

Chapter 2

Current and Projected Population and Water Demand

An understanding of the demand for water in the region is a basic requirement of water planning. The municipal demand for water is based, in part, on population projections for the region. In this chapter, projected population growth for the East Texas Regional Water Planning Area (ETRWPA) is examined. Water demand projections have also been developed for the various non-municipal categories of water use (manufacturing, irrigation, steam electric power, livestock, and mining) and for Major Water Providers (MWPs).

2.1 Methodology for Updating Demands

For the 2021 Regional Water Plan (2021 Plan), the Texas Water Development Board (TWDB) provided initial population and demand projections for water users in the region. The East Texas Regional Water Planning Group (ETRWPG) forwarded the population projections to the respective entities within the ETWRPA for review. Considering the comments received, the projections were revised and adopted by the ETWRPG and the TWDB.

Municipal water demands were calculated based on projections of the Texas State Data Centers (TSDC) population and the 2011 gallons per capita per day (gpcd). Projection water usage rates also incorporate anticipated reduction in demands associated with water conservation achieved through eventual compliance with plumbing codes.

The ETWRPA includes 194 municipal water user groups (WUGs) and 84 non-municipal WUGs for a total of 278. Since developing the 2016 Regional Water Plan (2016 Plan), the TWDB has moved from WUGs designated using political boundaries, such as city limits, to utility-based designations using water utility service areas. Due to these changes, 12 entities lost the designation of a WUG, 64 new WUGs were identified in the region, 2 WUGs are now split into more than one county, and 13 WUGs have new names compared to the 2016 Plan. New population and demand projections were developed by the TWDB and the TSDC for these new entities.

Demands for non-municipal use categories were developed with input from representatives of these areas. The TWDB provided initial projections of demand for the non-municipal use categories. These draft projections were reviewed by the ETWRPG and the group made a number of requested changes to projections, based primarily on local knowledge.

The following changes were made to the TWDB's initial demand projections and are included in the 2021 Plan:

- Increased population and demand projections for Lumberton MUD.
- Decreased population and demand projections for Hardin County-Other.
- Increased population and demand projections for the City of Woodville.
- Decreased population projections for Tyler County-Other.
- Increased manufacturing demand in Jefferson County.



- Increased steam electric power demand in Tyler County.
- Increased livestock demand in Jasper County.

Correspondence related to these changes is provided in Appendix 2-A. A summary of historical population, net water use estimates, and historical gpcd estimates by county are presented in Appendix 2-B. A summary of population projections and water demands by county and basin are presented as TWDB DB22 reports in Appendix ES-A, Report 01.

Following this section is a discussion of population growth and municipal water demand presented by county. In addition, discussion of anticipated water demands for the various non-municipal categories of water use is provided.

2.2 Population Growth Projections

The population in the ETRWPA is projected to increase from 1,151,556 in 2020 to 1,553,652 in 2070. The major centers of population – Angelina, Jefferson, and Smith counties – comprise nearly 50% of the population throughout the entire planning period. The projection of population growth from 2020 to 2070 by county is presented on Figure 2.1. The expected annual change in population for each county, using average annual growth during the planning period, is presented on Figure 2.2. The largest change in percentage growth is expected in Cherokee, Nacogdoches, Rusk, and Smith counties. The distribution of population by county and individual entity is provided in Table 2.1. A municipal WUG is defined as a privately-owned utility, state or federal water system, or retail public utility that provides more than 100 acre-feet per year; municipal water use not meeting this criterion is aggregated into county-other by county. The WUGs identified in Table 2.1 meet these definitions; however, where a lesser population is shown, the WUG is split between counties within the region or split between regions within the State.

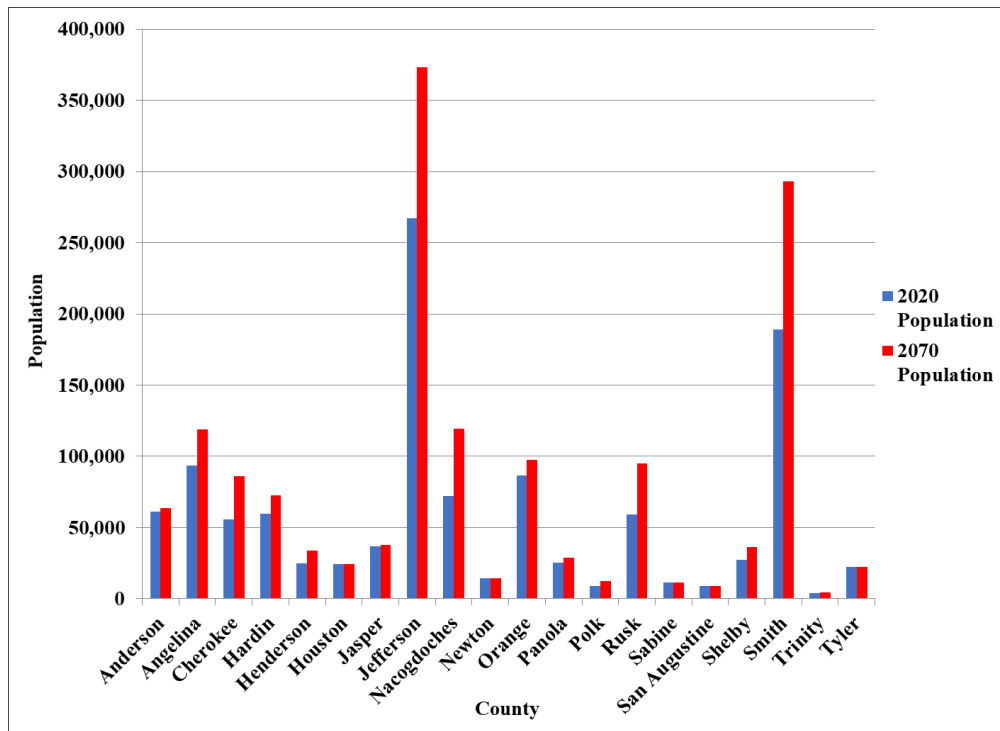


Figure 2.1 Population Projections for the East Texas Regional Water Planning Area by County (2020-2070)

SOURCE: TEXAS WATER DEVELOPMENT BOARD



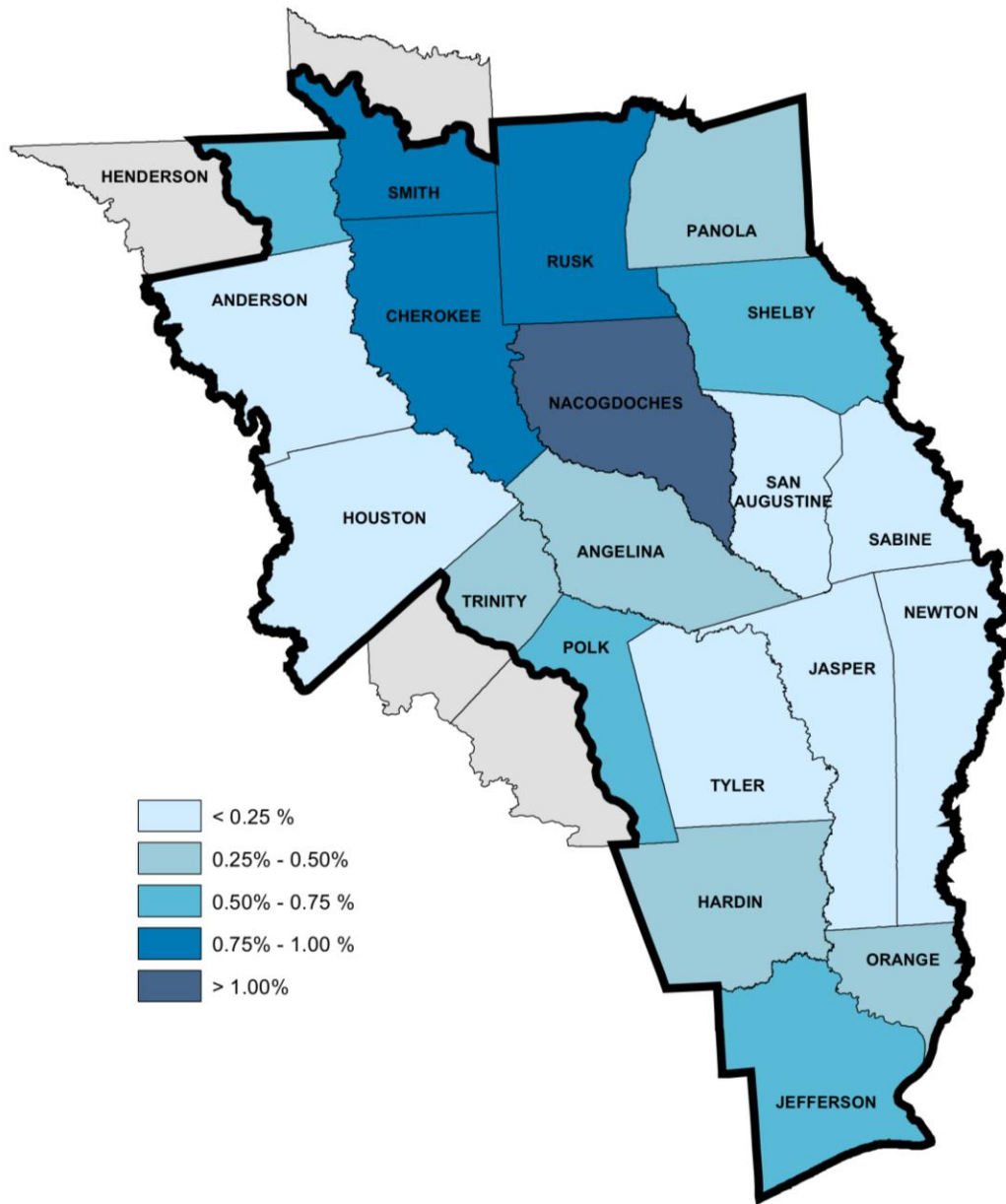


Figure 2.2 Population Annual Growth Rate

SOURCE: TEXAS WATER DEVELOPMENT BOARD



Table 2.1 Population Projections for the East Texas Regional Water Planning Area by County

County/WUG	Est.^a	Projections					
Anderson County	2015	2020	2030	2040	2050	2060	2070
Anderson County Cedar Creek WSC	1,018	1,015	1,049	1,060	1,060	1,060	1,060
B B S WSC	1,068	1,345	1,388	1,405	1,405	1,405	1,405
B C Y WSC	2,449	1,901	1,901	1,901	1,901	1,901	1,901
Brushy Creek WSC ^c	3,297	3,361	3,470	3,511	3,511	3,511	3,511
County-Other	5,351	6,434	6,730	6,830	6,830	6,830	6,830
Elkhart	1,846	1,431	1,478	1,496	1,496	1,496	1,496
Four Pines WSC	3,507	3,596	3,713	3,756	3,756	3,756	3,756
Frankston ^c	799	1,263	1,305	1,320	1,320	1,320	1,320
Frankston Rural WSC	1,274	1,295	1,338	1,354	1,354	1,354	1,354
Neches WSC	2,244	1,515	1,564	1,582	1,582	1,582	1,582
Norwood WSC	922	874	880	890	890	890	890
Palestine	17,233	18,954	19,576	19,803	19,803	19,803	19,803
Pleasant Springs WSC	929	974	1,007	1,018	1,018	1,018	1,018
Slocum WSC	2,090	2,417	2,496	2,524	2,524	2,524	2,524
TDCJ Beto Gurney & Powledge Units	5,017	3,598	3,716	3,759	3,759	3,759	3,759
TDCJ Coffield Michael	4,002	5,132	5,300	5,361	5,361	5,361	5,361
The Consolidated WSC ^c	1,148	1,140	1,178	1,191	1,191	1,191	1,191
Tucker WSC	1,147	1,160	1,198	1,211	1,211	1,211	1,211
Walston Springs WSC	3,565	3,611	3,730	3,774	3,774	3,774	3,774
Anderson County Total	58,906	61,016	63,017	63,746	63,746	63,746	63,746
Angelina County	2015	2020	2030	2040	2050	2060	2070
Angelina WSC	2,938	3,000	3,210	3,386	3,547	3,690	3,818
Central WCID of Angelina County	6,551	7,323	7,835	8,265	8,658	9,009	9,320
County-Other	2,732	5,672	6,072	6,406	6,705	6,972	7,205
Diboll	5,209	5,646	6,041	6,372	6,675	6,946	7,186
Four Way SUD	5,490	5,596	5,987	6,316	6,616	6,885	7,122
Hudson WSC	8,817	9,588	10,259	10,823	11,337	11,797	12,204
Huntington	2,384	2,504	2,680	2,826	2,961	3,081	3,188
Lufkin	45,944	43,626	46,679	49,241	51,580	53,673	55,526
M & M WSC	3,892	3,325	3,558	3,753	3,932	4,091	4,232
Pollak-Redtown WSC ^c	1,651	1,658	1,778	1,880	1,977	2,066	2,148
Redland WSC	2,103	2,624	2,808	2,961	3,102	3,228	3,340
Upper Jasper County Water Authority ^c	107	91	92	93	93	93	93
Woodlawn WSC	1,700	1,828	1,956	2,064	2,162	2,249	2,327
Zavalla	855	835	893	943	987	1,028	1,063
Angelina County Total	90,373	93,316	99,848	105,329	110,332	114,808	118,772
Cherokee County	2015	2020	2030	2040	2050	2060	2070
Afton Grove WSC	1,416	1,237	1,357	1,474	1,614	1,761	1,919
Alto	1,297	1,275	1,398	1,519	1,663	1,814	1,977
Alto Rural WSC	3,385	3,272	3,588	3,898	4,267	4,655	5,074
Blackjack WSC	644	778	853	927	1,014	1,107	1,206



Table 2.1 Population Projections for the East Texas Regional Water Planning Area by County

County/WUG	Est.^a	Projections					
Bullard	37	58	63	69	76	82	89
County-Other	2,897	2,039	2,308	2,551	2,869	3,183	3,511
Craft Turney WSC	4,948	5,215	5,717	6,211	6,800	7,417	8,086
Gum Creek WSC	1,268	1,311	1,437	1,561	1,709	1,865	2,033
Jacksonville	14,544	18,083	19,830	21,543	23,585	25,726	28,041
New Summerfield	1,580	1,238	1,358	1,475	1,614	1,761	1,919
North Cherokee WSC	5,046	4,900	5,375	5,839	6,391	6,973	7,599
Pollok-Redtown WSC ^c	143	144	154	163	171	179	186
Rusk	5,966	6,204	6,804	7,391	8,091	8,826	9,620
Rusk Rural WSC	2,807	2,969	3,255	3,537	3,872	4,223	4,603
South Rusk County WSC ^c	54	63	70	77	85	92	100
Southern Utilities ^c	3,558	4,165	4,497	4,847	5,240	5,670	6,148
Troup ^c	72	77	85	92	101	109	119
Wells	802	879	963	1,046	1,146	1,249	1,362
West Jacksonville WSC	1,338	1,126	1,234	1,341	1,468	1,601	1,745
Wright City WSC ^c	514	601	659	716	784	855	932
<i>Cherokee County Total</i>	<i>52,316</i>	<i>55,634</i>	<i>61,005</i>	<i>66,277</i>	<i>72,560</i>	<i>79,148</i>	<i>86,269</i>
Hardin County	2015	2020	2030	2040	2050	2060	2070
County-Other	13,001	5,989	6,136	6,241	6,301	6,343	6,397
Hardin County WCID 1	1,344	1,421	1,528	1,605	1,661	1,706	1,739
Kountze	1,955	2,135	2,141	2,145	2,148	2,151	2,153
Lake Livingston WSC ^c	92	100	112	125	138	152	166
Lumberton MUD	21,645	28,586	31,985	34,397	36,192	37,592	38,619
North Hardin WSC	7,353	7,821	8,344	8,716	8,991	9,206	9,367
Silsbee	6,959	7,162	7,320	7,434	7,517	7,583	7,633
Sour Lake	1,867	1,920	2,021	2,093	2,147	2,189	2,219
West Hardin WSC	2,738	3,537	3,556	3,569	3,578	3,586	3,592
Wildwood POA ^c	687	806	843	869	887	902	913
<i>Hardin County Total</i>	<i>57,641</i>	<i>59,477</i>	<i>63,986</i>	<i>67,194</i>	<i>69,560</i>	<i>71,410</i>	<i>72,798</i>
Henderson County^b	2015	2020	2030	2040	2050	2060	2070
Athens	234	274	294	311	333	352	371
Berryville	1,078	1,097	1,201	1,287	1,401	1,500	1,596
Bethel Ash WSC	3,394	3,154	3,565	3,908	4,362	4,753	5,133
Brownsboro	910	1,368	1,665	1,915	2,243	2,527	2,803
Brushy Creek WSC ^c	900	917	985	1,041	1,116	1,181	1,243
Chandler	4,015	3,704	4,510	5,181	6,067	6,833	7,574
County-Other	5,076	7,634	7,117	6,583	5,924	4,535	2,798
Edom WSC	191	204	223	238	254	274	296
Frankston ^c	28	44	67	86	111	133	154
Leagueville WSC	1,817	2,023	2,159	2,330	2,533	3,184	4,044
Moore Station WSC	3,052	1,430	1,526	1,647	1,789	2,250	2,858
Murchison	875	603	604	606	608	611	612
R P M WSC ^c	556	630	752	854	988	1,104	1,216
Virginia Hill WSC	1,495	1,722	1,976	2,190	2,470	2,711	2,946
<i>Henderson County Total</i>	<i>23,621</i>	<i>24,804</i>	<i>26,644</i>	<i>28,177</i>	<i>30,199</i>	<i>31,948</i>	<i>33,644</i>



Table 2.1 Population Projections for the East Texas Regional Water Planning Area by County

County/WUG	Est. ^a	Projections					
Houston County	2015	2020	2030	2040	2050	2060	2070
County-Other	516	864	844	842	842	842	842
Crockett	6,713	7,073	7,105	7,105	7,105	7,105	7,105
Grapeland	1,280	1,519	1,527	1,528	1,528	1,528	1,528
Lovelady	652	684	693	693	693	693	693
Pennington WSC ^c	878	868	872	872	872	872	872
TDCJ Eastham Unit	2,360	2,460	2,460	2,460	2,460	2,460	2,460
The Consolidated WSC ^c	10,763	10,683	10,759	10,760	10,760	10,760	10,760
Houston County Total	23,162	24,151	24,260	24,260	24,260	24,260	24,260
Jasper County	2015	2020	2030	2040	2050	2060	2070
Brookeland FWSD ^c	268	335	337	338	338	338	338
County-Other	11,311	16,111	16,467	16,531	16,527	16,521	16,518
Jasper	11,048	9,059	9,259	9,297	9,297	9,297	9,297
Jasper County WCID 1	2,461	2,730	2,791	2,802	2,802	2,802	2,802
Kirbyville	2,147	2,218	2,267	2,276	2,276	2,276	2,276
Mauriceville MUD ^c	420	429	439	440	440	440	440
Rayburn County MUD	2,559	1,703	1,741	1,748	1,748	1,748	1,748
Rural WSC	982	1,029	1,052	1,056	1,056	1,056	1,056
South Jasper County WSC	1,655	1,591	1,626	1,633	1,633	1,633	1,633
Upper Jasper County Water Authority ^c	2,002	1,673	1,716	1,728	1,732	1,738	1,741
Jasper County Total	34,853	36,878	37,695	37,849	37,849	37,849	37,849
Jefferson County	2015	2020	2030	2040	2050	2060	2070
Beaumont	129,574	130,024	138,409	147,221	157,462	168,758	181,406
Bevil Oaks	1,493	1,345	1,431	1,522	1,628	1,745	1,875
China	809	1,230	1,309	1,393	1,489	1,596	1,716
County-Other	6,427	13,126	17,880	23,611	30,269	37,612	45,833
Groves	17,550	16,007	16,007	16,007	16,007	16,007	16,007
Jefferson County WCID 10	5,334	5,654	6,018	6,402	6,847	7,338	7,889
Meeker MWD	3,363	3,333	3,548	3,774	4,036	4,325	4,650
Nederland	17,787	18,855	20,071	21,348	22,833	24,471	26,306
Port Arthur ^c	46,877	55,393	56,090	56,090	56,090	56,090	56,090
Port Neches	12,536	13,858	14,752	15,691	16,782	17,986	19,335
West Jefferson County MWD	9,309	8,554	9,105	9,685	10,359	11,102	11,934
Jefferson County Total	251,059	267,379	284,620	302,744	323,802	347,030	373,041
Nacogdoches County	2015	2020	2030	2040	2050	2060	2070
Appleby WSC	3,602	3,656	4,108	4,553	5,026	5,527	6,050
Caro WSC	2,098	2,593	2,913	3,228	3,564	3,919	4,290
County-Other	6,049	6,750	7,582	8,404	9,281	10,204	11,173
Cushing	967	924	1,037	1,150	1,270	1,396	1,528
D & M WSC	5,958	6,238	7,009	7,767	8,574	9,430	10,322
Etoile WSC	1,070	2,238	2,514	2,786	3,075	3,382	3,702



Table 2.1 Population Projections for the East Texas Regional Water Planning Area by County

County/WUG	Est.^a	Projections					
Garrison	1,034	1,124	1,263	1,399	1,545	1,698	1,859
Lilly Grove SUD	2,585	2,649	2,975	3,298	3,641	4,004	4,383
Melrose WSC	2,670	2,828	3,178	3,521	3,887	4,275	4,680
Nacogdoches	35,107	37,580	42,218	46,790	51,655	56,802	62,183
Swift WSC	2,481	2,773	3,116	3,453	3,812	4,192	4,589
Woden WSC	2,028	2,783	3,127	3,466	3,825	4,206	4,605
<i>Nacogdoches County Total</i>	<i>65,649</i>	<i>72,136</i>	<i>81,040</i>	<i>89,815</i>	<i>99,155</i>	<i>109,035</i>	<i>119,364</i>
Newton County	2015	2020	2030	2040	2050	2060	2070
Brookeland FWSD ^c	716	896	901	902	902	902	902
County-Other	7,930	8,196	8,191	8,190	8,190	8,190	8,190
Mauriceville MUD ^c	382	390	390	390	390	390	390
Newton	2,708	2,478	2,478	2,478	2,478	2,478	2,478
South Newton WSC ^c	2,438	2,485	2,485	2,485	2,485	2,485	2,485
<i>Newton County Total</i>	<i>14,174</i>	<i>14,445</i>	<i>14,445</i>	<i>14,445</i>	<i>14,445</i>	<i>14,445</i>	<i>14,445</i>
Orange County	2015	2020	2030	2040	2050	2060	2070
Bridge City	9,047	8,991	9,397	9,683	9,877	10,026	10,134
County-Other	16,606	23,395	24,458	25,202	25,708	26,092	26,370
Kelly G Brewer	765	499	521	538	548	557	562
Mauriceville MUD ^c	8,909	9,108	9,520	9,811	10,007	10,157	10,266
Orange	18,500	19,667	20,556	21,183	21,608	21,931	22,166
Orange County WCID 1	17,699	12,541	13,108	13,507	13,778	13,985	14,134
Orange County WCID 2	3,445	3,632	3,797	3,912	3,991	4,051	4,094
Orangefield WSC	4,722	4,865	5,084	5,240	5,345	5,425	5,482
Pinehurst	2,000	2,226	2,326	2,397	2,445	2,481	2,509
Port Arthur ^c	4	5	5	5	5	5	5
South Newton WSC ^c	1,372	1,398	1,461	1,506	1,536	1,559	1,576
<i>Orange County Total</i>	<i>83,069</i>	<i>86,327</i>	<i>90,233</i>	<i>92,984</i>	<i>94,848</i>	<i>96,269</i>	<i>97,298</i>
Panola County	2015	2020	2030	2040	2050	2060	2070
Beckville	1,016	994	1,113	1,186	1,254	1,305	1,345
Carthage	6,864	6,925	7,066	7,152	7,232	7,292	7,339
County-Other	15,245	15,901	16,795	17,329	17,809	18,169	18,446
Gill WSC	780	817	841	857	871	882	891
Minden Brachfield WSC ^c	75	58	65	71	78	85	93
Panola-Bethany WSC	82	92	111	134	169	192	211
Tatum ^c	304	324	387	425	460	487	507
<i>Panola County Total</i>	<i>24,366</i>	<i>25,111</i>	<i>26,378</i>	<i>27,154</i>	<i>27,873</i>	<i>28,412</i>	<i>28,832</i>
Polk County^b	2015	2020	2030	2040	2050	2060	2070
Chester WSC ^c	186	224	230	235	239	242	245
Corrigan	1,535	1,871	2,091	2,263	2,410	2,530	2,627
County-Other	3,181	3,820	4,280	4,618	4,877	5,060	5,173
Damascus Stryker WSC	1,395	1,557	1,739	1,883	2,005	2,105	2,185
Lake Livingston WSC ^c	920	1,000	1,124	1,246	1,378	1,515	1,660
Moscow WSC ^c	923	356	398	430	459	482	500



Table 2.1 Population Projections for the East Texas Regional Water Planning Area by County

County/WUG	Est.^a	Projections					
Soda WSC	110	131	146	159	169	178	184
Polk County Total	8,250	8,959	10,008	10,834	11,537	12,112	12,574
Rusk County	2015	2020	2030	2040	2050	2060	2070
Chalk Hill SUD	4,317	3,807	4,243	4,668	5,123	5,597	6,088
County-Other	6,209	9,606	10,747	11,834	12,992	14,175	15,381
Cross Roads SUD	3,346	3,134	3,494	3,844	4,218	4,609	5,013
Crystal Farms WSC	1,126	1,043	1,163	1,279	1,404	1,534	1,668
Ebenezer WSC	601	838	934	1,027	1,127	1,231	1,339
Elderville WSC	1,780	1,902	2,094	2,301	2,534	2,790	3,073
Gaston WSC	1,389	1,661	1,851	2,036	2,235	2,442	2,656
Goodsprings WSC	2,871	2,869	3,198	3,518	3,861	4,218	4,588
Henderson	13,430	14,928	16,640	18,302	20,089	21,946	23,871
Jacobs WSC	632	2,347	2,616	2,878	3,159	3,451	3,754
Kilgore	3,412	3,323	3,705	4,075	4,472	4,887	5,314
Minden Brachfield WSC ^c	1,925	1,488	1,659	1,825	2,002	2,188	2,380
Mt Enterprise WSC	1,512	1,864	2,078	2,285	2,508	2,740	2,981
New London	2,300	2,491	2,775	3,051	3,349	3,659	3,980
New Prospect WSC	3,180	1,156	1,289	1,418	1,557	1,700	1,850
Overton ^c	2,302	2,611	2,910	3,200	3,513	3,837	4,174
South Rusk County WSC ^c	1,632	1,888	2,104	2,314	2,541	2,775	3,019
Southern Utilities ^c	358	419	452	487	527	570	618
Tatum ^c	1,135	1,212	1,351	1,486	1,630	1,781	1,937
West Gregg SUD	179	188	210	231	253	277	301
Wright City WSC ^c	340	497	554	610	669	731	795
Rusk County Total	53,976	59,272	66,067	72,669	79,763	87,138	94,780
Sabine County	2015	2020	2030	2040	2050	2060	2070
Brookeland FWSD ^c	608	651	656	657	657	657	657
County-Other	3,318	1,554	1,564	1,562	1,562	1,562	1,562
G M WSC ^c	5,203	6,750	6,755	6,756	6,756	6,756	6,756
Hemphill	1,198	1,294	1,304	1,304	1,304	1,304	1,304
Pineland	934	968	970	970	970	970	970
Sabine County Total	11,261	11,217	11,249	11,249	11,249	11,249	11,249
San Augustine County	2015	2020	2030	2040	2050	2060	2070
County-Other	5,093	4,968	4,968	4,968	4,968	4,968	4,968
G M WSC ^c	507	563	563	563	563	563	563
San Augustine	1,795	2,121	2,121	2,121	2,121	2,121	2,121
San Augustine Rural WSC	1,169	1,265	1,265	1,265	1,265	1,265	1,265
San Augustine County Total	8,564	8,917	8,917	8,917	8,917	8,917	8,917
Shelby County	2015	2020	2030	2040	2050	2060	2070
Center	6,220	5,589	6,011	6,383	6,736	7,066	7,370



Table 2.1 Population Projections for the East Texas Regional Water Planning Area by County

County/WUG	Est. ^a	Projections					
Choice WSC	945	1,143	1,228	1,305	1,377	1,444	1,506
County-Other	6,588	8,212	8,832	9,380	9,900	10,384	10,838
East Lamar WSC	774	853	918	975	1,029	1,079	1,125
Five Way WSC	1,288	1,512	1,627	1,727	1,822	1,912	1,994
Flat Fork WSC	1,183	1,161	1,248	1,326	1,399	1,467	1,530
Huxley	1,419	2,210	2,376	2,522	2,662	2,793	2,912
Joaquin	982	1,176	1,264	1,343	1,416	1,487	1,550
McClelland WSC	1,430	1,383	1,487	1,579	1,666	1,747	1,823
Sand Hills WSC	1,475	1,725	1,855	1,970	2,079	2,180	2,273
Tenaha	1,880	1,252	1,347	1,430	1,509	1,583	1,651
Timpson	1,088	1,245	1,339	1,422	1,500	1,573	1,641
Shelby County Total	25,272	27,461	29,532	31,362	33,095	34,715	36,213
Smith County^b	2015	2020	2030	2040	2050	2060	2070
Algonquin Water Resources of Texas	623	859	954	1,052	1,161	1,276	1,400
ARP	995	1,084	1,136	1,189	1,245	1,303	1,362
Ben Wheeler WSC	14	17	19	20	21	22	23
Bullard	2,314	3,674	4,714	5,757	6,881	8,024	9,197
Carroll WSC	701	855	950	1,048	1,156	1,270	1,394
County-Other	6,001	4,034	5,356	6,686	8,100	9,538	10,998
Crystal Systems Texas	418	1,317	1,657	2,000	2,372	2,758	3,166
Dean WSC	6,924	4,725	4,905	5,087	5,281	5,480	5,683
Emerald Bay MUD	1,100	1,133	1,133	1,133	1,133	1,133	1,133
Jackson WSC	2,305	2,322	2,561	2,802	3,062	3,325	3,595
Lindale	1,962	2,099	2,704	3,311	3,964	4,629	5,311
Lindale Rural WSC	3,519	3,815	4,149	4,484	4,846	5,212	5,591
Overton ^c	132	149	189	229	271	315	359
R P M WSC ^c	231	262	297	332	369	408	447
Southern Utilities ^c	33,148	35,552	37,774	39,984	42,376	44,796	47,271
Troup ^c	1,978	2,101	2,317	2,536	2,770	3,009	3,254
Tyler	99,702	104,698	113,960	123,250	133,249	143,427	153,872
Walnut Grove WSC	7,770	8,728	10,281	11,839	13,516	15,222	16,973
Whitehouse	7,527	9,215	10,854	12,499	14,270	16,071	17,920
Wright City WSC ^c	1,631	2,381	2,669	2,958	3,269	3,585	3,910
Smith County Total	178,995	189,020	208,579	228,196	249,312	270,803	292,859
Trinity County^b	2015	2020	2030	2040	2050	2060	2070
Centerville WSC	784	855	925	932	905	937	981
County-Other	1,490	1,826	1,974	1,988	1,933	2,045	2,140
Groveton	479	518	561	565	550	569	596
Pennington WSC ^c	515	549	594	599	581	602	629
Trinity County Total	3,268	3,748	4,054	4,084	3,969	4,153	4,346
Tyler County	2015	2020	2030	2040	2050	2060	2070
Chester WSC ^c	724	872	899	917	932	944	954
Colmesneil	1,045	1,045	1,045	1,045	1,045	1,045	1,045
County-Other	10,541	6,273	6,269	6,227	6,194	6,166	6,141



Table 2.1 Population Projections for the East Texas Regional Water Planning Area by County

County/WUG	Est. ^a	Projections					
Cypress Creek WSC	582	592	595	595	595	595	595
Lake Livingston WSC ^c	27	29	33	36	40	44	49
Moscow WSC ^c	38	15	16	18	19	20	21
Tyler County WSC	4,379	5,684	5,711	5,711	5,711	5,711	5,711
Warren WSC	1,339	1,371	1,377	1,377	1,377	1,377	1,377
Wildwood POA ^c	509	598	626	645	658	669	678
Woodville	3,003	5,809	5,825	5,825	5,825	5,825	5,825
Tyler County Total	22,187	22,288	22,396	22,396	22,396	22,396	22,396
Total For ETRWPA	1,090,962	1,151,556	1,233,973	1,309,681	1,388,867	1,469,843	1,553,652

^a Historical WUG population data was retrieved from municipal supporting data on the TWDB's website in a spreadsheet titled "Historical Population & GPCD for WUGs." County-Other population data was also retrieved from the same location in a spreadsheet titled "Historical Population & GPCD for County-Other Rural Areas."

^b These counties are split between more than one TWDB regional water planning area. The populations shown represent the portion that fall within the East Texas Regional Water Planning Area (ETRWPA).

^c These WUGS are split between more than one county. The population shown represents the portion that falls within the county indicated.

SOURCE: TEXAS WATER DEVELOPMENT BOARD



2.3 Water Demands

In the current round of planning, water demand in the ETRWPA is expected to increase from 738,081 ac-ft per year in 2020 to 839,601 ac-ft per year in 2070. This is a 33% decrease in projected demand in 2020 and 48% decrease in projected demand in 2070 compared to the same planning horizon presented in the 2016 Plan which had a demand of 1,108,800 ac-ft per year in 2020 and 1,607,250 ac-ft per year in 2070. The decrease is due to a new requirement from the TWDB for contracts to be in place for non-municipal projected demands. This adjustment greatly decreased all non-municipal demands in this round of planning, with exception to mining, with manufacturing representing approximately 81% of the decrease. Table 2.2 shows a summary of the water usage by water use category for each decade of the planning period and Table 2.3 shows the projected change within each category and each category's contribution to the total demand. Details of each water use category are provided in subsequent sections. Figure 2.3 presents the water usage in the east Texas regional water planning area by use category.

Table 2.2 Summary of Water Usage Projections for the East Texas Regional Water Planning Area by Use Category and Decade (ac-ft/yr)

Water Use Category	2020	2030	2040	2050	2060	2070
Municipal	192,049	199,870	207,822	218,266	230,468	243,611
Manufacturing	305,973	353,415	353,415	353,415	353,415	353,415
Mining	27,523	24,547	18,169	15,488	12,986	12,093
Steam Electric Power	67,011	67,011	67,011	67,011	67,011	67,011
Livestock	47,157	50,284	54,029	58,524	63,890	65,103
Irrigation	98,368	98,368	98,368	98,368	98,368	98,368
Total for ETRWPA	738,081	793,495	798,814	811,072	826,138	839,601

SOURCE: TEXAS WATER DEVELOPMENT BOARD

Table 2.3 Demand Projection Percentages for the East Texas Regional Water Planning Area by Category

Water User Category	Percent Change in Demand 2020 to 2070	Percent of Total ETRWPA Demand	
		2020	2070
Municipal	26.8%	26.0%	29.0%
Manufacturing	15.5%	41.5%	42.1%
Mining	-56.1%	3.7%	1.4%
Steam Electric Power	0.0%	9.1%	8.0%
Livestock	38.1%	6.4%	7.8%
Irrigation	0.0%	13.3%	11.7%

SOURCE: TEXAS WATER DEVELOPMENT BOARD



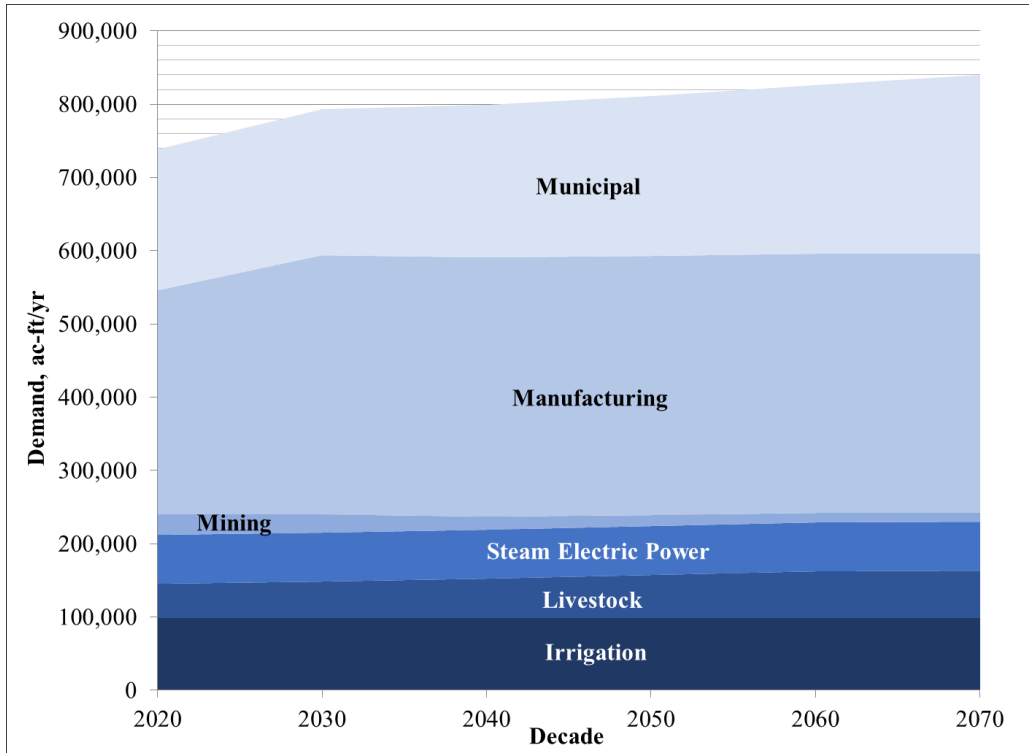


Figure 2.3 Water Usage in the East Texas Regional Water Planning Area by Use Category

SOURCE: TEXAS WATER DEVELOPMENT BOARD

2.3.1 Municipal Demands

Municipal water use includes both residential and commercial use. Residential use includes single and multi-family housing. Commercial use is composed of water used by small businesses, institutions, and public offices. It does not include water used by industry. Municipal water demand projections are estimated by multiplying the projected population of an entity by the entity's 2011 gpcd less water efficiency savings. The 2011 gpcd was collected using the TWDB Water Use Surveys and was used because it is a recent drought of record for entities within the ETRWPA. Table 2.4 provides a summary of the calculated municipal use by entities in the ETRWPA. A summary of net water use estimates and historical gpcd estimates by county are presented in Appendix 2-B. The projected changes in municipal water demands are presented in Table 2.5.

Municipal water use is expected to grow from 192,049 ac-ft per year to 243,611 ac-ft per year during the planning period. This represents an approximate 27% increase in municipal water demand over the planning horizon. The average annual percent increase in each county for municipal demand over the planning period is represented on Table 2.5. Counties with the most growth in municipal demand include Cherokee, Nacogdoches, Rusk, and Smith counties.

Compared to the last round of planning, the projections in this round are less than 2% greater than the projected municipal water demands for the same planning horizon with a projected demand of 188,646 ac-ft per year in 2020 and 239,607 ac-ft per year in 2070 presented in the 2016 Plan.

Figure 2.4 presents the projected demand by decade for Jefferson and Smith counties compared to the remaining 18 counties in the ETRWPA labeled as "Other" because these two counties account for nearly 50% of the total population in the region. The remaining 18 counties are presented in Figure 2.5. The



average annual projected growth for municipal water use is shown on Figure 2.6. Additional details on WUG demand projections by county and river basin are provided in Appendix ES-A, Report 02.

Table 2.4 Historical Water Use and Projected Municipal Water Demand in the East Texas Regional Water Planning Area by County (ac-ft/yr)

County/WUG	Est. ^a	Projections					
Anderson County	2015	2020	2030	2040	2050	2060	2070
Anderson County Cedar Creek WSC	110	101	100	98	96	96	96
B B S WSC	118	131	130	127	124	124	124
B C Y WSC	172	220	212	206	202	202	202
Brushy Creek WSC ^c	291	288	281	272	265	264	264
County-Other	561	907	920	912	900	897	897
Elkhart	205	249	251	249	246	246	246
Four Pines WSC	295	336	335	331	326	325	325
Frankston ^c	179	238	240	238	235	235	235
Frankston Rural WSC	221	171	171	168	166	166	166
Neches WSC	145	199	199	196	193	192	192
Norwood WSC	117	138	135	133	132	132	132
Palestine	3,028	4,896	4,966	4,953	4,915	4,909	4,909
Pleasant Springs WSC	77	169	171	169	167	167	167
Slocum WSC	224	285	284	279	275	274	274
TDCJ Beto Gurney & Powledge Units	1,790	1,129	1,150	1,152	1,145	1,144	1,144
TDCJ Coffield Michael	2,265	3,116	3,195	3,214	3,205	3,203	3,203
The Consolidated WSC ^c	156	129	129	126	124	124	123
Tucker WSC	110	127	126	124	122	121	121
Walston Springs WSC	354	368	364	357	350	349	349
Anderson County Total	10,418	13,197	13,359	13,304	13,188	13,170	13,169
Angelina County	2015	2020	2030	2040	2050	2060	2070
Angelina WSC	240	251	251	254	265	274	284
Central WCID of Angelina County	641	510	527	555	582	605	626
County-Other	188	641	653	668	697	722	746
Diboll	745	738	758	776	811	841	870
Four Way SUD	552	484	502	520	538	558	577
Hudson WSC	839	644	689	727	762	793	820
Huntington	263	254	259	264	271	281	291
Lufkin	6,144	7,253	7,545	7,792	8,073	8,382	8,668
M & M WSC	261	283	286	290	300	310	321
Pollok-Redtown WSC ^c	149	162	166	170	176	184	191
Redland WSC	190	203	201	210	219	227	235
Upper Jasper County Water Authority ^c	11	11	11	10	10	10	10
Woodlawn WSC	251	163	165	168	173	180	186
Zavalla	97	85	87	89	91	95	98
Angelina County Total	10,571	11,682	12,100	12,493	12,968	13,462	13,923



Table 2.4 Historical Water Use and Projected Municipal Water Demand in the East Texas Regional Water Planning Area by County (ac-ft/yr)

County/WUG	Est.^a	Projections					
Cherokee County	2015	2020	2030	2040	2050	2060	2070
Afton Grove WSC	149	189	202	215	234	254	277
Alto	248	236	253	270	293	319	347
Alto Rural WSC	546	637	677	734	801	873	951
Blackjack WSC	108	138	147	158	171	186	203
Bullard	9	11	12	13	15	16	17
County-Other	576	238	260	281	311	344	380
Craft Turney WSC	487	485	503	524	562	610	665
Gum Creek WSC	99	129	134	142	153	167	181
Jacksonville	2,429	3,045	3,247	3,457	3,745	4,076	4,440
New Summerfield	136	158	169	180	195	212	231
North Cherokee WSC	471	601	640	680	736	801	872
Pollok-Redtown WSC ^c	13	14	14	15	15	16	17
Rusk	815	1,041	1,112	1,186	1,286	1,400	1,525
Rusk Rural WSC	284	301	316	332	358	388	423
South Rusk County WSC ^c	9	6	7	7	8	8	9
Southern Utilities ^c	625	712	749	791	847	914	991
Troup ^c	12	15	16	17	19	20	22
Wells	89	141	150	159	172	187	204
West Jacksonville WSC	141	165	175	187	203	221	241
Wright City WSC ^c	45	69	73	77	83	91	99
<i>Cherokee County Total</i>	<i>7,291</i>	<i>8,331</i>	<i>8,856</i>	<i>9,425</i>	<i>10,207</i>	<i>11,103</i>	<i>12,095</i>
Hardin County	2015	2020	2030	2040	2050	2060	2070
County-Other	1,531	710	696	684	688	691	697
Hardin County WCID 1	136	131	134	136	138	141	143
Kountze	261	255	246	238	234	234	234
Lake Livingston WSC ^c	10	7	8	8	9	10	11
Lumberton MUD	2,107	2,610	2,805	2,929	3,032	3,137	3,222
North Hardin WSC	464	543	561	586	604	619	630
Silsbee	896	944	931	918	913	919	925
Sour Lake	280	279	285	288	292	297	301
West Hardin WSC	290	238	239	240	240	241	241
Wildwood POA ^c	84	156	160	162	164	166	168
<i>Hardin County Total</i>	<i>6,059</i>	<i>5,873</i>	<i>6,065</i>	<i>6,189</i>	<i>6,314</i>	<i>6,455</i>	<i>6,572</i>
Henderson County^b	2015	2020	2030	2040	2050	2060	2070
Athens	44	56	59	61	65	68	72
Berryville	95	118	124	129	138	147	157
Bethel Ash WSC	237	321	350	376	414	450	486
Brownsboro	146	218	259	295	343	386	428
Brushy Creek WSC ^c	79	79	80	81	84	89	93
Chandler	443	627	746	846	984	1,107	1,226
County-Other	820	700	613	538	482	367	226
Edom WSC	16	22	23	24	26	27	30
Frankston ^c	6	8	12	16	20	24	27



Table 2.4 Historical Water Use and Projected Municipal Water Demand in the East Texas Regional Water Planning Area by County (ac-ft/yr)

County/WUG	Est. ^a	Projections					
Leagueville WSC	173	215	221	233	250	313	397
Moore Station WSC	146	183	189	200	215	269	342
Murchison	95	94	91	89	88	88	89
R P M WSC ^c	83	69	79	88	101	112	123
Virginia Hill WSC	165	166	182	195	217	237	257
Henderson County Total	2,548	2,876	3,028	3,171	3,427	3,684	3,953
Houston County	2015	2020	2030	2040	2050	2060	2070
County-Other	89	151	144	141	141	141	141
Crockett	1,171	1,280	1,253	1,225	1,211	1,208	1,208
Grapeland	184	211	205	200	197	196	196
Lovelady	91	132	130	128	127	126	126
Pennington WSC ^c	76	82	79	77	76	75	75
TDCJ Eastham Unit	1,032	1,098	1,088	1,079	1,075	1,074	1,074
The Consolidated WSC ^c	1,460	1,210	1,174	1,139	1,120	1,116	1,116
Houston County Total	4,103	4,164	4,073	3,989	3,947	3,936	3,936
Jasper County	2015	2020	2030	2040	2050	2060	2070
Brookeland FWSD ^c	30	39	38	37	36	36	36
County-Other	1,213	1,698	1,667	1,620	1,590	1,583	1,583
Jasper	1,667	1,963	1,963	1,937	1,918	1,915	1,915
Jasper County WCID 1	238	204	192	188	188	188	188
Kirbyville	302	402	401	395	391	390	390
Mauriceville MUD ^c	30	30	30	30	30	30	30
Rayburn County MUD	222	178	174	170	167	167	167
Rural WSC	113	107	105	102	101	100	100
South Jasper County WSC	122	119	114	110	110	110	110
Upper Jasper County Water Authority ^c	200	200	198	194	192	192	192
Jasper County Total	4,137	4,940	4,882	4,783	4,723	4,711	4,711
Jefferson County	2015	2020	2030	2040	2050	2060	2070
Beaumont	23,441	30,788	32,110	33,623	35,671	38,168	41,012
Bevil Oaks	105	134	135	138	146	156	167
China	179	142	145	150	157	168	180
County-Other	659	2,076	2,733	3,541	4,503	5,586	6,802
Groves	2,160	2,218	2,141	2,076	2,051	2,045	2,045
Jefferson County WCID 10	659	493	499	510	534	570	612
Meeker MWD	372	431	444	462	488	521	560
Nederland	2,138	2,436	2,498	2,580	2,718	2,904	3,119
Port Arthur ^c	14,669	19,234	19,205	18,984	18,939	18,920	18,919
Port Neches	1,662	1,431	1,450	1,484	1,557	1,662	1,785
West Jefferson County MWD	678	741	752	771	809	863	926



Table 2.4 Historical Water Use and Projected Municipal Water Demand in the East Texas Regional Water Planning Area by County (ac-ft/yr)

County/WUG	Est.^a	Projections					
<i>Jefferson County Total</i>	<i>46,722</i>	<i>60,124</i>	<i>62,112</i>	<i>64,319</i>	<i>67,573</i>	<i>71,563</i>	<i>76,127</i>
Nacogdoches County	2015	2020	2030	2040	2050	2060	2070
Appleby WSC	786	658	722	787	862	946	1,035
Caro WSC	358	254	272	292	317	347	380
County-Other	657	686	749	827	909	996	1,090
Cushing	92	166	181	197	216	237	259
D & M WSC	586	904	993	1,086	1,189	1,305	1,428
Etoile WSC	260	255	275	297	323	354	387
Garrison	191	252	277	302	331	363	397
Lilly Grove SUD	360	369	404	440	481	528	577
Melrose WSC	639	410	447	485	529	581	635
Nacogdoches	6,187	6,868	7,514	8,177	8,945	9,818	10,742
Swift WSC	334	424	461	499	545	598	654
Woden WSC	218	340	368	396	432	473	518
<i>Nacogdoches County Total</i>	<i>10,668</i>	<i>11,586</i>	<i>12,663</i>	<i>13,785</i>	<i>15,079</i>	<i>16,546</i>	<i>18,102</i>
Newton County	2015	2020	2030	2040	2050	2060	2070
Brookeland FWSD ^c	81	104	101	99	97	97	97
County-Other	893	886	846	811	803	800	800
Mauriceville MUD ^c	27	27	26	26	26	26	26
Newton	341	443	433	425	421	420	420
South Newton WSC ^c	237	167	167	167	167	167	167
<i>Newton County Total</i>	<i>1,579</i>	<i>1,627</i>	<i>1,573</i>	<i>1,528</i>	<i>1,514</i>	<i>1,510</i>	<i>1,510</i>
Orange County	2015	2020	2030	2040	2050	2060	2070
Bridge City	850	796	784	770	778	786	795
County-Other	4,259	2,700	2,676	2,747	2,794	2,827	2,856
Kelly G Brewer	321	77	78	79	80	81	82
Mauriceville MUD ^c	630	637	640	659	673	683	690
Orange	2,807	2,626	2,644	2,645	2,663	2,696	2,724
Orange County WCID 1	1,222	1,553	1,569	1,576	1,595	1,614	1,631
Orange County WCID 2	335	494	500	504	510	517	522
Orangefield WSC	536	449	459	466	471	477	482
Pinehurst	256	284	284	285	290	293	296
Port Arthur ^c	1	2	2	2	2	2	2
South Newton WSC ^c	133	94	98	101	103	105	106
<i>Orange County Total</i>	<i>11,350</i>	<i>9,712</i>	<i>9,734</i>	<i>9,834</i>	<i>9,959</i>	<i>10,081</i>	<i>10,186</i>
Panola County	2015	2020	2030	2040	2050	2060	2070
Beckville	102	136	147	153	160	166	171
Carthage	1,347	1,650	1,651	1,644	1,648	1,659	1,669
County-Other	1,181	1,595	1,608	1,600	1,613	1,639	1,664
Gill WSC	88	94	93	91	92	93	94
Minden Brachfield WSC ^c	7	4	4	5	5	6	6



Table 2.4 Historical Water Use and Projected Municipal Water Demand in the East Texas Regional Water Planning Area by County (ac-ft/yr)

County/WUG	Est.^a	Projections					
Panola-Bethany WSC	18	18	21	25	32	36	40
Tatum ^c	54	63	73	79	85	89	93
<i>Panola County Total</i>	<i>2,797</i>	<i>3,560</i>	<i>3,597</i>	<i>3,597</i>	<i>3,635</i>	<i>3,688</i>	<i>3,737</i>
Polk County^b	2015	2020	2030	2040	2050	2060	2070
Chester WSC ^c	31	39	39	39	39	39	40
Corrigan	204	231	248	260	276	288	299
County-Other	291	397	428	449	468	483	494
Damascus Stryker WSC	122	194	210	222	234	245	254
Lake Livingston WSC ^c	101	68	76	84	93	102	112
Moscow WSC ^c	204	52	57	60	64	67	69
Soda WSC	12	11	12	12	13	13	14
<i>Polk County Total</i>	<i>965</i>	<i>992</i>	<i>1,070</i>	<i>1,126</i>	<i>1,187</i>	<i>1,237</i>	<i>1,282</i>
Rusk County	2015	2020	2030	2040	2050	2060	2070
Chalk Hill SUD	270	332	352	375	404	440	478
County-Other	611	1,042	1,111	1,182	1,278	1,390	1,507
Cross Roads SUD	256	259	273	288	310	337	366
Crystal Farms WSC	115	104	111	118	127	139	151
Ebenezer WSC	98	130	141	152	165	180	196
Elderville WSC	165	128	141	155	170	188	207
Gaston WSC	144	192	205	220	238	259	282
Goodsprings WSC	232	260	275	292	315	343	372
Henderson	2,686	3,741	4,098	4,454	4,859	5,301	5,764
Jacobs WSC	136	283	303	325	352	383	417
Kilgore	636	717	783	848	924	1,008	1,095
Minden Brachfield WSC ^c	176	100	111	123	135	147	160
Mt Enterprise WSC	188	305	330	356	387	422	459
New London	325	870	955	1,040	1,136	1,240	1,348
New Prospect WSC	132	91	96	101	109	118	129
Overton ^c	456	554	604	654	713	777	845
South Rusk County WSC	257	188	200	213	230	250	272
Southern Utilities ^c	63	72	75	80	85	92	100
Tatum ^c	204	234	254	275	300	327	355
West Gregg SUD	16	16	17	18	20	22	23
Wright City WSC ^c	30	57	61	66	71	78	84
<i>Rusk County Total</i>	<i>7,196</i>	<i>9,675</i>	<i>10,496</i>	<i>11,335</i>	<i>12,328</i>	<i>13,441</i>	<i>14,610</i>
Sabine County	2015	2020	2030	2040	2050	2060	2070
Brookeland FWSD ^c	68	76	74	72	71	71	71
County-Other	167	134	127	121	120	120	120
G M WSC ^c	544	454	454	454	454	454	454
Hemphill	545	305	302	297	295	294	294
Pineland	147	90	86	82	81	81	81
<i>Sabine County Total</i>	<i>1,471</i>	<i>1,059</i>	<i>1,043</i>	<i>1,026</i>	<i>1,021</i>	<i>1,020</i>	<i>1,020</i>
San Augustine County	2015	2020	2030	2040	2050	2060	2070



Table 2.4 Historical Water Use and Projected Municipal Water Demand in the East Texas Regional Water Planning Area by County (ac-ft/yr)

County/WUG	Est. ^a	Projections					
County-Other	433	481	461	445	436	434	434
G M WSC ^c	53	38	38	38	38	38	38
San Augustine	467	519	508	499	498	498	498
San Augustine Rural WSC	141	120	114	110	108	108	108
San Augustine County Total	1,094	1,158	1,121	1,092	1,080	1,078	1,078
Shelby County	2015	2020	2030	2040	2050	2060	2070
Center	2,067	1,842	1,952	2,050	2,152	2,255	2,351
Choice WSC	115	127	131	134	140	146	152
County-Other	730	898	927	956	993	1,038	1,082
East Lamar WSC	90	109	113	117	122	127	133
Five Way WSC	156	163	168	172	179	187	195
Flat Fork WSC	137	129	133	136	142	149	155
Huxley	200	285	295	304	318	333	347
Joaquin	168	180	187	194	203	213	222
McClelland WSC	196	216	225	234	244	256	267
Sand Hills WSC	152	297	310	323	338	354	369
Tenaha	259	227	237	247	258	271	282
Timpson	165	178	185	192	200	209	218
Shelby County Total	4,435	4,651	4,863	5,059	5,289	5,538	5,773
Smith County^b	2015	2020	2030	2040	2050	2060	2070
Algonquin Water Resources of Texas	189	58	64	71	78	86	94
ARP	162	175	178	182	189	197	206
Ben Wheeler WSC	1	1	2	2	2	2	2
Bullard	576	728	920	1,115	1,329	1,547	1,773
Carroll WSC	78	99	106	115	125	137	150
County-Other	577	475	610	745	894	1,049	1,209
Crystal Systems Texas	91	411	512	616	730	848	973
Dean WSC	427	763	772	784	805	833	864
Emerald Bay MUD	197	175	170	167	166	165	165
Jackson WSC	177	212	222	234	252	272	294
Lindale	325	476	604	733	875	1,020	1,170
Lindale Rural WSC	434	298	308	321	341	365	391
Overton ^c	26	32	39	47	55	64	73
R P M WSC ^c	22	29	31	34	38	41	45
Southern Utilities ^c	5,826	6,079	6,289	6,527	6,848	7,223	7,617
Troup ^c	331	416	447	481	520	564	610
Tyler	25,724	20,032	21,313	22,676	24,310	26,118	28,007
Walnut Grove WSC	844	1,082	1,231	1,388	1,569	1,763	1,964
Whitehouse	900	1,166	1,331	1,503	1,700	1,910	2,128
Wright City WSC ^c	143	272	295	319	348	380	415
Smith County Total	37,050	32,979	35,444	38,060	41,174	44,584	48,150



Table 2.4 Historical Water Use and Projected Municipal Water Demand in the East Texas Regional Water Planning Area by County (ac-ft/yr)

County/WUG	Est.^a	Projections					
Trinity County^b	2015	2020	2030	2040	2050	2060	2070
Centerville WSC	90	106	111	109	105	109	114
County-Other	186	131	133	134	130	137	144
Groveton	63	55	57	55	53	55	57
Pennington WSC ^c	45	52	54	53	50	52	54
Trinity County Total	384	344	355	351	338	353	369
Tyler County	2015	2020	2030	2040	2050	2060	2070
Chester WSC ^c	122	151	151	151	152	154	155
Colmesneil	150	252	247	243	241	241	241
County-Other	1,368	793	764	736	719	714	711
Cypress Creek WSC	63	117	115	113	112	112	112
Lake Livingston WSC ^c	3	2	2	2	3	3	3
Moscow WSC ^c	8	2	2	3	3	3	3
Tyler County WSC	512	660	638	617	606	604	604
Warren WSC	476	185	180	175	173	172	172
Wildwood POA ^c	62	116	119	120	122	123	125
Woodville	1,154	1,241	1,218	1,196	1,184	1,182	1,182
Tyler County Total	3,918	3,519	3,436	3,356	3,315	3,308	3,308
Total For ETRWPA	174,756	192,049	199,870	207,822	218,266	230,468	243,611

^a Historical WUG demand data was retrieved from municipal supporting data on the TWDB's website in a spreadsheet titled "Historical Population & GPCD for WUGs." County-Other population data was also retrieved from the same location in a spreadsheet titled "Historical Population & GPCD for County-Other Rural Areas."

^b These counties are split between more than one TWDB regional water planning area. The demand shown represents the portion that falls within the East Texas Regional Water Planning Area (ETRWPA).

^c These WUGS are split between more than one county. The demand shown represents the portion that falls within the county indicated.

SOURCE: TEXAS WATER DEVELOPMENT BOARD

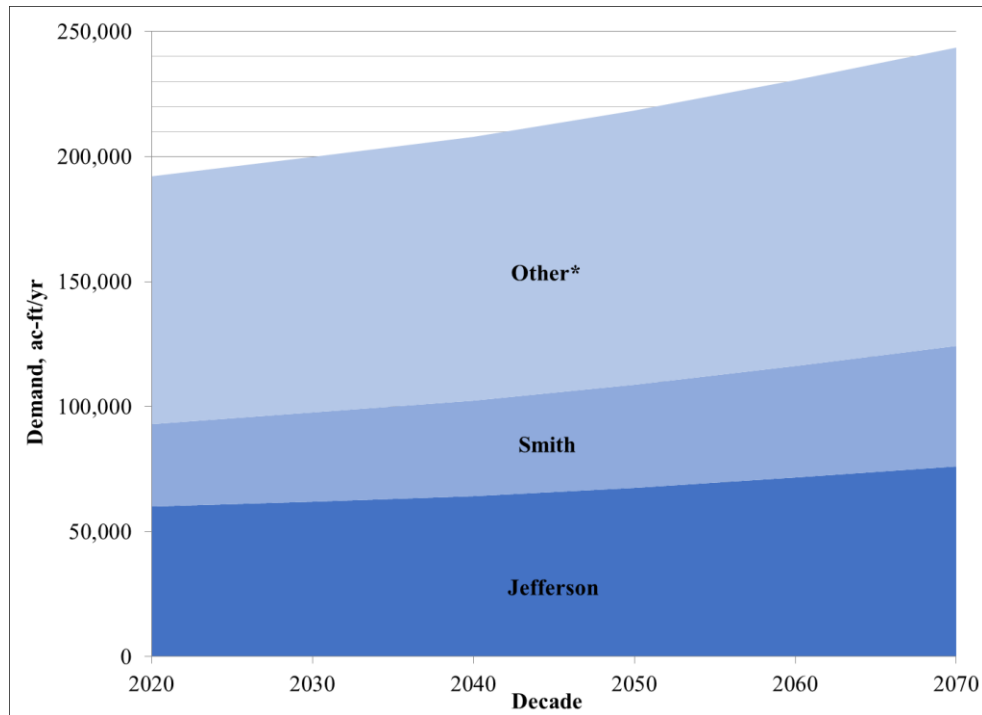


Table 2.5 Municipal Demand Projection Percentages in the East Texas Regional Water Planning Area by County

County	Percent Change in Demand 2020 to 2070	Percent of Total ETRWPA Demand	
		2020	2070
Anderson	-0.2%	6.9%	5.4%
Angelina	19.2%	6.1%	5.7%
Cherokee	45.2%	4.3%	5.0%
Hardin	11.9%	3.1%	2.7%
Henderson	37.4%	1.5%	1.6%
Houston	-5.5%	2.2%	1.6%
Jasper	-4.6%	2.6%	1.9%
Jefferson	26.6%	31.3%	31.2%
Nacogdoches	56.2%	6.0%	7.4%
Newton	-7.2%	0.8%	0.6%
Orange	4.9%	5.1%	4.2%
Panola	5.0%	1.9%	1.5%
Polk	29.2%	0.5%	0.5%
Rusk	51.0%	5.0%	6.0%
Sabine	-3.7%	0.6%	0.4%
San Augustine	-6.9%	0.6%	0.4%
Shelby	24.1%	2.4%	2.4%
Smith	46.0%	17.2%	19.8%
Trinity	7.3%	0.2%	0.2%
Tyler	-6.0%	1.8%	1.4%

SOURCE: TEXAS WATER DEVELOPMENT BOARD





*For a breakdown of Other Municipal Demand Projections by County see Figure 2.5.

Figure 2.4 Municipal Demand Projections in the East Texas Regional Water Planning Area Greater than 20,000 ac-ft/yr by County

SOURCE: TEXAS WATER DEVELOPMENT BOARD

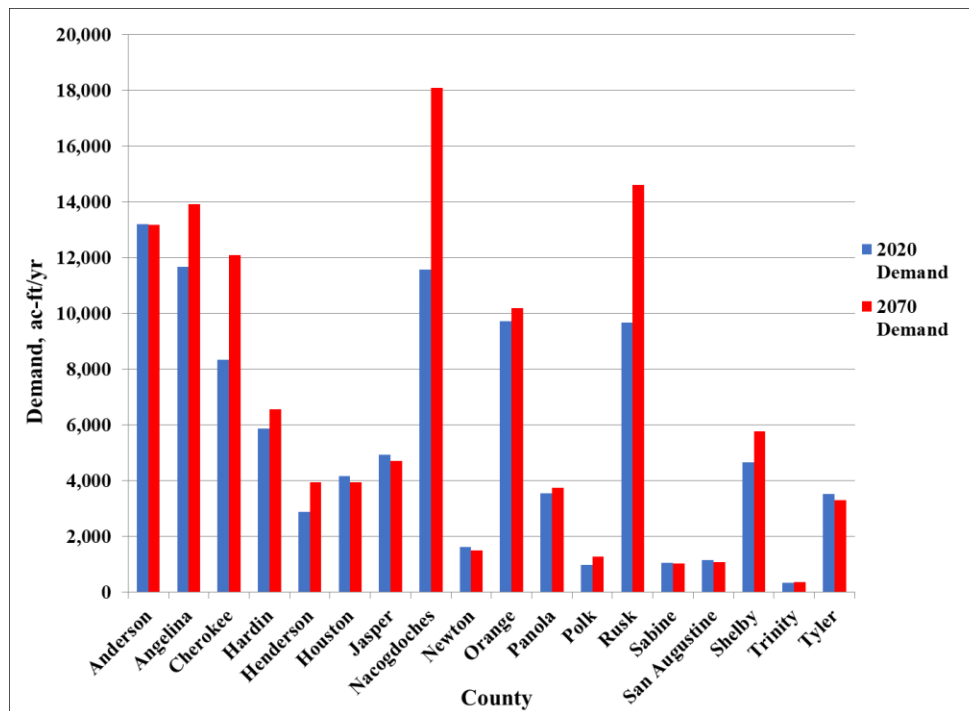


Figure 2.5 Municipal Demand Projections in the East Texas Regional Water Planning Area Less than 20,000 ac-ft/yr by County

SOURCE: TEXAS WATER DEVELOPMENT BOARD



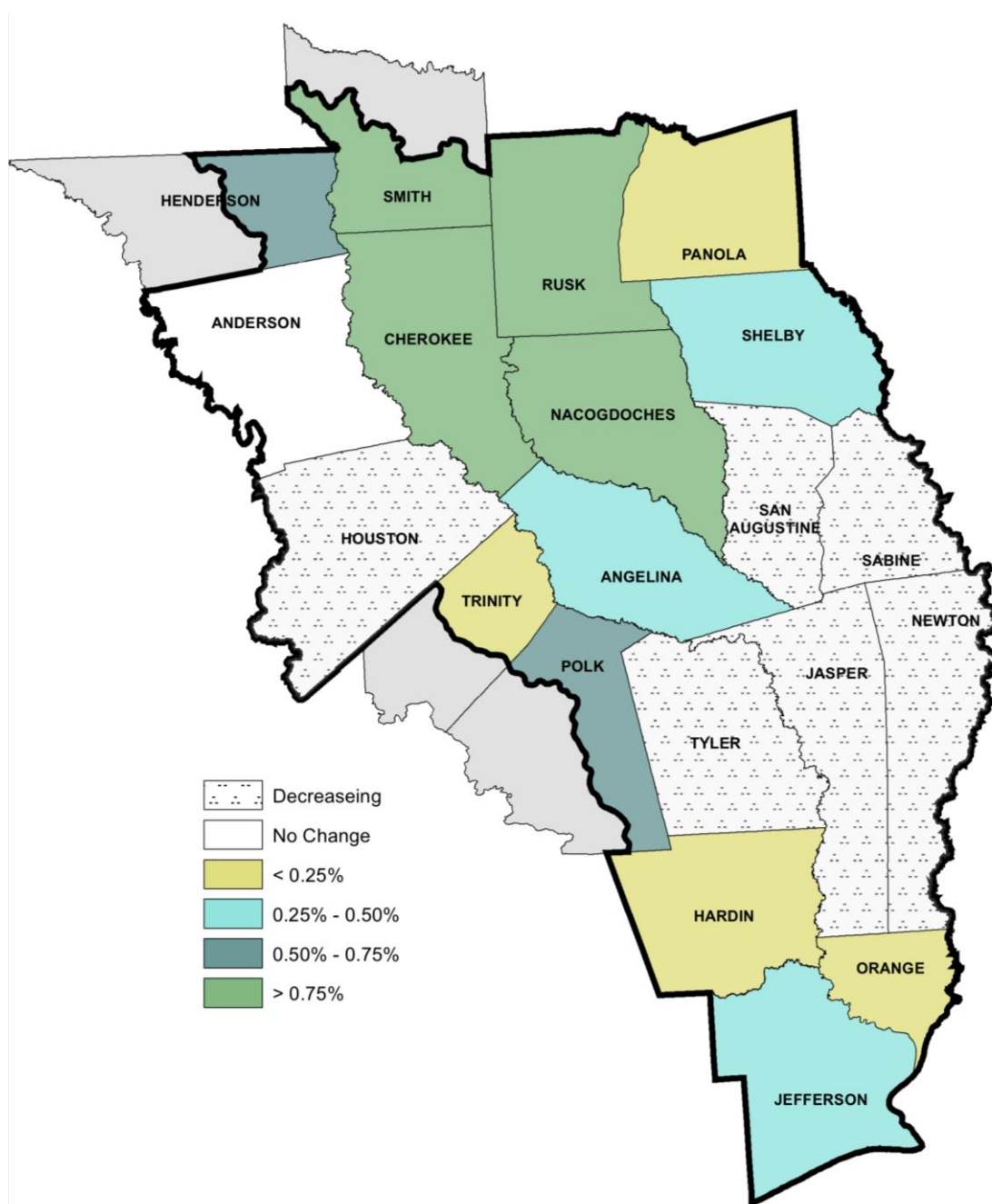


Figure 2.6 Municipal Demand Annual Growth Rate

SOURCE: TEXAS WATER DEVELOPMENT BOARD

2.3.2 Manufacturing Demands

Manufacturing demands are expected to increase from 305,973 ac-ft per year to 353,415 ac-ft per year during the planning period. Table 2.6 summarizes the manufacturing usage by each county. The percent change in manufacturing demand by county is presented in Table 2.7. Counties with projected demands over 10,000 ac-ft per year are summarized on Figure 2.7. All other counties are summarized on Figure 2.8. The average annual projected growth for manufacturing water use is shown on Figure 2.9.



Manufacturing water demand in the ETRWPA is concentrated primarily in Jefferson County, which accounts for almost 70% of all manufacturing water demand in 2020, and nearly 75% in 2070. Use is primarily in the petrochemical industry. The Lower Neches Valley Authority (LNVA) meets over 96% of this demand; a large percentage of this demand was not under contract at the time the 2016 Plan was developed and appears as a Water Management Strategy (WMS) in Chapter 5B.

Angelina, Jasper, and Orange counties are projected to comprise an additional 28% of use in 2020. Although manufacturing water demand will increase in these three counties over the planning period, their collective percentage of use in the region will decrease to approximately 23% by 2070.

Table 2.6 Historical and Projected Manufacturing Water Demand in the East Texas Regional Water Planning Area by County (ac-ft/yr)

County	2015 Historical*	Projections					
		2020	2030	2040	2050	2060	2070
Anderson	724	-	-	-	-	-	-
Angelina	3,821	3,658	3,878	3,878	3,878	3,878	3,878
Cherokee	60	115	129	129	129	129	129
Hardin	30	40	45	45	45	45	45
Henderson ^a	0	-	-	-	-	-	-
Houston	158	169	232	232	232	232	232
Jasper	49,876	45,973	57,364	57,364	57,364	57,364	57,364
Jefferson	121,794	202,902	233,902	233,902	233,902	233,902	233,902
Nacogdoches	2,357	2,508	2,529	2,529	2,529	2,529	2,529
Newton	0	52	56	56	56	56	56
Orange	38,517	44,335	48,193	48,193	48,193	48,193	48,193
Panola	1,025	852	1,272	1,272	1,272	1,272	1,272
Polk ^a	334	433	466	466	466	466	466
Rusk	14	32	34	34	34	34	34
Sabine	226	246	265	265	265	265	265
San Augustine	3	6	6	6	6	6	6
Shelby	1,693	1,696	1,696	1,696	1,696	1,696	1,696
Smith ^a	2,580	2,956	3,348	3,348	3,348	3,348	3,348
Trinity ^a	0	-	-	-	-	-	-
Tyler	0	-	-	-	-	-	-
Total for ETRWPA	223,212	305,973	353,415	353,415	353,415	353,415	353,415

*Source: TWDB Water Use Survey: Historical Summary Estimates by County

^a These counties are split between more than one Texas Water Development Board regional water planning area. The demands shown represent the portion that fall within the East Texas Regional Water Planning Area (ETRWPA).

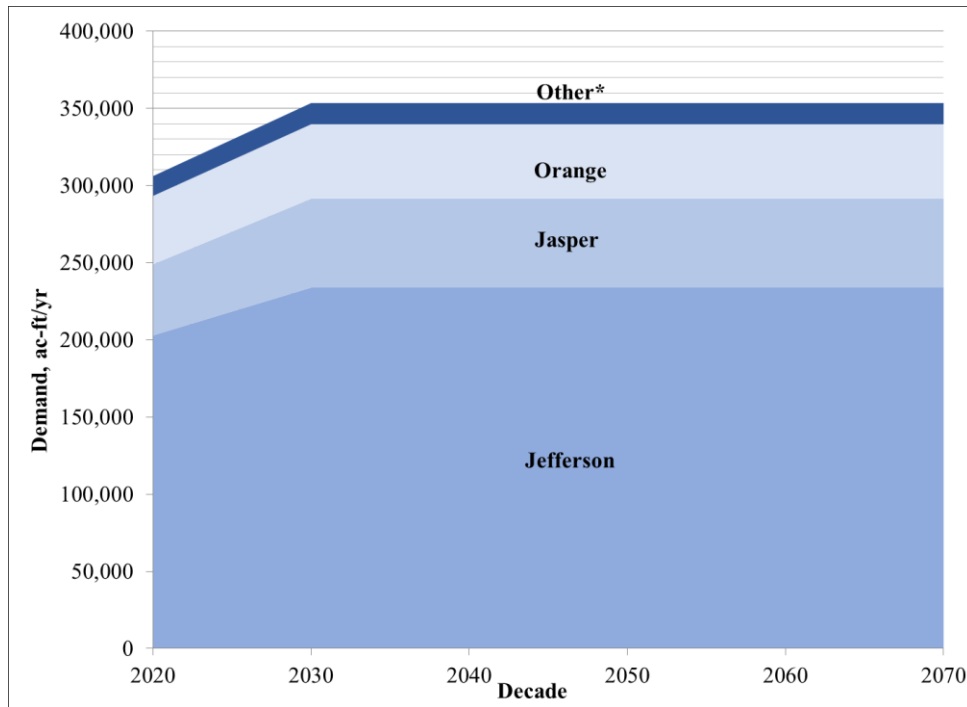


Table 2.7 Manufacturing Demand Projection Percentages in the East Texas Regional Water Planning Area by County

County	Percent Change in Demand 2020 to 2070	Percent of Total ETRWPA Demand	
		2020	2070
Angelina	6.0%	1.2%	1.1%
Cherokee	12.2%	<0.1%	<0.1%
Hardin	12.5%	<0.1%	<0.1%
Houston	37.3%	0.1%	0.1%
Jasper	24.8%	15.0%	16.2%
Jefferson	15.3%	66.3%	66.2%
Nacogdoches	0.8%	0.8%	0.7%
Newton	7.7%	<0.1%	<0.1%
Orange	8.7%	14.5%	13.6%
Panola	49.3%	0.3%	0.4%
Polk	7.6%	0.1%	0.1%
Rusk	6.3%	<0.1%	<0.1%
Sabine	7.7%	0.1%	0.1%
San Augustine	0.0%	<0.1%	<0.1%
Shelby	0.0%	0.6%	0.5%
Smith	13.3%	1.0%	0.9%

SOURCE: TEXAS WATER DEVELOPMENT BOARD





*For a breakdown of Other Manufacturing Demand Projections by County see Figure 2.8.

Figure 2.7 Manufacturing Demand Projections in the East Texas Regional Water Planning Area Greater than 10,000 ac-ft/yr by County

SOURCE: TEXAS WATER DEVELOPMENT BOARD

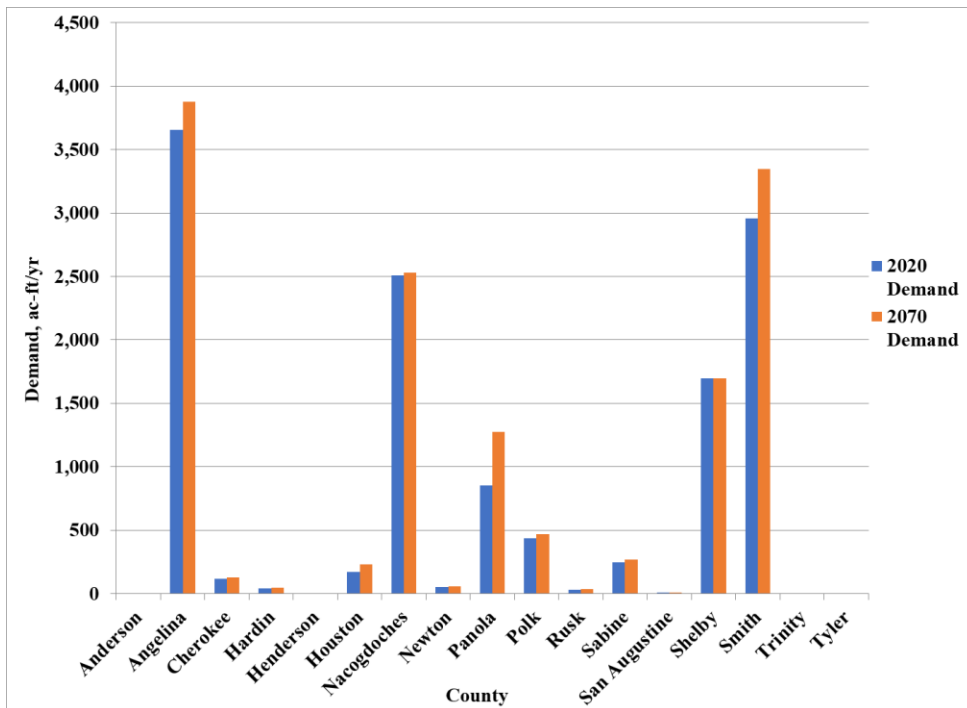


Figure 2.8 Manufacturing Demand Projections in the East Texas Regional Water Planning Area Less than 10,000 ac-ft/yr by County

SOURCE: TEXAS WATER DEVELOPMENT BOARD



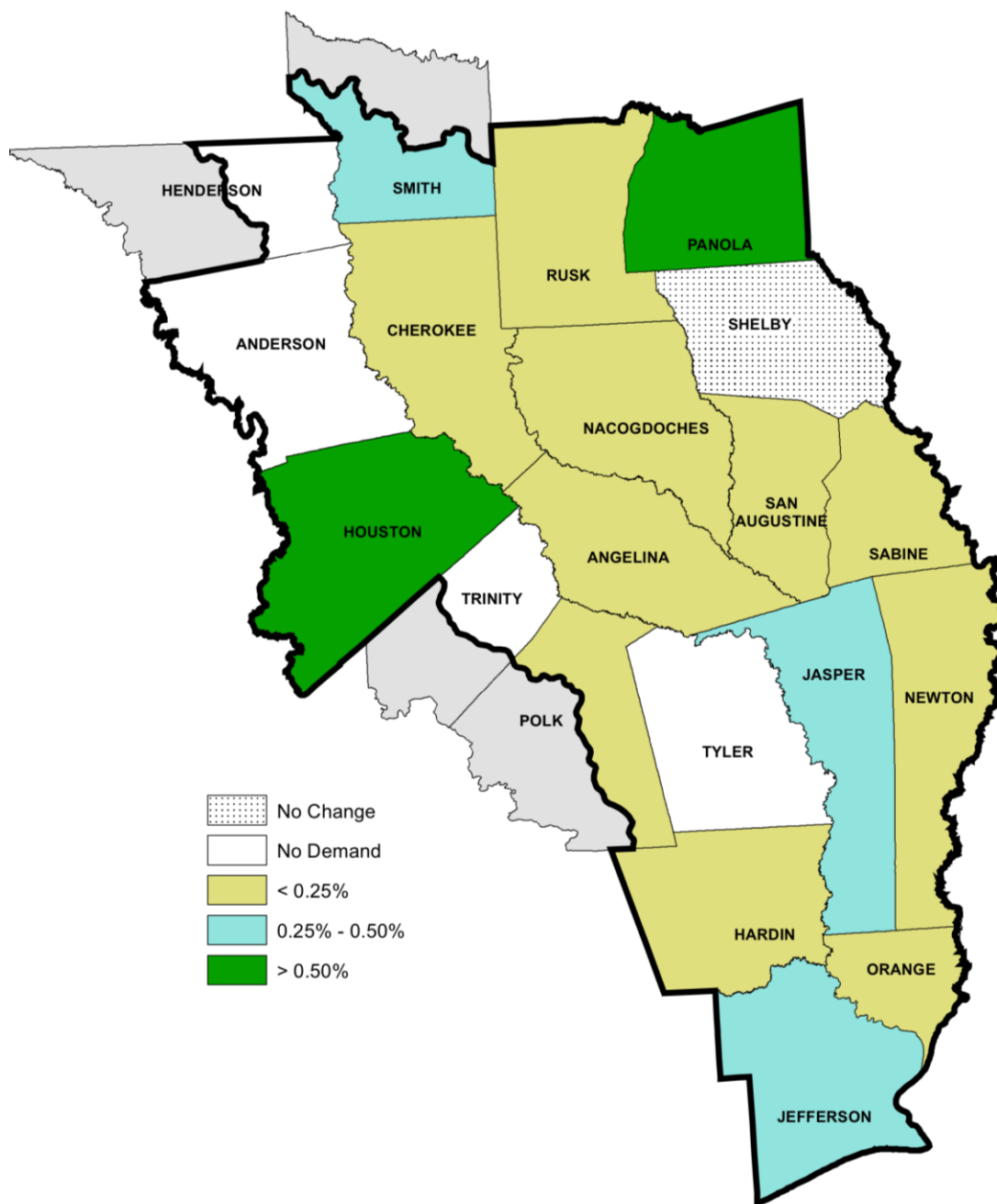


Figure 2.9 Manufacturing Demand Annual Growth Rate

SOURCE: TEXAS WATER DEVELOPMENT BOARD

2.3.3 Irrigation Demands

The 2016 Plan projects irrigation demands in 19 of the 20 counties in the region, with no projected demand increase over the planning period. Water use for irrigation is presented in Table 2.8 and 2.9. Orange and Houston County projected demands are presented in Figure 2.10 with the remaining counties presented in Figure 2.11.



Table 2.8 Historical and Projected Irrigation Water Demand in the East Texas Regional Water Planning Area by County (ac-ft/yr)

County	2015 Historical*	Projections					
		2020	2030	2040	2050	2060	2070
Anderson	675	657	657	657	657	657	657
Angelina	110	779	779	779	779	779	779
Cherokee	498	451	451	451	451	451	451
Hardin	131	989	989	989	989	989	989
Henderson ^a	403	303	303	303	303	303	303
Houston	1,262	2,137	2,137	2,137	2,137	2,137	2,137
Jasper	124	151	151	151	151	151	151
Jefferson	65,528	88,536	88,536	88,536	88,536	88,536	88,536
Nacogdoches	108	266	266	266	266	266	266
Newton	42	101	101	101	101	101	101
Orange	1,901	1,824	1,824	1,824	1,824	1,824	1,824
Panola	1,122	574	574	574	574	574	574
Polk ^a	113	230	230	230	230	230	230
Rusk	139	276	276	276	276	276	276
Sabine	0	-	-	-	-	-	-
San Augustine	0	4	4	4	4	4	4
Shelby	6	10	10	10	10	10	10
Smith ^a	400	448	448	448	448	448	448
Trinity ^a	229	278	278	278	278	278	278
Tyler	293	354	354	354	354	354	354
Total for ETRWPA	73,084	98,368	98,368	98,368	98,368	98,368	98,368

*Source: TWDB Water Use Survey: Historical Summary Estimates by County

^a These counties are split between more than one Texas Water Development Board regional water planning area. The demands shown represent the portion that fall within the East Texas Regional Water Planning Area (ETRWPA).

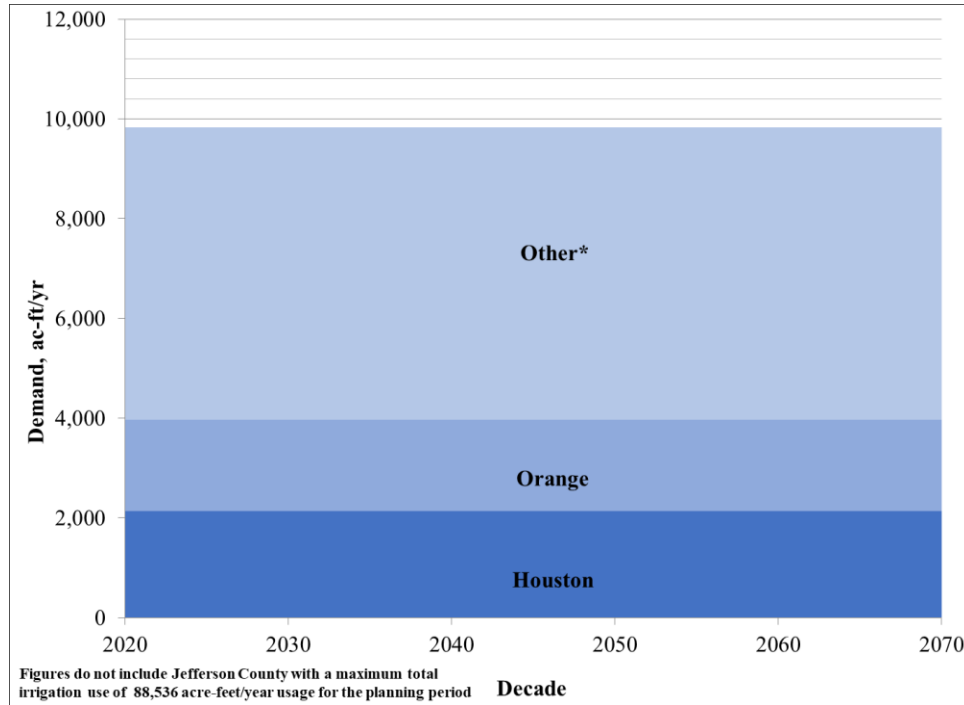


Table 2.9 Irrigation Demand Projection Percentages in the East Texas Regional Water Planning Area by County

County	Percent Change in Demand 2020 to 2070	Percent of Total ETRWPA Demand	
		2020	2070
Anderson	0.0%	0.7%	0.7%
Angelina	0.0%	0.8%	0.8%
Cherokee	0.0%	0.5%	0.5%
Hardin	0.0%	1.0%	1.0%
Henderson	0.0%	0.3%	0.3%
Houston	0.0%	2.2%	2.2%
Jasper	0.0%	0.2%	0.2%
Jefferson	0.0%	90.0%	90.0%
Nacogdoches	0.0%	0.3%	0.3%
Newton	0.0%	0.1%	0.1%
Orange	0.0%	1.9%	1.9%
Panola	0.0%	0.6%	0.6%
Polk	0.0%	0.2%	0.2%
Rusk	0.0%	0.3%	0.3%
San Augustine	0.0%	<0.1%	<0.1%
Shelby	0.0%	<0.1%	<0.1%
Smith	0.0%	0.5%	0.5%
Trinity	0.0%	0.3%	0.3%
Tyler	0.0%	0.4%	0.4%

SOURCE: TEXAS WATER DEVELOPMENT BOARD





*For a breakdown of Other Irrigation Demand Projections by County see Figure 2.11.

Figure 2.10 Irrigation Demand Projections in the East Texas Regional Water Planning Area Greater than 1,000 ac-ft/yr by County

SOURCE: TEXAS WATER DEVELOPMENT BOARD

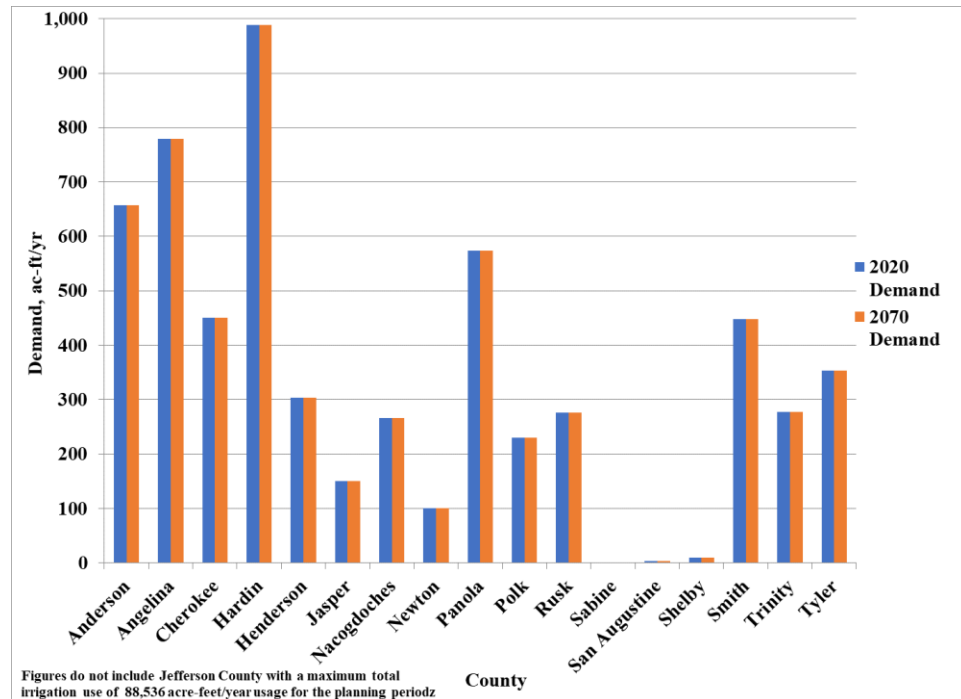


Figure 2.11 Irrigation Demand Projections in the East Texas Regional Water Planning Area Less than 1,000 ac-ft/yr by County

SOURCE: TEXAS WATER DEVELOPMENT BOARD



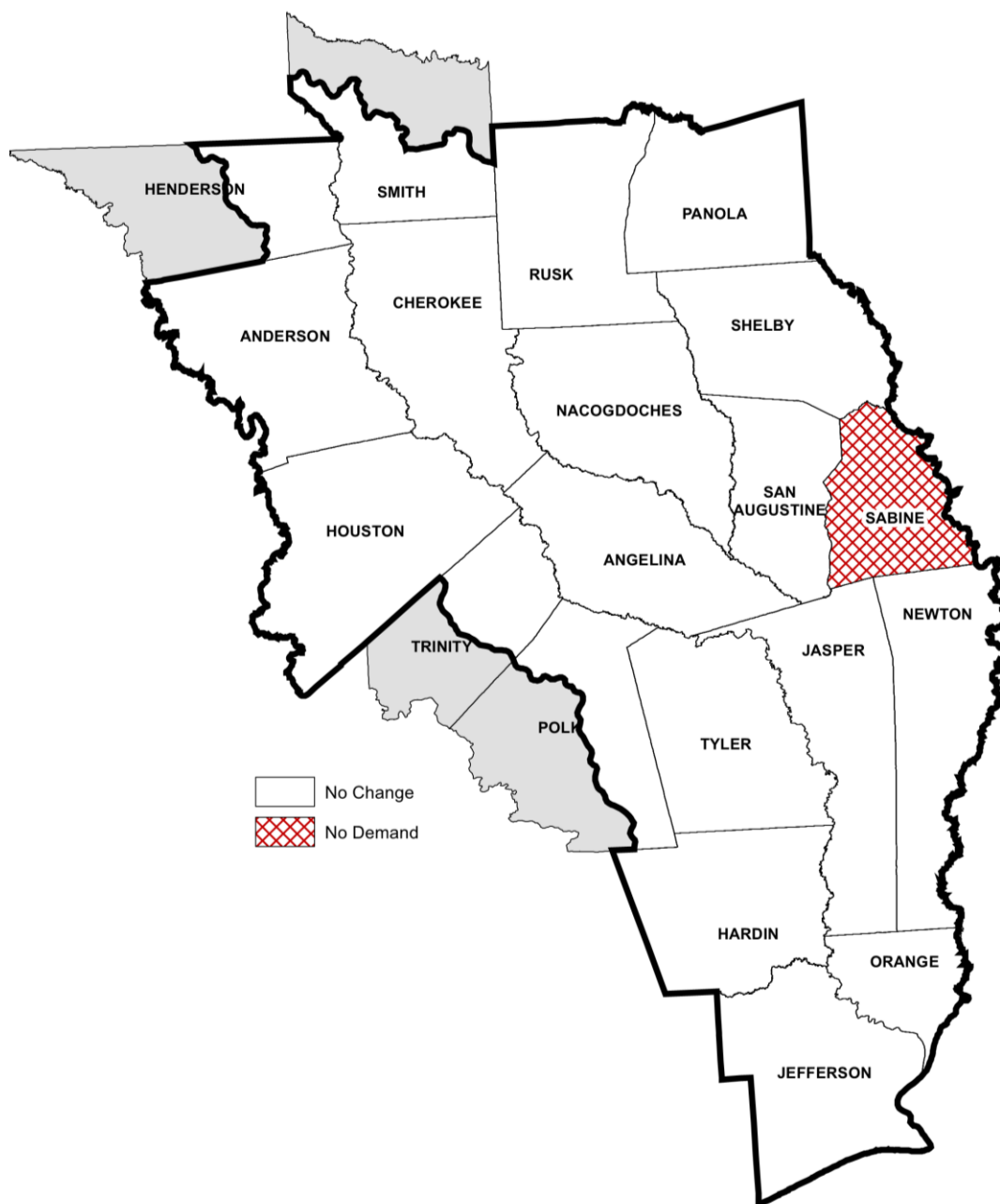


Figure 2.12 Irrigation Demand Annual Growth Rate

SOURCE: TEXAS WATER DEVELOPMENT BOARD

2.3.4 Steam Electric Power Demands

There are nine counties with projected steam electric power demands in the ETRWPA. Compared to the last round of planning, the projected demands have decreased for every county with exception to Rusk County, which had a 65% increase in projected demand compared to the 2016 Plan in the decade 2020. Region-wide steam electric power demands are projected to remain constant at 67,011 ac-ft per year. Projected demands for each county are summarized in Table 2.10 and 2.11. Figure 2.13 graphically depicts the demand projections for the nine counties in the region with steam electric power demands. Figure 2.14 shows the distribution of steam electric power demands in the region.



Table 2.10 Historical and Projected Steam Electric Power Water Demand in the East Texas Regional Water Planning Area by County (ac-ft/yr)

County	2015 Historical*	Projections					
		2020	2030	2040	2050	2060	2070
Anderson	0	1,408	1,408	1,408	1,408	1,408	1,408
Angelina	51	3,520	3,520	3,520	3,520	3,520	3,520
Cherokee	290	3,211	3,211	3,211	3,211	3,211	3,211
Hardin	0	1	1	1	1	1	1
Henderson ^a	0	-	-	-	-	-	-
Houston	0	-	-	-	-	-	-
Jasper	0	-	-	-	-	-	-
Jefferson	0	3,291	3,291	3,291	3,291	3,291	3,291
Nacogdoches	0	-	-	-	-	-	-
Newton	5,778	5,778	5,778	5,778	5,778	5,778	5,778
Orange	3,897	4,298	4,298	4,298	4,298	4,298	4,298
Panola	0	-	-	-	-	-	-
Polk ^a	0	-	-	-	-	-	-
Rusk	13,861	45,304	45,304	45,304	45,304	45,304	45,304
Sabine	0	-	-	-	-	-	-
San Augustine	0	-	-	-	-	-	-
Shelby	0	-	-	-	-	-	-
Smith ^a	0	-	-	-	-	-	-
Trinity ^a	0	-	-	-	-	-	-
Tyler	0	200	200	200	200	200	200
Total for ETRWPA	23,877	67,011	67,011	67,011	67,011	67,011	67,011

*Source: TWDB Water Use Survey: Historical Summary Estimates by County

^a These counties are split between more than one Texas Water Development Board regional water planning area. The demands shown represent the portion that fall within the East Texas Regional Water Planning Area (ETRWPA).



Table 2.11 Steam Electric Power Demand Projection Percentages in the East Texas Regional Water Planning Area by County

County	Percent Change in Demand 2020 to 2070	Percent of Total ETRWPA Demand	
		2020	2070
Anderson	0.0%	2.1%	2.1%
Angelina	0.0%	5.3%	5.3%
Cherokee	0.0%	4.8%	4.8%
Hardin	0.0%	<0.1%	<0.1%
Jefferson	0.0%	4.9%	4.9%
Newton	0.0%	8.6%	8.6%
Orange	0.0%	6.4%	6.4%
Rusk	0.0%	67.6%	67.6%
Tyler	0.0%	0.3%	0.3%

SOURCE: TEXAS WATER DEVELOPMENT BOARD

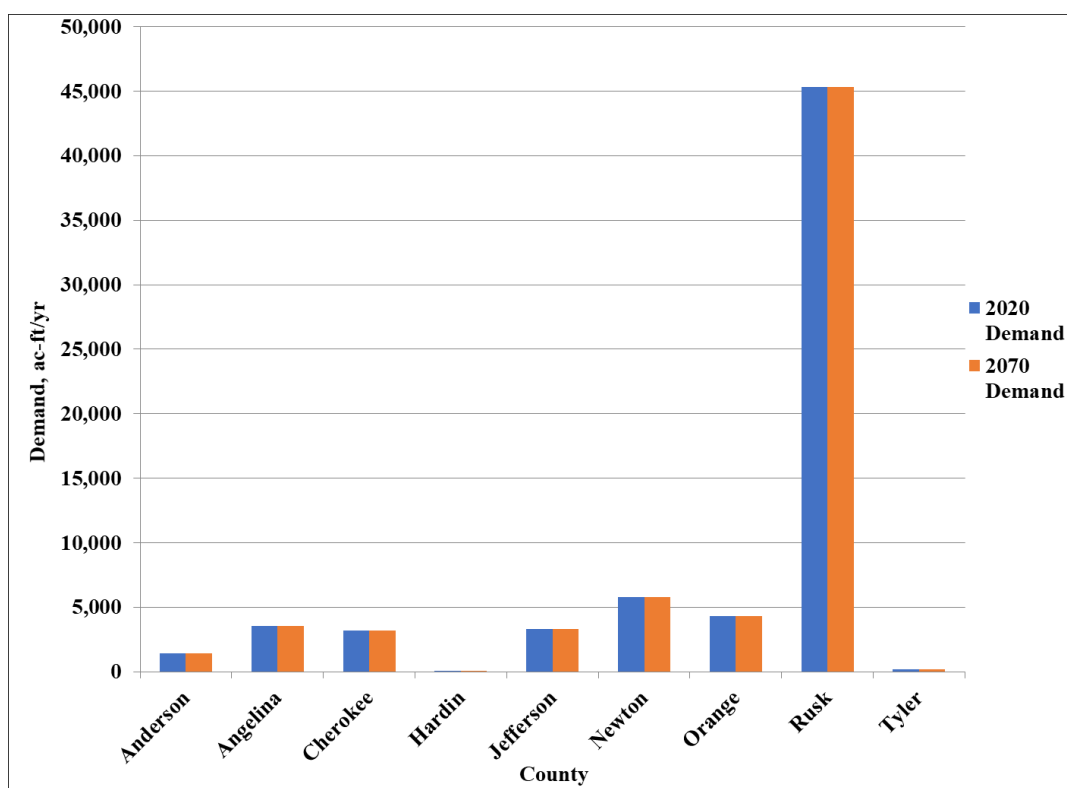


Figure 2.13 Steam Electric Power Demand Projections in the East Texas Regional Water Planning Area by County

SOURCE: TEXAS WATER DEVELOPMENT BOARD, WATER USE SURVEY



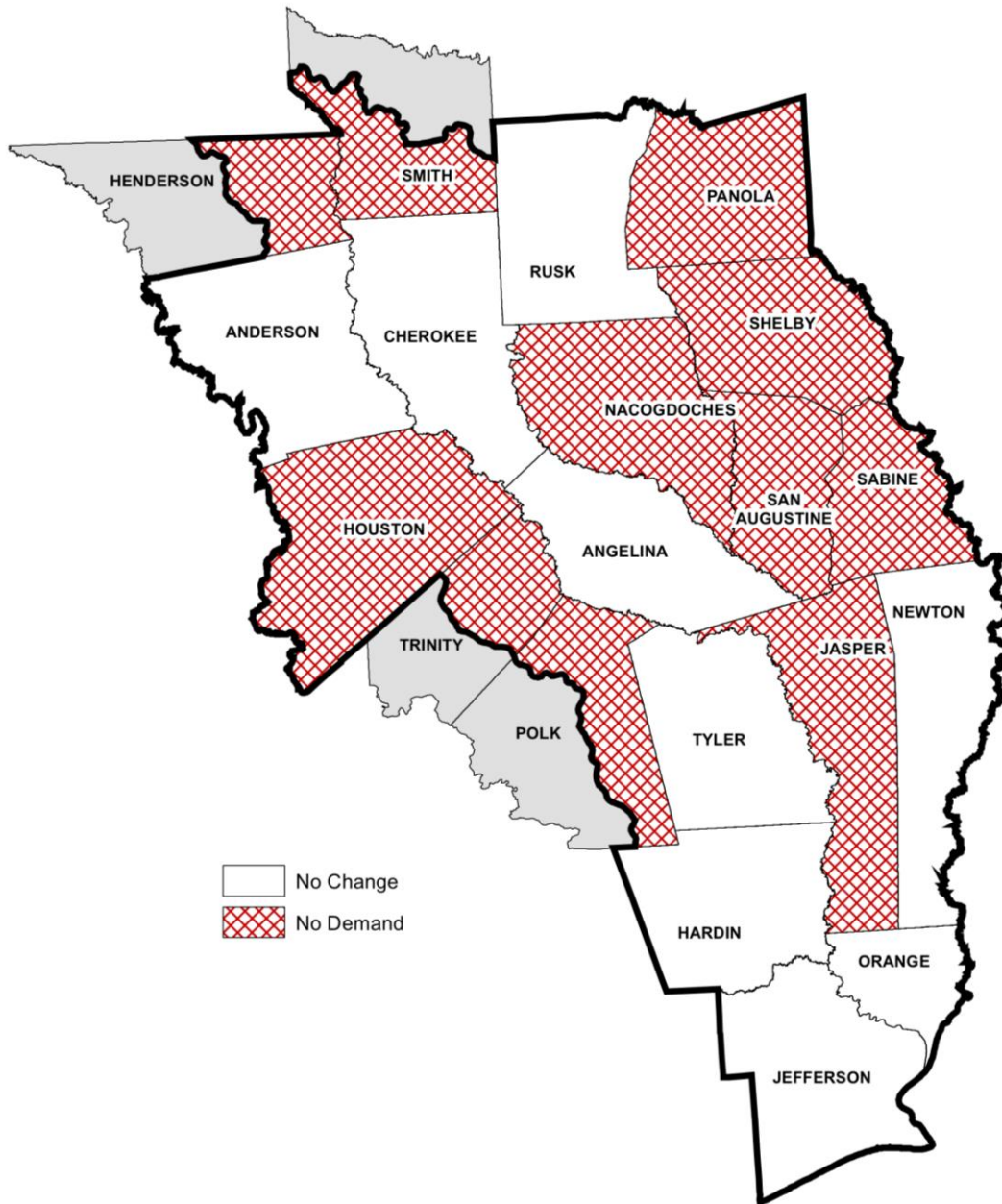


Figure 2.14 Steam Electric Power Demands Annual Growth Rate

SOURCE: TEXAS WATER DEVELOPMENT BOARD



2.3.5 Livestock Demands

All twenty counties in the ETRWPA include projected demands for livestock with 67% of that demand in Jasper, Nacogdoches, and Shelby counties in 2020 increasing to 73% of the region's demands in 2070. The total livestock water usage is expected to increase over the planning period from 47,157 ac-ft per year to 65,103 ac-ft per year. Compared to the projections in the last round of planning for the same planning period, this represents almost a 100% increase. The projected usage by county during the planning period is presented in Table 2.12. The largest percentage change in total demand is expected to occur in Sabine County at 181%. Additional percent changes can be seen in Table 2.13. Counties with a projected demand over 2,000 ac-ft per year are presented in Figure 2.15 with the remaining counties presented in Figure 2.16. The livestock demand change rates are presented graphically in Figure 2.17.

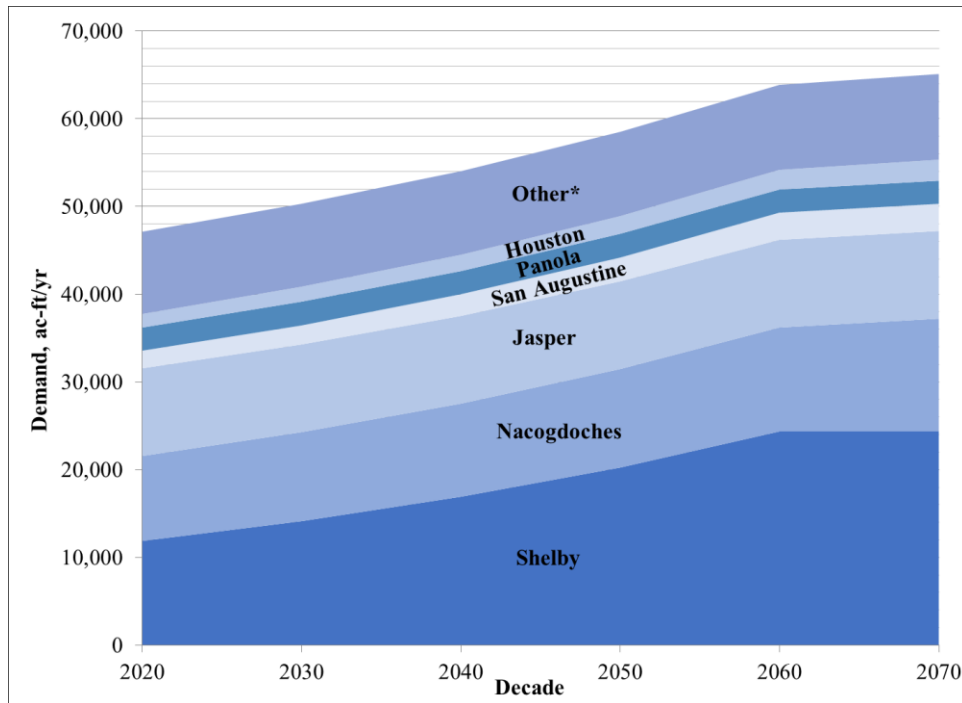
Table 2.12 Historical and Projected Livestock Water Demand in the East Texas Regional Water Planning Area by County (ac-ft/yr)

County	2015 Historical*	Projections					
		2020	2030	2040	2050	2060	2070
Anderson	1,070	1,026	1,026	1,026	1,026	1,026	1,026
Angelina	976	1,028	1,028	1,028	1,028	1,028	1,028
Cherokee	1,759	1,874	1,874	1,874	1,874	1,874	1,874
Hardin	199	198	198	198	198	198	198
Henderson ^a	458	1,006	1,006	1,006	1,006	1,006	1,006
Houston	1,391	1,564	1,707	1,860	2,027	2,208	2,439
Jasper	469	10,000	10,000	10,000	10,000	10,000	10,000
Jefferson	782	837	837	837	837	837	837
Nacogdoches	9,783	9,693	10,122	10,619	11,195	11,854	12,836
Newton	112	168	168	168	168	168	168
Orange	183	255	255	255	255	255	255
Panola	2,581	2,652	2,652	2,652	2,652	2,652	2,652
Polk ^a	149	174	174	174	174	174	174
Rusk	1,693	1,660	1,683	1,714	1,745	1,777	1,777
Sabine	108	129	176	231	294	363	363
San Augustine	1,982	2,004	2,219	2,465	2,751	3,066	3,066
Shelby	11,920	11,858	14,128	16,891	20,263	24,373	24,373
Smith ^a	490	580	580	580	580	580	580
Trinity ^a	157	202	202	202	202	202	202
Tyler	232	249	249	249	249	249	249
Total for ETRWPA	36,494	47,157	50,284	54,029	58,524	63,890	65,103

*Source: TWDB Water Use Survey: Historical Summary Estimates by County

^a These counties are split between more than one Texas Water Development Board regional water planning area. The demands shown represent the portion that fall within the East Texas Regional Water Planning Area (ETRWPA).





*For a breakdown of Other Livestock Demand Projections by County see Figure 2.16.

Figure 2.15 Livestock Demand Projections in the East Texas Regional Water Planning Area Greater than 2,000 ac-ft/yr by County

SOURCE: TEXAS WATER DEVELOPMENT BOARD

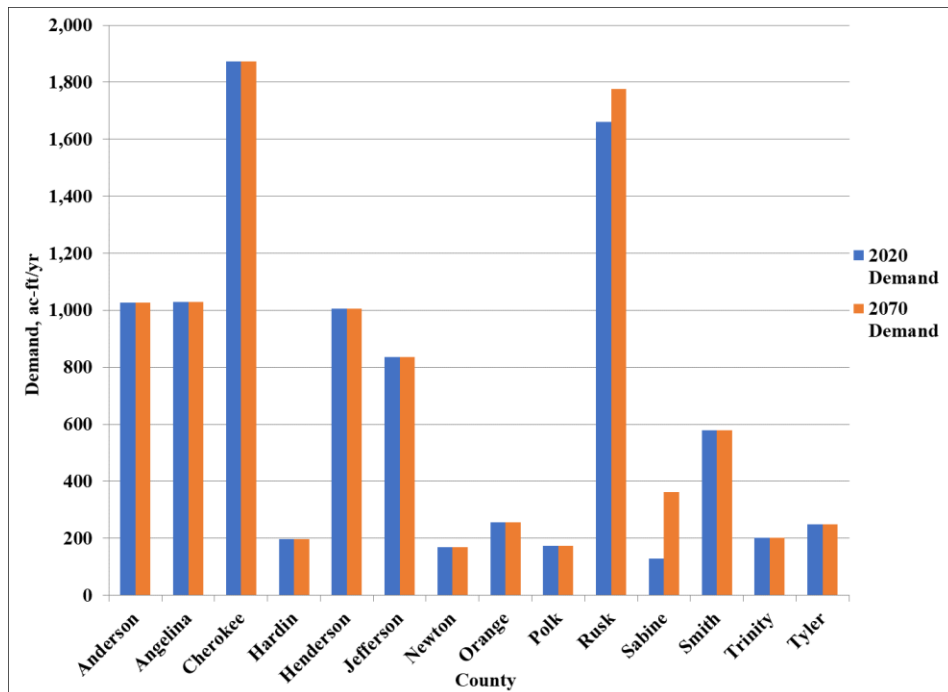


Figure 2.16 Livestock Demand Projections in the East Texas Regional Water Planning Area Less than 2,000 ac-ft/yr by County

SOURCE: TEXAS WATER DEVELOPMENT BOARD



Table 2.13 Livestock Demand Projection Percentages in the East Texas Regional Water Planning Area by County

County	Percent Change in Demand 2020 to 2070	Percent of Total ETRWPA Demand	
		2020	2070
Anderson	0.0%	2.2%	1.6%
Angelina	0.0%	2.2%	1.6%
Cherokee	0.0%	4.0%	2.9%
Hardin	0.0%	0.4%	0.3%
Henderson	0.0%	2.1%	1.5%
Houston	55.9%	3.3%	3.7%
Jasper	0.0%	21.2%	15.4%
Jefferson	0.0%	1.8%	1.3%
Nacogdoches	32.4%	20.6%	19.7%
Newton	0.0%	0.4%	0.3%
Orange	0.0%	0.5%	0.4%
Panola	0.0%	5.6%	4.1%
Polk	0.0%	0.4%	0.3%
Rusk	7.0%	3.5%	2.7%
Sabine	181.4%	0.3%	0.6%
San Augustine	53.0%	4.2%	4.7%
Shelby	105.5%	25.1%	37.4%
Smith	0.0%	1.2%	0.9%
Trinity	0.0%	0.4%	0.3%
Tyler	0.0%	0.5%	0.4%

SOURCE: TEXAS WATER DEVELOPMENT BOARD



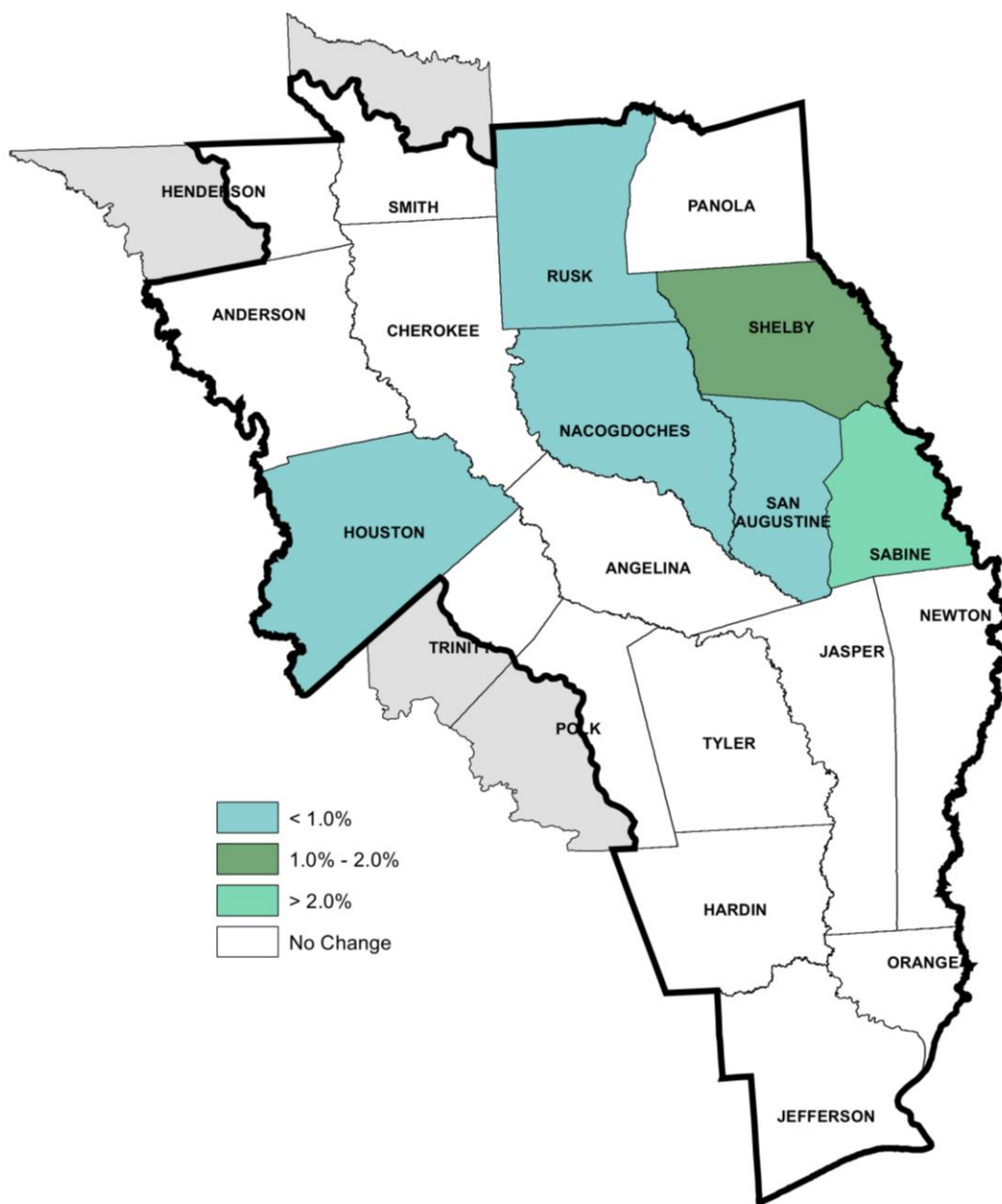


Figure 2.17 Livestock Demand Annual Growth Rate

SOURCE: TEXAS WATER DEVELOPMENT BOARD

2.3.6 Mining Demands

In the 2011 Plan, mining demands were identified in 16 of the 20 counties in the ETRWPA. Much of the demand (approximately 38,000 ac-ft per year in 2010 and declining to approximately 20,000 ac-ft per year in 2060) was related to the expanding shale-gas play located within much of the region. Since 2011, the natural gas exploration industry has focused on the Eagle Ford shale in South Texas, resulting in lower projections for water demand in the ETRWPA. Nonetheless, gas exploration has continued in the region and is expected to comprise the majority of the mining demand for the region. For the 2016 Plan, mining water demand was updated to 27,523 ac-ft per year in 2020 and decline to 12,093 ac-ft per year in 2070 with mining water use in all 20 of the counties in the ETRWPA. The 2021 Plan matches the



mining projections presented in the 2016 Plan. Table 2.14 provides mining water projections and Table 2.15 shows the percent changes for each county in the ETRWPA. Demands for counties with projections greater than 600 ac-ft per year are depicted on Figure 2.18. Those counties with lower projected demands are shown on Figure 2.19. Figure 2.20 illustrates the annual percent change for mining water in each county in the ETRWPA.

Table 2.14 Historical and Projected Mining Water Demand in the East Texas Regional Water Planning Area by County (ac-ft/yr)

County	2015 Historical*	Projections					
		2020	2030	2040	2050	2060	2070
Anderson	1	140	177	185	147	105	75
Angelina	28	486	585	410	312	237	180
Cherokee	92	295	304	267	204	141	97
Hardin	0	12	12	12	12	12	12
Henderson ^a	0	77	86	77	59	40	28
Houston	86	322	254	187	119	51	22
Jasper	2	148	118	88	58	28	14
Jefferson	13	194	216	244	294	329	368
Nacogdoches	106	7,000	4,500	1,643	1,299	958	707
Newton	0	429	373	279	209	146	107
Orange	0	309	314	313	314	319	327
Panola	2,708	5,916	5,859	5,049	4,268	3,620	3,938
Polk ^a	0	123	97	72	46	20	9
Rusk	2,560	2,990	4,007	3,870	3,724	3,601	3,592
Sabine	0	1,500	1,365	1,203	1,046	888	776
San Augustine	486	4,000	3,000	1,479	1,180	884	662
Shelby	126	3,283	2,938	2,496	1,980	1,467	1,087
Smith ^a	388	134	139	140	109	80	58
Trinity ^a	0	5	5	5	5	5	5
Tyler	0	160	198	150	103	55	29
Total for ETRGWA	6,596	27,523	24,547	18,169	15,488	12,986	12,093

*Source: TWDB Water Use Survey: Historical Summary Estimates by County

^a These counties are split between more than one Texas Water Development Board regional water planning area. The demands shown represent the portion that fall within the East Texas Regional Water Planning Area (ETRWPA).

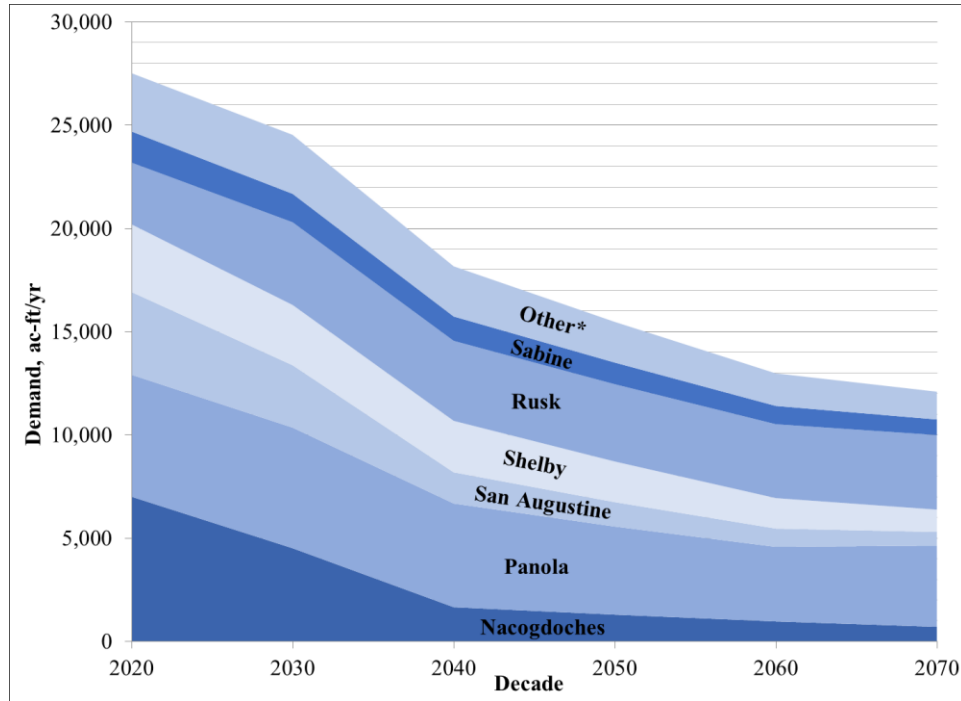


Table 2.15 Mining Demand Projection Percentages in the East Texas Regional Water Planning Area by County

County	Percent Change in Demand 2020 to 2070	Percent of Total ETRWPA Demand	
		2020	2070
Anderson	-46.4%	0.5%	0.6%
Angelina	-63.0%	1.8%	1.5%
Cherokee	-67.1%	1.1%	0.8%
Hardin	0.0%	0.0%	0.1%
Henderson	-63.6%	0.3%	0.2%
Houston	-93.2%	1.2%	0.2%
Jasper	-90.5%	0.5%	0.1%
Jefferson	89.7%	0.7%	3.0%
Nacogdoches	-89.9%	25.4%	5.8%
Newton	-75.1%	1.6%	0.9%
Orange	5.8%	1.1%	2.7%
Panola	-33.4%	21.5%	32.6%
Polk	-92.7%	0.4%	0.1%
Rusk	20.1%	10.9%	29.7%
Sabine	-48.3%	5.4%	6.4%
San Augustine	-83.5%	14.5%	5.5%
Shelby	-66.9%	11.9%	9.0%
Smith	-56.7%	0.5%	0.5%
Trinity	0.0%	0.0%	0.0%
Tyler	-81.9%	0.6%	0.2%

SOURCE: TEXAS WATER DEVELOPMENT BOARD





*For a breakdown of Other Mining Demand Projections by County see Figure 2.19.

Figure 2.18 Mining Demand Projections in the East Texas Regional Water Planning Area Greater than 600 ac-ft/yr by County

SOURCE: TEXAS WATER DEVELOPMENT BOARD

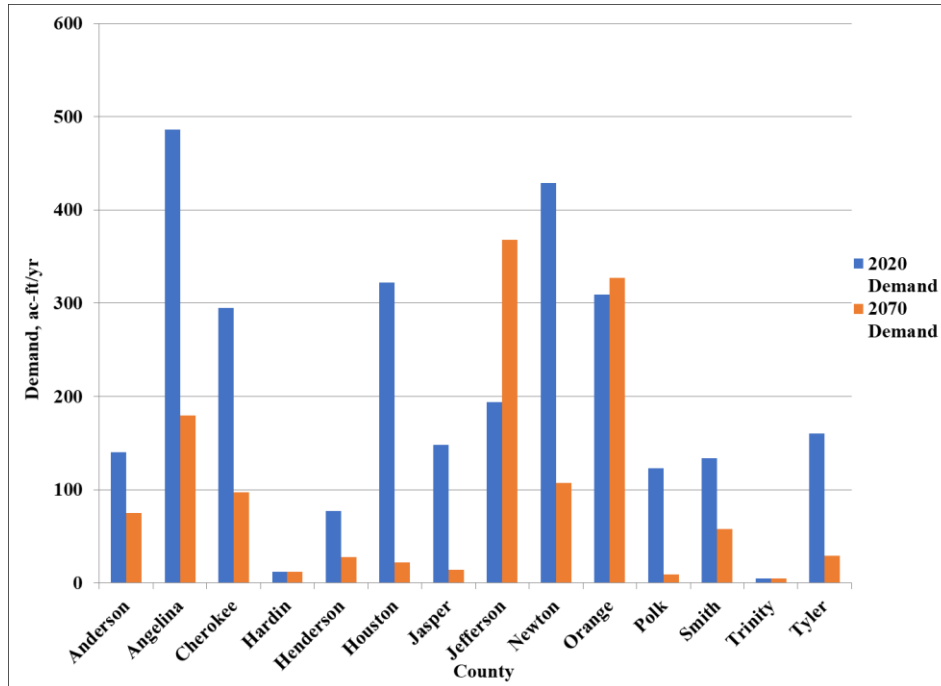


Figure 2.19 Mining Demand Projections in the East Texas Regional Water Planning Area Less than 600 ac-ft/yr by County

SOURCE: TEXAS WATER DEVELOPMENT BOARD



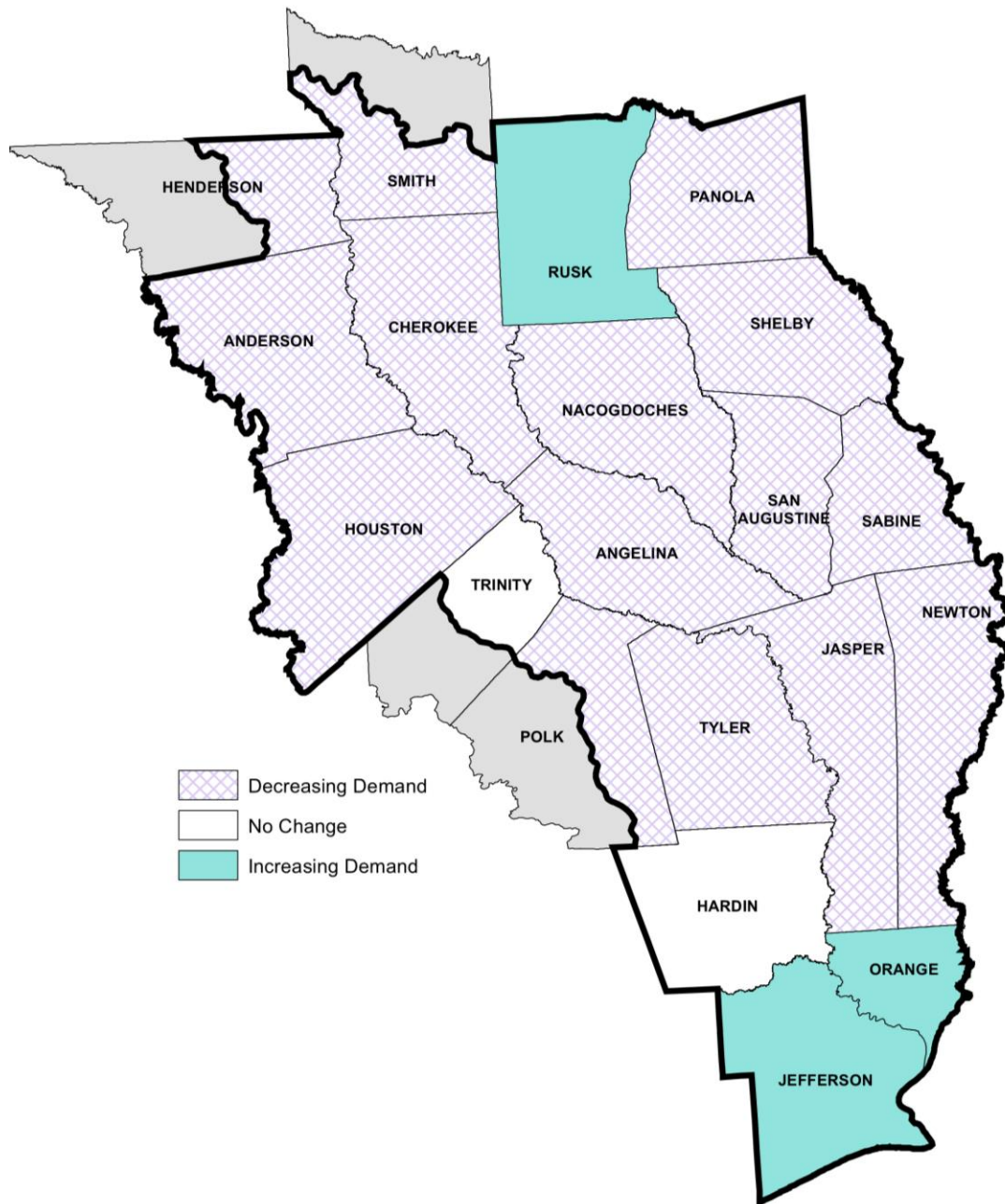


Figure 2.20 Mining Demand Annual Growth Rate

SOURCE: TEXAS WATER DEVELOPMENT BOARD



2.3.7 Sales Between Water User Groups

The 2021 Plan is required to present the current contractual obligations of WUGs in the ETRWPA to supply water to other WUGs in addition to any demands projected for the corresponding WUG or WWP. Table 2.16 summarizes this information by decade; the table does not include sales from WUGs who are also MWPs; see Section 2.4 for a summary of MWP obligations.

Table 2.16 Contractual Obligations of Water User Groups in the East Texas Regional Water Planning Area (ac-ft/yr)

Customer	WUG	Demands					
		2020	2030	2040	2050	2060	2070
Manufacturing - Angelina	Diboll	134	134	134	134	134	134
Manufacturing - Hardin	North Hardin WSC	2	2	2	2	2	2
Manufacturing - Hardin	Silsbee	4	4	4	4	4	4
D & M WSC	Nacogdoches	444	443	441	440	439	437
Manufacturing - Rusk	Rusk County-Other	4	4	4	4	4	4
Manufacturing - Rusk	Henderson	29	29	29	29	29	29
G M WSC	Hemphill	517	517	517	517	517	517
San Augustine Rural WSC	San Augustine	120	114	110	108	108	108
Whitehouse	City of Tyler	664	664	664	664	664	664
Groveton	Trinity River Authority*	282	283	282	283	284	283
Tyler Steam Electric Power	Woodville	838	838	838	838	838	838

*Region C Major Water Provider

2.4 Demands for Major Water Providers

As part of the development of the regional water plan, current water demands were identified for the MWPs in the ETRWPA. The MWPs are as follows:

- Angelina and Neches River Authority
- Angelina-Nacogdoches Water Control and Improvements District No. 1
- Athens Municipal Water Authority
- City of Beaumont
- City of Carthage
- City of Center
- City of Jacksonville
- City of Lufkin
- City of Nacogdoches
- City of Port Arthur
- City of Tyler
- Houston County WCID No. 1
- Lower Neches Valley Authority
- Panola County Freshwater Supply District No. 1



- Sabine River Authority
- Upper Neches River Municipal Water Authority

Chapter 1 provides a description of each MWP in the ETRWPA. For details regarding MWP supplies and water management strategies, see Chapters 3 and 5, respectively. The expected demands of each customer on each MWP can be found in Table 2.17 on the following pages; where applicable, the expected demand is equal to the contract volume. Table 2.18 presents MWP demands by water use category for 2020.

Table 2.17 Expected Demands for each Major Water Provider in the East Texas Regional Water Planning Area (ac-ft/yr)

MWP/Customer	Demands					
Angelina and Neches River Authority	2020	2030	2040	2050	2060	2070
Cherokee County-Other	3,848	3,848	3,848	3,848	3,848	3,848
City of Jacksonville	4,275	4,275	4,275	4,275	4,275	4,275
City of New Summerfield	2,565	2,565	2,565	2,565	2,565	2,565
North Cherokee WSC	4,275	4,275	4,275	4,275	4,275	4,275
City of Rusk	4,275	4,275	4,275	4,275	4,275	4,275
Rusk Rural WSC	855	855	855	855	855	855
City of Alto	428	428	428	428	428	428
Caro WSC	428	428	428	428	428	428
City of Nacogdoches	8,551	8,551	8,551	8,551	8,551	8,551
City of New London	855	855	855	855	855	855
City of Troup	4,275	4,275	4,275	4,275	4,275	4,275
City of Arp	428	428	428	428	428	428
Blackjack WSC	855	855	855	855	855	855
Jackson WSC	855	855	855	855	855	855
City of Whitehouse	8,551	8,551	8,551	8,551	8,551	8,551
Dallas	0	0	0	0	0	56,050
<i>Total Demand - Lake Columbia</i>	<i>45,319</i>	<i>45,319</i>	<i>45,319</i>	<i>45,319</i>	<i>45,319</i>	<i>101,369</i>
Additional Contracts						
Holmwood Utility	65	70	70	70	70	70
Steam Electric Power	8,000	15,000	20,000	20,000	20,000	20,000
Rusk County Refinery	5,600	5,600	5,600	5,600	5,600	5,600
Angelina County Mining	473	572	397	299	224	167
Cherokee County Mining	238	247	210	147	84	40
Nacogdoches County Mining	5,475	2,975	118	0	0	0
San Augustine County Mining	2,102	1,102	0	0	0	0
Rusk County Mining	0	305	168	22	0	0
Angelina and Neches River Authority Total Demand	67,272	71,190	71,882	71,457	71,297	127,246



Table 2.17 Expected Demands for each Major Water Provider in the East Texas Regional Water Planning Area (ac-ft/yr) (cont.)

MWP/Customer	Demands					
Angelina-Nacogdoches Water Control and Improvement District No. 1	2020	2030	2040	2050	2060	2070
Luminant Energy	5,000	5,000	5,000	5,000	5,000	5,000
Nacogdoches / Southern Power	7,280	7,280	7,280	7,280	7,280	7,280
City of Henderson (Future)	0	0	8,289	8,289	8,289	8,289
<i>Angelina-Nacogdoches Water Control and Improvement District No. 1 Total Demand</i>	<i>12,280</i>	<i>12,280</i>	<i>20,569</i>	<i>20,569</i>	<i>20,569</i>	<i>20,569</i>
Athens Municipal Water Authority	2020	2030	2040	2050	2060	2070
City of Athens	2,962	3,233	3,461	3,795	6,462	9,556
Lakeside Irrigation	170	170	170	170	170	170
TPWD Fish Hatchery	3,023	3,023	3,023	3,023	3,023	3,023
Manufacturing, Henderson (Region C)	484	591	591	591	591	591
<i>Athens Municipal Water Authority Total Demand</i>	<i>6,639</i>	<i>7,017</i>	<i>7,245</i>	<i>7,579</i>	<i>10,246</i>	<i>13,340</i>
City of Beaumont	2020	2030	2040	2050	2060	2070
City of Beaumont	30,788	32,110	33,623	35,671	38,168	41,012
County-Other, Jefferson	2,034	2,678	3,470	4,000	4,000	4,000
Manufacturing, Jefferson	1,642	1,658	1,675	1,692	1,709	1,726
Meeker MWD	4	4	5	5	5	6
<i>City of Beaumont Total Demand</i>	<i>34,469</i>	<i>36,451</i>	<i>38,773</i>	<i>41,368</i>	<i>43,882</i>	<i>46,743</i>
City of Carthage	2020	2030	2040	2050	2060	2070
City of Carthage	1,650	1,651	1,644	1,648	1,659	1,669
County-Other, Panola	300	300	300	300	300	300
Manufacturing, Panola	906	945	984	1,017	1,084	1,115
<i>City of Carthage Total Demand</i>	<i>2,856</i>	<i>2,896</i>	<i>2,928</i>	<i>2,965</i>	<i>3,043</i>	<i>3,084</i>



Table 2.17 Expected Demands for each Major Water Provider in the East Texas Regional Water Planning Area (ac-ft/yr) (cont.)

MWP/Customer	Demands					
City of Center	2020	2030	2040	2050	2060	2070
Sand Hills WSC	96	99	102	106	111	116
Shelbyville WSC	6	6	6	7	7	7
Manufacturing, Shelby	1,696	1,696	1,696	1,696	1,696	1,696
City of Center	1,842	1,952	2,050	2,152	2,255	2,351
<i>City of Center Total Demand</i>	<i>3,640</i>	<i>3,753</i>	<i>3,855</i>	<i>3,961</i>	<i>4,069</i>	<i>4,170</i>
Houston County Water Control and Improvement District No. 1	2020	2030	2040	2050	2060	2070
Existing Customers						
City of Crockett	1,282	1,282	1,282	1,282	1,282	1,282
City of Grapeland	170	170	170	170	170	170
City of Lovelady	29	29	29	29	29	29
Manufacturing	169	232	232	232	232	232
The Consolidated WSC	616	616	616	616	616	616
<i>Total Demand for Existing Customers</i>	<i>2,266</i>	<i>2,329</i>	<i>2,329</i>	<i>2,329</i>	<i>2,329</i>	<i>2,329</i>
Future Customers						
The Consolidated WSC	522	522	522	522	522	522
<i>Total Demand for Future Customers</i>	<i>522</i>	<i>522</i>	<i>522</i>	<i>522</i>	<i>522</i>	<i>522</i>
<i>Houston County Water Control and Improvement District No. 1 Total Demand</i>	<i>2,788</i>	<i>2,851</i>	<i>2,851</i>	<i>2,851</i>	<i>2,851</i>	<i>2,851</i>
City of Jacksonville	2020	2030	2040	2050	2060	2070
Afton Grove WSC, Gum Creek WSC	318	336	357	387	421	458
Craft Turney WSC	485	503	524	562	610	665
City of Jacksonville ²	3,045	3,247	3,457	3,745	4,076	4,440
Manufacturing, Cherokee	115	129	129	129	129	129
North Cherokee WSC	614	653	693	749	814	885
<i>City of Jacksonville Total Demand</i>	<i>4,577</i>	<i>4,868</i>	<i>5,160</i>	<i>5,572</i>	<i>6,050</i>	<i>6,577</i>



Table 2.17 Expected Demands for each Major Water Provider in the East Texas Regional Water Planning Area (ac-ft/yr) (cont.)

MWP/Customer	Demands					
Lower Neches Valley Authority	2020	2030	2040	2050	2060	2070
Region I						
City of Beaumont - Contract and Supplemental Reserve	9,036	10,219	11,603	12,991	14,075	13,718
County-Other, Jefferson	208	273	354	450	559	680
City of Groves	2,218	2,141	2,076	2,051	2,045	2,045
Irrigation, Jefferson	140,000	140,000	140,000	140,000	140,000	140,000
Jefferson County WCID 10	493	499	510	534	570	612
Manufacturing, Jasper	45,973	57,364	57,364	57,364	57,364	57,364
Manufacturing, Jefferson	91,781	80,390	80,390	80,390	80,390	80,390
Manufacturing, Nacogdoches	10,000	10,000	10,000	10,000	10,000	10,000
City of Nederland	2,553	2,615	2,697	2,835	3,021	3,236
City of Port Arthur	25,684	25,655	25,434	25,389	25,370	25,369
City of Port Neches	1,431	1,450	1,484	1,557	1,662	1,785
West Jefferson County MWD	907	801	812	831	869	923
<i>Total Demand for Region I</i>	<i>330,177</i>	<i>331,419</i>	<i>332,743</i>	<i>334,430</i>	<i>335,978</i>	<i>336,185</i>
Region H						
Trinity Bay Conservation District	2,262	2,637	3,037	3,488	3,988	4,518
Bolivar Peninsula SUD	6,000	6,000	6,000	6,000	6,000	6,000
Irrigation, Chambers	37,000	37,000	37,000	37,000	37,000	37,000
Irrigation, Liberty	23,000	23,000	23,000	23,000	23,000	23,000
Delivery Losses	54,474	56,768	56,984	57,251	57,507	57,599
<i>Total Demand for Region H</i>	<i>68,262</i>	<i>68,637</i>	<i>69,037</i>	<i>69,488</i>	<i>69,988</i>	<i>70,518</i>
Other Obligations						
City of Woodville - Contract	5,600	5,600	5,600	5,600	5,600	5,600
<i>Obligation sub-total</i>	<i>5,600</i>	<i>5,600</i>	<i>5,600</i>	<i>5,600</i>	<i>5,600</i>	<i>5,600</i>
Lower Neches Valley Authority Total Demand	404,039	405,656	407,380	409,518	411,566	412,303
City of Lufkin						
Angelina Fresh Water	74	74	74	74	74	74
Woodlawn WSC	221	221	221	221	221	221
City of Diboll	1,940	1,940	1,940	1,940	1,940	1,940
City of Huntington	448	448	448	448	448	448
Irrigation, Angelina	779	779	779	779	779	779
Lower Neches Valley Authority	28,000	0	0	0	0	0
City of Lufkin	7,253	7,545	7,792	8,073	8,382	8,668
Manufacturing, Angelina	732	776	776	776	776	776
Redland WSC	307	307	307	307	307	307
Power Plants	16,802	16,802	16,802	16,802	16,802	16,802
City of Lufkin Total Demand	56,555	28,891	29,138	29,419	29,728	30,014



Table 2.17 Expected Demands for each Major Water Provider in the East Texas Regional Water Planning Area (ac-ft/yr) (cont.)

MWP/Customer	Demands					
City of Nacogdoches	2020	2030	2040	2050	2060	2070
Appleby WSC	93	93	93	93	93	93
Nacogdoches MUD#1, Lilly Grove SUD	67	67	67	67	67	67
D & M WSC	258	258	258	258	258	258
Manufacturing, Nacogdoches	2,508	2,529	2,529	2,529	2,529	2,529
Melrose WSC	37	37	37	37	37	37
City of Nacogdoches	6,868	7,514	8,177	8,945	9,818	10,742
<i>City of Nacogdoches Total Demand</i>	<i>9,831</i>	<i>10,498</i>	<i>11,161</i>	<i>11,929</i>	<i>12,802</i>	<i>13,726</i>
Panola County Freshwater Supply District No. 1	2020	2030	2040	2050	2060	2070
City of Carthage	13,452	13,452	13,452	13,452	13,452	13,452
Mining, Panola	3,550	3,515	3,029	2,561	2,172	2,363
<i>Panola County Freshwater Supply District No. 1 Total Demand</i>	<i>17,002</i>	<i>16,967</i>	<i>16,481</i>	<i>16,013</i>	<i>15,624</i>	<i>15,815</i>
City of Port Arthur	2020	2030	2040	2050	2060	2070
Texas Parks and Wildlife	5	5	5	5	5	5
BASF Total, Petrochemicals LLC	57	57	57	57	57	57
Cheniere LNG	5646	5646	5646	5646	5646	5646
Flint Hills Resources	55	55	55	55	55	55
Golden Pass LNG	28	28	28	28	28	28
Manufacturing, Jefferson	282	282	282	282	282	282
Motiva	280	280	280	280	280	280
Total Petrochemicals	95	95	95	95	95	95
City of Port Arthur	19,234	19,205	18,984	18,939	18,920	18,919
<i>City of Port Arthur Total Demand</i>	<i>25,682</i>	<i>25,653</i>	<i>25,432</i>	<i>25,387</i>	<i>25,368</i>	<i>25,367</i>
Sabine River Authority	2020	2030	2040	2050	2060	2070
Upper Basin Customers						
Lake Fork Division Customers						
Bright Star Salem SUD	354	758	750	742	734	725
Eastman Chemical	3,500	3,157	3,124	3,092	3,057	3,022
Cash SUD	0	0	0	0	0	3,325
City of Dallas	120,000	108,253	107,099	105,996	104,819	103,628
City of Henderson	1,500	4,548	4,499	4,453	4,403	4,353
City of Kilgore	2,240	6,063	5,998	5,937	5,919	6,411
City of Longview	8,000	18,042	17,850	17,666	17,470	17,271



Table 2.17 Expected Demands for each Major Water Provider in the East Texas Regional Water Planning Area (ac-ft/yr) (cont.)

MWP/Customer	Demands					
Sabine River Authority (cont.)	2020	2030	2040	2050	2060	2070
Lake Fork Division Customers (cont.)						
City of Quitman	316	1,010	1,000	989	978	967
North Texas MWD	30,266	0	0	0	0	0
Tawakoni Division WUGs						
Cash SUD	1,679	1,762	1,824	2,272	3,425	2,353
City of Dallas	190,480	182,237	180,738	179,241	177,734	176,218
City of Emory	1,218	1,267	1,272	1,276	1,280	1,283
City of Greenville	10,297	20,362	20,194	20,027	19,879	19,690
City of Point	376	391	392	393	395	395
City of West Tawakoni	276	804	797	738	784	777
City of Wills Point	753	1,607	1,594	1,265	1,045	1,036
Commerce Water District	1,629	6,025	5,975	5,531	3,917	3,884
Combined Consumers SUD	594	684	816	1,013	1,304	1,726
Edgewood	272	285	295	307	318	329
MacBee SUD	516	572	621	673	724	779
South Tawakoni WSC	438	472	498	530	562	590
Tawakoni Plant Farm Ltd.	184	166	164	163	161	159
North Texas MWD	20,935	10,655	10,565	10,475	10,395	10,293
<i>Total Demand by Current Customers in Upper Basin</i>	<i>395,823</i>	<i>369,120</i>	<i>366,065</i>	<i>362,779</i>	<i>359,303</i>	<i>359,214</i>
Additional Requests from Existing Customers						
South Tawakoni WSC	561	561	561	561	561	561
Cash SUD	2,242	2,242	2,242	2,242	2,242	2,242
Combined Consumers WSC						
City of Henderson	5,605	5,605	5,605	5,605	5,605	5,605
City of Kilgore	5,045	5,045	5,045	5,045	5,045	5,045
NTMWD (Able Springs WSC)	3,363	3,363	3,363	3,363	3,363	3,363
MacBee SUD	2,242	2,242	2,242	2,242	2,242	2,242
City of Quitman	1,121	1,121	1,121	1,121	1,121	1,121
City of Emory	4,484	4,484	4,484	4,484	4,484	4,484
Greenville	9,865	9,865	9,865	9,865	9,865	9,865
Willis Point	1,121	1,121	1,121	1,121	1,121	1,121
Point	1,233	1,233	1,233	1,233	1,233	1,233
West Tawakoni	1,121	1,121	1,121	1,121	1,121	1,121
New Customers - Upper Basin						
Bright Star- Salem WSC	841	841	841	841	841	841
City of East Tawakoni	1,233	1,233	1,233	1,233	1,233	1,233
Poetry WSC	2,242	2,242	2,242	2,242	2,242	2,242
College Mound WSC						
North Kaufman WSC	1,233	1,233	1,233	1,233	1,233	1,233
Golden WSC	1,121	1,121	1,121	1,121	1,121	1,121
City of Quinlan	561	561	561	561	561	561
City of Lindale	5,045	5,045	5,045	5,045	5,045	5,045
<i>Total Future Demands in Upper Basin</i>	<i>50,279</i>	<i>50,279</i>	<i>50,279</i>	<i>50,279</i>	<i>50,279</i>	<i>50,279</i>



Table 2.17 Expected Demands for each Major Water Provider in the East Texas Regional Water Planning Area (ac-ft/yr) (cont.)

MWP/Customer	Demands					
Sabine River Authority (cont.)	2020	2030	2040	2050	2060	2070
Lower Basin Customers						
Toledo Bend						
Beechwood WSC	190	190	190	190	190	190
El Camino WSC	36	36	36	36	36	36
Huxley	280	280	280	280	280	280
G M WSC	560	560	560	560	560	560
City of Hemphill	476	476	476	476	476	476
Invista	31	31	31	31	31	31
XTO	7500	7500	7500	7500	7500	7500
Tenaska	17922	17,922	17,922	17,922	17,922	17,922
Canal (Gulf Coast Division)						
Honeywell	1,120	1,120	1,120	1,120	1,120	1,120
Chevron Phillips	1,841	1,841	1,841	1,841	1,841	1,841
Dow DuPont	24,643	24,643	24,643	24,643	24,643	24,643
Entergy	4,481	4,481	4,481	4,481	4,481	4,481
Firestone Polymers	1,473	1,473	1,473	1,473	1,473	1,473
International Paper	22,403	22,403	22,403	22,403	22,403	22,403
Optimus Steel	1,120	1,120	1,120	1,120	1,120	1,120
Arlanxco	4,480	4,480	4,480	4,480	4,480	4,480
NRG Cottonwood Energy	13,442	13,442	13,442	13,442	13,442	13,442
Rose City (Orange County-Other)	478	478	478	478	478	478
Irrigation (Orange County)	1,255	1,255	1,255	1,255	1,255	1,255
Potential Future Customers - Lower Basin						
East Texas Transfer (H)			250,000	250,000	250,000	250,000
Pipeline to City of Center from Toledo Bend (I)			2,242	2,242	2,242	2,242
LNVA (I)				200,000	200,000	200,000
NTMWD (C)						100,000
Orange Irrigation (I)	2,432	2,685	2,858	2,920	2,855	2,758
Contract for Orange County Manufacturing	3,943	9,890	15,850	21,141	27,092	33,477
Contract for SEP Orange (I)	0	14	1,038	2,286	3,807	4,846
Contract for Newton County Mining & Steam Electric Demand (I)	805	3,139	5,994	9,545	13,875	19,021
Contract for Shelby County Livestock	1,367	2,375	3,602	5,099	6,924	6,924
Rusk Steam Electric Power Demand	1,103	1,103	1,103	1,103	1,103	1,103
Harrison County Manufacturing (D)	50,000	55,000	65,000	70,000	80,000	0
Steam Electric Power Harrison County (D)	2,000	6,000	10,000	15,000	21,000	47,000
Greenville (D)	0	0	0	0	0	9,090



Table 2.17 Expected Demands for each Major Water Provider in the East Texas Regional Water Planning Area (ac-ft/yr) (cont.)

MWP/Customer	Demands					
Sabine River Authority (cont.)	2020	2030	2040	2050	2060	2070
<i>Total Future Demands in Lower Basin</i>	<i>61,650</i>	<i>80,206</i>	<i>357,687</i>	<i>579,336</i>	<i>608,898</i>	<i>676,461</i>
<i>Sabine River Authority Total Demand</i>	<i>611,483</i>	<i>603,336</i>	<i>877,762</i>	<i>1,096,125</i>	<i>1,122,211</i>	<i>1,189,685</i>
City of Tyler	2020	2030	2040	2050	2060	2070
Community Water	239	239	239	239	239	239
Golf Course Irrigation	400	400	400	400	400	400
Manufacturing, Smith	1,774	2,009	2,009	2,009	2,009	2,009
Southern Utilities	304	314	326	342	361	381
Tyler (Region I)	20,032	21,313	22,676	24,310	26,118	28,007
Tyler (Region D)	185	206	232	263	301	347
Walnut Grove WSC	1,495	1,495	1,495	1,495	1,495	1,495
Whitehouse	747	747	747	747	747	747
Potential Customers						
Bullard	141	332	526	739	956	1182
Crystal Systems Texas	0	0	0	52	164	291
Lindale	25	136	259	384	535	696
Manufacturing	0	84	84	84	84	84
Mining	0	0	0	0	0	0
Chandler	0	0	0	0	0	118
<i>City of Tyler Total Demand</i>	<i>25,342</i>	<i>27,276</i>	<i>28,994</i>	<i>31,065</i>	<i>33,409</i>	<i>35,996</i>
Upper Neches River Municipal Water Authority	2020	2030	2040	2050	2060	2070
Monarch Utilities	100	100	100	100	100	100
City of Dallas	114,337	114,337	114,337	114,337	114,337	114,337
Arborgen Super Tree Farm	300	300	300	300	300	300
Irrigation, Cherokee	41	36	32	28	25	25
Irrigation, Henderson	82	73	64	57	51	51
Irrigation, Smith	82	73	64	57	51	51
Emerald Bay Golf Course	105	105	105	105	105	105
City of Palestine	28,000	28,000	28,000	28,000	28,000	28,000
City of Tyler	67,200	67,200	67,200	67,200	67,200	67,200
City of Dallas (Future Contract)	0	0	0	0	47,250	47,250
<i>Upper Neches River Municipal Water Authority Total Demand</i>	<i>210,247</i>	<i>210,224</i>	<i>210,202</i>	<i>210,184</i>	<i>257,419</i>	<i>257,419</i>

SOURCE: TEXAS WATER DEVELOPMENT BOARD



Table 2.18 2020 Major Water Provider Demands in the East Texas Regional Water Planning Area by Water Use Category

Major Water Provider	Municipal	Manufacturing	Irrigation	Electric Steam Power	Mining	Livestock	To Other Major Water Provider*
Angelina and Neches River Authority	32,558	5,600		8,000	8,288		12,761
Angelina-Nacogdoches WCID #1				12,280			
Athens Municipal Water Authority	2,545	484	170			3,023	
City of Beaumont	32,826	1,642					
City of Carthage	1,950	281					
City of Center	1,944	1,696					
City of Jacksonville	4,462	115					
City of Lufkin	10,242	732	779	16,802			28,000
City of Nacogdoches	7,323	2,508					
City of Port Arthur	19,239	6,443					
City of Tyler	22,855	1,774	400				
Houston County WCID #1	3,995	45,054		1,000			
Lower Neches Valley Authority	15,906	233,510	202,432	3,908		1,367	34,718
Panola County FWSD #1					3,550		13,452
Sabine River Authority	46,648	57,111		35,845	7,640		401,415
Upper Neches River MWA	28,000	100	610				67,200

*The water use category for sales To Other Major Water Providers is captured in the recipient Major Water Provider demands. For recipient Major Water Provider details, see Chapter 2, Table 2.17.

2.5 Sub-WUG Planning Option

As provided in the guidance from the TWDB, at the discretion of each RWPG, certain WUGs may be subdivided into sub-WUG level units for purposes of doing more detailed analysis and accounting of a WUG. The RWPG considered and decided to forgo sub-WUG planning during its regular meeting held August 16, 2017.



This page intentionally left blank

