	4,500	4,500
Total		**161,500**	**161,500**	**161,500**	**161,500**	**161,500**	**161,500**

Table 3.49- Sabine River Authority

	Supply Available, ac-ft/yr						
Source Name	**Source Type**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Lake Tawakoni	Surface	238,100	238,100	238,100	238,100	238,100	238,100
Lake Fork	Surface	188,660	188,660	188,660	188,660	188,660	188,660
Total		**426,760**	**426,760**	**426,760**	**426,760**	**426,760**	**426,760**

Table 3.50- Titus County Fresh Water Supply District No.1

	Supply Available, ac-ft/yr						
Source Name	**Source Type**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Lake Bob Sandlin	Surface	60,500	60,500	60,500	60,500	60,500	60,500
Total		**60,500**	**60,500**	**60,500**	**60,500**	**60,500**	**60,500**

Table 3.51- City of Greenville

	Supply Available, ac-ft/yr						
Source Name	**Source Type**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Sabine River Authority	Surface	21,283	21,283	21,283	21,283	21,283	21,283
City Lakes	Surface	1,200	1,200	1,200	1,200	1,200	1,200
Total		**22,483**	**22,483**	**22,483**	**22,483**	**22,483**	**22,483**

Table 3.52- City of Longview

	Supply Available, ac-ft/yr						
Source Name	**Source Type**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Cherokee Water Company	Surface	16,000	16,000	16,000	16,000	16,000	16,000
NETMWD	Surface	20,000	20,000	20,000	20,000	20,000	20,000
Big Sandy Creek	Surface	1,120	1,120	1,120	1,120	1,120	1,120
Lake Fork	Surface	20,000	20,000	20,000	20,000	20,000	20,000
Sabine River Authority	Surface	19,337	19,337	19,337	19,337	19,337	19,337
Total		**76,457**	**76,457**	**76,457**	**76,457**	**76,457**	**76,457**

Table 3.53- City of Marshall

	Supply Available, ac-ft/yr						
Source Name	**Source Type**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Big Cypress Bayou	Surface	16,000	16,000	16,000	16,000	16,000	16,000
Total		**16,000**	**16,000**	**16,000**	**16,000**	**16,000**	**16,000**

Table 3.54- City of Mt. Pleasant

	Supply Available, ac-ft/yr						
Source Name	**Source Type**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Lake Tankersley	Surface	3,000	3,000	3,000	3,000	3,000	3,000
Lake Cypress Springs	Surface	3,590	3,590	3,590	3,590	3,590	3,590
Titus County FWSD 1	Surface	10,000	10,000	10,000	10,000	10,000	10,000
Total		**16,590**	**16,590**	**16,590**	**16,590**	**16,590**	**16,590**

Table 3.55- City of Paris

	Supply Available, ac-ft/yr						
Source Name	**Source Type**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Pat Mayse Lake	Surface	59,900	59,700	59,200	58,900	58,600	58,300
Lake Crook	Surface	1,000	1,000	1,000	1,000	1,000	1,000
Total		**60,900**	**60,570**	**60,200**	**59,900**	**59,600**	**59,300**

Table 3.56- City of Sulphur Springs

	Supply Available, ac-ft/yr						
Source Name	**Source Type**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Cooper Lake	Surface	16,034	15,935	15,726	15,717	15,608	15,608
Lake Sulphur Springs	Surface	7,800	7,800	7,800	7,800	7,800	7,800
Total		**23,834**	**23,735**	**23,526**	**23,517**	**23,408**	**23,408**

Table 3.57- City of Texarkana

	Supply Available, ac-ft/yr						
Source Name	**Source Type**	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Lake Wright Patman	Surface	108,661	108,661	108,661	108,661	108,661	108,661
Total		**108,661**	**108,661**	**108,661**	**108,661**	**108,661**	**108,661**

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