



**NECHES & TRINITY VALLEYS  
GROUNDWATER  
CONSERVATION DISTRICT**



**MANAGEMENT PLAN**

**ADOPTED June 11, 2003**  
Amended & Adopted August 20, 2009  
Amended & Adopted June 19, 2014  
Amended & Adopted April 26, 2018

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**Anderson, Cherokee, and Henderson Counties  
In the State of Texas**

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## **NECHES AND TRINITY VALLEYS GROUNDWATER CONSERVATION DISTRICT MISSION STATEMENT**

The Neches and Trinity Valleys Groundwater Conservation District (District) will strive for the conservation, preservation, and the prevention of the waste of groundwater reservoirs over which the District has jurisdiction. The District will implement water conservation and management strategies to prevent the extreme decline of water levels for the benefit of all water users, water rights owners, the economy, or citizens, and the environment of the territory inside the District.

### **TIME PERIOD FOR THIS PLAN**

This District Management Plan became effective June 11, 2003, following adoption by the District Board of Directors and approved by the Texas Water Development Board (TWDB) affirming the plan as administratively complete. It was re-adopted by Board Resolution on August 20, 2009 and again on June 19, 2014. This revised and amended plan adopted on April 26, 2018 will remain in effect for a period of five (5) years as a minimum planning period, or until a revised or amended plan may be approved, whichever comes first.

This document has been developed in accordance with the requirements of Chapter 36 of the Texas Water Code and the provisions of Texas Administrative Code Title 31, Chapter 356, Groundwater Management Plan Certification.

### **STATEMENT OF GUIDING PRINCIPLES**

The District recognizes that the groundwater resources of the region are of vital importance to the continued vitality of the citizens, economy, and environment within the District. The preservation of the groundwater resources can be managed and protected in the most prudent and cost effective manner through the local regulation of production as effected by the District's well permitting and well spacing rules. This management plan is intended as a tool to direct the efforts of those individuals charged with the responsibility for the managing and execution of District activities.

### **GENERAL DESCRIPTION**

In 2001 the Texas Legislature passed Senate Bill 1821 which authorized the creation of the Neches and Trinity Valleys Groundwater Conservation District (referred to as the "District") as a governmental agency to regulate groundwater in order to protect it from overuse and wasteful use. This was approved by the voters in a general election in November 2001. The District includes all of Cherokee, Anderson and Henderson Counties.

The District has an unpaid Board of Directors. The Commissioners' Court of Anderson, Henderson, and Cherokee Counties have each appointed two directors, one to represent rural water, utilities, and small municipal water supply interests; and one to represent agricultural, industrial, and landowner interests. The cities of Athens, Palestine, and Jacksonville share a seventh Director on a rotating basis.

The District is prohibited by legislation from levying taxes. It also may not exercise the power of eminent domain. It also may not issue or sell bonds in the name of the District.

It is the goal of the District that its activities be consistent with sound business practices; that the interest of the public shall always be considered in conducting District business; that impropriety or the appearance of impropriety shall be avoided to ensure and maintain public confidence in the District; and that the Board and staff shall control and manage the affairs of the District lawfully, fairly, impartially, and in accordance with the stated purposes of the District.

The District employs a General Manager to manage the administrative affairs of the District and provides for additional staff as needed to assist in those duties. The General Manager is responsible for ensuring that the rules, regulations, policies, and procedures adopted by the Board are followed. The General Manager is held responsible by the Board and is required to provide timely reports about the administrative affairs of the District.

## **GROUNDWATER RESOURCES**

The Desired Future Conditions for the aquifers located within the District boundaries and within Groundwater Management Area 11 (GMA-11) were established in accordance with Chapter 36.108 of the Texas Water Code at a meeting of the GMA-11 representatives on April 13, 2010.

The Carrizo-Wilcox aquifers are the primary source of groundwater within the District. The Queen City and Sparta are other minor aquifers with pumping for use within the District. Groundwater in the aquifers is under water table or unconfined conditions and the depths of the aquifer sands are highly variable within the district. Groundwater represents 32 percent of the water source within the District with surface water being the major remaining source. The estimated water pumping during 1999 by aquifer was 90.4% from Carrizo-Wilcox; 4% from Queen City; 5.4% from Sparta; and the balance from undifferentiated aquifers. Maps of the District and the aquifers are shown for reference in **Appendix A.9**.

### **A. THE AMOUNT OF WATER BEING USED WITHIN THE DISTRICT ON AN ANNUAL BASIS**

There are slivers of the Nacatoch Aquifer in westernmost Henderson County. However, water from the Nacatoch Aquifer within the District are statistically insufficient and are not considered available or used within the District. Data from GMA-8 establishing a desired future condition will be considered to account for the Nacatoch Aquifer water use and availability.

The charts in **Appendix A.1** present the annual water usage within the District from 2000 to 2011 and include both ground water (GW) and surface water (SW) use. They show a total annual usage of 44,470 acre feet including 26,473 acre feet of groundwater and 17,997 acre feet of surface water in 2011.

## **B. PROJECTED TOTAL WATER DEMANDS**

The tables in **Appendix A.2** show the projected water demand for Anderson, Cherokee, and Henderson Counties through the year 2060. This is the combined surface water and groundwater use for the District. The projections are from the 2012 State Water Plan and include agriculture, municipal and industrial use.

Since the District originally did not cover all of Anderson County, the generic county-wide data have been converted to a proportional value (relative to the original size of the District) by multiplying each value from the County Water Demands data sheet by 0.9557. Please note that the demand numbers presented here include the plumbing code savings found in the Regional and State Water Plans.

## **C. PROJECTED SURFACE WATER SUPPLIES**

The charts in **Appendix A.3** show the surface water supplies for the District for 2010 and the projected surface water supplies through the year 2060. All data is from the 2012 State Water Plan.

The percentage of surface water supply not in the District is not material to the presentation of data as a whole because there is no major surface water supply in the area not in the District.

## **D. GROUNDWATER AVAILABILITY**

The Wilcox group and the overlaying Carrizo Formation of the Claiborne Group form a hydrologically connected system known as the Carrizo-Wilcox Aquifer. This aquifer extends from the Rio Grande in South Texas northeastward into Arkansas and Louisiana, providing all or part of the water in 60 counties in Texas. Municipal and irrigation Pumpage account for about 35 and 51 percent, respectively, of pumping from the Carrizo-Wilcox Aquifer.

The Queen City Aquifer extends across Texas from the Frio River in South Texas northeastward into Louisiana. The aquifer provides water for domestic and livestock purposes throughout most of its extent and significant amounts for municipal and industrial supplies in Northeast Texas. The water may be acidic in much of Northeast Texas and relatively high in iron concentrations in some locations.

The Sparta aquifer extends in a narrow band from the Frio River in South Texas northeastward to the Louisiana border in Sabine County. The aquifer provides water for domestic and livestock purposes throughout most of its extent and water for municipal, industrial, and irrigation in much of the region. Water may contain iron concentrations in excess of drinking water standards.

There are slivers of the Nacatoch Aquifer in westernmost Henderson County. However, water from the Nacatoch Aquifer within the District are statistically insufficient and are not considered available or used within the District.

A very small portion of the northern section of the Trinity Aquifer is located in western Henderson County. The

water budget values for this aquifer are very small or zero (TWBD GAM 13-013).

The modeled available groundwater is the amount of groundwater production per year, on an average basis, that will achieve a desired future condition. Total estimated recoverable storage values may include a mixture of water quality types, including fresh, brackish, and saline groundwater.

### **E. PROJECTED WATER NEEDS WITHIN THE DISTRICT**

The water need estimates in this plan have been extracted from 2012 State Water Plan and other GAM runs based on existing data and will be used until alternatives may be generated. With normal rainfall and the advent of expected conservation practices, total water demands within the District projected to be used within the District on an annual basis 2010 to 2060 in acre feet is as follows as shown in **Appendix A.5**.

### **F. PROJECTED WATER MANAGEMENT STRATEGIES**

The projected water management strategies from the 2012 State Water Plan to supply the needs of the District are presented in **Appendix A.6**. These include strategy to develop and adopt methods to meet future needs in the District.

### **G. ANNUAL WATER BUDGET VALUES**

A groundwater budget summarizes the water entering and leaving the aquifer according to a groundwater availability model. Selected components were extracted from the groundwater budget for the aquifers located within the District and were averaged over the duration of the calibrated portion of the model runs. The projected water into and out of the aquifers within the District is taken from Groundwater Availability Model 13-013 prepared by TWDB, July 3, 2013.

In accordance with the provisions of the Texas State Water Code, Section 36.1071, Subsection (h), the groundwater availability models for the Trinity, Nacatoch, Carrizo -Wilcox, Queen City, and Sparta aquifers were run for this analysis. Neches & Trinity Valleys Groundwater Conservation District Water groundwater budgets for the historical 1980 to 1999 model period were extracted using ZONEBUDGET Version 3.01 (Harbaugh, 2009) The average annual water budget values for recharge, surface water outflow, inflow to the district, outflow from the district, net inter-aquifer flow (upper), and net inter-aquifer flow (lower) for the portions of the aquifers located within the district are summarized in **Appendix A.7**.



## **H. MODELED AVAILABLE GROUNDWATER IN THE DISTRICT BASED ON THE DFC**

As defined in Chapter 36 of the Texas Water Code, “modeled available groundwater” is the estimated average amount of water that may be produced annually to achieve a Desired Future Condition (DFC).

Groundwater conservation districts are required to consider modeled available groundwater, along with several other factors, when issuing permits in order to manage groundwater production to achieve the desired future condition(s). The other factors districts must consider include annual precipitation and production patterns, the estimated amount of pumping exempt from permitting, existing permits, and a reasonable estimate of actual groundwater production under existing permits. The estimated amount of pumping exempt from permitting, which the TWDB is now required to develop after soliciting input from applicable groundwater conservation districts, will be provided in a separate report. **Appendix A.8** shows the available groundwater based on the model run, GAM 17-024 on June 19, 2017.

## **MANAGEMENT OF GROUNDWATER SUPPLIES**

The District will manage the supply of groundwater within the District in order to conserve the resource while seeking to maintain the economic viability of all resource user groups, public and private. In consideration of the economic and cultural activities occurring within the District, the District will identify and engage in such activities and practices that, if implemented, would result in a reduction of groundwater use. A monitor well observation network may be established and maintained in order to evaluate changing conditions of groundwater supplies (aquifer water table levels) within the District. The District will make a regular assessment of water supply and groundwater storage conditions and will report those conditions to the Board and to the public. The District will undertake as necessary and cooperate with investigations of the groundwater resources within the District and will make the results of investigations available to the public upon adoption by the Board.

The District will consider the water supply needs and water management strategies from Regional Water Planning Group I and other sources included in the adopted state water plan. This plan shows that the largest projected increase in water demand will be for steam-electric use which is expected to require about half of the total water demand in 2060. The region as a whole appears to have enough water supplies to meet demands through 2060. In the District the major water supply project is the development of Lake Columbia in Cherokee county and the District supports this effort.

The District will enforce the terms and conditions of permits and rules of the District. The District will adopt rules, and amend rules as necessary, to regulate groundwater withdrawals by means of well spacing, well permits, and production limits. The District may deny a well permit or limit groundwater withdrawals in accordance with the guidelines stated in the rules of the District and drought contingency plan. In making a determination to deny a permit or limit groundwater withdrawals, the District will consider the public benefit against individual hardship after considering all appropriate testimony.

In pursuit of the District's mission of protecting the groundwater resources, the District may require reduction of groundwater withdrawals to amounts which will not cause harm to the aquifer. To achieve this purpose, the District may, at the Board's discretion, amend or revoke any permits after notice and hearing. The determination to seek the amendment or revocation of a permit by the District will be based on aquifer conditions observed by the District. The District will enforce the terms and conditions of permits and the rules of the District by enjoining the permit holder in a court of competent jurisdiction as provided for in Texas Water Code (TWC) 36.102.

The relevant factors to be considered in making a determination to deny a permit or limit groundwater withdrawals will include:

- 1) The proposed use of the water and effect of existing groundwater and surface water resources or existing permits under the rules and management plan of the District.
- 2) The beneficial use of the water resource to protect groundwater quality, avoid waste, and achieve water conservation.
- 3) The economic hardship resulting from grant or denial of a permit or the terms prescribed by the permit.
- 4) The application conforms to the requirements of the District and TWC Chapter 36 and is accompanied by the prescribed fees.
- 5) Other factors that may be specific to the application.

## **DROUGHT CONTINGENCY PLAN**

A contingency plan to cope with the effects of water supply shortages due to climatic or other conditions was developed by the District and adopted by the Board after notice and hearing. In developing the contingency plan, the District considered the economic effects of conservation measures upon all water resource user groups, the local implications of the degree and effect of changes in water storage conditions, the unique hydro-geologic conditions of the aquifer and the appropriate conditions under which to implement the contingency plan. The plan is reviewed annually and revised as necessary.

## **ACTIONS, PROCEDURES, PERFORMANCE, AND AVOIDANCE NECESSARY TO EFFECTUATE THE MANAGEMENT PLAN**

The District will implement the provisions of this plan and will utilize the provisions of the plan as a guidepost for determining the direction of priority for District activities. Operations, agreements, and planning efforts of the District will be consistent with this plan. The District will seek the cooperation of all interested parties in the implementation of this plan. The plan is for a five-year planning period; however, the Board may review the plan annually or as desired and re-adopt the plan with or without revisions at least every five years.

## **DISTRICT RULES**

The District will enforce District rules requiring the permitting of all new non-exempt wells to prevent the waste of groundwater. District rules are available upon request from the district or may be viewed at the district's website at [www.ntvgcd.org](http://www.ntvgcd.org).

## **REGIONAL WATER PLAN**

This management plan has been adopted after the development of the regional management plan for Region I RWP Group and Region C RWP Group. After the time a regional water plan has been adopted, the District shall address water supply needs in a manner that is not in conflict with the appropriate approved regional water plan which must be approved under Section 16.053. Senate Bill 1 intended for water management to be a bottom up approach. Therefore, the regional planning groups must consider this local approved NTVGCD Management Plan in the development of their regional water plan to meet the intent of Senate Bill 1 and Senate Bill 1763 and, consequently, result in a regional management plan which is consistent with this local management plan, resulting in the protection of the local control of groundwater management by the local citizens.

## **GOALS, MANAGEMENT OBJECTIVES, PERFORMANCE STANDARDS AND METHODOLOGY TO EVALUATE PROGRESS FOR IMPLEMENTATION OF THE DISTRICT MANAGEMENT PLAN AND FUTURE BOARD REVIEW**

### **GOAL 1.0 PROVIDING FOR THE MOST EFFICIENT USE OF GROUNDWATER WITHIN THE DISTRICT**

It is the intent of the district to provide for the most efficient use of groundwater by regulating the drilling of wells within the district and by enforcing district Rules.

#### **Management Objective**

Each year the District will require the registration of all new wells drilled within the District's jurisdiction and the District will require a permit for drilling all non-exempt wells.

#### **Performance Standard**

At all regularly scheduled Board meetings, the General Manager reports to the Board of Directors on the number of new wells registered with the District and the number of permit applications received and approved for new wells within the District.

**Management Objective**

Each year the District will provide informative speakers to schools, civic groups, social clubs, and other organizations for presentations to inform a minimum of 50 citizens on the activities and programs, the geology and hydrology of groundwater, and the principles of water conservation relating to the best management practices for the efficient use of groundwater.

**Performance Standard**

The number of citizens in attendance annually at District presentations concerning the principals of water conservation relating to the best practices for the efficient use of groundwater.

**Management Objective**

Each year, on four or more occasions, the District will disseminate educational information relating to the conservation practices for the efficient use of water resources.

**Performance Standard**

Number of occasions, annually, the District disseminated educational information relating to the conservation practices for the efficient use of water resources.

**Methodology**

Annually, the District will prepare and present a report to the Board on presentations in regards to achieving Goal 1. The report will include the number of instances each activity was engaged in during the year. The report will be maintained on file in the District Office.

**GOAL 2.0 CONTROLLING AND PREVENTING WASTE OF GROUNDWATER**

**Management Objective**

100 percent of complete permit applications will be reviewed by the District within 90 days to ensure all procedures are followed to control and prevent the waste of groundwater. The District will report annually to the Board the number of permit application requests that met the District's rules and requirements for approval within 90 days of the receipt of the completed application.

**Performance Standard**

1. Number of permits issued each year by the District for new non-exempt wells in compliance with District rules and procedures.
2. Percent of completed applications reviewed within 90 days of receipt of application.

**Management Objective**

The District will maintain procedures for the receipt of well permit applications. Annual reports will be made to the Board on the number and type of well permits approved. If no applications are received by the District during a reporting period, this will annually be reported to the Board.

**Performance Standard**

The procedures for the receipt of well permit applications will be maintained in District files. An annual report will be made by the District to the Board on the number and type of well permits approved. If no well permit applications are filed and completed during the year, this will be reported to the Board.

**Methodology**

Annually, the District will prepare and present a report to the Board on the number of permit applications in compliance with District rules and procedures and the percent of completed applications reported to the Board within 90 days. The report will be maintained on file in the District Office.

**GOAL 3.0 CONTROLLING AND PREVENTING SUBSIDENCE**

This goal is not applicable to the district.

**GOAL 4.0 ADDRESSING CONJUNCTIVE SURFACE WATER MANAGEMENT ISSUES**

**Management Objective**

The water demands increase each year with a growing population and industrial needs. The District will work with the River Authorities in the District and with the Regional Planning Groups to assist with studies and coordinate to plan to meet the needs of the area for water.

**Performance Standard**

Each year, the District will participate in the regional planning process by attending at least 75 percent of the Regional Water Planning Group meetings to encourage the development of surface water supplies to meet the needs of water user groups in the District.

**Methodology**

The District stays informed of any Regional Water Planning Group meetings and participates in them.

**GOAL 5.0 NATURAL RESOURCE ISSUES THAT IMPACT THE USE AND AVAILABILITY OF GROUNDWATER AND ARE IMPACTED BY THE USE OF GROUNDWATER**

This goal is not applicable to the district.

**GOAL 6.0 ADDRESSING DROUGHT CONDITIONS**

**Management Objective**

The Board has adopted a contingency plan to cope with the effects of water supply shortages due to climatic or other conditions. The plan is reviewed at least annually by the Board. In developing the contingency plan, the District considered the economic effects of conservation measures upon all water resource user groups, the local implications of the degree and effect of changes in water storage conditions, the unique hydro-geologic conditions of the aquifer and the appropriate conditions under which to implement the contingency plan.

During drought conditions within the District, all efforts will be made to see that all municipalities and public water supply companies follow their drought contingency plans. During severe drought conditions that materially affects the aquifer levels, the District staff will closely monitor the aquifer levels through establishment of a District monitoring plan of static levels in selected monitoring wells or by obtaining well water levels from selected water supply companies who have such data available to ensure that adequate quantities of water are available to the District and will coordinate with the Region C and I Water Planning Groups. Additional information can be found and utilized on drought at: <http://waterdatafortexas.org/drought/>

**Performance Standard**

A drought contingency plan developed by the District and approved by the Board will be reviewed by the Board every year and revised as necessary.

**Methodology**

When a drought occurs that requires implementing drought contingency plans by municipalities and public water supply companies, the District will prepare and present a report to the Board on the number of water users contacted and number of plans implemented with the results of water use reduction when such data is available.

**GOAL 7.0 ADDRESSING CONSERVATION, RECHARGE ENHANCEMENT, RAINWATER HARVESTING, PRECIPITATION ENHANCEMENT, OR BRUSH CONTROL**

**Management Objective: Conservation**

Each year, on four or more occasions, the District will disseminate educational information relating to the conservation practices for the efficient use of water resources.

**Performance Standard**

Number of occasions, annually, the District disseminated educational information relating to the conservation practices for the efficient use of water resources.

**Methodology**

Annually, the District will prepare and present a report to the Board on District performance in meeting this goal. The report will include the number of instances each activity was engaged in during the year. The report will be maintained on file in the District Office.

**Recharge Enhancement**

This goal is presently not applicable or cost effective and is therefore, not applicable to the district at this time.

**Rainwater Harvesting**

This goal is presently not applicable or cost effective and is therefore, not applicable to the district at this time.

**Precipitation Enhancement**

This goal is presently not applicable or cost effective and is therefore, not applicable to the district at this time.

**Brush Control**

This goal is presently not applicable or cost effective and is therefore, not applicable to the district at this time.

**GOAL 8.0 ADDRESSING THE DESIRED FUTURE CONDITIONS OF THE GROUNDWATER RESOURCES**

The Desired Future Conditions of the groundwater within the District have been established in accordance with Chapter 36.108 of the Texas Water Code at a meeting of the GMA-11 representatives on January 11, 2017. The Desired Future Conditions drawdowns are established as shown in **Appendix A.4**.

**Management Goal**

To conserve and manage groundwater resources in order to provide sufficient water resources for domestic, industrial and public water supply use to meet the needs of the future.

**Management Objective**

The District will issue permits with annual pumping limits and will maintain a database to limit the total annual withdrawal by permit to be representative of the Modeled Available Groundwater volume without restricting industrial or domestic growth.

**Performance Standard**

The District will frequently monitor the total permitted allowances to determine if the permitted volume is within or representative of the Modeled Available Groundwater allowable.

**Methodology**

Annually, the District will prepare and present a report to the Board on District performance in meeting this goal. The report will include the total permitted water and the allowable available water based on the Modeled Available Groundwater. The report will be maintained on file in the District Office.



## APPENDIX

### **A.1 WATER BEING USED WITHIN THE DISTRICT**

**ANDERSON COUNTY**

*95.57 % (multiplier)*

All values are in acre-fee/year

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2011	GW	9,612	0	41	0	438	52	10,143
	SW	4,690	0	10	0	117	972	5,789
2010	GW	9,136	0	48	0	248	52	9,484
	SW	3,534	0	12	0	143	982	4,671
2009	GW	8,931	0	28	0	406	61	9,426
	SW	2,893	0	7	0	10	1,153	4,063
2008	GW	8,709	0	11	0	172	59	8,951
	SW	3,104	0	2	0	271	1,125	4,502
2007	GW	8,530	0	0	0	271	74	8,875
	SW	2,695	0	0	0	154	1,394	4,243
2006	GW	9,354	0	0	0	0	74	9,428
	SW	3,246	0	0	0	291	1,396	4,933
2005	GW	8,949	0	0	0	54	70	9,073
	SW	3,649	0	0	0	298	1,332	5,279
2004	GW	8,625	14	0	0	29	290	8,958
	SW	3,192	0	0	0	214	1,157	4,563
2003	GW	8,862	4,270	0	0	16	293	13,441
	SW	3,161	0	0	0	242	1,168	4,571
2002	GW	8,539	4,270	0	0	77	323	13,209
	SW	3,252	0	0	0	77	1,288	4,617
2001	GW	8,563	340	0	0	92	323	9,318
	SW	3,222	0	0	0	92	1,281	4,595
2000	GW	9,199	325	0	0	92	653	10,269
	SW	3,469	0	0	0	92	980	4,541

**CHEROKEE COUNTY**

100.00 % (multiplier)

All values are in acre-fee/year

2011	GW	7,612	61	30	181	9	204	8,097
	SW	2,229	9	15	968	263	1,155	4,639
2010	GW	7,055	53	53	121	204	204	7,690
	SW	1,897	26	27	91	267	1,154	3,462
2009	GW	6,732	84	77	167	147	180	7,387
	SW	1,796	11	39	585	153	1,023	3,607
2008	GW	7,043	81	101	127	131	207	7,690
	SW	1,248	11	51	756	179	1,172	3,417
2007	GW	6,792	78	0	155	245	211	7,481
	SW	1,102	36	0	776	111	1,194	3,219
2006	GW	7,454	98	0	136	43	216	7,947
	SW	1,365	43	0	606	211	1,223	3,448
2005	GW	7,051	91	0	124	54	207	7,527
	SW	1,788	197	0	482	197	1,172	3,836
2004	GW	7,178	108	0	115	23	557	7,981
	SW	1,451	44	0	515	163	836	3,009
2003	GW	6,455	114	0	119	17	572	7,277
	SW	1,661	400	0	1,093	181	858	4,193
2002	GW	6,317	115	0	86	30	689	7,237
	SW	1,762	461	0	1,115	137	1,033	4,508
2001	GW	6,540	117	0	128	27	714	7,526
	SW	1,634	509	0	1,552	124	1,071	4,890
2000	GW	6,796	161	0	132	32	706	7,827
	SW	1,767	452	0	2,371	149	1,059	5,798

**HENDERSON COUNTY**

*100.00 % (multiplier)*

All values are in acre-fee/year

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2011	GW	6,973	643	54	0	50	513	8,233
	SW	6,284	62	111	132	210	770	7,569
2010	GW	6,105	409	68	0	133	512	7,227
	SW	5,920	75	141	65	149	767	7,117
2009	GW	5,156	1,106	58	0	150	456	6,926
	SW	5,463	65	120	103	20	684	6,455
2008	GW	4,912	834	47	0	155	502	6,450
	SW	5,280	172	98	43	127	753	6,473
2007	GW	4,428	736	2	0	139	507	5,812
	SW	4,925	239	0	30	105	761	6,060
2006	GW	5,177	723	2	0	119	504	6,525
	SW	5,787	218	0	25	265	756	7,051
2005	GW	5,018	809	2	0	41	531	6,401
	SW	5,878	231	0	23	302	796	7,230
2004	GW	4,696	842	2	0	39	431	6,010
	SW	5,101	211	0	15	41	956	6,324
2003	GW	4,514	844	2	0	23	427	5,810
	SW	13,720	174	0	41	268	947	15,150
2002	GW	4,755	945	2	0	2	142	5,846
	SW	5,329	149	0	46	1	313	5,838
2001	GW	4,738	864	8	0	0	519	6,129
	SW	5,687	123	0	464	0	1,150	7,424
2000	GW	4,983	769	3	0	0	931	6,686
	SW	6,496	225	0	477	0	620	7,818

**A.2 PROJECTED TOTAL WATER DEMANDS****ANDERSON COUNTY***95.57 % (multiplier)*

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
I	FRANKSTON	NECHES	524	547	564	582	598	612
I	MINING	NECHES	442	480	502	524	545	566
I	IRRIGATION	NECHES	13	13	13	13	13	13
I	LIVESTOCK	NECHES	767	767	767	767	767	767
I	STEAM ELECTRIC POWER	NECHES	0	10,805	12,632	14,860	17,575	20,885
I	BRUSHY CREEK WSC	NECHES	150	152	154	153	155	159
I	CONSOLIDATED WSC	NECHES	29	30	30	29	30	31
I	WALSTON SPRINGS WSC	NECHES	427	438	441	444	452	464
I	PALESTINE	NECHES	1,955	2,018	2,062	2,106	2,156	2,210
I	COUNTY-OTHER	NECHES	765	794	812	831	851	872
I	FOUR PINE WSC	TRINITY	283	292	296	301	306	314
I	PALESTINE	TRINITY	1,762	1,819	1,858	1,898	1,943	1,992
I	COUNTY-OTHER	TRINITY	4,453	4,627	4,732	4,839	4,955	5,080
I	ELKHART	TRINITY	177	183	185	188	192	196
I	MINING	TRINITY	49	53	55	57	60	62
I	LIVESTOCK	TRINITY	865	865	865	865	865	865
I	IRRIGATION	TRINITY	189	189	189	189	189	189
I	BRUSHY CREEK WSC	TRINITY	122	124	126	125	127	130
I	CONSOLIDATED WSC	TRINITY	98	99	99	98	100	102
<b>Sum of Projected Water Demands (acre-feet/year)</b>			<b>13,070</b>	<b>24,295</b>	<b>26,382</b>	<b>28,869</b>	<b>31,879</b>	<b>35,509</b>

**CHEROKEE COUNTY***100.00 % (multiplier)*

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
I	NEW SUMMERFIELD	NECHES	208	258	302	338	379	427
I	BULLARD	NECHES	13	13	13	13	13	14
I	COUNTY-OTHER	NECHES	902	790	617	378	272	218
I	NORTH CHEROKEE WSC	NECHES	387	439	482	519	560	616
I	ALTO RURAL WSC	NECHES	393	404	409	411	424	447
I	CRAFT-TURNEY WSC	NECHES	515	614	742	908	995	1,078
I	STEAM ELECTRIC POWER	NECHES	2,245	1,790	2,093	2,462	2,912	3,460
I	RUSK RURAL WSC	NECHES	358	372	381	388	401	423
I	SOUTHERN UTILITIES COMPANY	NECHES	421	458	486	513	543	583
I	MANUFACTURING	NECHES	718	784	839	891	934	1,007
I	RUSK	NECHES	1,194	1,283	1,353	1,421	1,495	1,591
I	TROUP	NECHES	6	6	7	7	8	8
I	WELLS	NECHES	122	121	119	117	115	116
I	MINING	NECHES	593	1,597	99	101	103	105
I	IRRIGATION	NECHES	321	321	321	321	321	321
I	LIVESTOCK	NECHES	1,765	1,765	1,765	1,765	1,765	1,765

I	JACKSONVILLE	NECHES	3,502	3,637	3,741	3,827	3,948	4,111
I	ALTO	NECHES	233	248	261	273	286	304
<b>Sum of Projected Water Demands (acre-feet/year)</b>			<b>13,896</b>	<b>14,900</b>	<b>14,030</b>	<b>14,653</b>	<b>15,474</b>	<b>16,594</b>

**HENDERSON COUNTY**

*100.00 % (multiplier)*

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
C	EAST CEDAR CREEK FWSD	TRINITY	1,698	1,866	2,215	2,382	2,580	2,777
C	MABANK	TRINITY	95	109	123	140	159	184
C	MALAKOFF	TRINITY	348	361	372	383	404	434
C	SEVEN POINTS	TRINITY	188	222	254	288	330	385
C	TOOL	TRINITY	405	452	500	548	610	695
C	TRINIDAD	TRINITY	183	183	183	181	184	190
C	PAYNE SPRINGS	TRINITY	165	174	182	191	203	220
C	GUN BARREL CITY	TRINITY	1,408	1,629	1,840	2,071	2,352	2,720
C	EUSTACE	TRINITY	146	143	140	138	137	137
C	ATHENS	TRINITY	2,693	3,169	3,739	4,392	5,248	6,306
C	VIRGINIA HILL WSC	TRINITY	393	384	375	366	361	364
C	WEST CEDAR CREEK MUD	TRINITY	1,010	1,423	1,735	1,994	2,329	2,753
C	LOG CABIN	TRINITY	96	128	144	142	141	141
C	BETHEL-ASH WSC	TRINITY	163	194	222	253	290	342
C	LIVESTOCK	TRINITY	854	854	854	854	854	854
C	MINING	TRINITY	265	302	327	352	378	399
C	STEAM ELECTRIC POWER	TRINITY	460	427	7,000	8,000	9,000	10,000
C	MANUFACTURING	TRINITY	110	118	133	151	172	195
C	COUNTY-OTHER	TRINITY	262	257	253	248	246	246
I	MANUFACTURING	NECHES	12	14	16	18	20	22
I	MURCHISON	NECHES	139	148	157	166	179	196
I	MINING	NECHES	14	14	14	14	14	14
I	LIVESTOCK	NECHES	2,594	2,594	2,594	2,594	2,594	2,594
I	R P M WSC	NECHES	69	75	80	86	95	106
I	ATHENS	NECHES	77	107	136	163	199	246
I	IRRIGATION	NECHES	10	10	10	10	10	10
I	COUNTY-OTHER	NECHES	2,761	2,901	3,032	3,162	3,365	3,645
I	BERRYVILLE	NECHES	126	134	142	149	162	179
I	BETHEL-ASH WSC	NECHES	250	303	351	404	468	556
I	BRUSHY CREEK WSC	NECHES	72	79	86	91	100	114
I	BROWNSBORO	NECHES	158	182	206	232	263	304
I	CHANDLER	NECHES	409	453	494	538	596	674
<b>Sum of Projected Water Demands (acre-feet/year)</b>			<b>17,633</b>	<b>19,409</b>	<b>27,909</b>	<b>30,701</b>	<b>34,043</b>	<b>38,002</b>

**A.3 PROJECTED SURFACE WATER SUPPLIES**

**Anderson County (in Acre-feet)** 100.00 % (multiplier)

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
I	CONSOLIDATED WSC	NECHES	HOUSTON COUNTY LAKE/RESERVOIR	23	24	24	23	24	24
I	CONSOLIDATED WSC	TRINITY	HOUSTON COUNTY LAKE/RESERVOIR	79	78	78	79	78	78
I	IRRIGATION	NECHES	NECHES RIVER COMBINED RUN-OF- RIVER IRRIGATION	188	188	188	188	188	188
I	IRRIGATION	TRINITY	TRINITY COMBINED RUN-OF-RIVER IRRIGATION	1,013	1,013	1,013	1,013	1,013	1,013
I	LIVESTOCK	NECHES	LIVESTOCK LOCAL SUPPLY	572	572	572	572	572	572
I	LIVESTOCK	TRINITY	LIVESTOCK LOCAL SUPPLY	654	654	654	654	654	654
I	PALESTINE	NECHES	PALESTINE LAKE/RESERVOIR	2,278	2,278	2,278	2,278	2,278	2,278
I	PALESTINE	TRINITY	PALESTINE LAKE/RESERVOIR	2,053	2,053	2,053	2,053	2,053	2,053
<b>Sum of Projected Surface Water Supplies (acre-feet/year)</b>				<b>6,860</b>	<b>6,860</b>	<b>6,860</b>	<b>6,860</b>	<b>6,860</b>	<b>6,860</b>

**Cherokee County (in Acre-feet)** 100.00 % (multiplier)

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
I	COUNTY-OTHER	NECHES	JACKSONVILLE LAKE/RESERVOIR	218	180	134	78	54	41
I	CRAFT-TURNEY WSC	NECHES	JACKSONVILLE LAKE/RESERVOIR	497	559	643	752	790	811
I	IRRIGATION	NECHES	NECHES RIVER COMBINED RUN-OF- RIVER IRRIGATION	182	182	182	182	182	182
I	IRRIGATION	NECHES	PALESTINE LAKE/RESERVOIR	296	293	290	287	285	282
I	JACKSONVILLE	NECHES	JACKSONVILLE LAKE/RESERVOIR	3,381	3,311	3,243	3,168	3,135	3,093
I	LIVESTOCK	NECHES	LIVESTOCK LOCAL SUPPLY	1,059	1,059	1,059	1,059	1,059	1,059
I	MANUFACTURING	NECHES	JACKSONVILLE LAKE/RESERVOIR	693	714	727	738	742	758
I	MINING	NECHES	OTHER LOCAL SUPPLY	2	2	2	2	2	2
I	NORTH CHEROKEE WSC	NECHES	JACKSONVILLE LAKE/RESERVOIR	374	400	418	430	445	463
I	RUSK	NECHES	RUSK CITY LAKE/RESERVOIR	64	63	63	62	61	60
I	STEAM ELECTRIC POWER	NECHES	STRIKER LAKE/RESERVOIR	2,245	1,790	2,093	2,462	2,912	3,460
<b>Sum of Projected Surface Water Supplies (acre-feet/year)</b>				<b>9,011</b>	<b>8,553</b>	<b>8,854</b>	<b>9,220</b>	<b>9,667</b>	<b>10,211</b>

**Henderson County (in Acre-feet)**

100.00 % (multiplier)

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
C	ATHENS	TRINITY	ATHENS	2,027	977	1,165	1,333	1,507	1,670
			LAKE/RESERVOIR						
C	COUNTY-OTHER	TRINITY	TRINITY RIVER RUN- OF-RIVER MUNICIPAL	0	0	0	0	0	0
C	COUNTY-OTHER	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	78	71	59	50	44	38
C	EAST CEDAR CREEK FWSD	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	1,637	1,713	1,728	1,608	1,525	1,431
C	GUN BARREL	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	1,397	897	861	839	834	841
C	LIVESTOCK	TRINITY	LIVESTOCK LOCAL SUPPLY	341	341	341	341	341	341
C	MABANK	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	94	100	96	94	94	95
C	MALAKOFF	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	171	165	145	129	119	112
C	MANUFACTURING	TRINITY	ATHENS LAKE/RESERVOIR	100	61	61	62	62	61
C	MINING	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	79	84	76	72	67	62
C	PAYNE SPRINGS	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0
C	SEVEN POINTS	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	186	204	198	194	195	198
C	STEAM ELECTRIC POWER	TRINITY	FOREST GROVE LAKE/RESERVOIR	0	0	0	0	0	0
C	STEAM ELECTRIC	TRINITY	TRINIDAD	3,050	3,050	3,050	3,050	3,050	3,050
C	STEAM ELECTRIC POWER	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0
C	TOOL	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	401	415	390	370	360	358
C	TRINIDAD	TRINITY	TRINIDAD CITY LAKE/RESERVOIR	450	450	450	450	450	450

C	WEST CEDAR CREEK MUD	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	988	937	892	854	821	795
I	ATHENS	NECHES	ATHENS LAKE/RESERVOIR	62	33	42	50	57	65
I	COUNTY-OTHER	NECHES	PALESTINE LAKE/RESERVOIR	99	98	97	96	95	94
I	IRRIGATION	NECHES	ATHENS LAKE/RESERVOIR	171	94	86	79	71	64
I	LIVESTOCK	NECHES	ATHENS LAKE/RESERVOIR	380	1,735	1,546	1,376	1,203	1,040
I	LIVESTOCK	NECHES	LIVESTOCK LOCAL SUPPLY	248	248	248	248	248	248
<b>Sum of Projected Surface Water Supplies (acre-feet/year)</b>				<b>11,959</b>	<b>11,673</b>	<b>11,531</b>	<b>11,295</b>	<b>11,143</b>	<b>11,013</b>



**A.4 THE DESIRED FUTURE CONDITIONS****DRAWDOWN FOR USE AS DESIRED FUTURE CONDITIONS (2000 TO 2070, IN FEET) [TABLE 5 FROM GMA 11 TECHNICAL MEMORANDUM 16-02 (DRAFT 2), DATED MARCH 25, 2016].**

County	Sparta	Queen City	Carrizo-Wilcox
Anderson	NRS	9	90
Angelina	16	NRS	48
Bowie	NP	NP	5
Camp	NP	NRS	33
Cass	NP	10	68
Cherokee	NRS	14	99
Franklin	NP	NP	14
Gregg	NP	NRS	58
Harrison	NP	1	18
Henderson	NP	5	50
Hopkins	NP	NP	3
Houston	3	6	80
Marion	NP	24	45
Morris	NP	NRS	46
Nacogdoches	5	4	29
Panola	NP	NP	3
Rains	NP	NP	1
Rusk	NP	NRS	23
Sabine	1	NP	9
San Augustine	2	NP	7
Shelby	NP	NP	1
Smith	NP	17	119
Titus	NP	NRS	11
Trinity	9	NRS	51
Upshur	NP	9	77
Van Zandt	NP	NRS	21
Wood	NP	5	89
Grand Total	4	10	56

Notes: NP = Not present

NRS = Not relevant due to size (less than 200 square miles)

Yellow Cells represent average drawdown calculations that assume negative drawdown is zero (model artifact and model limitation)

Green Cell represents the recommended DFC for Panola County as described in report

## A.5 PROJECTED WATER NEEDS WITHIN THE DISTRICT

### ANDERSON COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
I	BRUSHY CREEK WSC	NECHES	55	53	51	52	50	46
I	BRUSHY CREEK WSC	TRINITY	47	45	43	44	42	39
I	CONSOLIDATED WSC	NECHES	9	9	9	9	9	8
I	CONSOLIDATED WSC	TRINITY	32	30	30	32	29	27
I	COUNTY-OTHER	NECHES	59	28	9	-10	-31	-53
I	COUNTY-OTHER	TRINITY	577	395	285	173	51	-79
I	ELKHART	TRINITY	251	245	243	240	236	232
I	FOUR PINE WSC	TRINITY	266	257	253	248	243	235
I	FRANKSTON	NECHES	34	11	-6	-24	-40	-54
I	IRRIGATION	NECHES	216	216	216	216	216	216
I	IRRIGATION	TRINITY	1,218	1,218	1,218	1,218	1,218	1,218
I	LIVESTOCK	NECHES	71	71	71	71	71	71
I	LIVESTOCK	TRINITY	350	350	350	350	350	350
I	MINING	NECHES	43	3	-20	-43	-65	-87
I	MINING	TRINITY	-18	-22	-25	-27	-30	-32
I	PALESTINE	NECHES	323	260	216	172	122	68
I	PALESTINE	TRINITY	291	234	195	155	110	61
I	STEAM ELECTRIC POWER	NECHES	0	-11,306	-13,218	-15,549	-18,390	-21,853
I	WALSTON SPRINGS WSC	NECHES	406	395	392	389	381	369
<b>Sum of Projected Water Supply Needs (acre-feet/year)</b>			<b>-18</b>	<b>-11,328</b>	<b>-13,269</b>	<b>-15,653</b>	<b>-18,556</b>	<b>-2,158</b>

### CHEROKEE COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
I	ALTO	NECHES	316	301	288	276	263	245
I	ALTO RURAL WSC	NECHES	363	352	347	345	332	309
I	BULLARD	NECHES	0	0	0	0	0	0
I	COUNTY-OTHER	NECHES	972	1,046	1,173	1,356	1,438	1,479
I	CRAFT-TURNEY WSC	NECHES	195	185	177	166	134	81
I	IRRIGATION	NECHES	262	259	256	253	251	248
I	JACKSONVILLE	NECHES	1,329	1,094	892	699	531	308
I	LIVESTOCK	NECHES	612	612	612	612	612	612
I	MANUFACTURING	NECHES	272	236	200	163	126	76
I	MINING	NECHES	-490	-1,494	4	2	0	-2
I	NEW SUMMERFIELD	NECHES	54	4	-40	-76	-117	-165
I	NORTH CHEROKEE WSC	NECHES	147	132	115	95	76	46
I	RUSK	NECHES	185	96	27	-42	-116	-212
I	RUSK RURAL WSC	NECHES	179	165	156	149	136	114
I	SOUTHERN UTILITIES COMPANY	NECHES	153	145	147	152	155	150
I	STEAM ELECTRIC POWER	NECHES	0	0	0	0	0	0
I	TROUP	NECHES	2	2	1	1	0	0
I	WELLS	NECHES	237	238	240	242	244	243
<b>Sum of Projected Water Supply Needs (acre-feet/year)</b>			<b>-490</b>	<b>-1,494</b>	<b>-40</b>	<b>-118</b>	<b>-233</b>	<b>379</b>

## HENDERSON COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
C	ATHENS	TRINITY	0	-1,529	-1,913	-2,399	-3,081	-3,977
C	BETHEL-ASH WSC	TRINITY	317	286	258	227	190	138
C	COUNTY-OTHER	TRINITY	147	145	137	133	129	123
C	EAST CEDAR CREEK FWSD	TRINITY	-61	-153	-487	-774	-1,055	-1,346
C	EUSTACE	TRINITY	6	9	12	14	15	15
C	GUN BARREL CITY	TRINITY	-11	-732	-979	-1,232	-1,518	-1,879
C	LIVESTOCK	TRINITY	174	174	174	174	174	174
C	LOG CABIN	TRINITY	179	147	131	133	134	134
C	MABANK	TRINITY	-1	-9	-27	-46	-65	-89
C	MALAKOFF	TRINITY	233	214	183	156	125	88
C	MANUFACTURING	TRINITY	398	351	336	319	298	274
C	MINING	TRINITY	253	221	188	159	128	102
C	PAYNE SPRINGS	TRINITY	-69	-78	-86	-95	-107	-124
C	SEVEN POINTS	TRINITY	-2	-18	-56	-94	-135	-187
C	STEAM ELECTRIC POWER	TRINITY	2,590	2,623	-3,950	-4,950	-5,950	-6,950
C	TOOL	TRINITY	-4	-37	-110	-178	-250	-337
C	TRINIDAD	TRINITY	267	267	267	269	266	260
C	VIRGINIA HILL WSC	TRINITY	50	59	68	77	82	79
C	WEST CEDAR CREEK MUD	TRINITY	-22	-486	-843	-1,140	-1,508	-1,958
I	ATHENS	NECHES	4	-52	-70	-88	-117	-155
I	BERRYVILLE	NECHES	53	45	37	30	17	0
I	BETHEL-ASH WSC	NECHES	400	347	299	246	182	94
I	BROWNSBORO	NECHES	142	118	94	68	37	-4
I	BRUSHY CREEK WSC	NECHES	137	130	123	118	109	95
I	CHANDLER	NECHES	330	286	245	201	143	65
I	COUNTY-OTHER	NECHES	-75	-216	-348	-479	-683	-964
I	IRRIGATION	NECHES	161	84	76	69	61	54
I	LIVESTOCK	NECHES	1,488	-29	-218	-388	-561	-724
I	MANUFACTURING	NECHES	0	0	0	0	0	0
I	MINING	NECHES	13	13	13	13	13	13
I	MURCHISON	NECHES	112	103	94	85	72	55
I	R P M WSC	NECHES	53	47	42	36	27	16
<b>Sum of Projected Water Supply Needs (acre-feet/year)</b>			<b>-245</b>	<b>-3,339</b>	<b>-9,087</b>	<b>-11,863</b>	<b>-15,030</b>	<b>-8,694</b>

## **A.6 PROJECTED WATER MANAGEMENT STRATEGIES**

### **ANDERSON COUNTY**

WUG, Basin (RWPG)

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
<b>COUNTY-OTHER, NECHES (1)</b>							
OVERDRAFT CARRIZO WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER [ANDERSON]	0	0	0	100	100	100
<b>COUNTY-OTHER, TRINITY (1)</b>							
NEW WELLS - QUEEN CITY AQUIFER	QUEEN CITY AQUIFER [ANDERSON]	0	0	0	0	0	100
<b>FRANKSTON, NECHES (1)</b>							
MUNICIPAL CONSERVATION	CONSERVATION [ANDERSON]	0	0	6	7	8	9
NEW WELLS - CARRIZO WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER [ANDERSON]	0	0	121	121	121	121
<b>MINING, NECHES (1)</b>							
NEW WELLS - CARRIZO WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER [ANDERSON]	0	86	86	86	86	87
<b>MINING, TRINITY (1)</b>							
NEW WELLS - CARRIZO WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER [ANDERSON]	18	34	34	34	34	33
<b>STEAM ELECTRIC POWER, NECHES (1)</b>							
PURCHASE WATER FROM PROVIDER (2)	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	21,853	21,853	21,853	21,853	21,853
<b>Sum of Projected Water Management Strategies (acre-feet/year)</b>		<b>18</b>	<b>21,973</b>	<b>22,100</b>	<b>22,201</b>	<b>22,202</b>	<b>22,303</b>

### **CHEROKEE COUNTY**

WUG, Basin (RWPG)

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
<b>JACKSONVILLE, NECHES (1)</b>							
INFRASTRUCTURE IMPROVEMENTS	JACKSONVILLE LAKE/RESERVOIR [RESERVOIR]	1,000	1,000	1,000	1,000	1,000	1,000
PURCHASE WATER FROM PROVIDER (3)	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	1,700	1,700	1,700	1,700	1,700

**MINING, NECHES (I)**

PURCHASE WATER FROM PROVIDER (2)	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	500	1,500	0	0	0	0
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**NEW SUMMERFIELD, NECHES (I)**

MUNICIPAL CONSERVATION	CONSERVATION [CHEROKEE]	0	10	18	21	23	26
PURCHASE WATER FROM PROVIDER (1)	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	1,000	1,000	1,000	1,000	1,000

**RUSK, NECHES (I)**

MUNICIPAL CONSERVATION	CONSERVATION [CHEROKEE]	0	0	0	51	66	76
PURCHASE WATER FROM PROVIDER (2)	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	3,000	3,000	3,000	3,000	3,000

**Sum of Projected Water Management Strategies (acre-feet/year)**      **1,500**      **8,210**      **6,718**      **6,772**      **6,789**      **6,802**

**HENDERSON COUNTY****WUG, Basin (RWPG)**

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
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**ATHENS, TRINITY (C)**

FOREST GROVE RESERVOIR PROJECT	FOREST GROVE LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [HENDERSON]	21	170	290	383	505	662
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [HENDERSON]	25	39	55	69	84	99
OVERDRAFT CARRIZO WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER [HENDERSON]	0	803	801	801	800	799
PURCHASE FROM WATER PROVIDER (1)	FOREST GROVE LAKE/RESERVOIR [RESERVOIR]	0	0	0	155	933	1,894
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [HENDERSON]	0	621	829	1,013	786	554
SUPPLEMENTAL WELLS	CARRIZO-WILCOX AQUIFER [HENDERSON]	0	0	0	0	0	0

**BETHEL-ASH WSC, TRINITY (C)**

MUNICIPAL CONSERVATION-BASIC	CONSERVATION [HENDERSON]	3	11	17	21	25	30
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MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [HENDERSON]	1	1	2	2	2	2
SUPPLEMENTAL WELLS	CARRIZO-WILCOX AQUIFER [HENDERSON]	0	0	0	0	0	0

**COUNTY-OTHER, TRINITY (C)**

MUNICIPAL CONSERVATION-BASIC	CONSERVATION [HENDERSON]	2	7	9	10	11	12
PURCHASE FROM WATER PROVIDER (1)	TOLEDO BEND LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	523	573
PURCHASE FROM WATER PROVIDER (1)	TRWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	21	0	0	0	0	0
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [HENDERSON]	0	1,325	1,990	2,017	2,439	2,685
SUPPLEMENTAL WELLS	CARRIZO-WILCOX AQUIFER [HENDERSON]	0	0	0	0	0	0
TRWD THIRD PIPELINE AND REUSE	INDIRECT REUSE [HENDERSON]	0	1,325	1,990	2,017	2,439	2,685

**EAST CEDAR CREEK FWSD, TRINITY (C)**

MUNICIPAL CONSERVATION-BASIC	CONSERVATION [HENDERSON]	49	103	156	190	227	268
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [HENDERSON]	12	17	20	21	23	24
PURCHASE FROM WATER PROVIDER (1)	TOLEDO BEND LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	392	513
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [HENDERSON]	0	33	312	563	414	541
WATER TREATMENT PLANT - EXPANSION	RICHLAND CHAMBERS LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	0	0	0	0	0

**EUSTACE, TRINITY (C)**

MUNICIPAL CONSERVATION-BASIC	CONSERVATION [HENDERSON]	2	5	7	7	8	8
SUPPLEMENTAL WELLS	CARRIZO-WILCOX AQUIFER [HENDERSON]	0	0	0	0	0	0

**GUN BARREL CITY, TRINITY (C)**

MUNICIPAL CONSERVATION-BASIC	CONSERVATION [HENDERSON]	11	72	105	136	174	224
PURCHASE FROM WATER PROVIDER (1)	TOLEDO BEND LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	196	276
PURCHASE FROM WATER PROVIDER (1)	TRWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	599	574	559	556	561

PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [NAVARRO]	0	62	138	268	207	291
PURCHASE FROM WATER PROVIDER (3)	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	162	270	385	528
WATER TREATMENT PLANT - NEW	TRWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	0
<b>LIVESTOCK, TRINITY (C)</b>							
SUPPLEMENTAL WELLS	CARRIZO-WILCOX AQUIFER [HENDERSON]	0	0	0	0	0	0
<b>LOG CABIN, TRINITY (C)</b>							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [HENDERSON]	1	6	8	9	9	10
SUPPLEMENTAL WELLS	CARRIZO-WILCOX AQUIFER [HENDERSON]	0	0	0	0	0	0
<b>MABANK, TRINITY (C)</b>							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [HENDERSON]	1	9	23	28	32	38
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [HENDERSON]	0	0	0	0	1	1
PURCHASE FROM WATER PROVIDER (1)	TOLEDO BEND LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	16	25
PURCHASE FROM WATER PROVIDER (1)	TRWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	0
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [HENDERSON]	0	0	4	18	17	26
<b>MALAKOFF, TRINITY (C)</b>							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [HENDERSON]	3	11	15	17	20	22
PURCHASE FROM WATER PROVIDER (1)	TOLEDO BEND LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	30	40
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [HENDERSON]	0	4	26	45	32	43
SUPPLEMENTAL WELLS	CARRIZO-WILCOX AQUIFER [HENDERSON]	0	0	0	0	0	0
<b>MANUFACTURING, TRINITY (C)</b>							
MANUFACTURING CONSERVATION	CONSERVATION [HENDERSON]	0	0	3	4	5	5
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [HENDERSON]	0	45	59	74	93	119
SUPPLEMENTAL WELLS	CARRIZO-WILCOX AQUIFER [HENDERSON]	0	0	0	0	0	0

**MINING, TRINITY (C)**

PURCHASE FROM WATER PROVIDER (1)	TOLEDO BEND LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	22	28
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [HENDERSON]	0	7	22	34	24	30
SUPPLEMENTAL WELLS	CARRIZO-WILCOX AQUIFER [HENDERSON]	0	0	0	0	0	0

**PAYNE SPRINGS, TRINITY (C)**

MUNICIPAL CONSERVATION-BASIC	CONSERVATION [HENDERSON]	5	9	11	14	16	20
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [HENDERSON]	2	3	3	3	3	4
NEW WELLS - CARRIZO WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER [HENDERSON]	154	154	154	154	154	154
SUPPLEMENTAL WELLS	CARRIZO-WILCOX AQUIFER [HENDERSON]	0	0	0	0	0	0

**SEVEN POINTS, TRINITY (C)**

MUNICIPAL CONSERVATION-BASIC	CONSERVATION [HENDERSON]	2	8	12	15	18	23
PURCHASE FROM WATER PROVIDER (1)	TOLEDO BEND LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	54	58
PURCHASE FROM WATER PROVIDER (1)	TRWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	108	0	0	0	0	0
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [HENDERSON]	0	150	212	213	251	273

**STEAM ELECTRIC POWER, TRINITY (C)**

PURCHASE FROM WATER PROVIDER (1)	TOLEDO BEND LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	1,184	1,639
PURCHASE FROM WATER PROVIDER (1)	TRWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	3,081	3,341	3,516	3,581
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [HENDERSON]	0	0	869	1,609	1,250	1,730

**TOOL, TRINITY (C)**

MUNICIPAL CONSERVATION-BASIC	CONSERVATION [HENDERSON]	4	15	21	26	31	38
PURCHASE FROM WATER PROVIDER (1)	TOLEDO BEND LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	108	114
PURCHASE FROM WATER PROVIDER (1)	TRWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	251	0	0	0	0	0



PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [HENDERSON]	0	332	452	437	504	534
<b>TRINIDAD, TRINITY (C)</b>							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [HENDERSON]	2	6	8	9	10	11
<b>VIRGINIA HILL WSC, TRINITY (C)</b>							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [HENDERSON]	4	14	20	21	22	24
SUPPLEMENTAL WELLS	CARRIZO-WILCOX AQUIFER [HENDERSON]	0	0	0	0	0	0
<b>WEST CEDAR CREEK MUD, TRINITY (C)</b>							
MUNICIPAL CONSERVATION-BASIC	CONSERVATION [HENDERSON]	15	62	93	116	143	178
MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION [HENDERSON]	8	11	13	15	18	21
PURCHASE FROM WATER PROVIDER (1)	TOLEDO BEND LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	385	553
PURCHASE FROM WATER PROVIDER (1)	TRWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	370	462	492	555	623
PURCHASE FROM WATER PROVIDER (2)	INDIRECT REUSE [HENDERSON]	0	44	275	517	407	583
<b>ATHENS, NECHES (I)</b>							
INDIRECT REUSE	INDIRECT REUSE [HENDERSON]	0	19	29	42	65	94
MUNICIPAL CONSERVATION	CONSERVATION [HENDERSON]	1	6	12	17	22	30
NEW WELLS - CARRIZO WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER [HENDERSON]	0	27	29	29	30	31
<b>BROWNSBORO, NECHES (I)</b>							
OVERDRAFT CARRIZO WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER [HENDERSON]	0	0	0	0	0	40
<b>COUNTY-OTHER, NECHES (I)</b>							
MUNICIPAL CONSERVATION	CONSERVATION [HENDERSON]	31	57	74	92	108	129
NEW WELLS - CARRIZO WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER [HENDERSON]	50	50	50	50	50	50
NEW WELLS - QUEEN CITY AQUIFER	QUEEN CITY AQUIFER [HENDERSON]	50	50	50	100	200	500
OVERDRAFT CARRIZO WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER [HENDERSON]	100	0	0	0	0	0
PURCHASE WATER FROM PROVIDER (2)	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	150	200	300	400	500
<b>IRRIGATION, NECHES (I)</b>							
INDIRECT REUSE	INDIRECT REUSE [HENDERSON]	0	70	83	95	108	121
<b>LIVESTOCK, NECHES (I)</b>							
INDIRECT REUSE	INDIRECT REUSE [HENDERSON]	0	1,288	1,477	1,647	1,820	1,983
<b>Sum of Projected Water Management Strategies (acre-feet/year)</b>		<b>939</b>	<b>8,170</b>	<b>15,307</b>	<b>18,085</b>	<b>22,862</b>	<b>27,255</b>

## A.7 ANNUAL WATER BUDGET VALUES

Estimated annual amount of recharge from precipitation to the district	Trinity Aquifer	0
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Trinity Aquifer	0
Estimated annual volume of flow into the district within each aquifer in the district	Trinity Aquifer	209
Estimated annual volume of flow out of the district within each aquifer in the district	Trinity Aquifer	216
Estimated net annual volume of flow between each aquifer in the district	Between the Trinity Aquifer and the younger overlying units	0
	Between the Trinity Aquifer and the older underlying units	0
Estimated annual amount of recharge from precipitation to the district	Nacatoch Aquifer	56
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Nacatoch Aquifer	357
Estimated annual volume of flow into the district within each aquifer in the district	Nacatoch Aquifer	1,092
Estimated annual volume of flow out of the district within each aquifer in the district	Nacatoch Aquifer	260
Estimated net annual volume of flow between each aquifer in the district	From the Nacatoch Aquifer into younger overlying units	223
	Between the Nacatoch Aquifer the underlying confining unit	0
Estimated annual amount of recharge from precipitation to the district	Carrizo-Wilcox Aquifer	18,770
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Carrizo-Wilcox Aquifer	10,374
Estimated annual volume of flow into the district within each aquifer in the district	Carrizo-Wilcox Aquifer	23,381
Estimated annual volume of flow out of the district within each aquifer in the district	Carrizo-Wilcox Aquifer	17,297
Estimated net annual volume of flow between each aquifer in the district	From the overlying Reklaw confining unit into Carrizo-Wilcox Aquifer	8,787
	Between the Carrizo-Wilcox Aquifer and the underlying confining unit	0

Estimated annual amount of recharge from precipitation to the district	Queen City Aquifer	73,209
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Queen City Aquifer	42,283
Estimated annual volume of flow into the district within each aquifer in the district	Queen City Aquifer	5,412
Estimated annual volume of flow out of the district within each aquifer in the district	Queen City Aquifer	5,035
Estimated net annual volume of flow between each aquifer in the district	From the overlying Weches confining unit into the Queen City Aquifer	7,917
	From the Queen City Aquifer into the underlying Reklaw confining unit	6,975

Estimated annual amount of recharge from precipitation to the district	Sparta Aquifer	17,031
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Sparta Aquifer	5,975
Estimated annual volume of flow into the district within each aquifer in the district	Sparta Aquifer	828
Estimated annual volume of flow out of the district within each aquifer in the district	Sparta Aquifer	2,094
Estimated net annual volume of flow between each aquifer in the district	From the Sparta Aquifer into the younger overlying units	195
	From the Sparta Aquifer into the underlying Weches confining unit	3,129

**A.8 MODELED AVAILABLE GROUNDWATER BASED ON THE DFCs OF GMA-11**

**MODELED AVAILABLE GROUNDWATER FOR THE CARRIZO-WILCOX AQUIFER IN GROUNDWATER MANAGEMENT AREA 11 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070. VALUES ARE IN ACRE-FEET PER YEAR.**

Groundwater Conservation District	County	Aquifer	2010	2020	2030	2040	2050	2060	2070
Neches & Trinity Valleys GCD	Anderson	Carrizo-Wilcox	29,088	29,088	29,088	29,088	29,088	29,088	29,088
Neches & Trinity Valleys GCD	Cherokee	Carrizo-Wilcox	20,933	20,933	20,933	20,933	20,933	20,933	20,470
Neches & Trinity Valleys GCD	Henderson	Carrizo-Wilcox	13,866	13,866	13,866	13,866	13,768	13,614	13,585
Neches & Trinity Valleys GCD Total		Carrizo-Wilcox	63,886	63,886	63,886	63,886	63,789	63,634	63,143
Panola County GCD	Panola	Carrizo-Wilcox	8,376	8,376	8,218	8,218	8,218	8,068	8,068
Pineywoods GCD	Angelina	Carrizo-Wilcox	27,591	27,591	27,591	27,591	27,591	27,591	27,591
Pineywoods GCD	Nacogdoches	Carrizo-Wilcox	24,181	24,181	24,181	24,181	24,181	24,181	24,181
Pineywoods GCD Total		Carrizo-Wilcox	51,773	51,773	51,773	51,773	51,773	51,773	51,773
Rusk County GCD Total	Rusk	Carrizo-Wilcox	20,847	20,837	20,837	20,837	20,818	20,818	20,818
Total (GCDs)		Carrizo-Wilcox	144,882	144,872	144,714	144,714	144,598	144,293	143,801
No District-County	Bowie	Carrizo-Wilcox	10,845	9,872	9,558	9,278	9,278	8,999	8,999
No District-County	Camp	Carrizo-Wilcox	4,050	4,050	4,050	4,050	4,050	4,050	4,050
No District-County	Cass	Carrizo-Wilcox	18,078	18,023	17,925	17,863	17,786	17,702	17,626
No District-County	Franklin	Carrizo-Wilcox	9,786	9,786	9,786	9,786	9,786	9,786	9,786
No District-County	Gregg	Carrizo-Wilcox	8,041	8,041	8,041	8,041	8,041	8,041	8,041
No District-County	Harrison	Carrizo-Wilcox	11,165	11,035	10,961	10,921	10,873	10,853	10,827
No District-County	Hopkins	Carrizo-Wilcox	6,392	6,392	6,392	6,392	6,392	6,392	6,392
No District-County	Houston	Carrizo-Wilcox	26,294	26,294	26,294	26,294	26,294	26,294	26,294
No District-County	Marion	Carrizo-Wilcox	2,729	2,726	2,726	2,726	2,726	2,726	2,726

<b>Groundwater Conservation District</b>	<b>County</b>	<b>Aquifer</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
No District-County	Morris	Carrizo-Wilcox	2,627	2,569	2,569	2,569	2,569	2,569	2,569
No District-County	Rains	Carrizo-Wilcox	1,922	1,839	1,839	1,839	1,802	1,802	1,745
No District-County	Red River	Carrizo-Wilcox	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
No District-County	Sabine	Carrizo-Wilcox	3,606	3,606	3,606	3,606	3,606	3,606	3,606
No District-County	San Augustine	Carrizo-Wilcox	1,439	1,439	1,439	1,439	1,439	1,439	1,439
No District-County	Shelby	Carrizo-Wilcox	11,210	10,894	10,441	10,305	9,723	9,287	9,100
No District-County	Smith	Carrizo-Wilcox	35,951	35,951	35,925	35,925	35,925	35,912	35,889
No District-County	Titus	Carrizo-Wilcox	10,354	10,052	9,902	9,672	9,624	9,573	9,472
No District-County	Trinity	Carrizo-Wilcox	368	368	368	368	368	368	368
No District-County	Upshur	Carrizo-Wilcox	7,132	7,132	7,132	7,132	7,132	7,132	7,132
No District-County	Van Zandt	Carrizo-Wilcox	10,330	10,330	10,330	10,157	10,098	10,098	9,971
No District-County	Wood	Carrizo-Wilcox	21,544	21,457	21,413	21,338	21,316	21,292	21,237
<b>No District-County Total</b>		<b>Carrizo-Wilcox</b>	<b>203,863</b>	<b>201,856</b>	<b>200,696</b>	<b>199,700</b>	<b>198,827</b>	<b>197,920</b>	<b>197,268</b>
<b>Total for GMA 11</b>		<b>Carrizo-Wilcox</b>	<b>348,745</b>	<b>346,728</b>	<b>345,410</b>	<b>344,414</b>	<b>343,424</b>	<b>342,213</b>	<b>341,069</b>

<sup>1</sup>A desired future condition was not specified for the Carrizo-Wilcox Aquifer in Red River County; however, other counties with fewer than 200 square miles of aquifer were noted as not relevant due to size (NRS) in the desired future condition statement. Areas which are not relevant due to size are listed with a NULL value for modeled available groundwater.

**MODELED AVAILABLE GROUNDWATER FOR THE QUEEN CITY AQUIFER IN GROUNDWATER MANAGEMENT AREA 11 SUMMARIZED BY  
GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070. VALUES  
ARE IN ACRE-FEET PER YEAR.**

<b>Groundwater Conservation District</b>	<b>County</b>	<b>Aquifer</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
Neches & Trinity Valleys GCD	Anderson	Queen City	19,101	19,101	19,101	19,101	19,101	19,101	19,101
Neches & Trinity Valleys GCD	Cherokee	Queen City	23,211	23,211	23,211	23,211	23,211	23,039	22,866
Neches & Trinity Valleys GCD	Henderson	Queen City	15,412	15,412	15,412	15,412	15,412	15,412	15,412
<b>Neches &amp; Trinity Valleys GCD Total</b>		<b>Queen City</b>	<b>57,725</b>	<b>57,725</b>	<b>57,725</b>	<b>57,725</b>	<b>57,725</b>	<b>57,552</b>	<b>57,380</b>
Pineywoods GCD	Angelina	Queen City	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
Pineywoods GCD	Nacogdoches	Queen City	2,985	2,985	2,985	2,985	2,985	2,985	2,985
<b>Pineywoods GCD Total</b>		<b>Queen City</b>	<b>2,985</b>	<b>2,985</b>	<b>2,985</b>	<b>2,985</b>	<b>2,985</b>	<b>2,985</b>	<b>2,985</b>
<b>Rusk County GCD Total</b>	<b>Rusk</b>	<b>Queen City</b>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
<b>Total (GCDs)</b>		<b>Queen City</b>	<b>60,710</b>	<b>60,710</b>	<b>60,710</b>	<b>60,710</b>	<b>60,710</b>	<b>60,537</b>	<b>60,365</b>
No District-County	Camp	Queen City	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
No District-County	Cass	Queen City	38,509	38,509	38,509	38,509	38,509	38,509	38,509
No District-County	Gregg	Queen City	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
No District-County	Harrison	Queen City	10,071	10,071	10,071	10,071	10,071	10,071	10,071
No District-County	Houston	Queen City	2,301	2,301	2,301	2,301	2,301	2,301	2,301
No District-County	Marion	Queen City	15,407	15,407	15,407	15,407	15,407	15,338	15,271
No District-County	Morris	Queen City	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
No District-County	Smith	Queen City	59,034	59,034	59,034	59,034	58,904	58,709	58,578
No District-County	Titus	Queen City	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
No District-County	Trinity	Queen City	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
No District-County	Upshur	Queen City	27,391	27,391	27,391	27,197	27,197	27,197	27,145

<b>Groundwater Conservation District</b>	<b>County</b>	<b>Aquifer</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
No District-County	Van Zandt	Queen City	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
No District-County	Wood	Queen City	10,046	10,046	10,046	10,046	10,046	10,046	10,046
<b>No District-County Total</b>		<b>Queen City</b>	<b>162,759</b>	<b>162,759</b>	<b>162,759</b>	<b>162,566</b>	<b>162,435</b>	<b>162,172</b>	<b>161,922</b>
<b>Total for GMA 11</b>		<b>Queen City</b>	<b>223,469</b>	<b>223,469</b>	<b>223,469</b>	<b>223,275</b>	<b>223,145</b>	<b>222,709</b>	<b>222,287</b>

<sup>1</sup>Counties with fewer than 200 square miles of aquifer were noted as not relevant due to size (NRS) in the desired future condition statement. Areas which are not relevant due to size are listed with a NULL value for modeled available groundwater. For additional information in pumping in the model run see Table 6 from Technical Memorandum 16-02 (Hutchison, 2016).

**MODELED AVAILABLE GROUNDWATER FOR THE SPARTA AQUIFER IN GROUNDWATER MANAGEMENT AREA 11 SUMMARIZED BY  
GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070.  
VALUES ARE IN ACRE-FEET PER YEAR.**

<b>Groundwater Conservation District</b>	<b>County</b>	<b>Aquifer</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
Neches & Trinity Valleys GCD	Anderson	Sparta	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
Neches & Trinity Valleys GCD	Cherokee	Sparta	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
<b>Neches &amp; Trinity Valleys GCD Total</b>		<b>Sparta</b>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
Pineywoods GCD	Angelina	Sparta	371	371	371	371	371	371	371
Pineywoods GCD	Nacogdoches	Sparta	365	365	365	365	365	365	365
<b>Pineywoods GCD Total</b>		<b>Sparta</b>	<b>737</b>	<b>737</b>	<b>737</b>	<b>737</b>	<b>737</b>	<b>737</b>	<b>737</b>
<b>Total (GCDs)</b>		<b>Sparta</b>	<b>737</b>	<b>737</b>	<b>737</b>	<b>737</b>	<b>737</b>	<b>737</b>	<b>737</b>
No District-County	Houston	Sparta	1,454	1,454	1,454	1,454	1,454	1,454	1,454
No District-County	Sabine	Sparta	197	197	197	197	197	197	197
No District-County	San Augustine	Sparta	166	166	166	166	166	166	166
No District-County	Trinity	Sparta	182	182	182	182	182	182	182
<b>No District-County Total</b>		<b>Sparta</b>	<b>1,999</b>	<b>1,999</b>	<b>1,999</b>	<b>1,999</b>	<b>1,999</b>	<b>1,999</b>	<b>1,999</b>
<b>Total for GMA 11</b>		<b>Sparta</b>	<b>2,736</b>	<b>2,736</b>	<b>2,736</b>	<b>2,736</b>	<b>2,736</b>	<b>2,736</b>	<b>2,736</b>

<sup>1</sup>Counties with fewer than 200 square miles of aquifer were noted as not relevant due to size (NRS) in the desired future condition statement. Areas which are not relevant due to size are listed with a NULL value for modeled available groundwater. For additional information in pumping in the model run see Table 6 from Technical Memorandum 16-02 (Hutchison, 2016).



**MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE CARRIZO-WILCOX AQUIFER IN GROUNDWATER MANAGEMENT AREA 11.  
RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA),  
RIVER BASIN, AND AQUIFER.**

<b>County</b>	<b>RWPA</b>	<b>River Basin</b>	<b>Aquifer</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
Anderson	I	Neches	Carrizo-Wilcox	23,335	23,335	23,335	23,335	23,335	23,335
Anderson	I	Trinity	Carrizo-Wilcox	5,753	5,753	5,753	5,753	5,753	5,753
Angelina	I	Neches	Carrizo-Wilcox	27,591	27,591	27,591	27,591	27,591	27,591
Bowie	D	Sulphur	Carrizo-Wilcox	9,872	9,558	9,278	9,278	8,999	8,999
Camp	D	Cypress	Carrizo-Wilcox	4,050	4,050	4,050	4,050	4,050	4,050
Cass	D	Cypress	Carrizo-Wilcox	15,159	15,132	15,132	15,119	15,106	15,094
Cass	D	Sulphur	Carrizo-Wilcox	2,864	2,794	2,731	2,667	2,596	2,532
Cherokee	I	Neches	Carrizo-Wilcox	20,933	20,933	20,933	20,933	20,933	20,470
Franklin	D	Cypress	Carrizo-Wilcox	7,765	7,765	7,765	7,765	7,765	7,765
Franklin	D	Sulphur	Carrizo-Wilcox	2,021	2,021	2,021	2,021	2,021	2,021
Gregg	D	Cypress	Carrizo-Wilcox	862	862	862	862	862	862
Gregg	D	Sabine	Carrizo-Wilcox	7,179	7,179	7,179	7,179	7,179	7,179
Harrison	D	Cypress	Carrizo-Wilcox	6,183	6,109	6,070	6,036	6,016	5,990
Harrison	D	Sabine	Carrizo-Wilcox	4,851	4,851	4,851	4,837	4,837	4,837
Henderson	C	Trinity	Carrizo-Wilcox	7,829	7,829	7,829	7,732	7,577	7,548
Henderson	I	Neches	Carrizo-Wilcox	6,036	6,036	6,036	6,036	6,036	6,036
Hopkins	D	Cypress	Carrizo-Wilcox	313	313	313	313	313	313
Hopkins	D	Sabine	Carrizo-Wilcox	2,842	2,842	2,842	2,842	2,842	2,842
Hopkins	D	Sulphur	Carrizo-Wilcox	3,237	3,237	3,237	3,237	3,237	3,237
Houston	I	Neches	Carrizo-Wilcox	22,488	22,488	22,488	22,488	22,488	22,488
Houston	I	Trinity	Carrizo-Wilcox	3,806	3,806	3,806	3,806	3,806	3,806
Marion	D	Cypress	Carrizo-Wilcox	2,726	2,726	2,726	2,726	2,726	2,726
Morris	D	Cypress	Carrizo-Wilcox	2,166	2,166	2,166	2,166	2,166	2,166
Morris	D	Sulphur	Carrizo-Wilcox	402	402	402	402	402	402
Nacogdoches	I	Neches	Carrizo-Wilcox	24,181	24,181	24,181	24,181	24,181	24,181
Panola	I	Cypress	Carrizo-Wilcox	6	6	6	6	6	6

County	RWPA	River Basin	Aquifer	2020	2030	2040	2050	2060	2070
Panola	I	Sabine	Carrizo-Wilcox	8,370	8,212	8,212	8,212	8,062	8,062
Rains	D	Sabine	Carrizo-Wilcox	1,839	1,839	1,839	1,802	1,802	1,745
Red River	D	Sulphur	Carrizo-Wilcox	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
Rusk	I	Neches	Carrizo-Wilcox	11,769	11,769	11,769	11,750	11,750	11,750
Rusk	I	Sabine	Carrizo-Wilcox	9,068	9,068	9,068	9,068	9,068	9,068
Sabine	I	Neches	Carrizo-Wilcox	356	356	356	356	356	356
Sabine	I	Sabine	Carrizo-Wilcox	3,249	3,249	3,249	3,249	3,249	3,249
San Augustine	I	Neches	Carrizo-Wilcox	1,149	1,149	1,149	1,149	1,149	1,149
San Augustine	I	Sabine	Carrizo-Wilcox	290	290	290	290	290	290
Shelby	I	Neches	Carrizo-Wilcox	2,577	2,288	2,151	2,018	2,018	2,018
Shelby	I	Sabine	Carrizo-Wilcox	8,317	8,154	8,154	7,705	7,269	7,081
Smith	D	Sabine	Carrizo-Wilcox	13,246	13,220	13,220	13,220	13,206	13,196
Smith	I	Neches	Carrizo-Wilcox	22,705	22,705	22,705	22,705	22,705	22,693
Titus	D	Cypress	Carrizo-Wilcox	7,215	7,064	6,834	6,786	6,735	6,634
Titus	D	Sulphur	Carrizo-Wilcox	2,838	2,838	2,838	2,838	2,838	2,838
Trinity	H	Trinity	Carrizo-Wilcox	99	99	99	99	99	99
Trinity	I	Neches	Carrizo-Wilcox	269	269	269	269	269	269
Upshur	D	Cypress	Carrizo-Wilcox	5,442	5,442	5,442	5,442	5,442	5,442
Upshur	D	Sabine	Carrizo-Wilcox	1,689	1,689	1,689	1,689	1,689	1,689
Van Zandt	D	Neches	Carrizo-Wilcox	4,317	4,317	4,317	4,317	4,317	4,317
Van Zandt	D	Sabine	Carrizo-Wilcox	4,629	4,629	4,456	4,397	4,397	4,270
Van Zandt	D	Trinity	Carrizo-Wilcox	1,384	1,384	1,384	1,384	1,384	1,384
Wood	D	Cypress	Carrizo-Wilcox	2,053	2,053	2,053	2,053	2,053	2,053
Wood	D	Sabine	Carrizo-Wilcox	19,404	19,360	19,285	19,263	19,239	19,184
<b>GMA 11 Total</b>			<b>Carrizo-Wilcox</b>	<b>346,728</b>	<b>345,410</b>	<b>344,414</b>	<b>343,424</b>	<b>342,213</b>	<b>341,069</b>

<sup>1</sup> A desired future condition was not specified for the Carrizo-Wilcox Aquifer in Red River County; however, other counties with fewer than 200 square miles of aquifer were noted as not relevant due to size (NRS) in the desired future condition statement. Areas which are not relevant due to size are listed with a NULL value for modeled available groundwater.

**MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE QUEEN CITY AQUIFER IN GROUNDWATER MANAGEMENT AREA  
11. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA),  
RIVER BASIN, AND AQUIFER.**

<b>County</b>	<b>RWPA</b>	<b>River Basin</b>	<b>Aquifer</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
Anderson	I	Neches	Queen City	11,828	11,828	11,828	11,828	11,828	11,828
Anderson	I	Trinity	Queen City	7,274	7,274	7,274	7,274	7,274	7,274
Angelina	I	Neches	Queen City	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
Camp	D	Cypress	Queen City	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
Cass	D	Cypress	Queen City	35,499	35,499	35,499	35,499	35,499	35,499
Cass	D	Sulphur	Queen City	3,010	3,010	3,010	3,010	3,010	3,010
Cherokee	I	Neches	Queen City	23,211	23,211	23,211	23,211	23,039	22,866
Gregg	D	Cypress	Queen City	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
Gregg	D	Sabine	Queen City	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
Harrison	D	Cypress	Queen City	7,762	7,762	7,762	7,762	7,762	7,762
Harrison	D	Sabine	Queen City	2,310	2,310	2,310	2,310	2,310	2,310
Henderson	C	Trinity	Queen City	3,345	3,345	3,345	3,345	3,345	3,345
Henderson	I	Neches	Queen City	12,067	12,067	12,067	12,067	12,067	12,067
Houston	I	Neches	Queen City	2,043	2,043	2,043	2,043	2,043	2,043
Houston	I	Trinity	Queen City	258	258	258	258	258	258
Marion	D	Cypress	Queen City	15,407	15,407	15,407	15,407	15,338	15,271
Morris	D	Cypress	Queen City	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
Nacogdoches	I	Neches	Queen City	2,985	2,985	2,985	2,985	2,985	2,985
Rusk	I	Neches	Queen City	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
Rusk	I	Sabine	Queen City	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
Smith	D	Sabine	Queen City	28,343	28,343	28,343	28,213	28,018	27,887
Smith	I	Neches	Queen City	30,692	30,692	30,692	30,692	30,692	30,692
Titus	D	Cypress	Queen City	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
Trinity	H	Trinity	Queen City	0	0	0	0	0	0
Trinity	I	Neches	Queen City	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>

<b>County</b>	<b>RWPA</b>	<b>River Basin</b>	<b>Aquifer</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
Upshur	D	Cypress	Queen City	19,642	19,642	19,448	19,448	19,448	19,396
Upshur	D	Sabine	Queen City	7,749	7,749	7,749	7,749	7,749	7,749
Van Zandt	D	Neches	Queen City	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
Wood	D	Cypress	Queen City	986	986	986	986	986	986
Wood	D	Sabine	Queen City	9,060	9,060	9,060	9,060	9,060	9,060
<b>GMA 11 Total</b>			<b>Queen City</b>	<b>223,469</b>	<b>223,469</b>	<b>223,276</b>	<b>223,145</b>	<b>222,709</b>	<b>222,287</b>

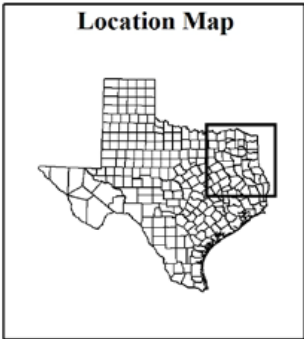
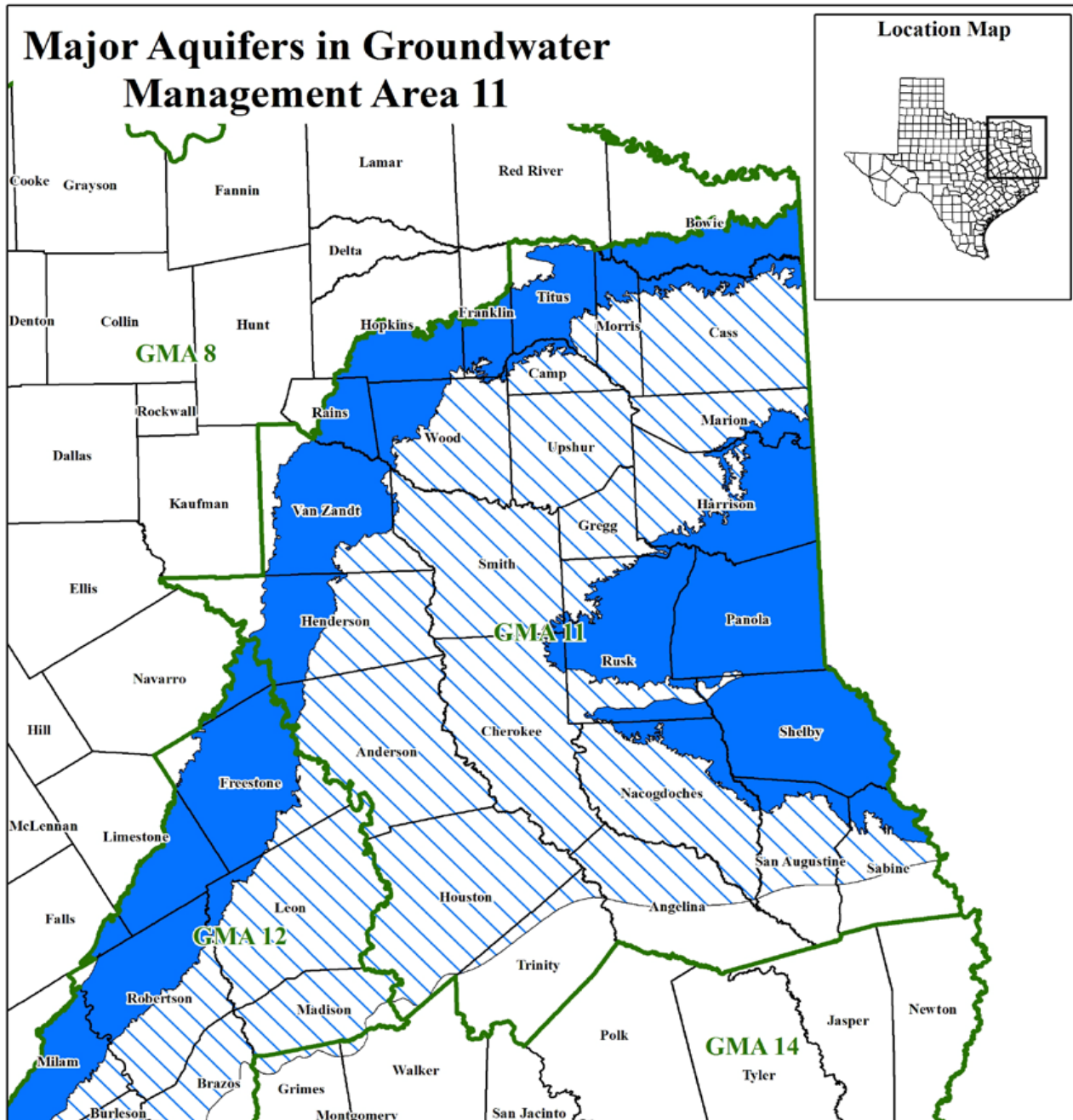
<sup>1</sup>Counties with fewer than 200 square miles of aquifer were noted as not relevant due to size (NRS) in the desired future condition statement. Areas which are not relevant due to size are listed with a NULL value for modeled available groundwater. For additional information in pumping in the model run see Table 6 from Technical Memorandum 16-02 (Hutchison, 2016).

**MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE SPARTA AQUIFER IN GROUNDWATER MANAGEMENT AREA 11.  
RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA),  
RIVER BASIN, AND AQUIFER.**

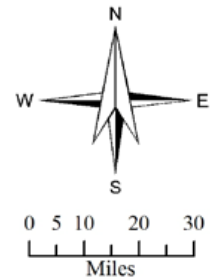
<b>County</b>	<b>RWP A</b>	<b>River Basin</b>	<b>Aquifer</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
Anderson	I	Neches	Sparta Aquifer	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
Anderson	I	Trinity	Sparta Aquifer	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
Angelina	I	Neches	Sparta Aquifer	371	371	371	371	371	371
Cherokee	I	Neches	Sparta Aquifer	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>	NULL <sup>1</sup>
Houston	I	Neches	Sparta Aquifer	477	477	477	477	477	477
Houston	I	Trinity	Sparta Aquifer	977	977	977	977	977	977
Nacogdoches	I	Neches	Sparta Aquifer	365	365	365	365	365	365
Sabine	I	Neches	Sparta Aquifer	37	37	37	37	37	37
Sabine	I	Sabine	Sparta Aquifer	160	160	160	160	160	160
San Augustine	I	Neches	Sparta Aquifer	163	163	163	163	163	163
San Augustine	I	Sabine	Sparta Aquifer	3	3	3	3	3	3
Trinity	H	Trinity	Sparta Aquifer	29	29	29	29	29	29
Trinity	I	Neches	Sparta Aquifer	154	154	154	154	154	154
<b>GMA 11 Total</b>			<b>Sparta Aquifer</b>	<b>2,736</b>	<b>2,736</b>	<b>2,736</b>	<b>2,736</b>	<b>2,736</b>	<b>2,736</b>

<sup>1</sup> Counties with fewer than 200 square miles of aquifer were noted as not relevant due to size (NRS) in the desired future condition statement. Areas which are not relevant due to size are listed with a NULL value for modeled available groundwater. For additional information in pumping in the model run see Table 6 from Technical Memorandum 16-02 (Hutchison, 2016).

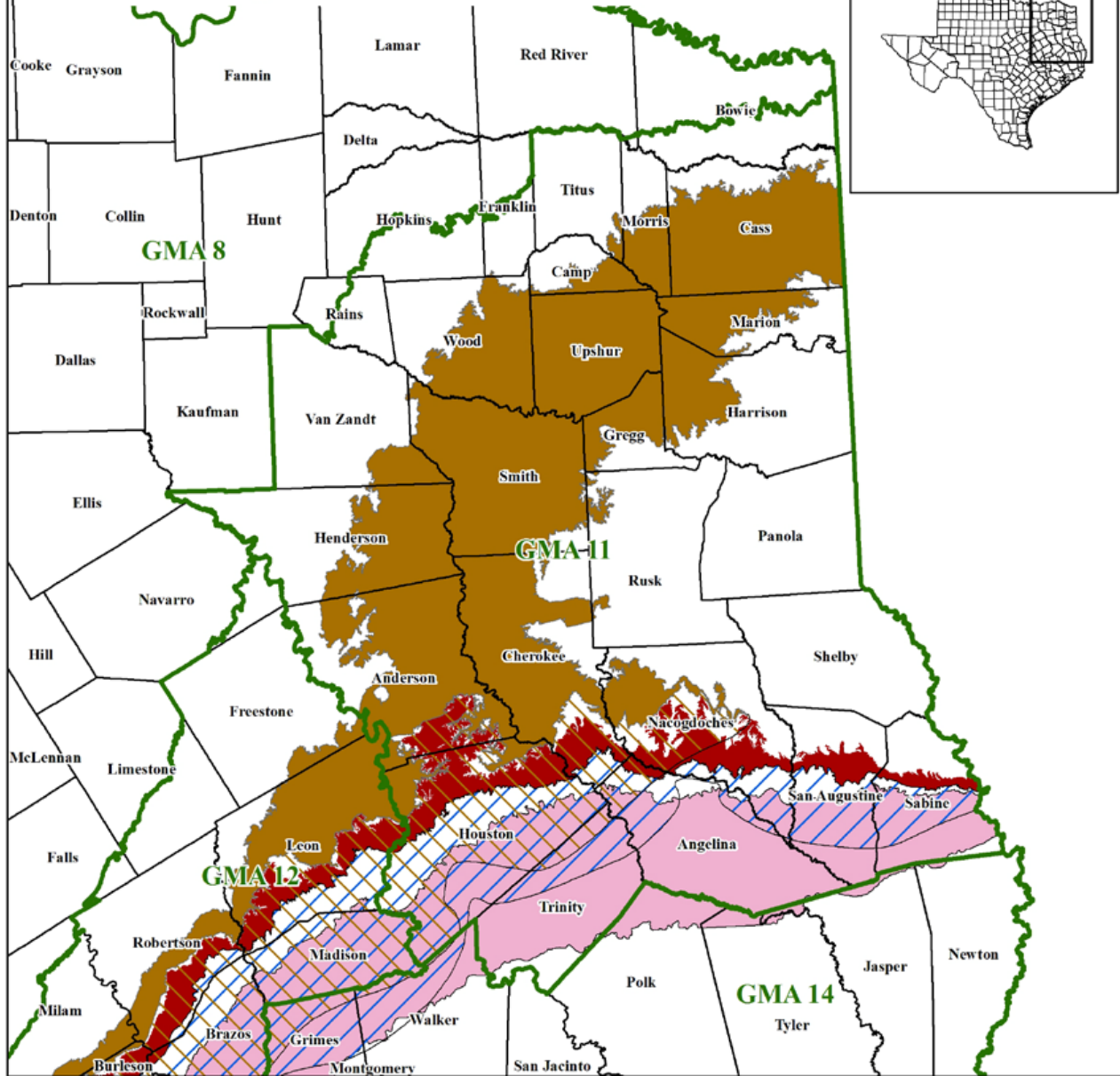
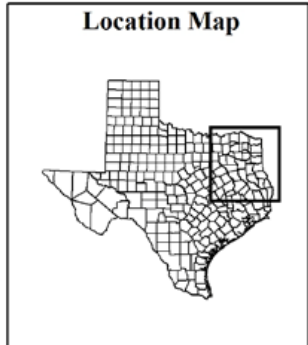
**A.9 MAPS**



- Groundwater Management Areas (GMAs)
- Texas Counties
- GMA 11 Major Aquifers**
- Carrizo-Wilcox Outcrop
- Carrizo-Wilcox Subcrop

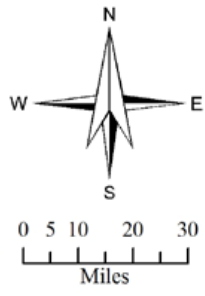


# Minor Aquifers in Groundwater Management Area 11

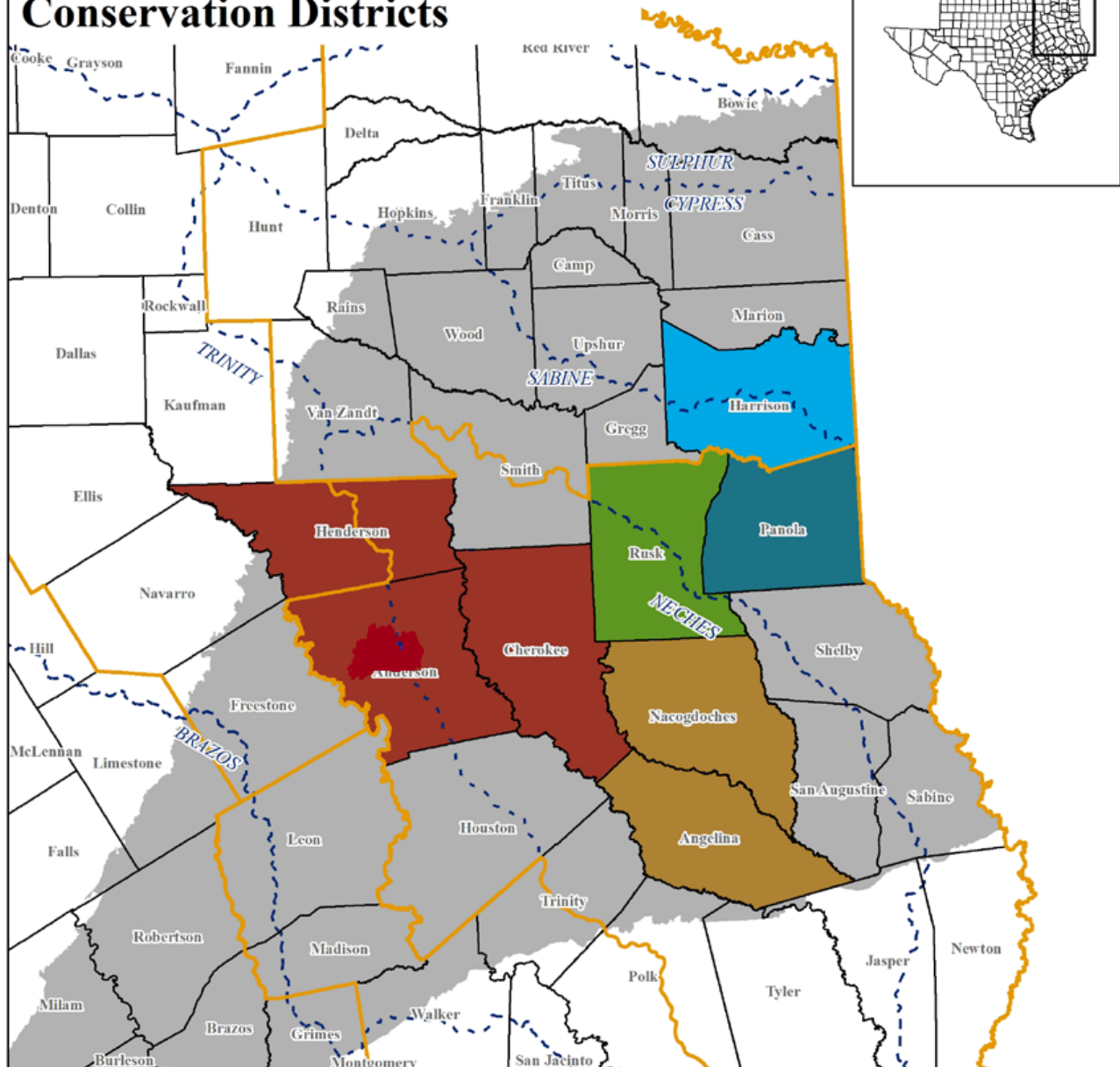
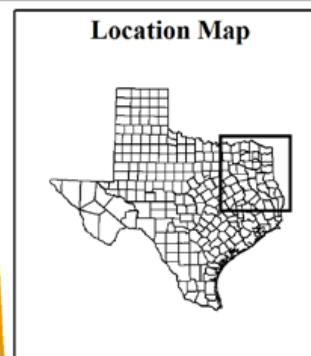





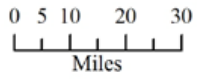







Groundwater Management Areas (GMAs)  
 Texas Counties

**Minor\_Aquifers**  
 Queen City Outcrop  
 Queen City Subcrop  
 Sparta Outcrop  
 Sparta Subcrop  
 Yegua Jackson Outcrop



# Regional Water Planning Areas, River Basins, and Groundwater Conservation Districts



	Regional Water Planning Areas (RWPAs)		Neches & Trinity Valleys GCD	 
	Texas Counties		Panola County GCD	
	River Basins		Pineywoods GCD	
	GMA 11 Aquifers		Rusk County GCD	
			Harrison County GCD (Pending)	



**A.10 SURFACE WATER and GCDs REGIONAL PLANNING NOTICES**



**NECHES & TRINITY VALLEYS  
GROUNDWATER CONSERVATION DISTRICT**

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Fax: (903) 541-4869

Email: [office@ntvgcd.org](mailto:office@ntvgcd.org)

**P.O. Box 1387                      501 Devereaux Suite 201                      Jacksonville, Texas 75766**

Gary Douglas, President  
Donald Foster, Secretary

Sam Hurley, Vice President  
Jimmy Terrell, Director  
Julianna S. Peacock, Director

Terry Morrow, Treasurer  
Tim Perry, Director

April 30, 2018

Kelly Holcomb  
Angelina & Neches River Authority  
P.O. Box 387  
Lufkin, TX 75902

The Neches and Trinity Valleys Groundwater District (NTVGCD) has updated the District's Management Plan as required by the Texas Water Code (TWC), §36.1072. The Texas Water Code, §36.1071 requires new goals and new data be added to the management plan.

NTVGCD is participating with Groundwater Management Area 11 (GMA-11) in a joint planning process as required by TWC §36.108 and all regional surface water entities. The Management Plan has been amended to include the Desired Future Conditions data that was established by GMA-11 on January 11, 2017 and data from the 2016 Regional Plan.

NTVGCD conducted a public hearing for the Desired Future Conditions on Thursday, April 20, 2017 in the district offices located at 914 S. Bolton Street in Jacksonville, Texas, 76766. Written comments were also considered if received prior to or at the public hearing.

A copy of the proposed Management Plan as revised and adopted by the Board of Directors on April 26, 2018 is enclosed for your review and comment. The Management Plan and District Rules may also be reviewed at [www.ntvgcd.org](http://www.ntvgcd.org).

If you have any questions, please contact David Alford, General Manager at 903-541-4845.



**NECHES & TRINITY VALLEYS  
GROUNDWATER CONSERVATION DISTRICT**

Phone: (903) 541-4845

Fax: (903) 541-4869

Email: [office@ntvgcd.org](mailto:office@ntvgcd.org)

**P.O. Box 1387**

**501 Devereaux Suite 201**

**Jacksonville, Texas 75766**

Gary Douglas, President  
Donald Foster, Secretary

Sam Hurley, Vice President  
Jimmy Terrell, Director  
Julianna S. Peacock, Director

Terry Morrow, Treasurer  
Tim Perry, Director

April 30, 2018

North East Texas Municipal Water District  
PO Box 955  
Hughes Springs, TX 75656

The Neches and Trinity Valleys Groundwater District (NTVGCD) has updated the District's Management Plan as required by the Texas Water Code (TWC), §36.1072. The Texas Water Code, §36.1071 requires new goals and new data be added to the management plan.

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NTVGCD conducted a public hearing for the Desired Future Conditions on Thursday, April 20, 2017 in the district offices located at 914 S. Bolton Street in Jacksonville, Texas, 76766. Written comments were also considered if received prior to or at the public hearing.

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Terry Morrow, Treasurer  
Tim Perry, Director

April 30, 2018

Panola County Groundwater Conservation District  
419 W. Sabine Street  
Carthage, TX 75633

The Neches and Trinity Valleys Groundwater District (NTVGCD) has updated the District's Management Plan as required by the Texas Water Code (TWC), §36.1072. The Texas Water Code, §36.1071 requires new goals and new data be added to the management plan.

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NTVGCD conducted a public hearing for the Desired Future Conditions on Thursday, April 20, 2017 in the district offices located in Jacksonville, Texas.

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**Jacksonville, Texas 75766**

Gary Douglas, President  
Donald Foster, Secretary

Sam Hurley, Vice President  
Jimmy Terrell, Director  
Julianna S. Peacock, Director

Terry Morrow, Treasurer  
Tim Perry, Director

April 30, 2018

Pineywoods Groundwater Conservation District  
PO Box 635187  
Nacogdoches, TX 75963-5187

The Neches and Trinity Valleys Groundwater District (NTVGCD) has updated the District's Management Plan as required by the Texas Water Code (TWC), §36.1072. The Texas Water Code, §36.1071 requires new goals and new data be added to the management plan.

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**Jacksonville, Texas 75766**

Gary Douglas, President  
Donald Foster, Secretary

Sam Hurley, Vice President  
Jimmy Terrell, Director  
Julianna S. Peacock, Director

Terry Morrow, Treasurer  
Tim Perry, Director

April 30, 2018

Jody Puckett, Chair  
Region C Water Planning Group

The Neches and Trinity Valleys Groundwater District (NTVGCD) has updated the District's Management Plan as required by the Texas Water Code (TWC), §36.1072. The Texas Water Code, §36.1071 requires new goals and new data be added to the management plan.

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Sam Hurley, Vice President  
Jimmy Terrell, Director  
Julianna S. Peacock, Director

Terry Morrow, Treasurer  
Tim Perry, Director

April 30, 2018

Richard LeTourneau, Chair  
North East Texas Region D water Planning Group  
P.O. Box 12071  
Longview, TX 75607

The Neches and Trinity Valleys Groundwater District (NTVGCD) has updated the District's Management Plan as required by the Texas Water Code (TWC), §36.1072. The Texas Water Code, §36.1071 requires new goals and new data be added to the management plan.

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Jimmy Terrell, Director  
Julianna S. Peacock, Director

Terry Morrow, Treasurer  
Tim Perry, Director

April 30, 2018

Kelly Holcomb, Chair  
East Texas Region I Water Planning Group  
Angelina and Neches River Authority  
PO Box 387  
Lufkin, TX 75902

The Neches and Trinity Valleys Groundwater District (NTVGCD) has updated the District's Management Plan as required by the Texas Water Code (TWC), §36.1072. The Texas Water Code, §36.1071 requires new goals and new data be added to the management plan.

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Jimmy Terrell, Director  
Julianna S. Peacock, Director

Terry Morrow, Treasurer  
Tim Perry, Director

April 30, 2018

Rusk County Groundwater Conservation District  
P.O. Box 97  
Henderson, TX 75652

The Neches and Trinity Valleys Groundwater District (NTVGCD) has updated the District's Management Plan as required by the Texas Water Code (TWC), §36.1072. The Texas Water Code, §36.1071 requires new goals and new data be added to the management plan.

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Julianna S. Peacock, Director

Terry Morrow, Treasurer  
Tim Perry, Director

April 30, 2018

Trinity River Authority of Texas  
PO Box 60  
Arlington, TX 76004

The Neches and Trinity Valleys Groundwater District (NTVGCD) has updated the District's Management Plan as required by the Texas Water Code (TWC), §36.1072. The Texas Water Code, §36.1071 requires new goals and new data be added to the management plan.

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Julianna S. Peacock, Director

Terry Morrow, Treasurer  
Tim Perry, Director

April 30, 2018

Upper Neches River Municipal Water Authority  
PO Box 1965  
Palestine, TX 75802

The Neches and Trinity Valleys Groundwater District (NTVGCD) has updated the District's Management Plan as required by the Texas Water Code (TWC), §36.1072. The Texas Water Code, §36.1071 requires new goals and new data be added to the management plan.

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**A.11 PUBLIC NOTICE PUBLISHED**

A2 — Thursday, April 12, 2018 — JACKSONVILLE PROGRESS

Facebook.com /  
VisitEdom.

**APRIL 26**

The Board of Directors for the Neches and Trinity Valleys Groundwater Conservation District will consider re-adopting and amending their Management Plan at the regularly scheduled meeting on April 26, 2018 at 501 Devereaux, Jacksonville, TX at 12 p.m.. The purpose of the hearing is to receive comments and/or discuss the 2018 District Management Plan prior to Board adoption and submittal to the Texas Water Development Board for approval. Copies of the proposed Management Plan will be available on at the District Office at 501 Devereaux, Suite 201, Jacksonville, TX.

## A.12 POSTED AGENDA



**NECHES & TRINITY VALLEYS  
GROUNDWATER CONSERVATION DISTRICT**  
*Protecting and Serving Anderson, Cherokee and Henderson Counties*

Phone: (903) 541-4845  
Email: [office@ntvgcd.org](mailto:office@ntvgcd.org)

Fax: (903) 541-4869  
[www.ntvgcd.org](http://www.ntvgcd.org)

**P.O. Box 1387      501 Devereaux Suite 201      Jacksonville, Texas 75766**

**NOTICE OF A WORKSHOP AND BUSINESS MEETING OF THE BOARD  
OF DIRECTORS OF THE NECHES AND TRINITY VALLEYS  
GROUNDWATER CONSERVATION DISTRICT**

Notice is hereby given that the Board of Directors of the Neches and Trinity Valleys Groundwater Conservation District will hold a scheduled meeting beginning at 12:00 PM, on Thursday April 26, 2018, at 501 Devereaux in Jacksonville, Texas, in Cherokee County, for the following purposes:<sup>1</sup>

**11:30 p.m. Budget Workshop & Lunch:**

Review agenda. No District business will be conducted.

**12:00 p.m. Meeting: Public Comments may be submitted to the District office in writing prior to the meeting**

1. Declaration of a Quorum and Invocation.
2. Public Forum for items not on the agenda.
3. Public Forum for items on the agenda.
4. Consent Items: Discuss and approve Minutes for the March 22, 2018 meeting and payment of bills for March 21, 2018 through April 24, 2018.
5. Hear and discuss operational reports from staff:
  - A. Well permits received, issued and completed
  - B. Production reports and fees
  - C. Financial statements and reports
6. Receive 2017 Audit report from Murrey Paschall & Caperton PC.
7. Discuss and possibly take action on District Rule changes/amendments.
8. Discuss and possibly take action on Management Plan amendments.
9. Discuss and possibly take action on drilling permit fees.
10. Consider and set date for next Board meeting.
11. Adjourn.

Posted by:  Date: April 23, 2018

David Alford, General Manager NTVGCD

NTVGCD is committed to compliance with the American Disabilities Act (ADA). Reasonable accommodations and equal opportunity for effective communications will be provided upon request. Please contact the District Office at (903) 541-4845 at least two days prior to the meeting if accommodation is needed.

<sup>1</sup> **CLOSED SESSION:** During the meeting, the Board reserves the right to go into closed session for any of the purposes authorized under Texas Government Code Section 551.071, for any item on the above agenda or as otherwise authorized by law.

**NOTICE: ENTRY TO THIS MEETING WITH A HANDGUN IS FORBIDDEN**

This meeting is a public meeting under Chapter 551 of the Texas Government Code. Pursuant to Section 30.06, Penal Code (trespass by license holder with a concealed handgun), a person licensed under Subchapter H, Chapter 411, Government Code (handgun licensing law) may not enter this property with a concealed handgun. Pursuant to Section 30.07, Penal Code (trespass by license holder with an openly carried handgun), a person licensed under Subchapter H, Chapter 411, Government Code (handgun licensing law) may not enter this property with a handgun that is carried openly. For purposes of this notice, "property" means the room or rooms where the open meeting of the Neches and Trinity Valleys Groundwater Conservation District is held.

**A.13 MINUTES**



**NECHES & TRINITY VALLEYS  
GROUNDWATER CONSERVATION DISTRICT**

*Protecting Anderson, Cherokee, and Henderson Counties*

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Email: office@ntvgcd.org

www.ntvgcd.org

**P.O. Box 1387**

**501 Devereux, Ste 201**

**Jacksonville, Texas**

**75766**

Bart Bauer, President  
Sam Hurley, Vice President

Donald Foster, Secretary  
B.R. Darby, Director

Jimmy Terrell, Director  
Gary Douglas, Director

Ryan Adams, Director

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**MINUTES OF BOARD OF DIRECTORS MEETING – April 26, 2018**

**DIRECTORS PRESENT**

Gary Douglas, President; Sam Hurley, Vice President; Jimmy Terrell, Director; Tim Perry, Director;

**ALSO PRESENT**

David Alford, NTVGCD General Manager; Penny Hanson, Office Manager; Kyle Caperton and Kyle Allis, Murrey, Paschall, Caperton PC

**CALL TO ORDER**

Gary Douglas, President, opened the Board meeting at 12:00 pm.

**1. DECLARATION OF A QUORUM AND INVOCATION**

A quorum was declared by Sam Hurley, Vice President. The invocation was given by Gary Douglas, President.

**2. PUBLIC FORUM (ITEMS NOT ON THE AGENDA)**

No items were discussed.

**3. PUBLIC FORUM (ITEMS ON THE AGENDA)**

No items were discussed.

**4. CONSENT ITEMS: APPROVE MINUTES FOR THE MARCH 22, 2018 BOARD MEETING AND PAYMENT OF BILLS FOR MARCH 21, 2018 THROUGH APRIL 24, 2018**

The March 22, 2018 minutes and payment of bills for March 21, 2018 through April 24, 2018 were approved as presented, motion by Tim Perry, 2<sup>nd</sup> by Sam Hurley, passed unanimously.

**5. HEAR AND DISCUSS REPORTS FROM STAFF**

Reports were presented by the General Manager and Office Manager:

- 1. Well permits received, issued and completed
- 2. Production reports and fees
- 3. Financial statements and reports

**6. RECEIVE 2017 AUDIT REPORT FROM MURREY, PASCHALL, & CAPERTON PC**

The 2017 Audit Report was presented to the Board by Kyle Caperton of Murrey, Paschall, & Caperton, PC.

**7. DISCUSS AND POSSIBLY TAKE ACTION ON DISTRICT RULE CHANGES /AMENDMENTS**

Discussion was held and a motion was made by Sam Hurley, Vice President, to accept District Rule Changes/Amendments and the new pump information form as presented, 2<sup>nd</sup> by Tim Perry, Director, passed unanimously.

**8. DISCUSS AND POSSIBLY TAKE ACTION ON MANAGEMENT PLAN AMENDMENTS**

Discussion was held and a motion was made by Sam Hurley, Vice President, to accept the Management Plan Amendments with changes to the letters correcting the office address and a page 1 addition, 2<sup>nd</sup> by Tim Perry, Director, passed unanimously.

**9. DISCUSS AND POSSIBLY TAKE ACTION ON DRILLING PERMIT FEES**

After discussion on changes to permit fees, a motion to table discussion on drilling permit fees was made by Sam Hurley, Vice President, 2<sup>nd</sup> by Tim Perry, passed unanimously.

**10. CONSIDER AND SET DATE FOR NEXT BOARD MEETING**

The next Board Meeting was tentatively set for June 21, 2018.

**11. ADJOURN**

The Board meeting was adjourned at 1:15 pm.

\_\_\_\_\_  
President: Gary Douglas

\_\_\_\_\_  
DATE

Attest \_\_\_\_\_

END