



Adopted 2018 District  
Groundwater  
Management Plan

October 19, 2018



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## **District Mission**

The mission of the Mesquite Groundwater Conservation District is to develop, promote, and implement water conservation, augmentation, and management strategies to protect groundwater resources for the present and future benefit of the citizens, economy, and environment of the District.

## **Time Period for This Plan**

This plan uses a ten-year planning horizon, becomes effective upon adoption by the Board of Directors, and remains in effect until a revised plan is approved, or until October 1, 2028, whichever is earlier. This plan will be readopted with or without changes by the District and submitted to the Texas Water Development Board (TWDB) for approval at least every five years.

## **Statement of Guiding Principles**

The District recognizes that the water resources of the region are of vital importance. The utilization of this most valuable resource can be managed in a prudent and cost-effective manner through a variety of actions including education, cooperation, monitoring, permitting, and regulation. A basic understanding of the aquifers and their hydrogeologic properties, as well as a quantification of resources is the foundation from which to build prudent planning measures. This management document is intended as a tool to focus the thoughts and actions of those given the responsibility for the execution of district activities throughout the ten-year period that is the focus of this plan, i.e. (2018-2028).

## **General Description of Mesquite GCD**

The District was originally created as Collingsworth County Underground Water Conservation District by the citizens of Collingsworth County through election in November 1986. Selected parcels from Childress County were added by individual landowner petition in May 2007. Hall County also joined the District by petition and confirmation election in May 2007. The present District name was adopted in October 2007. Selected parcels from Briscoe County have been added by individual landowner petition since the fall of 2012. Mesquite Groundwater Conservation District (Mesquite GCD) encompasses all of Collingsworth and Hall Counties and parts of northern Childress County and eastern Briscoe County. The District has an economy dominated by agricultural production. Agricultural income is derived primarily from peanuts, cotton, wheat, and beef production. About sixty-five percent of the District is rangeland, thirty percent is cropland, and the rest are urban, transportation, or water areas. Recreational hunting leases and production of petroleum also contribute to the economy within the District.

According to current District records, there are more than eight hundred irrigation wells in the District. Approximately six hundred twenty meters are installed within the District. Some are located on wells while others are located at irrigation pivots or drip irrigation stations. Several municipal and public supply wells are located within the District. The remaining wells are un-permitted water supplies for household and livestock consumption.

## **Location and Extent of Mesquite GCD**

Mesquite GCD has an area of 1,870 square miles, or 1,196,358 acres, and is situated in the southeastern Panhandle of the State of Texas. The District is bounded on the east by Beckham and Harmon Counties of the State of Oklahoma; on the north by Wheeler County; on the west by Donley County & the remainder of Briscoe County and on the south by Motley County and the remainder of Childress County. The principal towns within the District are Wellington and Dodson in Collingsworth County; Memphis, Estelline, and Turkey in Hall County; and Quitaque in Briscoe County. There are no towns within the Childress County portion of the District.

## **Topography and Drainage of Mesquite GCD**

The District consists of rolling plains heavily dissected by Red River drainage. The elevation of the land surface ranges from 1,576 to 2,817 feet above mean sea level.

Mesquite GCD lies entirely within the drainage systems of the Red River Basin. The Salt Fork and the Prairie Dog Town Fork of the Red River enter the District in the west, traverse the District and exit through the east. The Southern part of Hall County drains into the North Pease River. The Elm Creek watershed lies in the northeastern portion of the District. The Buck Creek watershed is in the central portion of the District.

## **Groundwater Resources of Mesquite GCD**

The Seymour and Blaine aquifers are the primary sources of groundwater in the District. The Seymour strata typically overlies the Blaine Formation and/or Whitehorse Group.

The Seymour Aquifer is a major aquifer in Texas and consists of isolated areas of alluvium that are erosional remnants of a larger area. As defined by TWDB, it is composed of remnants of the Seymour Formation, the Lingos Formation, and younger alluvial deposits, all of Quaternary age. The aquifer is found in parts of many north-central and Panhandle counties of Texas, and in the District is present in four distinct and separate areas referred to as "Pods". It consists of discontinuous beds of poorly sorted gravel, conglomerate, sand, and silty clay deposited during the Quaternary Period by eastward-flowing streams. Saturated thickness is typically between five and eighty feet. Aquifer thickness may exceed 250 feet in isolated spots in the western portion of Collingsworth County. The thickness in the eastern portion of the county is generally too thin to support irrigation. The aquifer is also generally thinner in Hall County but does support irrigation. This aquifer is under water-table conditions in most of its extent, but artesian conditions may occur where the water-bearing zone is overlain by clay. The lower, more permeable part of the aquifer produces the greatest amount of groundwater. Water quality is generally fresh to slightly saline, but some high saline problems occur. Nitrate concentrations in excess of drinking water standards are common.

The Seymour Aquifer comprises about twenty-three percent of the District area and provides about seventy-seven percent of the irrigation water in the District. Yields of wells range from five gallons per minute to as much as 1,000 gallons per minute depending upon saturated thickness, with yields averaging about 300 gallons per minute.

The Blaine Aquifer is composed of anhydrite and gypsum with interbedded dolomite and clay and is an important source of groundwater in the District. The Blaine Formation crops out in a band from Wheeler

County south through Collingsworth and Childress Counties to Fisher County and extends westward in the subsurface to adjacent counties. In Collingsworth County the Blaine is found along the Salt Fork of Red River north to Wheeler County and east to the Oklahoma state line. The Blaine is also found South and East of Wellington, extending east to the Oklahoma state line and south to the Prairie Dog Town Fork of the Red River. There are also small areas in the northeast and southeast corners of Hall County. Recharge occurs fairly rapidly and travels primarily in the numerous solution channels of the Blaine under water-table conditions. Overall water quality is poor and salinity may be high, limiting the use of water for human and livestock consumption. Depth to water ranges from a few feet to greater than 200 feet. Well depths range up to 300 feet below ground surface. Well yields vary from a few gallons per minute up to 1,000 gallons per minute. Although water in storage is generally under water-table conditions, larger yields are often associated with those areas of the aquifer that are confined by relatively impervious beds. Dry holes or wells of low yield are commonly found adjacent to wells of moderate to high yields because of the uneven nature in confining beds and the occurrence of the water in solution zones. Groundwater not intercepted by wells tends to discharge naturally in areas of lower topography through seeps and springs. The Blaine Aquifer comprises about twenty-four percent of the District area and provides about nineteen percent of the irrigation water pumped in the District.

The Whitehorse Group is a Permian formation occurring in beds of shale, sand, gypsum, anhydrite, and dolomite. It constitutes the remainder of the District not occupied by the Seymour and Blaine, generally located in the south and west portions of Hall County and the western part of Collingsworth County. It has many of the same characteristics as the Blaine Formation. Recharge values were calculated using procedures from the Panhandle Regional Plan and Panhandle GCD. Water quality is fair to poor, and well yields vary greatly. Principal use is for livestock water, with some irrigation use in Hall County. The Whitehorse comprises about fifty-three percent of the land area of the District and provides approximately four percent of the irrigation water within the District.

Some maps indicate small areas of the Ogallala Aquifer present in extreme western and northwestern areas of the District. Data from wells in this area is not consistent with typical Ogallala characteristics, and indicate that these wells are actually pumping from the underlying formations.

### **Technical Information**

The Groundwater Management Plan Data packet provided by TWDB is in Appendix A. The Groundwater Availability Model GAM Run 18-010 (for Management Plan) provided by TWDB is in Appendix B. The Groundwater Availability Model GAM Run 16-031 MAG (for Modeled Available Groundwater) provided by TWDB is in Appendix C. All other technical and administrative information required by the Texas Administrative Code can be found in the later Appendices. For convenience, Appendix F contains the contact information for individuals involved with creating this Management Plan.

### **Management of Groundwater Supplies**

Since inception in 1986, the District has managed and will continue to manage the supply of groundwater within the District to conserve and protect the limited resource while seeking to maintain the economic viability of all resource user groups, both public and private. The District's aquifer water level observation network will continue to be utilized to monitor changing conditions of groundwater supplies within the District. The District has budgeted for two automated water level recorders that will be installed within the

District during the upcoming budget year. They will allow for a greater understanding of the dynamic nature of the District's aquifers. The District continues to make periodic assessment of groundwater supplies and storage conditions and cooperates with investigations of groundwater resources within the District. All of the data gathered during these activities are reported to the Texas Water Development Board and to the public.

The District uses all available sources to obtain aquifer recharge, supply and usage information for long-range planning purposes. This includes providing local data input and actively participating in meetings of the Seymour Aquifer Groundwater Availability Modeling (GAM) program. The District also participates in the Panhandle Regional Water Planning Group and uses published data available from it as well as that available from the Texas Water Development Board. Finally, the District relies most heavily on specific local data obtained by District personnel in monitoring water levels and quality, irrigation usage, crops and other local conditions and activities.

The District supports brush control as a management practice to maintain and improve groundwater supplies in the District and region. Several invasive brush species exist within the District that have been shown to negatively impact soil moisture and shallow groundwater resources.

In pursuit of the District's mission, in the future, the District may require reduction of groundwater withdrawals to amounts that would lessen adverse effects to the aquifers. The District will enforce its rules by enjoining water users in a court of competent jurisdiction, as provided in TWC 36.102, if required, after exhausting other voluntary or cooperative remedies. The District utilizes all technical resources at its disposal to evaluate the groundwater resources available within the District and to determine the effectiveness of conservation or regulatory measures.

The District provides input to the planning process at the GMA 6 and Region A planning meetings and their resulting reports. The District supports the Water Management Strategies identified as relevant within Region A. In particular, the District has a keen interest in promoting agricultural irrigation conservation since that industry is the largest user of groundwater within the District. To that end, the District has rules that require metering, prohibit irrigation water runoff, and prohibit the installation of pivot end guns. These rules directly support the Region A Water Management Strategy of agricultural irrigation conservation. Municipal water use is also very important since most of the Districts residents rely on municipal or regional water systems for their drinking water. The relevant Water Management Strategies in this category are municipal conservation, water audits, leak repairs, and advanced water treatment. Advanced water treatment will likely be required in the District for two or three of the municipal systems within the next year or two due to excessive nitrates. The District will provide technical support to those projects as they develop.

### **Actions, Procedures, Performance, and Avoidance for Plan Implementation**

The District continues to utilize the provisions of this plan as a guidepost for determining the direction or priority of all District activities. All operations of the District and agreements entered into by the District will continue to be consistent with the provisions of this plan.

The District has, and will amend as necessary, rules relating to the permitting of wells, depletion, and the production of groundwater. The rules adopted by the District shall be pursuant to Chapter Thirty-Six of the



Texas Water Code and the provisions of this plan. They can be found online at [http://www.mesquitegcd.org/Current\\_MGCD\\_Rules\\_20150416.pdf](http://www.mesquitegcd.org/Current_MGCD_Rules_20150416.pdf).

The relevant factors that will continue to be considered in deciding to grant or deny a permit or limit groundwater withdrawals include:

1. The purpose of the District and its rules;
2. The equitable conservation and preservation of the resource; and
3. The economic hardship resulting from granting or denying a permit or the terms prescribed by the rules.

The District treats all citizens with equality. A public or private user may appeal to the District Board for discretion in enforcement of the provisions of the rules or contingency plans on grounds of economic hardship or unique local conditions. In granting of discretion to any rule, the District's Board considers the potential for adverse effects on adjacent owners and aquifer conditions. The exercise of said discretion by the Board shall not be construed as limiting the power of the District's Board of Directors.

The District will seek cooperation and coordination with landowners, operators, and appropriate local, regional, and state management entities in the implementation of this plan.

### **Desired Future Conditions**

The District is located in Groundwater Management Area (GMA) 6. The District is participating in the GMA collaborative process. The current Desired Future Conditions for the Aquifers within the District and the GMA were established November 17, 2016. The Desired Future Conditions for Groundwater Management Area 6 are based on water level drawdowns defined as the difference in well water levels between the baseline year (2010) and 2070. Desired Future Conditions were set for the Blaine and Seymour Aquifers in the District. There is no Desired Future Condition set for the Trinity Group Aquifers in GMA 6, because it has been determined to be not relevant for joint planning. There is no Desired Future Condition set for the Dockum or Ogallala Aquifers within the District because those aquifers do not supply water within the District's boundary. The Desired Future Conditions for the Seymour and Blaine aquifers within the District are as follows:

- Seymour Aquifer
  - The Desired Future Condition for Pod One in Childress and Collingsworth Counties, located in the District, is that condition whereby the total decline in water levels will be no more than thirty-three feet during the period from 2020 – 2070.
  - The Desired Future Condition for Pod Two in Hall County, located in the District, is that condition whereby the total decline in water levels will be no more than fifteen feet during the period from 2020 – 2070.
  - The Desired Future Condition for Pod Three in Briscoe and Hall Counties, located in the District, is that condition whereby the total decline in water levels will be no more than fifteen feet during the period from 2020 -2070.
- Blaine Aquifer
  - The Desired Future Condition for that part of Childress County North of the Red River, located in the District, and all of Collingsworth and Hall Counties, also located within the District; is that

condition whereby the total decline in water levels will be no more than nine feet during the period from 2020 – 2070.

- The Desired Future Condition for that part of Childress County south of the Red River located in the District is that condition whereby the total decline in water levels will be no more than two feet during the period from 2020 – 2070.

The Desired Future Conditions were approved at the GMA and District level as part of the joint planning process. They were then provided to TWDB for the purpose of calculating Modeled Available Groundwater.

### Modeled Available Groundwater

Chapter 36 of the Texas Water Code defines Modeled Available Groundwater as the estimated average amount of water that may be produced annually to achieve a Desired Future Condition. Mesquite GCD is required to consider Modeled Available Groundwater, along with 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 and several other factors when issuing permits in order to manage groundwater in a manner that will achieve the aquifers’ Desired Future Conditions.

The District’s Modeled Available Groundwater is provided in Table 1 below and is also described in further detail in the TWDB GAM Run 16-031 MAG report provided in Appendix C.

*Table 1*

<b>Modeled Available Groundwater (Acre Feet)</b>							
	<b>2010 (Baseline)</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
<b>Seymour</b>	24,480	56,877	48,259	48,339	50,042	48,272	47,380
<b>Blaine</b>	7,895	13,873	13,834	13,873	13,834	13,873	13,834

The District chose to use a weighted average to determine the Modeled Available Groundwater for each year between 2010 and 2020 since the transition within that decade is relatively large. Table 2 shows the yearly Modeled Available Groundwater for the years within that decade. For the remaining decades, the District chose to hold the Modeled Available Groundwater constant within each decade since the transition from one decade to the next is relatively small.

Table 2

<b>Modeled Available Groundwater (Acre Feet)</b>		
	<b>Seymour Aquifer</b>	<b>Blaine Aquifer</b>
<b>2010 (Baseline)</b>	24,480	7,895
<b>2011</b>	27,720	8,493
<b>2012</b>	30,959	9,091
<b>2013</b>	34,199	9,688
<b>2014</b>	37,439	10,286
<b>2015</b>	40,679	10,884
<b>2016</b>	43,918	11,482
<b>2017</b>	47,158	12,080
<b>2018</b>	50,398	12,677
<b>2019</b>	53,637	13,275
<b>2020</b>	56,877	13,873

## **GOALS, MANAGEMENT OBJECTIVES AND PERFORMANCE STANDARDS**

### **Tracking Progress in Achieving Goals and Management Objectives:**

The District's General Manager will prepare and submit an Annual Report to the Board of Directors on the District's performance with regards to achieving each stated management goal and objective during the preceding fiscal year. This Annual Report will be presented to the Board of Directors at the regular monthly meeting no later than June of the following year. Each Annual Report will be maintained on file at the District office.

### **Goal 1: Addressing Conservation**

#### **1.1 Management Objective: Conduct water quality analyses of requested wells**

1.1a Performance Standard: Conduct water quality analyses within forty-eight hours of request. A summary of these analyses will be provided in the Annual Report to the District's Board.

#### **1.2 Management Objective: Publicize groundwater conservation issues through local newspapers, group presentations, schools, and other media opportunities**

1.2a Performance Standard: Publicize groundwater conservation issues using the above outlets on at least one occasion by September 30<sup>th</sup> each year. Use the TWDB conservation page and best management practices where applicable.  
(<http://www.twdb.texas.gov/conservation/BMPs/index.asp>) A summary of this publicity will be provided in the Annual Report to the District's Board.

### **Goal 2: Providing the Most Efficient Use of Groundwater**

#### **2.1 Management Objective: Monitor flow-meters on wells to facilitate water usage efficiency studies**

2.1a. Performance Standard: Read and record pumping data from at least 90% of flow-meter locations by May 1<sup>st</sup> each year. A summary of these meter readings will be provided in the Annual Report to the District's Board.

#### **2.2 Management Objective: Publicize the need for efficient use of groundwater through local newspapers, group presentations, schools, and other media opportunities**

2.2a. Performance Standard: Publicize groundwater efficiency issues using the above outlets on at least one occasion by September 30<sup>th</sup> each year. A summary of this publicity will be provided in the Annual Report to the District's Board.

### **Goal 3: Controlling and Preventing Waste of Groundwater**

#### **3.1 Management Objective: Identify and address local irrigation practices which are wasteful of groundwater resources**

3.1a. Performance Standard: Educate the public on wasteful irrigation practices with at least one news article, group presentation, or other local publicity opportunity by September 30<sup>th</sup> each year. A summary of this publicity will be provided in the Annual Report to the District's Board.

#### **3.2 Management Objective: Maintain a program to identify, locate and obtain closures of abandoned wells**

3.2a Perform site inspections and complete an open or uncovered well report for each well reported or located by the District within 30 days of receipt of the report of such well. A summary of these site inspections and results will be provided in the Annual Report to the District's Board.

3.2b Notify owner of open or uncovered well described in 3.2a and seek compliance with Rules and statute. A summary of these notifications and their results will be included in the Annual Report to the District's Board.

### **Goal 4: Addressing Drought Conditions**

#### **4.1 Management Objective: Maintain the District drought contingency plan**

4.1a. Performance Standard: Review and update the District's Drought Contingency Plan by September 30<sup>th</sup>, at least once annually. A summary of this review will be included in the Annual Report to the District's Board.

4.1b. Performance Standard: Incorporate newly annexed areas into the District's Drought Contingency Plan within a year of annexation. A summary of this action will be included in the Annual Report to the District's Board.

TWDB's drought information page is <http://waterdatafortexas.org/drought/>

### **Goal 5: Addressing Recharge Enhancement**

#### **5.1 Management Objective: Recharge Enhancement**

5.1a. Performance Standard: Review the District's Recharge Enhancement Feasibility Study by September 30<sup>th</sup>, at least once annually. A summary of the Feasibility Study review will be included in the Annual Report to the District's Board.

5.1b. Performance Standard: If opportunity and funding become available, team with private or public entities on Recharge Enhancement projects within the District. A summary of the

opportunities, funding, and projects (if any) will be included in the Annual Report to the District's Board.

## **Goal 6: Addressing Rainwater Harvesting**

### **6.1 Management Objective: Rainwater Harvesting**

6.1a Performance Standard: Publish article in newspaper of standard circulation at least once per year regarding rainwater harvesting with a focus on any projects established within the District. A summary of this publicity will be included in the Annual Report to the District's Board.

6.1b. Performance Standard: Include a summary of Rainwater Harvesting Projects within the District in the Annual Report to the District's Board.

## **Goal 7: Addressing the Desired Future Conditions Adopted by the District**

### **7.1 Management Objective: Monitor static water levels in selected wells**

7.1a. Performance Standard: Measure the static water level in at least 100 wells within the District by April 1<sup>st</sup> each year. A summary of the results from this work will be provided in the Annual Report to the Districts Board.

### **7.2 Management Objective: Complete hydrographs in monitored wells**

7.2a. Performance Standard: Complete hydrographs in monitored wells by July 1<sup>st</sup> each year and deliver hydrograph reports to the District's Board at their next regularly scheduled meeting. A summary of this activity will be discussed in the Annual Report to the District's Board.

**SB-1 MANAGEMENT GOALS  
DETERMINED NOT APPLICABLE**

The following five goals mandated to be addressed by Senate Bill 1 of the 75<sup>th</sup> Texas Legislature, 1997, have been determined not to apply to the Mesquite Groundwater Conservation District for the reasons stated below.

**Not Applicable Goal 1: Addressing Natural Resource Issues**

The District has no documented occurrences of endangered or threatened species dependent upon groundwater resources within its boundary.

**Not Applicable Goal 2: Controlling and Preventing Subsidence**

The rigid nature of the subsurface geology precludes subsidence as being an issue within the District. Subsidence in the District is caused by groundwater dissolving the gypsum commonly found in the Blaine formation, forming local sinkholes. There are no available measures to prevent water from dissolving gypsum.

**Not Applicable Goal 3: Addressing Conjunctive Surface Water Management Issues**

There are not currently any surface water impoundments within the District.

**Not Applicable Goal 4: Addressing Precipitation Enhancement**

Precipitation enhancement projects are presently not cost effective within the District.

**Not Applicable Goal 5: Addressing Brush Control**

The District plans to work cooperatively with the Natural Resources Conservation Service and the local Soil Conservation Board on brush control projects in the future when conservation funds are made available for such practices.

## **APPROVAL AND ADOPTION**

The Directors of the Mesquite Groundwater Conservation District met in a properly-noticed open session following the Groundwater Management Plan Hearing. After some discussion, the Director's approved and adopted the plan by resolution. A Copy of that resolution is provided in Appendix G. Public notices for the hearing are provided in Appendix D.



**Appendix A**

**Groundwater Management Plan Data**



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# Estimated Historical Groundwater Use And 2017 State Water Plan Datasets:

Mesquite Groundwater Conservation District

by Stephen Allen  
Texas Water Development Board  
Groundwater Division  
Groundwater Technical Assistance Section  
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(512) 463-7317  
July 26, 2018

## ***GROUNDWATER MANAGEMENT PLAN DATA:***

This package of water data reports (part 1 of a 2-part package of information) is being provided to groundwater conservation districts to help them meet the requirements for approval of their five-year groundwater management plan. Each report in the package addresses a specific numbered requirement in the Texas Water Development Board's groundwater management plan checklist. The checklist can be viewed and downloaded from this web address:

<http://www.twdb.texas.gov/groundwater/docs/GCD/GMPChecklist0113.pdf>

The five reports included in this part are:

1. Estimated Historical Groundwater Use (checklist item 2)  
*from the TWDB Historical Water Use Survey (WUS)*
2. Projected Surface Water Supplies (checklist item 6)
3. Projected Water Demands (checklist item 7)
4. Projected Water Supply Needs (checklist item 8)
5. Projected Water Management Strategies (checklist item 9)  
*from the 2017 Texas State Water Plan (SWP)*

Part 2 of the 2-part package is the groundwater availability model (GAM) report for the District (checklist items 3 through 5). The District should have received, or will receive, this report from the Groundwater Availability Modeling Section. Questions about the GAM can be directed to Dr. Shirley Wade, shirley.wade@twdb.texas.gov, (512) 936-0883.

## ***DISCLAIMER:***

The data presented in this report represents the most up-to-date WUS and 2017 SWP data available as of 7/26/2018. Although it does not happen frequently, either of these datasets are subject to change pending the availability of more accurate WUS data or an amendment to the 2017 SWP. District personnel must review these datasets and correct any discrepancies in order to ensure approval of their groundwater management plan.

The WUS dataset can be verified at this web address:

<http://www.twdb.texas.gov/waterplanning/waterusesurvey/estimates/>

The 2017 SWP dataset can be verified by contacting Sabrina Anderson (sabrina.anderson@twdb.texas.gov or 512-936-0886).

The values presented in the data tables of this report are county-based. In cases where groundwater conservation districts cover only a portion of one or more counties the data values are modified with an apportioning multiplier to create new values that more accurately represent conditions within district boundaries. The multiplier used in the following formula is a land area ratio: (data value \* (land area of district in county / land area of county)). For two of the four SWP tables (Projected Surface Water Supplies and Projected Water Demands) only the county-wide water user group (WUG) data values (county other, manufacturing, steam electric power, irrigation, mining and livestock) are modified using the multiplier. WUG values for municipalities, water supply corporations, and utility districts are not apportioned; instead, their full values are retained when they are located within the district, and eliminated when they are located outside (we ask each district to identify these entity locations).

The remaining SWP tables (Projected Water Supply Needs and Projected Water Management Strategies) are not modified because district-specific values are not statutorily required. Each district needs only "consider" the county values in these tables.

In the WUS table every category of water use (including municipal) is apportioned. Staff determined that breaking down the annual municipal values into individual WUGs was too complex.

TWDB recognizes that the apportioning formula used is not perfect but it is the best available process with respect to time and staffing constraints. If a district believes it has data that is more accurate it can add those data to the plan with an explanation of how the data were derived. Apportioning percentages that the TWDB used are listed above each applicable table.

For additional questions regarding this data, please contact Stephen Allen (stephen.allen@twdb.texas.gov or 512-463-7317).

# Estimated Historical Water Use

## TWDB Historical Water Use Survey (WUS) Data

Groundwater and surface water historical use estimates are currently unavailable for calendar year 2017. TWDB staff anticipates the calculation and posting of these estimates at a later date.

### BRISCOE COUNTY

0% (multiplier)

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2016	GW	0	0	0	0	0	0	0
	SW	0	0	0	0	0	0	0
2015	GW	0	0	0	0	0	0	0
	SW	0	0	0	0	0	0	0
2014	GW	0	0	0	0	0	0	0
	SW	0	0	0	0	0	0	0
2013	GW	0	0	0	0	0	0	0
	SW	0	0	0	0	0	0	0
2012	GW	0	0	0	0	0	0	0
	SW	0	0	0	0	0	0	0
2011	GW	0	0	0	0	0	0	0
	SW	0	0	0	0	0	0	0
2010	GW	0	0	0	0	0	0	0
	SW	0	0	0	0	0	0	0
2009	GW	0	0	0	0	0	0	0
	SW	0	0	0	0	0	0	0
2008	GW	0	0	0	0	0	0	0
	SW	0	0	0	0	0	0	0
2007	GW	0	0	0	0	0	0	0
	SW	0	0	0	0	0	0	0
2006	GW	0	0	0	0	0	0	0
	SW	0	0	0	0	0	0	0
2005	GW	0	0	0	0	0	0	0
	SW	0	0	0	0	0	0	0
2004	GW	0	0	0	0	0	0	0
	SW	0	0	0	0	0	0	0
2003	GW	0	0	0	0	0	0	0
	SW	0	0	0	0	0	0	0
2002	GW	0	0	0	0	0	0	0
	SW	0	0	0	0	0	0	0
2001	GW	0	0	0	0	0	0	0
	SW	0	0	0	0	0	0	0

*Estimated Historical Water Use and 2017 State Water Plan Dataset:*

*Mesquite Groundwater Conservation District*

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**CHILDRESS COUNTY**

6.05% (multiplier)

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2016	GW	2	0	0	0	913	12	927
	SW	95	0	0	0	0	1	96
2015	GW	1	0	0	0	698	12	711
	SW	94	0	0	0	0	1	95
2014	GW	1	0	0	0	1,226	12	1,239
	SW	90	0	0	0	0	1	91
2013	GW	1	0	0	0	801	12	814
	SW	91	0	0	0	0	1	92
2012	GW	2	0	0	0	1,123	15	1,140
	SW	98	0	0	0	0	2	100
2011	GW	2	0	0	0	1,056	17	1,075
	SW	107	0	0	0	0	2	109
2010	GW	4	0	0	0	572	17	593
	SW	99	0	0	0	0	2	101
2009	GW	5	0	0	0	1,066	17	1,088
	SW	100	2	0	0	0	2	104
2008	GW	7	0	0	0	831	18	856
	SW	105	2	0	0	0	2	109
2007	GW	7	0	0	0	568	22	597
	SW	96	2	0	0	0	2	100
2006	GW	8	0	0	0	600	18	626
	SW	108	2	0	0	0	2	112
2005	GW	7	0	0	0	805	19	831
	SW	87	3	0	0	0	2	92
2004	GW	7	0	0	0	646	2	655
	SW	107	3	0	0	0	19	129
2003	GW	7	0	0	0	615	2	624
	SW	86	1	0	0	0	19	106
2002	GW	8	0	0	0	756	2	766
	SW	119	1	0	0	0	14	134
2001	GW	7	0	0	0	690	2	699
	SW	102	2	0	0	0	14	118

**COLLINGSWORTH  
COUNTY**

100% (multiplier)

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2016	GW	612	0	0	0	53,044	373	54,029
	SW	6	0	0	0	100	12	118
2015	GW	581	0	0	0	37,635	370	38,586
	SW	5	0	0	0	50	11	66
2014	GW	616	0	0	0	49,355	362	50,333
	SW	5	0	0	0	92	11	108
2013	GW	612	0	0	0	52,086	362	53,060
	SW	4	0	0	0	133	11	148
2012	GW	638	0	0	0	55,159	430	56,227
	SW	6	0	0	0	142	13	161
2011	GW	728	0	0	0	60,399	472	61,599
	SW	6	0	0	0	100	15	121
2010	GW	608	0	0	0	48,566	465	49,639
	SW	14	0	0	0	100	14	128
2009	GW	659	0	0	0	46,736	540	47,935
	SW	17	0	0	0	100	17	134
2008	GW	659	0	0	0	67,840	521	69,020
	SW	12	0	0	0	100	16	128
2007	GW	693	0	0	0	35,393	276	36,362
	SW	24	0	0	0	308	9	341
2006	GW	747	0	0	0	51,085	780	52,612
	SW	11	0	0	0	100	24	135
2005	GW	685	0	0	0	51,090	472	52,247
	SW	7	0	0	0	125	15	147
2004	GW	682	0	0	0	56,751	57	57,490
	SW	6	0	0	0	117	517	640
2003	GW	757	0	0	0	41,093	55	41,905
	SW	10	0	0	0	117	502	629
2002	GW	794	0	0	0	36,460	64	37,318
	SW	8	0	0	0	0	577	585
2001	GW	756	0	0	0	36,037	65	36,858
	SW	6	0	0	0	0	588	594

**HALL COUNTY***100% (multiplier)*

All values are in acre-feet

<b>Year</b>	<b>Source</b>	<b>Municipal</b>	<b>Manufacturing</b>	<b>Mining</b>	<b>Steam Electric</b>	<b>Irrigation</b>	<b>Livestock</b>	<b>Total</b>
2016	GW	564	0	0	0	35,129	215	35,908
	SW	105	0	0	0	0	54	159
2015	GW	559	2	0	0	27,513	212	28,286
	SW	105	0	0	0	0	53	158
2014	GW	579	0	0	0	39,059	260	39,898
	SW	99	0	0	0	0	65	164
2013	GW	596	0	0	0	31,096	208	31,900
	SW	99	0	0	0	0	52	151
2012	GW	632	0	0	0	34,813	236	35,681
	SW	106	0	0	0	0	59	165
2011	GW	685	0	0	0	36,870	303	37,858
	SW	114	0	0	0	0	76	190
2010	GW	595	0	0	0	34,122	301	35,018
	SW	112	0	0	0	0	75	187
2009	GW	485	0	0	0	28,342	295	29,122
	SW	135	0	0	0	0	74	209
2008	GW	508	0	0	0	36,468	295	37,271
	SW	177	0	0	0	0	74	251
2007	GW	502	0	0	0	22,101	228	22,831
	SW	192	0	0	0	0	57	249
2006	GW	545	0	0	0	22,909	268	23,722
	SW	177	0	0	0	0	67	244
2005	GW	533	0	0	0	24,052	242	24,827
	SW	186	0	0	0	0	60	246
2004	GW	578	0	0	0	28,148	26	28,752
	SW	208	0	0	0	0	228	436
2003	GW	595	0	0	0	25,736	27	26,358
	SW	235	0	0	0	0	243	478
2002	GW	580	0	0	0	28,216	31	28,827
	SW	186	0	0	0	0	273	459
2001	GW	616	0	0	0	21,183	32	21,831
	SW	193	0	0	0	0	285	478



# Projected Surface Water Supplies

## TWDB 2017 State Water Plan Data

### BRISCOE COUNTY

*0% (multiplier)*

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
O	LIVESTOCK, BRISCOE	RED	RED LIVESTOCK LOCAL SUPPLY	0	0	0	0	0	0
O	SILVERTON	RED	MACKENZIE LAKE/RESERVOIR	71	71	71	71	71	71
<b>Sum of Projected Surface Water Supplies (acre-feet)</b>				<b>71</b>	<b>71</b>	<b>71</b>	<b>71</b>	<b>71</b>	<b>71</b>

### CHILDRESS COUNTY

*6.05% (multiplier)*

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
A	CHILDRESS	RED	GREENBELT LAKE/RESERVOIR	1,087	1,161	1,228	1,301	1,379	1,457
A	COUNTY-OTHER, CHILDRESS	RED	GREENBELT LAKE/RESERVOIR	7	8	8	9	9	10
A	IRRIGATION, CHILDRESS	RED	RED RUN-OF-RIVER	1	1	1	1	1	1
A	LIVESTOCK, CHILDRESS	RED	RED LIVESTOCK LOCAL SUPPLY	3	3	3	3	3	3
<b>Sum of Projected Surface Water Supplies (acre-feet)</b>				<b>1,098</b>	<b>1,173</b>	<b>1,240</b>	<b>1,314</b>	<b>1,392</b>	<b>1,471</b>

### COLLINGSWORTH COUNTY

*100% (multiplier)*

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
A	IRRIGATION, COLLINGSWORTH	RED	RED RUN-OF-RIVER	851	851	851	851	851	851
A	LIVESTOCK, COLLINGSWORTH	RED	RED LIVESTOCK LOCAL SUPPLY	29	29	29	29	29	29
<b>Sum of Projected Surface Water Supplies (acre-feet)</b>				<b>880</b>	<b>880</b>	<b>880</b>	<b>880</b>	<b>880</b>	<b>880</b>

### HALL COUNTY

*100% (multiplier)*

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
A	COUNTY-OTHER, HALL	RED	GREENBELT LAKE/RESERVOIR	62	64	67	69	72	74
A	IRRIGATION, HALL	RED	RED RUN-OF-RIVER	52	52	52	52	52	52
A	LIVESTOCK, HALL	RED	RED LIVESTOCK LOCAL SUPPLY	91	91	91	91	91	91

*Estimated Historical Water Use and 2017 State Water Plan Dataset:*

*Mesquite Groundwater Conservation District*

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# Projected Surface Water Supplies

## TWDB 2017 State Water Plan Data

<b>RWPG</b>	<b>WUG</b>	<b>WUG Basin</b>	<b>Source Name</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
A	MEMPHIS	RED	GREENBELT LAKE/RESERVOIR	67	70	73	76	78	80
<b>Sum of Projected Surface Water Supplies (acre-feet)</b>				<b>272</b>	<b>277</b>	<b>283</b>	<b>288</b>	<b>293</b>	<b>297</b>

# Projected Water Demands

## TWDB 2017 State Water Plan Data

Please note that the demand numbers presented here include the plumbing code savings found in the Regional and State Water Plans.

**BRISCOE COUNTY** *0% (multiplier)* All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
O	COUNTY-OTHER, BRISCOE	RED	0	0	0	0	0	0
O	IRRIGATION, BRISCOE	RED	0	0	0	0	0	0
O	LIVESTOCK, BRISCOE	RED	0	0	0	0	0	0
O	SILVERTON	RED	126	123	120	119	119	119
<b>Sum of Projected Water Demands (acre-feet)</b>			<b>126</b>	<b>123</b>	<b>120</b>	<b>119</b>	<b>119</b>	<b>119</b>

**CHILDRESS COUNTY** *6.05% (multiplier)* All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
A	CHILDRESS	RED	1,624	1,658	1,686	1,722	1,768	1,814
A	COUNTY-OTHER, CHILDRESS	RED	12	12	13	13	13	14
A	IRRIGATION, CHILDRESS	RED	442	425	399	355	311	266
A	LIVESTOCK, CHILDRESS	RED	30	30	30	30	30	30
<b>Sum of Projected Water Demands (acre-feet)</b>			<b>2,108</b>	<b>2,125</b>	<b>2,128</b>	<b>2,120</b>	<b>2,122</b>	<b>2,124</b>

**COLLINGSWORTH COUNTY** *100% (multiplier)* All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
A	COUNTY-OTHER, COLLINGSWORTH	RED	191	197	200	207	212	217
A	IRRIGATION, COLLINGSWORTH	RED	17,943	17,276	16,255	14,449	12,643	10,837
A	LIVESTOCK, COLLINGSWORTH	RED	600	603	605	608	611	614
A	WELLINGTON	RED	525	540	549	567	582	595
<b>Sum of Projected Water Demands (acre-feet)</b>			<b>19,259</b>	<b>18,616</b>	<b>17,609</b>	<b>15,831</b>	<b>14,048</b>	<b>12,263</b>

**HALL COUNTY** *100% (multiplier)* All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
A	COUNTY-OTHER, HALL	RED	319	322	320	319	319	319

# Projected Water Demands

## TWDB 2017 State Water Plan Data

Please note that the demand numbers presented here include the plumbing code savings found in the Regional and State Water Plans.

<b>RWPG</b>	<b>WUG</b>	<b>WUG Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
A	IRRIGATION, HALL	RED	10,134	9,806	9,274	8,243	7,213	6,182
A	LIVESTOCK, HALL	RED	336	337	339	340	341	343
A	MEMPHIS	RED	383	382	372	370	369	369
<b>Sum of Projected Water Demands (acre-feet)</b>			<b>11,172</b>	<b>10,847</b>	<b>10,305</b>	<b>9,272</b>	<b>8,242</b>	<b>7,213</b>

# Projected Water Supply Needs

## TWDB 2017 State Water Plan Data

Negative values (in red) reflect a projected water supply need, positive values a surplus.

### BRISCOE COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
O	COUNTY-OTHER, BRISCOE	RED	-2	3	6	7	7	7
O	IRRIGATION, BRISCOE	RED	-3,925	-11,415	-15,611	-15,855	-15,644	-20,059
O	LIVESTOCK, BRISCOE	RED	-29	-37	-46	-55	-65	-75
O	SILVERTON	RED	-55	-52	-49	-48	-48	-48
<b>Sum of Projected Water Supply Needs (acre-feet)</b>			<b>-4,011</b>	<b>-11,504</b>	<b>-15,706</b>	<b>-15,958</b>	<b>-15,757</b>	<b>-20,182</b>

### CHILDRESS COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
A	CHILDRESS	RED	0	0	0	0	0	0
A	COUNTY-OTHER, CHILDRESS	RED	20	20	19	18	18	17
A	IRRIGATION, CHILDRESS	RED	181	185	188	191	196	200
A	LIVESTOCK, CHILDRESS	RED	15	12	10	8	5	2
<b>Sum of Projected Water Supply Needs (acre-feet)</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### COLLINGSWORTH COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
A	COUNTY-OTHER, COLLINGSWORTH	RED	46	40	37	30	25	20
A	IRRIGATION, COLLINGSWORTH	RED	913	913	915	917	918	920
A	LIVESTOCK, COLLINGSWORTH	RED	6	3	1	6	3	0
A	WELLINGTON	RED	-525	-540	-549	-567	-582	-595
<b>Sum of Projected Water Supply Needs (acre-feet)</b>			<b>-525</b>	<b>-540</b>	<b>-549</b>	<b>-567</b>	<b>-582</b>	<b>-595</b>

### HALL COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
A	COUNTY-OTHER, HALL	RED	0	-3	-1	0	0	0
A	IRRIGATION, HALL	RED	0	0	0	0	0	0
A	LIVESTOCK, HALL	RED	70	69	67	66	65	63

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# Projected Water Supply Needs

## TWDB 2017 State Water Plan Data

Negative values (in red) reflect a projected water supply need, positive values a surplus.

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
A	MEMPHIS	RED	45	12	0	-68	-100	-133
<b>Sum of Projected Water Supply Needs (acre-feet)</b>			<b>0</b>	<b>-3</b>	<b>-1</b>	<b>-68</b>	<b>-100</b>	<b>-133</b>

# Projected Water Management Strategies

## TWDB 2017 State Water Plan Data

### BRISCOE COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
<b>COUNTY-OTHER, BRISCOE, RED ( O )</b>							
BRISCOE COUNTY-OTHER MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION [BRISCOE]	15	15	14	14	14	14
		<b>15</b>	<b>15</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>
<b>IRRIGATION, BRISCOE, RED ( O )</b>							
BRISCOE COUNTY IRRIGATION WATER CONSERVATION	DEMAND REDUCTION [BRISCOE]	1,667	1,667	1,899	1,899	2,474	2,474
		<b>1,667</b>	<b>1,667</b>	<b>1,899</b>	<b>1,899</b>	<b>2,474</b>	<b>2,474</b>
<b>SILVERTON, RED ( O )</b>							
BRISCOE COUNTY - SILVERTON LOCAL GROUNDWATER DEVELOPMENT	DOCKUM AQUIFER [SWISHER]	121	121	121	121	121	121
BRISCOE COUNTY - SILVERTON MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION [BRISCOE]	6	6	2	2	2	2
		<b>127</b>	<b>127</b>	<b>123</b>	<b>123</b>	<b>123</b>	<b>123</b>
<b>Sum of Projected Water Management Strategies (acre-feet)</b>		<b>1,809</b>	<b>1,809</b>	<b>2,036</b>	<b>2,036</b>	<b>2,611</b>	<b>2,611</b>

### CHILDRESS COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
<b>CHILDRESS, RED ( A )</b>							
MUNICIPAL CONSERVATION - CHILDRESS	DEMAND REDUCTION [CHILDRESS]	51	52	54	55	57	57
WATER AUDITS AND LEAK REPAIR - CHILDRESS	DEMAND REDUCTION [CHILDRESS]	81	83	84	86	88	91
		<b>132</b>	<b>135</b>	<b>138</b>	<b>141</b>	<b>145</b>	<b>148</b>
<b>IRRIGATION, CHILDRESS, RED ( A )</b>							
IRRIGATION CONSERVATION - CHILDRESS COUNTY	DEMAND REDUCTION [CHILDRESS]	351	632	1,100	1,220	1,324	1,378
		<b>351</b>	<b>632</b>	<b>1,100</b>	<b>1,220</b>	<b>1,324</b>	<b>1,378</b>
<b>Sum of Projected Water Management Strategies (acre-feet)</b>		<b>483</b>	<b>767</b>	<b>1,238</b>	<b>1,361</b>	<b>1,469</b>	<b>1,526</b>

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# Projected Water Management Strategies

## TWDB 2017 State Water Plan Data

### COLLINGSWORTH COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
<b>IRRIGATION, COLLINGSWORTH, RED (A )</b>							
IRRIGATION CONSERVATION - COLLINGSWORTH COUNTY	DEMAND REDUCTION [COLLINGSWORTH]	548	1,037	1,647	1,843	2,104	2,250
		<b>548</b>	<b>1,037</b>	<b>1,647</b>	<b>1,843</b>	<b>2,104</b>	<b>2,250</b>
<b>WELLINGTON, RED (A )</b>							
ADVANCED TREATMENT - WELLINGTON	SEYMOUR AQUIFER [COLLINGSWORTH]	500	500	500	500	500	500
DEVELOP SEYMOUR AQUIFER SUPPLIES - WELLINGTON	SEYMOUR AQUIFER [COLLINGSWORTH]	180	180	180	180	180	180
MUNICIPAL CONSERVATION - WELLINGTON	DEMAND REDUCTION [COLLINGSWORTH]	18	18	19	19	20	20
WATER AUDITS AND LEAK REPAIR - WELLINGTON	DEMAND REDUCTION [COLLINGSWORTH]	26	27	27	28	29	30
		<b>724</b>	<b>725</b>	<b>726</b>	<b>727</b>	<b>729</b>	<b>730</b>
<b>Sum of Projected Water Management Strategies (acre-feet)</b>		<b>1,272</b>	<b>1,762</b>	<b>2,373</b>	<b>2,570</b>	<b>2,833</b>	<b>2,980</b>

### HALL COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
<b>COUNTY-OTHER, HALL, RED (A )</b>							
ADVANCED TREATMENT - HALL COUNTY OTHER (LAKEVIEW)	SEYMOUR AQUIFER [HALL]	75	75	75	75	75	75
DEVELOP OGALLALA AQUIFER SUPPLIES - HALL COUNTY OTHER (TURKEY)	OGALLALA AQUIFER [BRISCOE]	100	100	100	100	100	100
DEVELOP SEYMOUR AQUIFER SUPPLIES - HALL COUNTY OTHER (BRICE-LESLEY)	SEYMOUR AQUIFER [HALL]	50	50	50	50	50	50
DEVELOP SEYMOUR AQUIFER SUPPLIES - HALL COUNTY OTHER (ESTELLINE)	SEYMOUR AQUIFER [HALL]	50	50	50	50	50	50
MUNICIPAL CONSERVATION - HALL COUNTY OTHER	DEMAND REDUCTION [HALL]	9	10	10	10	10	10
WATER AUDITS AND LEAK REPAIR - HALL COUNTY OTHER	DEMAND REDUCTION [HALL]	16	16	16	16	16	16
		<b>300</b>	<b>301</b>	<b>301</b>	<b>301</b>	<b>301</b>	<b>301</b>

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# Projected Water Management Strategies

## TWDB 2017 State Water Plan Data

All values are in acre-feet

WUG, Basin (RWPG)								
Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070	
<b>IRRIGATION, HALL, RED (A )</b>								
IRRIGATION CONSERVATION - HALL COUNTY	DEMAND REDUCTION [HALL]	392	679	1,145	1,280	1,419	1,499	
		<b>392</b>	<b>679</b>	<b>1,145</b>	<b>1,280</b>	<b>1,419</b>	<b>1,499</b>	
<b>MEMPHIS, RED (A )</b>								
DEVELOP OGALLALA AQUIFER SUPPLIES - MEMPHIS	OGALLALA AQUIFER [DONLEY]	0	0	0	150	150	150	
MUNICIPAL CONSERVATION - MEMPHIS	DEMAND REDUCTION [HALL]	15	15	14	14	14	14	
WATER AUDITS AND LEAK REPAIR - MEMPHIS	DEMAND REDUCTION [HALL]	19	8	0	0	0	0	
		<b>34</b>	<b>23</b>	<b>14</b>	<b>164</b>	<b>164</b>	<b>164</b>	
<b>Sum of Projected Water Management Strategies (acre-feet)</b>		<b>726</b>	<b>1,003</b>	<b>1,460</b>	<b>1,745</b>	<b>1,884</b>	<b>1,964</b>	



**Appendix B**

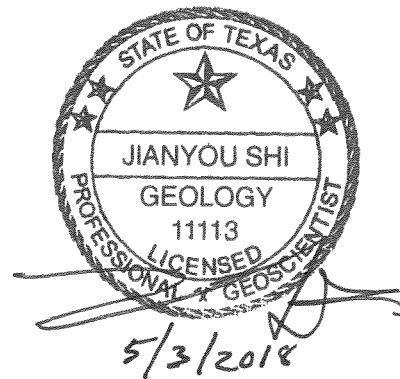
**Groundwater Availability Model  
GR18-010 (Management Plan)**



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# **GAM RUN 18-010: MESQUITE GROUNDWATER CONSERVATION DISTRICT GROUNDWATER MANAGEMENT PLAN**

Jerry Shi, Ph.D., P.G.  
Texas Water Development Board  
Groundwater Division  
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(512) 463-5076  
April 30, 2018



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# **GAM RUN 18-010: MESQUITE GROUNDWATER CONSERVATION DISTRICT GROUNDWATER MANAGEMENT PLAN**

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April 30, 2018

## ***EXECUTIVE SUMMARY:***

Texas Water Code, Section 36.1071, Subsection (h), states that, in developing its groundwater management plan, a groundwater conservation district shall use groundwater availability modeling information provided by the Executive Administrator of the Texas Water Development Board (TWDB) in conjunction with any available site-specific information provided by the district for review and comment to the Executive Administrator.

The TWDB provides data and information to the Mesquite Groundwater Conservation District in two parts. Part 1 is the Estimated Historical Water Use/State Water Plan dataset report, which will be provided to you separately by the TWDB Groundwater Technical Assistance Department. Please direct questions about the water data report to Mr. Stephen Allen at (512) 463-7317 or [stephen.allen@twdb.texas.gov](mailto:stephen.allen@twdb.texas.gov). Part 2 is the required groundwater availability modeling information and this information includes:

1. the annual amount of recharge from precipitation, if any, to the groundwater resources within the district;
2. for each aquifer within the district, the annual volume of water that discharges from the aquifer to any surface-water bodies, including lakes, streams, rivers, and springs; and
3. the annual volume of flow into and out of the district within each aquifer and between aquifers in the district.

The groundwater management plan for the Mesquite Groundwater Conservation District should be adopted by the district on or before December 25, 2018, and submitted to the Executive Administrator of the TWDB on or before January 24, 2019. The current

management plan for the Mesquite Groundwater Conservation District expires on March 25, 2019.

The management plan information for the aquifers within Mesquite Groundwater Conservation District was extracted from two groundwater availability models:

1. the groundwater availability model for the High Plains Aquifer System (Deeds and Jigmond, 2015); and
2. the groundwater availability model for the Seymour and Blaine aquifers (Ewing and others, 2004).

This report replaces the results of GAM Run 13-017 (Kohlrenken, 2013). GAM Run 18-010 meets current standards set after the release of GAM Run 13-017. Tables 1 through 3 summarize the groundwater availability model data required by statute and Figures 1 through 3 show the area of the models from which the values in the tables were extracted. If after review of the figures, the Mesquite Groundwater Conservation District determines that the district boundaries used in the assessment do not reflect current conditions, please notify the TWDB at your earliest convenience.

### ***METHODS:***

In accordance with the provisions of the Texas Water Code, Section 36.1071, Subsection (h), groundwater availability models for the High Plains Aquifer System (1980 through 2012) and the Seymour and Blaine aquifers (1980 through 1998) were run for this analysis. Water budgets for each year of the transient model periods 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 cross-formation flow between aquifers, and net flow between aquifer and its brackish portion located within the district are summarized in this report.

### ***PARAMETERS AND ASSUMPTIONS:***

#### ***Ogallala Aquifer***

- Version 1.01 of the groundwater availability model for the High Plains Aquifer System was used for this analysis. See Deeds and Jigmond (2015) for assumptions and limitations of the groundwater availability model.



- This groundwater availability model includes four layers, which generally represent the Ogallala Aquifer and the Pecos Valley Alluvium Aquifer (Layer 1), the Rita Blanca Aquifer, the Edwards-Trinity (Plateau) Aquifer, and the Edwards-Trinity (High Plains) Aquifer (Layer 2), the upper portion of the Dockum Aquifer (Layer 3), and the lower portion of the Dockum Aquifer (Layer 4). Layers 2 and 3 also contain the pass-through cells of the Dockum Aquifer.
- In the Mesquite Groundwater Conservation District, the Ogallala Aquifer is the only aquifer that was simulated by the groundwater availability model for the High Plains Aquifer System. Thus, the water budget for the Ogallala Aquifer within the district was determined from Model Layer 1.
- The model was run with MODFLOW-NWT (Niswonger and others, 2011).

### ***Seymour and Blaine Aquifers***

- Version 1.01 of the groundwater availability model for the Seymour and Blaine aquifers was used for this analysis. See Ewing and others (2004) for assumptions and limitations of the groundwater availability model.
- This groundwater availability model includes two layers which represent the Seymour Aquifer (Layer 1) and the Blaine Aquifer or its non-aquifer equivalent (Layer 2).
- The model was run with MODFLOW-2000 (Harbaugh and others, 2000).
- An overall water budget for the district was determined from Layer 1 for the Seymour Aquifer and Layer 2 for the Blaine Aquifer.

### ***RESULTS:***

A groundwater budget summarizes the amount of water entering and leaving the aquifer according to the groundwater availability model. Selected groundwater budget components listed below were extracted from the model results for the aquifers located within the district and averaged over the duration of the calibration portion of the model runs in the district. The components of the modified budget shown in tables 1 through 3 include:

- Precipitation recharge—the areally distributed recharge sourced from precipitation falling on the outcrop areas of the aquifers (where the aquifer is exposed at land surface) within the district.

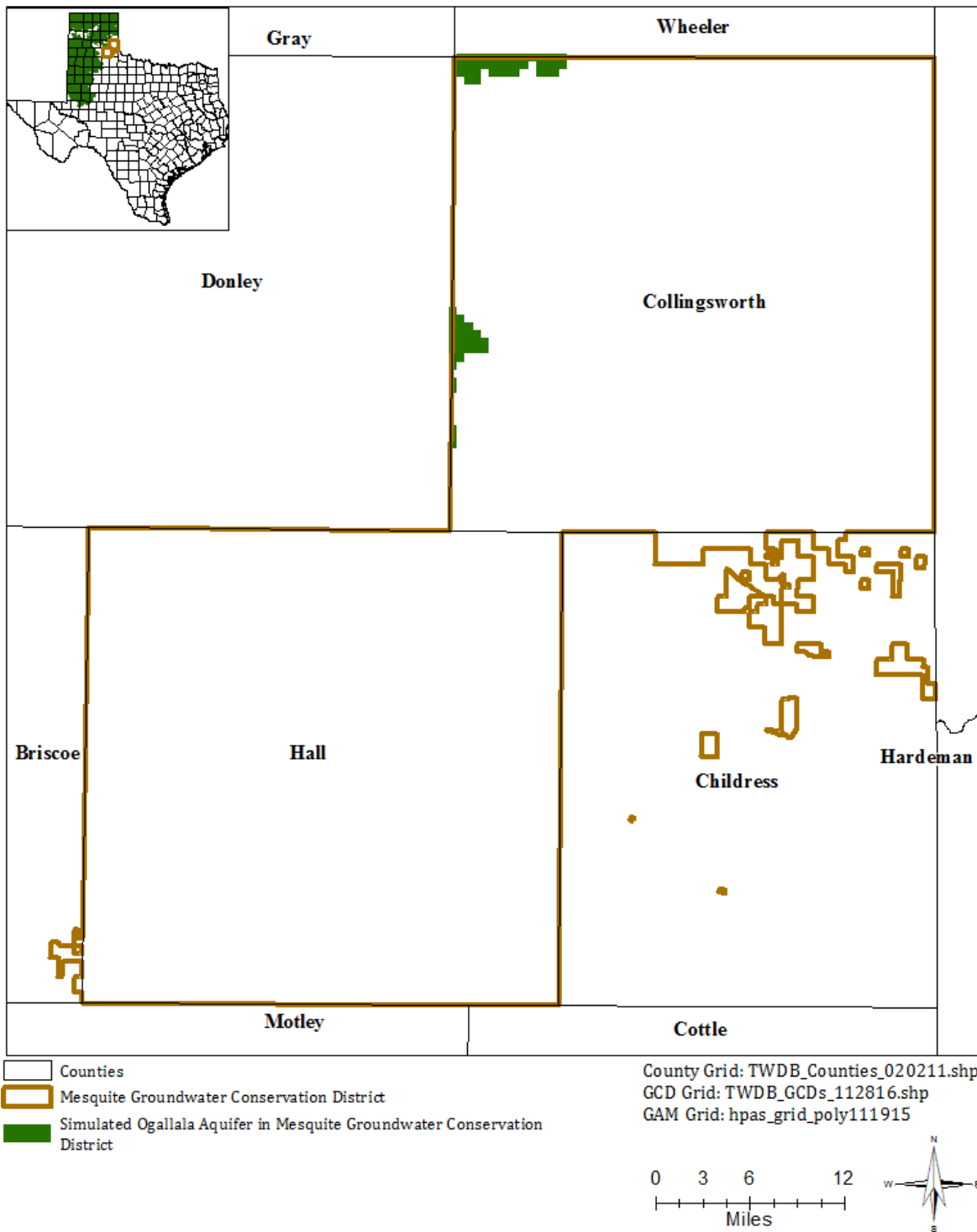
- Surface-water outflow—the total water discharging from the aquifer (outflow) to surface-water features such as streams, reservoirs, and springs.
- Flow into and out of district—the lateral flow within the aquifer between the district and adjacent counties.
- Flow between aquifers—the net vertical flow between the aquifer and adjacent aquifers or confining units. This flow is controlled by the relative water levels in each aquifer and aquifer properties of each aquifer or confining unit that define the amount of leakage that occurs.

The information needed for the district's management plan is summarized in Tables 1 through 3. It is important to note that sub-regional water budgets are not exact. This is due to the size of the model cells and the approach used to extract data from the model. To avoid double accounting, a model cell that straddles a political boundary, such as district or county boundaries, is assigned to one side of the boundary based on the location of the centroid of the model cell. For example, if a cell contains two counties, the cell is assigned to the county where the centroid of the cell is located (Figures 1 through 3).

**TABLE 1: SUMMARIZED INFORMATION FOR THE OGALLALA AQUIFER THAT IS NEEDED FOR MESQUITE GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.**

<i>Management Plan requirement</i>	<i>Aquifer or confining unit</i>	<i>Results</i>
Estimated annual amount of recharge from precipitation to the district	Ogallala Aquifer	647
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Ogallala Aquifer	670
Estimated annual volume of flow into the district within each aquifer in the district	Ogallala Aquifer	434
Estimated annual volume of flow out of the district within each aquifer in the district	Ogallala Aquifer	420
Estimated net annual volume of flow between each aquifer in the district	Not Applicable	Not Applicable*

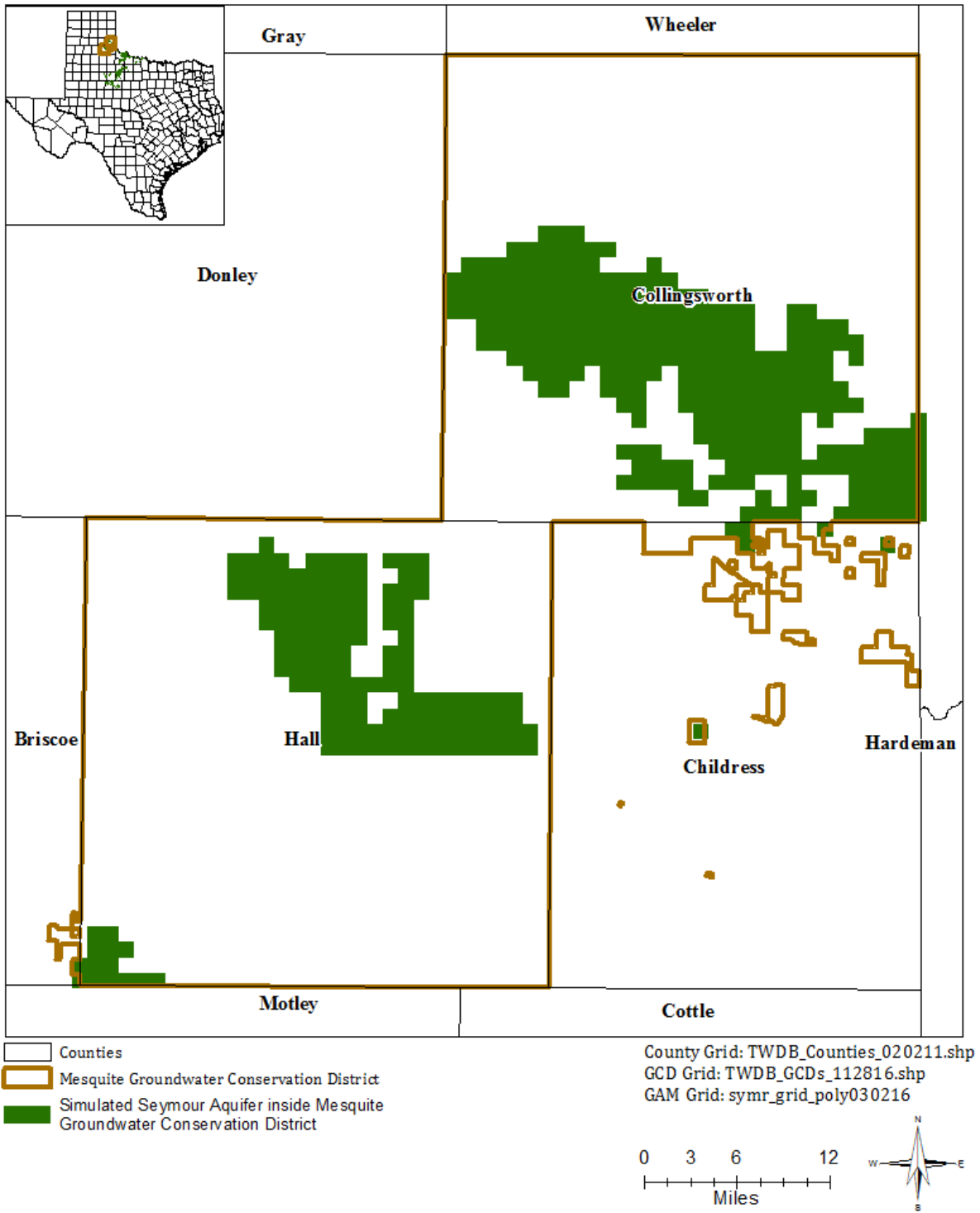
\* The Ogallala Aquifer was the only hydrogeological unit simulated by the model within the Mesquite Groundwater Conservation District.



**FIGURE 1: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE HIGH PLAINS AQUIFER SYSTEM FROM WHICH THE INFORMATION IN TABLE 1 WAS EXTRACTED (THE OGALLALA AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).**

**TABLE 2: SUMMARIZED INFORMATION FOR THE SEYMOUR AQUIFER THAT IS NEEDED FOR MESQUITE GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.**

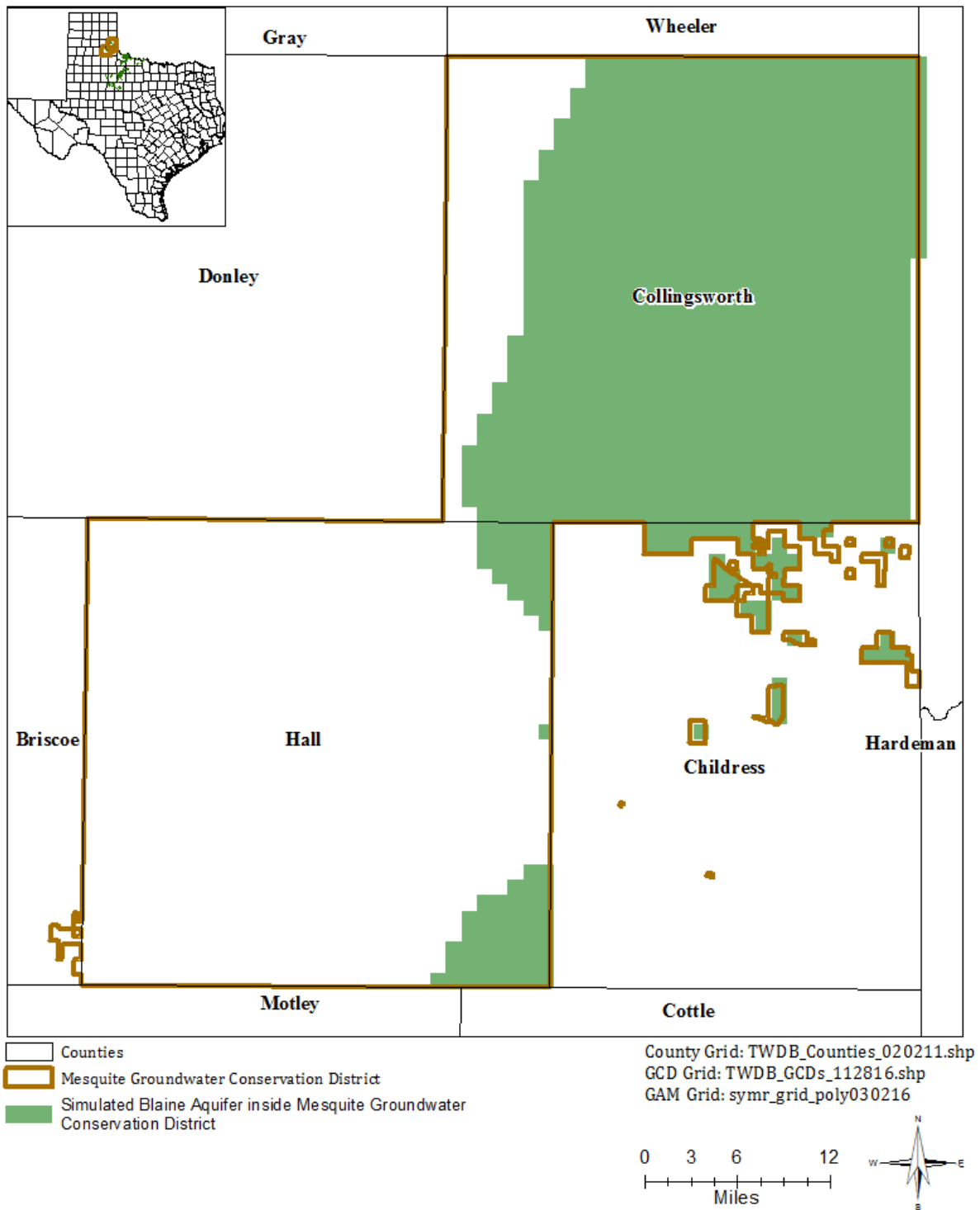
<i>Management Plan requirement</i>	<i>Aquifer or confining unit</i>	<i>Results</i>
Estimated annual amount of recharge from precipitation to the district	Seymour Aquifer	43,601
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Seymour Aquifer	4,268
Estimated annual volume of flow into the district within each aquifer in the district	Seymour Aquifer	1,683
Estimated annual volume of flow out of the district within each aquifer in the district	Seymour Aquifer	1,024
Estimated net annual volume of flow between each aquifer in the district	From the Seymour Aquifer into the Blaine Aquifer	11,064
	From the non-aquifer Blaine equivalent geologic unit into the Seymour Aquifer	6,283



**FIGURE 2: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE SEYMOUR AND BLAINE AQUIFERS FROM WHICH THE INFORMATION IN TABLE 2 WAS EXTRACTED (THE SEYMOUR AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).**

**TABLE 3: SUMMARIZED INFORMATION FOR THE BLAINE AQUIFER THAT IS NEEDED FOR MESQUITE GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.**

<i>Management Plan requirement</i>	<i>Aquifer</i>	<i>Results</i>
Estimated annual amount of recharge from precipitation to the district	Blaine Aquifer	23,236
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Blaine Aquifer	21,409
Estimated annual volume of flow into the district within each aquifer in the district	Blaine Aquifer	11,956
Estimated annual volume of flow out of the district within each aquifer in the district	Blaine Aquifer	16,316
Estimated net annual volume of flow between each aquifer in the district	From the Seymour Aquifer into the Blaine Aquifer	11,064
	From the non-aquifer Blaine equivalent geologic unit into the Blaine Aquifer	12,053



**FIGURE 3: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE SEYMOUR AND BLAINE AQUIFERS FROM WHICH THE INFORMATION IN TABLE 3 WAS EXTRACTED (THE BLAINE AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).**



## ***LIMITATIONS:***

The groundwater models used in completing this analysis are the best available scientific tools that can be used to meet the stated objectives. To the extent that this analysis will be used for planning purposes and/or regulatory purposes related to pumping in the past and into the future, it is important to recognize the assumptions and limitations associated with the use of the results. In reviewing the use of models in environmental regulatory decision making, the National Research Council (2007) noted:

*“Models will always be constrained by computational limitations, assumptions, and knowledge gaps. They can best be viewed as tools to help inform decisions rather than as machines to generate truth or make decisions. Scientific advances will never make it possible to build a perfect model that accounts for every aspect of reality or to prove that a given model is correct in all respects for a particular regulatory application. These characteristics make evaluation of a regulatory model more complex than solely a comparison of measurement data with model results.”*

A key aspect of using the groundwater model to evaluate historic groundwater flow conditions includes the assumptions about the location in the aquifer where historic pumping was placed. Understanding the amount and location of historic pumping is as important as evaluating the volume of groundwater flow into and out of the district, between aquifers within the district (as applicable), interactions with surface-water (as applicable), recharge to the aquifer system (as applicable), and other metrics that describe the impacts of that pumping. In addition, assumptions regarding precipitation, recharge, and interaction with streams are specific to particular historic time periods.

Because the application of the groundwater models was designed to address regional-scale questions, the results are most effective on a regional scale. The TWDB makes no warranties or representations related to the actual conditions of any aquifer at a particular location or at a particular time.

It is important for groundwater conservation districts to monitor groundwater pumping and overall conditions of the aquifer. Because of the limitations of the groundwater model and the assumptions in this analysis, it is important that the groundwater conservation districts work with the TWDB to refine this analysis in the future given the reality of how the aquifer responds to the actual amount and location of pumping now and in the future. Historic precipitation patterns also need to be placed in context as future climatic conditions, such as dry and wet year precipitation patterns, may differ and affect groundwater flow conditions.

**REFERENCES:**

- Deeds, N. E. and Jigmond, M., 2015, Numerical Model Report for the High Plains Aquifer System Groundwater Availability Model, 640 p.  
[http://www.twdb.texas.gov/groundwater/models/gam/hpas/HPAS\\_GAM\\_Numerical\\_Report.pdf](http://www.twdb.texas.gov/groundwater/models/gam/hpas/HPAS_GAM_Numerical_Report.pdf)
- Ewing, J., Jones, T. L., Pickens, J. F., Chastain-Howley, A., Dean, K. E., and Spear, A. A., 2004, Final Report: Groundwater Availability Model for the Seymour Aquifer, 533 p.  
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<https://www.twdb.texas.gov/groundwater/docs/GAMruns/GR13-017.pdf>
- National Research Council, 2007, Models in Environmental Regulatory Decision Making Committee on Models in the Regulatory Decision Process, National Academies Press, Washington D.C., 287 p.
- Niswonger, R.G., Panday, S., and Ibaraki, M., 2011, MODFLOW-NWT, a Newton formulation for MODFLOW-2005: United States Geological Survey, Techniques and Methods 6-A37, 44 p.

**Appendix C**

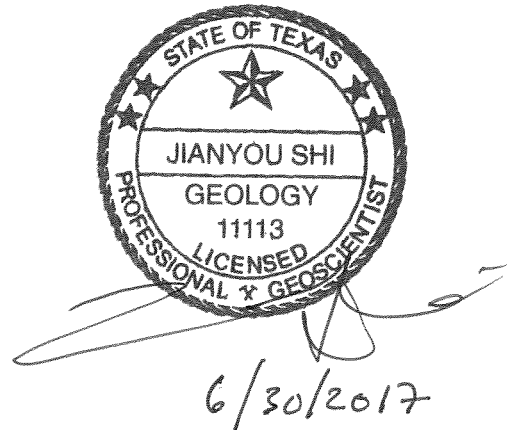
**Modeled Available Groundwater  
GR16-031-MAG**



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**GAM RUN 16-031 MAG:  
MODELED AVAILABLE GROUNDWATER FOR THE  
SEYMOUR, BLAINE, OGALLALA, AND  
DOCKUM AQUIFERS IN  
GROUNDWATER MANAGEMENT AREA 6**

Jerry Shi, Ph.D., P.G.  
Texas Water Development Board  
Groundwater Division  
Groundwater Availability Modeling Department  
(512) 463-5076  
June 30, 2017



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# **GAM RUN 16-031 MAG: MODELED AVAILABLE GROUNDWATER FOR THE SEYMOUR, BLAINE, OGALLALA, AND DOCKUM AQUIFERS IN GROUNDWATER MANAGEMENT AREA 6**

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Groundwater Division  
Groundwater Availability Modeling Department  
(512) 463-5076  
June 30, 2017

## ***EXECUTIVE SUMMARY:***

The Texas Water Development Board (TWDB) estimated the modeled available groundwater values for the following relevant aquifers in Groundwater Management Area 6:

- Seymour Aquifer – The modeled available groundwater ranges from 181,589 acre-feet per year in 2020 to 173,102 acre-feet per year in 2070, and is summarized by groundwater conservation districts and counties in Table 1, and by river basins, regional planning areas, and counties in Table 5.
- Blaine Aquifer – The modeled available groundwater ranges from 74,182 acre-feet per year in 2020 to 70,874 acre-feet per year in 2070, and is summarized by groundwater conservation districts and counties in Table 2, and by river basins, regional planning areas, and counties in Table 6.
- Ogallala Aquifer – The modeled available groundwater remains at 409 acre-feet per year between 2020 and 2070, and is summarized by groundwater conservation districts and counties in Table 3, and by river basins, regional planning areas, and counties in Table 7.
- Dockum Aquifer – The modeled available groundwater ranges from 172 acre-feet per year in 2020 to 171 acre-feet per year in 2070, and is summarized by groundwater conservation districts and counties in Table 4, and by river basins, regional planning areas, and counties in Table 8.

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The modeled available groundwater values for Groundwater Management Area 6 estimated for counties is slightly different from that estimated for groundwater conservation districts because of the process for rounding the values.

The modeled available groundwater estimates are based on the desired future conditions for the Seymour, Blaine, Ogallala, and Dockum aquifers adopted by groundwater conservation district representatives in Groundwater Management Area 6 on November 17, 2016. The district representatives declared the following aquifers to be non-relevant for purposes of joint planning: the Trinity Aquifer; the Ogallala Aquifer in Collingsworth and Dickens counties; the Blaine Aquifer in King and Stonewall counties; the Dockum Aquifer in Dickens and Kent counties; and the Seymour Aquifer in Wichita, Wilbarger, Archer, Clay, Stonewall, Throckmorton, Young, Kent, and Jones counties. The TWDB determined that the explanatory report and other materials submitted by the district representatives were administratively complete on May 5, 2017.

***REQUESTOR:***

Mr. Mike McGuire, General Manager of Rolling Plains Groundwater Conservation District and Groundwater Management Area 6 Coordinator.

***DESCRIPTION OF REQUEST:***

In a letter dated January 17, 2017, Mr. Mike McGuire provided the TWDB with the desired future conditions of the Seymour, Blaine, Ogallala, and Dockum aquifers. The desired future conditions were adopted on November 17, 2016 by the groundwater conservation district representatives in Groundwater Management Area 6. The desired future conditions are:

**Dockum Aquifer (Resolution No. 2016-001)**

*“a. The Desired Future Condition for Fisher County, located in the Clear Fork Groundwater Conservation District is that condition whereby the total decline in water levels will be no more than 27 feet during the period from 2020 - 2070*

*b. The Desired Future Condition for Motley County, located in the Gateway Groundwater Conservation District is that condition whereby the total decline in water levels will be no more than 27 feet during the period from 2020 - 2070*

*c. The Dockum Aquifer in Dickens & Kent Counties, not located within a Groundwater Conservation District, has been determined to be non-relevant for joint planning purposes.”*



### **Trinity Aquifer (Resolution No. 2016-002)**

*“The Trinity Group Aquifers within Groundwater Management Area 6 have been determined to be non-relevant for joint planning purposes.”*

### **Ogallala Aquifer (Resolution No. 2016-003)**

*“a. The Desired Future Condition for Motley County, located in the Gateway Groundwater Conservation District, is that condition with average drawdown of between 23 and 27 feet, calculated from the end of 2012 conditions to the year 2070 as documented in GMA 2 Technical Memorandum 16-01.*

*b. The Ogallala Aquifer in Collingsworth County, located in the Mesquite Groundwater Conservation District, is insignificant or nonexistent, and is determined to be non-relevant for joint planning purposes*

*c. The Ogallala Aquifer in Dickens County, not located within a Groundwater Conservation District, is determined to be non-relevant for joint planning purposes.”*

### **Blaine Aquifer (Resolution No. 2016-004)**

*“a. The Desired Future Condition for that part of Childress County North of the Red River, located in the Mesquite Groundwater Conservation District, all of Collingsworth and Hall Counties, also located within the Mesquite Groundwater Conservation District; and that part of Childress County North of the Red River located in the Gateway Groundwater Conservation District is that condition whereby the total decline in water levels will be no more than 9 feet during the period from 2020 - 2070*

*b. The Desired Future Condition for that part of Childress County south of the Red River located in the Mesquite & Gateway Groundwater Conservation Districts; and all of Cottle, Foard, and Hardeman Counties, also located within the Gateway Groundwater Conservation District, is that condition whereby the total decline in water levels will be no more than 2 feet during the period from 2020 - 2070*

*c. The Desired Future Condition for Fisher County, located within the Clear Fork Groundwater Conservation District, is that condition whereby the total decline in water levels will be no more than 4 feet during the period from 2020 - 2070*

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*d. The Blaine Aquifer in Motley County, located within the Gateway Groundwater Conservation District, and in Knox County, located within the Rolling Plains Groundwater Conservation District, has been determined to be non-relevant for joint planning purposes.*

*e. The Blaine Aquifer in Dickens, Kent, King, Jones, and Stonewall Counties, not located within a Groundwater Conservation District, has been determined to be non-relevant for joint planning purposes.”*

**Seymour Aquifer (Resolution No. 2016-005)**

*“a. The Desired Future Condition for Pod 1 in Childress [and] Collingsworth Counties, located in the Mesquite and Gateway Groundwater Conservation Districts, is that condition whereby the total decline in water levels will be no more than 33 feet during the period from 2020 - 2070*

*b. The Desired Future Condition for Pod 2 in Hall County, located in Mesquite Groundwater Conservation District is that condition whereby the total decline in water levels will be no more than 15 feet during the period from 2020 - 2070*

*c. The Desired Future Condition for Pod 3 in Briscoe, Hall [and] Motley Counties, located in the Mesquite and Gateway Groundwater Conservation Districts, is that condition whereby the total decline in water levels will be no more than 15 feet during the period from 2020 - 2070*

*d. The Desired Future Condition for Pod 4 in Childress, Foard, and Hardeman counties, located in Gateway Groundwater Conservation District, is that condition whereby the total decline in water levels will be no more than 1 foot during the period from 2020 – 2070*

*e. The Desired Future Condition for Pod 6 in Knox County, located in Rolling Plains Groundwater Conservation District is that condition whereby the total decline in water levels will be no more than 18 feet during the period from 2020 –2070*

*f. The Desired Future Condition for that part of Pod 7 Baylor, Haskell, and Knox Counties, located in Rolling Plains Groundwater Conservation District is that condition whereby the total decline in water levels will be no more than 18 feet during the period from 2020 - 2070*

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*g. The Desired Future Condition for that part of Pod 8 in Baylor County, located in Rolling Plains Groundwater Conservation District is that condition whereby the total water level decline will be no more than 18 feet during the period from 2020 – 2070*

*h. The Desired Future Condition for that part of Pod 11 in Fisher County, located in Clear Fork Groundwater Conservation District is that condition whereby the total water level decline will be no more than 1 foot during the period from 2020 - 2070*

*i. The Seymour Aquifer Pods 5, 9, 10, 12, 13, 14, 15, that part of 4 in Wichita and Wilbarger counties, that part of 7 in Stonewall County, that part of 8 in Throckmorton and Young counties, and that part of 11 in Jones and Stonewall counties have been determined to be non-relevant for joint planning purposes.”*

After review of the submittal, the TWDB sent a request for clarification email to Mr. Mike McGuire on February 28, 2017. On March 20, 2017, Mr. McGuire responded with additional information and clarifications as noted below.

- a. Predictive model format - The six predictive model runs submitted for the Seymour and Blaine aquifers were in a format that the TWDB could not open. The TWDB asked for standard MODFLOW-2000 input and output files. Mr. McGuire sent the standard MODFLOW-2000 input packages to the TWDB on a flash drive.
- b. Unclear baseline condition years and baseline water level conditions for the Blaine and Seymour aquifers – The explanatory report showed a baseline year of 2020, while the modeling technical report indicated 2010. Mr. McGuire confirmed in his response that the baseline year for calculating drawdown for these two aquifers was 2010. Because this baseline year is after the end of the calibration period for both groundwater availability models (Jigmond and others, 2014; Ewing and others, 2004), available water-level data between the end of the calibration period and the baseline year were evaluated. The result of the evaluation is included in Appendix A.
- c. No pumping in the Blaine Aquifer in Fisher County - The groundwater availability model for the Seymour and Blaine aquifers (Ewing and others, 2004) does not contain pumping in the Blaine Aquifer in Fisher County between 1995 and 1999. This would not only result in a zero modeled available groundwater, but would also make it impossible to match the desired future condition for the Blaine Aquifer in Fisher County. Mr. McGuire then requested the TWDB to use an even pumping distribution within the Blaine Aquifer that meets the desired future condition in the county.

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- d. Desired future condition of the Blaine Aquifer in Foard County - A preliminary model run indicated that even the absence of pumping would cause a drawdown larger than the desired future condition (2 feet). Mr. McGuire clarified that a ten-foot drawdown for the Blaine Aquifer in Foard County is the desired future condition.
- e. Unclear baseline condition years for the Dockum and Ogallala aquifers - The desired future conditions specify a timeline from 2020 to 2070. Mr. McGuire informed TWDB to use the year 2012 as Groundwater Management Area 2 did.
- f. Desired future conditions of the Dockum and Ogallala aquifer in Fisher and Motley counties – Groundwater Management Area 6 intended to use the desired future conditions from Groundwater Management Area 2 for these two aquifers in Fisher and Motley counties. In his response, Mr. McGuire stated that Groundwater Management Area 6 intended to establish the desired future conditions for the Ogallala and Dockum aquifers in Fisher and Motley counties that reflected the pumping assumptions in those counties to achieve the average drawdown of 27 feet in Groundwater Management Area 2.
- g. Aquifer boundaries – Mr. McGuire informed the TWDB that all desired future conditions and associated modeled available groundwater are based on model extent boundaries.
- h. Unclear averaging method for recharge (Seymour Aquifer in Haskell, Knox, and Baylor counties) – Mr. McGuire confirmed with the TWDB that the recharge is the arithmetic mean from 2001 to 2005.
- i. DFC statements of “no more than” – Mr. McGuire stated that the desired future conditions are based on the average decline within the individual geographical areas described in the Desired Future Conditions Table in Section 1 of the Explanatory Report. Decline is the difference between the baseline year and 2070.

### ***METHODS:***

The desired future conditions for Groundwater Management Area 6 are based on water-level declines or drawdowns defined as the difference in well water levels between a baseline year and 2070. Depending on the aquifer, one of three groundwater availability models were used to construct predictive simulations to estimate drawdowns over the same time interval and to calculate modeled available groundwater. The aquifers and corresponding groundwater availability models were:

- Seymour Aquifer of Pod 7 in Baylor, Haskell, and Knox counties – “refined” groundwater availability model for the Seymour Aquifer (Jigmond and others, 2014)

- Seymour Aquifer (except Pod 7) and Blaine Aquifer – groundwater availability model for the Seymour and Blaine aquifers (Ewing and others, 2004)
- Ogallala and Dockum aquifers – groundwater availability model for the High Plains Aquifer System (Deeds and Jigmond, 2015)

Some of the predictive simulations employed for the modeled available groundwater calculations were part of the Groundwater Management Area 6 submittal (Nelson, 2017), while the others were developed by the TWDB (Appendix B).

One of the first steps for a predictive simulation is to verify if the model reflects real-world conditions for the selected baseline year. If the baseline year for a desired future condition falls within the model calibration period, the water levels and/or fluxes for the baseline year have been calibrated to observed data. If the baseline year is after the end of the calibration period, water levels and/or fluxes must be evaluated between the end of the calibration period and the baseline year to confirm if the model reflects real-world conditions. If water levels and/or fluxes have remained steady during this interim period, the end of the calibration period can be used for the baseline year. However, if water levels and/or fluxes have not remained steady, pumping (and sometimes recharge) is typically adjusted until water levels and/or fluxes reflect real-world conditions.

The simulated drawdown for an area (such as a county) is the average of simulated drawdowns in active model cells with centroids located within each designated area. For the Seymour, Ogallala, and Dockum aquifers, the active model cells or modeled extents are the same as, or similar to, the official aquifer boundaries. However, the modeled extent for the Blaine Aquifer is significantly larger than the official aquifer footprint in some counties, such as in Hall and Foard counties. Therefore, in Hall and Foard counties, the drawdown for the desired future condition contains the Blaine Aquifer and equivalent geologic units in the subcrop.

Another factor that affects the drawdown calculation is related to dry model cells. For this study, a model cell is considered dry when its water level falls below a cell bottom at the baseline year. A dry cell is excluded from the average drawdown calculation. This analysis is presented in Appendix C.

The following sections summarize the predictive simulations submitted by Groundwater Management Area 6 and the predictive simulations by the TWDB. The water level drawdowns calculated by these predictive model runs are presented in Appendix B, which can be compared with the desired future conditions.

### **Seymour Aquifer of Pod 7 in Baylor, Haskell, and Knox Counties**

Three predictive simulations submitted by Nelson (2017) were developed from runs using the refined groundwater availability model for the Seymour Aquifer in Baylor, Haskell, and Knox counties (Jigmond and others, 2014). This refined groundwater availability model only covers Pod 7 of the Seymour Aquifer (Figure 1). The predictive simulations included the calibrated period (1949 through 2005) and a predictive period (2006 through 2070). The predictive period used annual time intervals with three different pumping scenarios: 100, 80, or 75 percent of the average pumping of the last five years (2001-2005) of the calibration period (Jigmond and others, 2014).

Because the baseline year for the desired future condition (2010) is after the end of the calibration period, the TWDB evaluated the water-level data at selected wells from winter months between 2005 and 2010. Figure A1 (in Appendix A) shows the average water-level change from 2005 to 2010 in the Seymour Aquifer in Baylor, Haskell, and Knox counties. The average water levels have been stable over the selected time interval. As a result, the TWDB determined that further refinement of pumping was not necessary for the period between 2005 and 2010, and determined that conditions at the end of the calibration period can be used as conditions for the baseline year.

Next, the TWDB checked the MODFLOW-2000 well packages for the predictive simulations and found no problem with the pumping scenario that used 100 percent of the average pumping of the last five years of the groundwater availability model (2001 through 2005). As a result, the TWDB ran this scenario to obtain the MODFLOW-2000 output files. The head output file was used to calculate the drawdowns between 2010 and 2070. The TWDB then compared the drawdowns with the desired future conditions for the Seymour Aquifer in Pod 7 in these three counties. The comparison indicates that the drawdowns do not exceed the desired future conditions (Table B1 in Appendix B).

### **Seymour and Blaine Aquifers (excluding Pod 7 of Seymour)**

The other three predictive simulations by Nelson (2017) were based on the groundwater availability model for the Seymour and Blaine aquifers (Figure 2; Ewing and others, 2004). The predictive simulations were used to determine the desired future conditions for the Blaine Aquifer and all the Seymour Aquifer except Pod 7, which was covered by the refined model described earlier. The predictive simulations included the calibrated period (1975 through 1999) and a predictive period (2000 through 2070). The predictive period used annual time interval with three different pumping scenarios: 100, 75, or 50 percent of the average pumping of the last five years of the calibrated model, 1995 through 1999 (Ewing and others, 2004).

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Because the baseline year (2010) is after the end of the calibration period (1999), TWDB evaluated the water-level data at selected wells from winter months between 1999 and 2010. Figure A2 (in Appendix A) illustrates the average water-level change from 1999 to 2010 in the Seymour Aquifer within Groundwater Management Area 6. For the Blaine Aquifer, only one well from Childress County (State Well Number 1231804) meets the selection criterion and its hydrograph is presented in Figure A3. Nevertheless, Figures A2 and A3 indicate that the water level has not significantly changed over the selected time interval. As a result, the TWDB determined that further model refinement of pumping was not necessary for the period between 1999 and 2010, and determined that conditions at the end of the calibration period can be used as conditions for the baseline year.

The TWDB also checked the MODFLOW-2000 well packages for the predictive simulations from Nelson (2017) and discovered a significant inconsistency between the well package from the submittal and that from the TWDB's calculation for the 100-percent pumping scenario based on the last five years of the calibrated groundwater availability model for the Seymour and Blaine aquifers. As a result, the TWDB developed a new predictive simulation for the Seymour and Blaine aquifers using the groundwater availability model by Ewing and others (2004). Because, as discussed above, the water levels did not change much from 1999 to 2010, this predictive simulation uses the water levels of the last stress period (1999) of the groundwater availability model as the initial head for the baseline year (2010). This new predictive simulation runs from 2011 through 2070 with an annual interval and the average recharge of 1995 through 1999 of the calibrated groundwater availability model as stated in the explanatory report and Mr. McGuire's response. The initial pumping is based on the average of the last five years of the calibrated model but was adjusted during the model run to meet the desired future conditions for the Seymour Aquifer (excluding Pod 7) (Table B1 in Appendix B) and Blaine Aquifer (Table B2 in Appendix B).

### **Ogallala and Dockum Aquifers**

Per Mr. McGuire's request, the TWDB used the predictive simulation for the desired future conditions adopted by Groundwater Management Area 2 to reproduce the desired future conditions and to calculate the modeled available groundwater for Groundwater Management Area 6. This predictive simulation ran from 2013 through 2017, with a baseline year of 2012, the same year as the last stress period of the calibrated groundwater availability model by Deeds and Jigmond (2015). The predictive simulation used all boundary conditions from the last stress period of the groundwater availability model except the pumping package, which was modified and adjusted during the model run to meet the desired future conditions of Groundwater Management Area 2 (see GAM Run 16-

028 for details). The simulated drawdown or desired future conditions are presented in Tables B3 and B4 of Appendix B.

### **Modeled Available Groundwater**

Once the predictive simulations met the desired future conditions, the modeled available groundwater values were extracted from the MODFLOW cell-by-cell budget files. Annual pumping rates were then divided by county, river basin, regional water planning area, and groundwater conservation district within Groundwater Management Area 6 (Figures 1 through 6 and Tables 1 through 6).

### **Modeled Available Groundwater and Permitting**

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. 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.

### ***PARAMETERS AND ASSUMPTIONS:***

The parameters and assumptions for the groundwater availability simulations are described below:

#### **Seymour Aquifer of Pod 7 in Baylor, Haskell, and Knox Counties**

- The groundwater availability model for the Seymour Aquifer of Pod 7 by Jigmond and others (2014) was extended to include the predictive model simulation for this analysis (Nelson, 2017).
- The model has one layer, which represents the Seymour Aquifer.
- The model was run with MODFLOW-2000 (Harbaugh and others, 2000).
- During the predictive model run, some model cells went dry (Table C1 of Appendix C).



- Estimates of modeled drawdown and available groundwater from the model simulation were rounded to whole numbers.

### **Seymour and Blaine Aquifers**

- Version 1.01 of the groundwater availability model for the Seymour and Blaine aquifers (Ewing and others, 2004) was updated to include the predictive model simulation for this analysis.
- The model has two layers that represent the Seymour Aquifer (Layer 1) and the Blaine Aquifer as well as other geologic units that underlie the Seymour Aquifer (Layer 2).
- The model was run with MODFLOW-2000 (Harbaugh and others, 2000).
- During the predictive model run, some model cells went dry (Table C2 of Appendix C).
- Estimates of modeled drawdown and available groundwater from the model simulation were rounded to whole numbers.

### **Ogallala and Dockum Aquifers**

- Version 1.01 of the groundwater availability model for the High Plains Aquifer System by Deeds and Jigmond (2015) was used to develop the predictive model simulation used for this analysis (Hutchison, 2016d).
- The model has four layers which represent the Ogallala and Pecos Valley Alluvium aquifers (Layer 1); the Edwards-Trinity (High Plains), Rita Blanca, and Edwards-Trinity (Plateau) aquifers (Layer 2); the Upper Dockum Aquifer (Layer 3); and the Lower Dockum Aquifer (Layer 4). Pass-through cells exist in layers 2 and 3 where the Upper Dockum Aquifer was absent but the cells provided a pathway for flow between the Lower Dockum and the Ogallala or Edwards-Trinity (High Plains) aquifers vertically. These pass-through cells were excluded from the modeled available groundwater calculation.
- The model was run with MODFLOW-NWT (Niswonger and others, 2011). The model uses the Newton-Raphson formulation and the upstream weighting package, which automatically reduces pumping as heads drop in a particular cell as defined by the user. This feature may simulate the declining production of a well as saturated

thickness decreases. Deeds and Jigmond (2015) modified the MODFLOW-NWT code to use a saturated thickness of 30 feet as the threshold (instead of percent of the saturated thickness) when pumping reductions occur during a simulation.

- During the predictive model run, no model cells within Groundwater Management Area 6 went dry.
- Estimates of modeled drawdown and available groundwater from the model simulation were rounded to whole numbers.

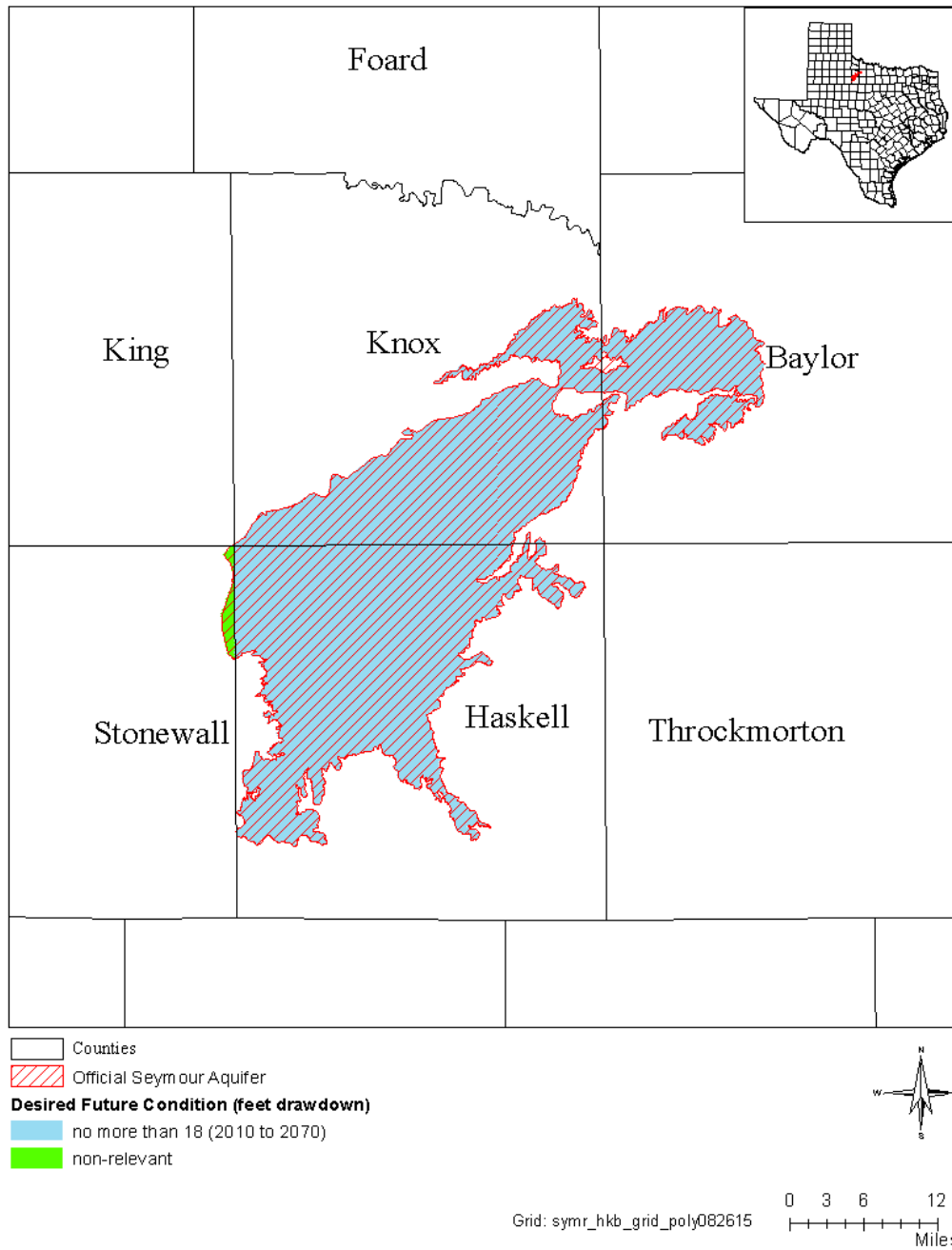
### ***RESULTS:***

The modeled available groundwater for the Seymour Aquifer that achieves the desired future condition adopted by Groundwater Management Area 6 slightly decreases from 181,589 to 173,102 acre-feet per year between 2020 and 2070. The modeled available groundwater is summarized by groundwater conservation district and county in Table 1. Table 5 summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

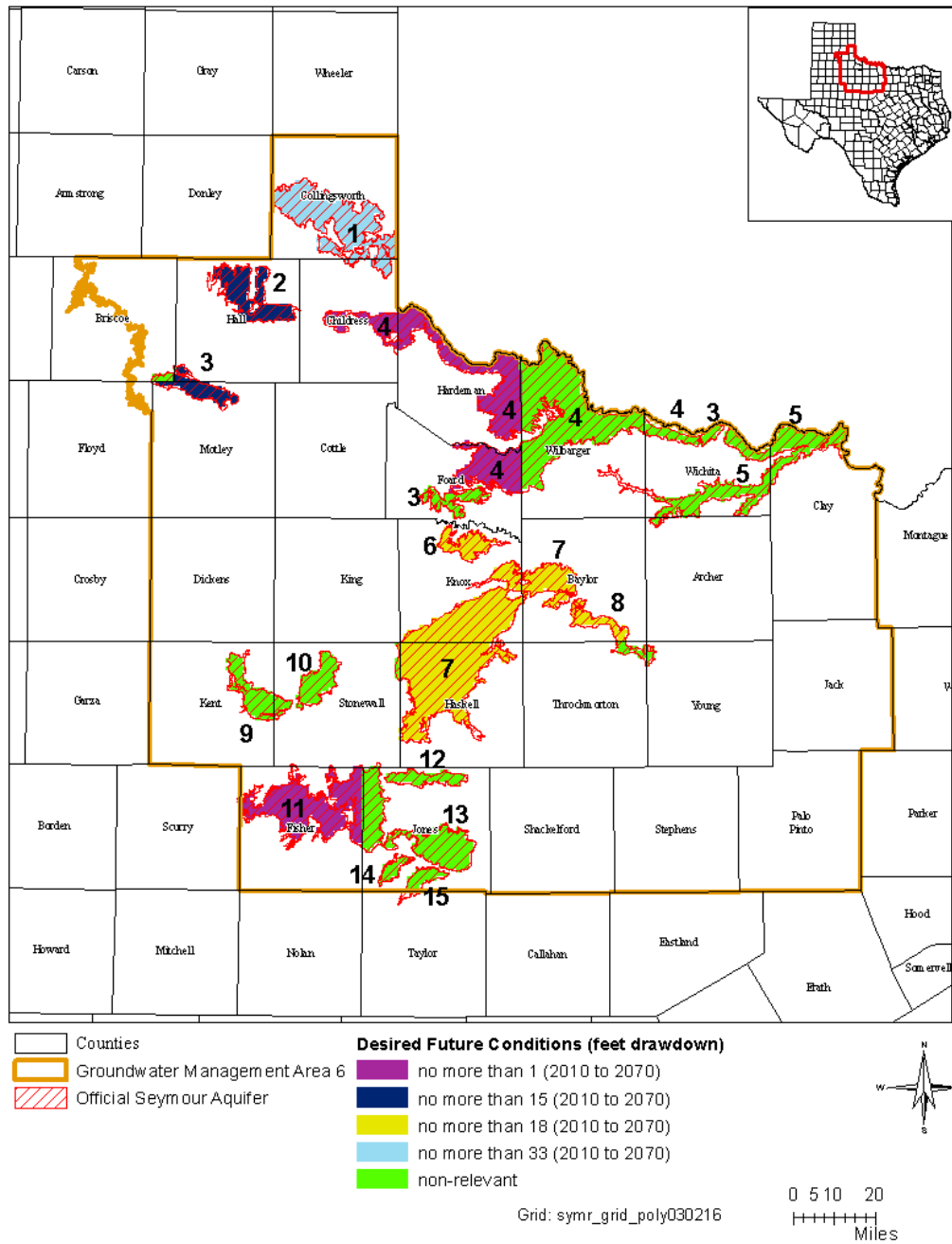
The modeled available groundwater for the Blaine Aquifer that achieves the desired future condition adopted by Groundwater Management Area 6 decreases slightly from 74,182 to 70,874 acre-feet per year between 2020 and 2070. The modeled available groundwater is summarized by groundwater conservation district and county in Table 2. Table 6 summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Ogallala Aquifer that achieves the desired future condition adopted by Groundwater Management Area 6 remains at 409 acre-feet per year between 2020 and 2070. The modeled available groundwater is summarized by groundwater conservation district and county in Table 3. Table 7 summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

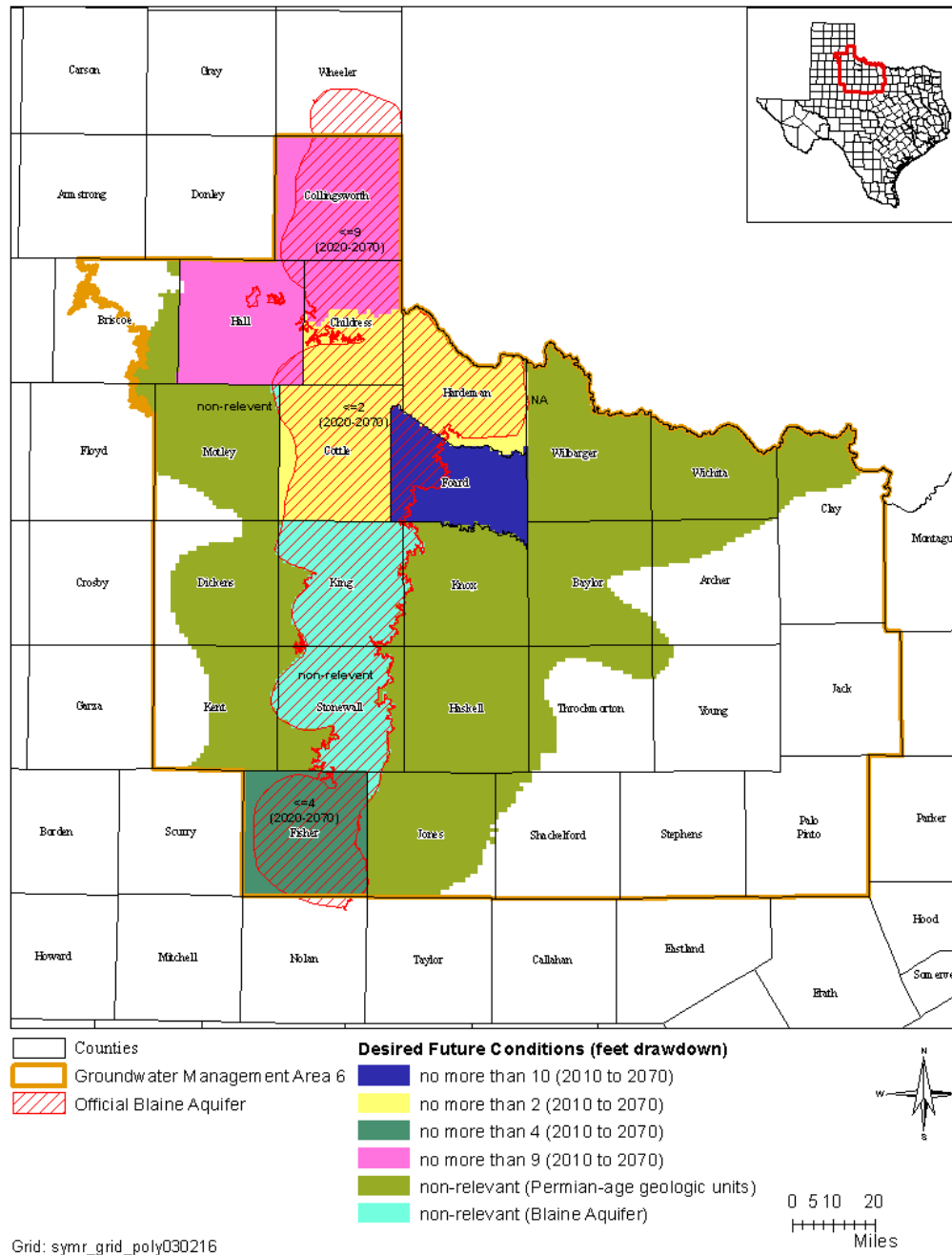
The modeled available groundwater for the Dockum Aquifer that achieves the desired future condition adopted by Groundwater Management Area 6 remains at about 172 acre-feet per year between 2020 and 2070. The modeled available groundwater is summarized by groundwater conservation district and county in Table 4. Table 8 summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.



**FIGURE 1. MAP SHOWING THE AREA COVERED BY THE REFINED GROUNDWATER AVAILABILITY MODEL FOR THE SEYMOUR AQUIFER POD 7, WHICH INCLUDES BAYLOR, HASKELL, AND KNOX COUNTIES WITHIN GROUNDWATER MANAGEMENT AREA 6.**



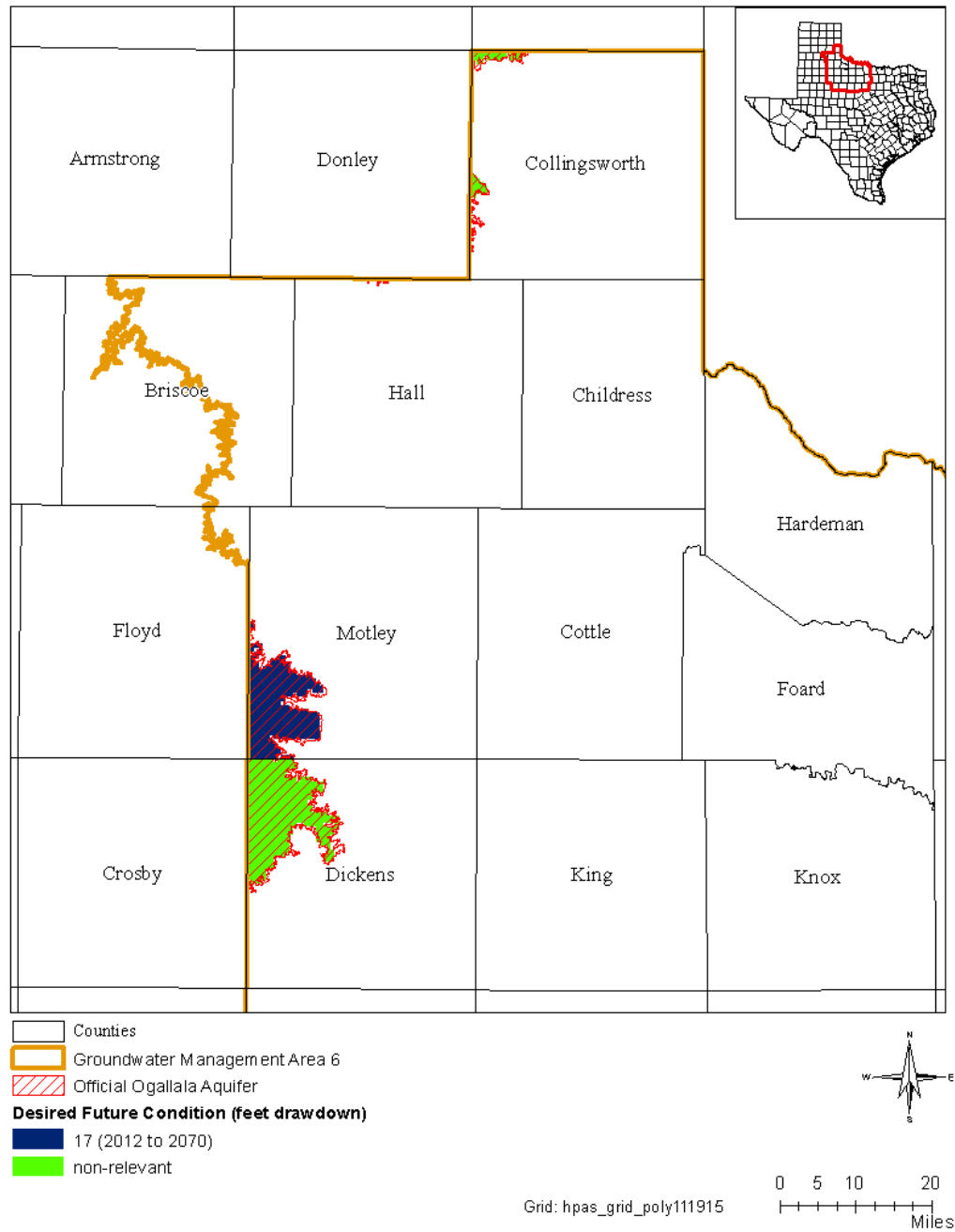
**FIGURE 2. MAP SHOWING THE AREA COVERED BY THE SEYMOUR AQUIFER IN THE GROUNDWATER AVAILABILITY MODEL FOR THE SEYMOUR AND BLAINE AQUIFERS WITHIN GROUNDWATER MANAGEMENT AREA 6. THE INTEGERS IN THE FIGURE ARE SEYMOUR AQUIFER POD NUMBERS.**



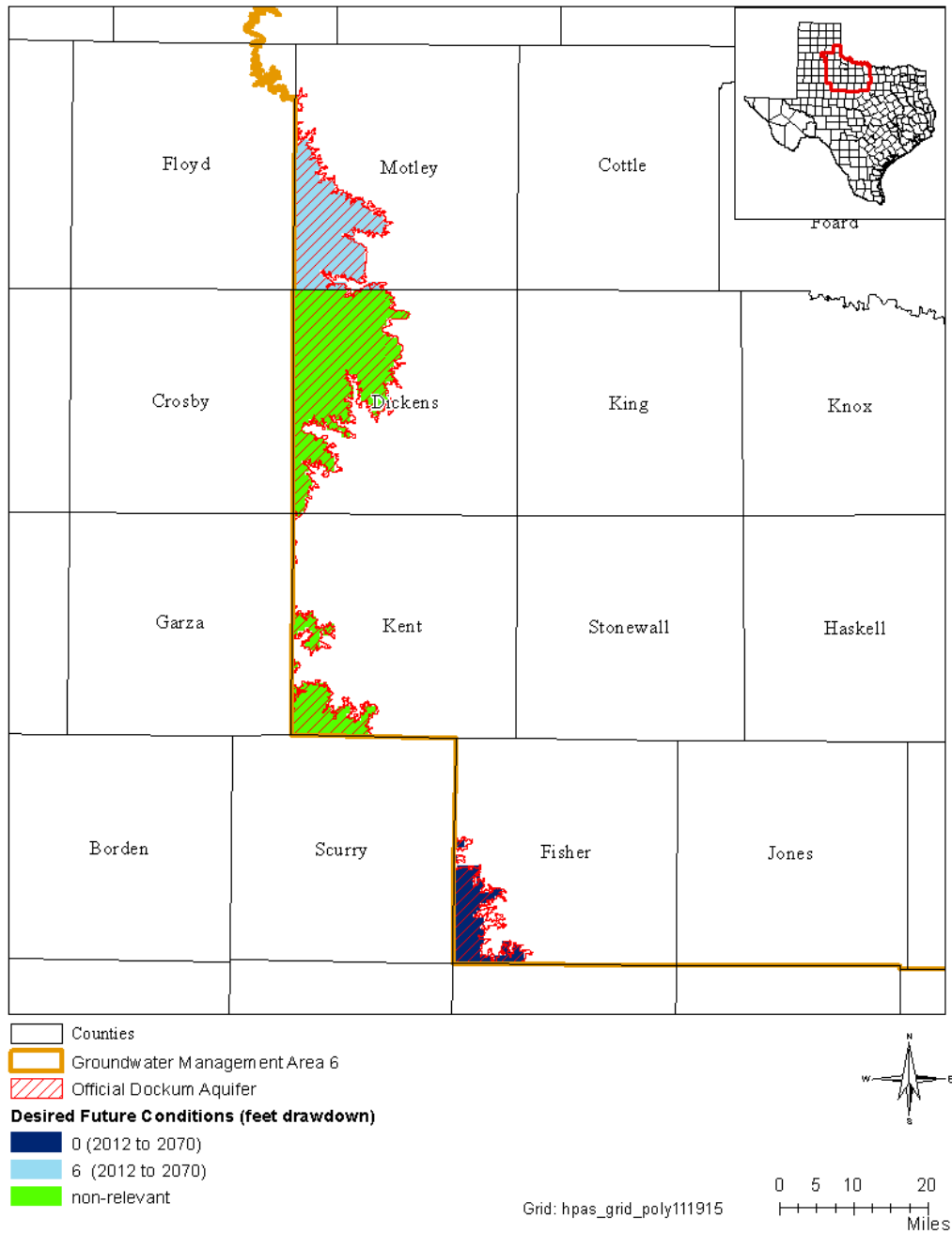
**FIGURE 3. MAP SHOWING THE AREA COVERED BY THE BLAINE AQUIFER IN THE GROUNDWATER AVAILABILITY MODEL FOR THE SEYMOUR AND BLAINE AQUIFERS WITHIN GROUNDWATER MANAGEMENT AREA 6.**

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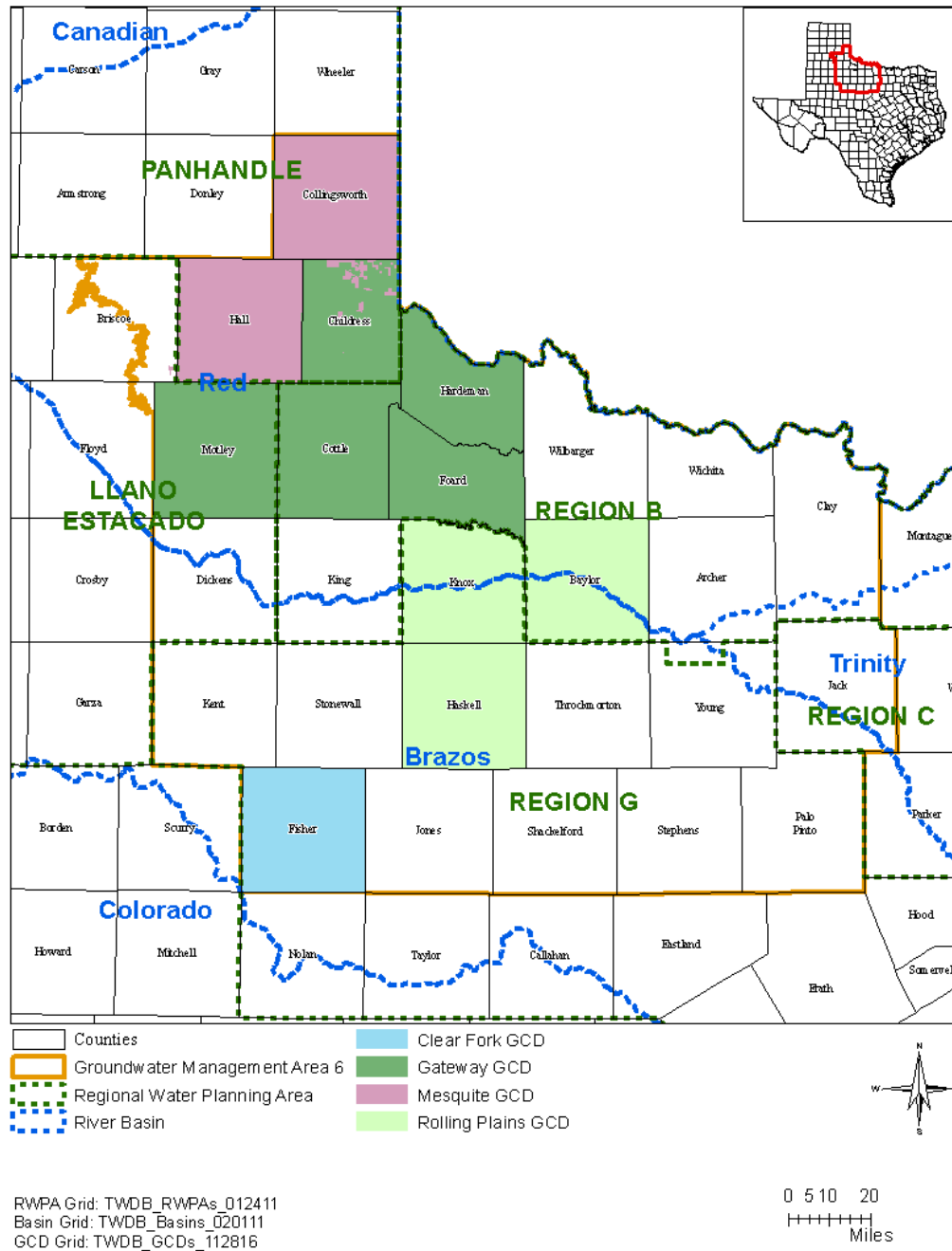
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**FIGURE 4. MAP SHOWING THE AREA COVERED BY THE OGALLALA AQUIFER IN THE GROUNDWATER AVAILABILITY MODEL FOR THE HIGH PLAINS AQUIFER SYSTEM WITHIN GROUNDWATER MANAGEMENT AREA 6.**



**FIGURE 5. MAP SHOWING THE AREA COVERED BY THE DOCKUM AQUIFER IN THE GROUNDWATER AVAILABILITY MODEL FOR THE HIGH PLAINS AQUIFER SYSTEM WITHIN GROUNDWATER MANAGEMENT AREA 6.**



**FIGURE 6. MAP SHOWING REGIONAL WATER PLANNING AREAS, GROUNDWATER CONSERVATION DISTRICTS (GCD), COUNTIES, AND RIVER BASINS IN GROUNDWATER MANAGEMENT AREA 6.**



**TABLE 1. MODELED AVAILABLE GROUNDWATER FOR THE SEYMOUR AQUIFER IN GROUNDWATER MANAGEMENT AREA 6 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	Seymour Aquifer Pod	2010	2020	2030	2040	2050	2060	2070
<b>Clear Fork GCD</b>	<b>Fisher</b>	<b>11</b>	<b>2,325</b>	<b>6,718</b>	<b>6,132</b>	<b>6,149</b>	<b>6,472</b>	<b>6,490</b>	<b>6,131</b>
Gateway GCD	Childress	4	40	2,875	3,230	3,301	3,292	3,301	3,282
Gateway GCD	Foard	4	4,278	11,897	4,945	5,389	8,066	7,815	3,943
Gateway GCD	Hardeman	4	531	20,378	13,040	18,885	17,520	20,002	32,868
Gateway GCD	Motley	3	2,098	4,843	6,679	4,843	4,830	3,972	3,961
<b>Gateway GCD Total</b>			<b>6,947</b>	<b>39,993</b>	<b>27,894</b>	<b>32,418</b>	<b>33,708</b>	<b>35,090</b>	<b>44,054</b>
Mesquite GCD	Childress	1	15	86	16	16	16	16	16
Mesquite GCD	Collingsworth	1	17,628	41,345	31,492	28,657	27,165	22,395	22,769
Mesquite GCD	Hall	2	6,837	15,446	16,751	19,666	22,861	25,861	24,595
<b>Mesquite GCD Total</b>			<b>24,480</b>	<b>56,877</b>	<b>48,259</b>	<b>48,339</b>	<b>50,042</b>	<b>48,272</b>	<b>47,380</b>
Rolling Plains GCD	Baylor	7	1,426	1,430	1,426	1,430	1,426	1,430	1,426
Rolling Plains GCD	Baylor	8	14	5,785	5,903	5,547	5,304	5,177	5,503
Rolling Plains GCD	Haskell	7	41,636	41,750	41,636	41,750	41,636	41,750	41,636
Rolling Plains GCD	Knox	7	25,641	25,712	25,641	25,712	25,641	25,712	25,641
Rolling Plains GCD	Knox	6	12	3,324	998	512	888	3,454	1,331
<b>Rolling Plains GCD Total</b>			<b>68,729</b>	<b>78,001</b>	<b>75,604</b>	<b>74,951</b>	<b>74,895</b>	<b>77,523</b>	<b>75,537</b>
<b>Groundwater Management Area 6</b>			<b>102,481</b>	<b>181,589</b>	<b>157,889</b>	<b>161,857</b>	<b>165,117</b>	<b>167,375</b>	<b>173,102</b>

**TABLE 2. MODELED AVAILABLE GROUNDWATER FOR THE BLAINE AQUIFER IN GROUNDWATER MANAGEMENT AREA 6 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>2010</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
<b>ClearFork GCD</b>	<b>Fisher</b>	<b>0</b>	<b>12,855</b>	<b>12,820</b>	<b>12,855</b>	<b>12,820</b>	<b>12,855</b>	<b>12,820</b>
Gateway GCD	Childress	3,577	17,618	17,570	17,618	17,570	17,618	17,570
Gateway GCD	Cottle	2,688	14,766	11,621	11,653	11,621	11,653	11,621
Gateway GCD	Foard	26	6,582	6,564	6,582	6,564	6,582	6,564
Gateway GCD	Hardeman	4,233	8,488	8,465	8,488	8,465	8,488	8,465
<b>Gateway GCD Total</b>		<b>10,524</b>	<b>47,454</b>	<b>44,220</b>	<b>44,341</b>	<b>44,220</b>	<b>44,341</b>	<b>44,220</b>
Mesquite GCD	Childress	1,034	5,957	5,940	5,957	5,940	5,957	5,940
Mesquite GCD	Collingsworth	6,851	2,060	2,054	2,060	2,054	2,060	2,054
Mesquite GCD	Hall	10	5,856	5,840	5,856	5,840	5,856	5,840
<b>Mesquite GCD Total</b>		<b>7,895</b>	<b>13,873</b>	<b>13,834</b>	<b>13,873</b>	<b>13,834</b>	<b>13,873</b>	<b>13,834</b>
<b>Groundwater Management Area 6</b>		<b>18,419</b>	<b>74,182</b>	<b>70,874</b>	<b>71,069</b>	<b>70,874</b>	<b>71,069</b>	<b>70,874</b>

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**TABLE 3. MODELED AVAILABLE GROUNDWATER FOR THE OGALLALA AQUIFER IN GROUNDWATER MANAGEMENT AREA 6 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2012 AND 2070. VALUES ARE IN ACRE-FEET PER YEAR.**

GCD	County	2012	2020	2030	2040	2050	2060	2070
Clear Fork GCD	Motley	409	409	409	409	409	409	409
<b>Groundwater Management Area 6</b>		<b>409</b>	<b>409</b>	<b>409</b>	<b>409</b>	<b>409</b>	<b>409</b>	<b>409</b>

**TABLE 4. MODELED AVAILABLE GROUNDWATER FOR THE DOCKUM AQUIFER IN GROUNDWATER MANAGEMENT AREA 6 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2012 AND 2070. VALUES ARE IN ACRE-FEET PER YEAR.**

GCD	County	2012	2020	2030	2040	2050	2060	2070
Clear Fork GCD	Motley	93	93	93	93	92	92	92
Gateway GCD	Fisher	79	79	79	79	79	79	79
<b>Groundwater Management Area 6</b>		<b>172</b>	<b>172</b>	<b>172</b>	<b>172</b>	<b>171</b>	<b>171</b>	<b>171</b>

**TABLE 5. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE SEYMOUR AQUIFER IN GROUNDWATER MANAGEMENT AREA 6. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.**

County	RWPA	River Basin	Seymour Pod Number	2020	2030	2040	2050	2060	2070
Baylor	Region B	Brazos	7	1,136	1,133	1,136	1,133	1,136	1,133
Baylor	Region B	Red	7	294	294	294	294	294	294
Baylor	Region B	Brazos	8	5,785	5,903	5,547	5,304	5,177	5,503
Childress	Panhandle	Red	1 and 4	2,961	3,246	3,317	3,308	3,317	3,297
Collingsworth	Panhandle	Red	1	41,345	31,492	28,657	27,165	22,395	22,769
Fisher	Region G	Brazos	11	6,718	6,132	6,149	6,472	6,490	6,131
Foard	Region B	Red	4	11,897	4,945	5,389	8,066	7,815	3,943
Hall	Panhandle	Red	2 and 3	15,446	16,751	19,666	22,861	25,861	24,595
Hardeman	Region B	Red	4	20,378	13,040	18,885	17,520	20,002	32,868
Haskell	Region G	Brazos	7	41,750	41,636	41,750	41,636	41,750	41,636
Knox	Region G	Brazos	7	25,699	25,629	25,699	25,629	25,699	25,629
Knox	Region G	Red	7	13	13	13	13	13	13
Knox	Region G	Red	6	3,324	998	512	888	3,454	1,331
Motley	Llano Estacado	Red	3	4,843	6,679	4,843	4,830	3,972	3,961
<b>Groundwater Management Area 6</b>				<b>181,589</b>	<b>157,891</b>	<b>161,857</b>	<b>165,119</b>	<b>167,375</b>	<b>173,103</b>

**TABLE 6. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE BLAINE AQUIFER IN GROUNDWATER MANAGEMENT AREA 6. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.**

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Childress	Panhandle	Red	23,575	23,510	23,575	23,510	23,575	23,510
Collingsworth	Panhandle	Red	2,060	2,054	2,060	2,054	2,060	2,054
Cottle	Region B	Red	14,766	11,621	11,653	11,621	11,653	11,621
Fisher	Region G	Brazos	12,855	12,820	12,855	12,820	12,855	12,820
Foard	Region B	Red	6,582	6,564	6,582	6,564	6,582	6,564
Hall	Panhandle	Red	5,856	5,840	5,856	5,840	5,856	5,840
Hardeman	Region B	Red	8,488	8,465	8,488	8,465	8,488	8,465
<b>Groundwater Management Area 6</b>			<b>74,182</b>	<b>70,874</b>	<b>71,069</b>	<b>70,874</b>	<b>71,069</b>	<b>70,874</b>

**TABLE 7. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE OGALLALA AQUIFER IN GROUNDWATER MANAGEMENT AREA 6. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.**

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Motley	Llano Estacado	Red	409	409	409	409	409	409
<b>Groundwater Management Area 6</b>			<b>409</b>	<b>409</b>	<b>409</b>	<b>409</b>	<b>409</b>	<b>409</b>

**TABLE 8. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE DOCKUM AQUIFER IN GROUNDWATER MANAGEMENT AREA 6. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.**

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Fisher	Region G	Brazos	79	79	79	79	79	79
Motley	Llano Estacado	Red	93	93	93	92	92	92
<b>Groundwater Management Area 6</b>			<b>172</b>	<b>172</b>	<b>172</b>	<b>171</b>	<b>171</b>	<b>171</b>

### ***LIMITATIONS:***

The groundwater model used in completing this analysis is the best available scientific tool that can be used to meet the stated objectives. To the extent that this analysis will be used for planning purposes and/or regulatory purposes related to pumping in the past and into the future, it is important to recognize the assumptions and limitations associated with the use of the results. In reviewing the use of models in environmental regulatory decision making, the National Research Council (2007) noted:

*“Models will always be constrained by computational limitations, assumptions, and knowledge gaps. They can best be viewed as tools to help inform decisions rather than as machines to generate truth or make decisions. Scientific advances will never make it possible to build a perfect model that accounts for every aspect of reality or to prove that a given model is correct in all respects for a particular regulatory application. These characteristics make evaluation of a regulatory model more complex than solely a comparison of measurement data with model results.”*

A key aspect of using the groundwater model to evaluate historic groundwater flow conditions includes the assumptions about the location in the aquifer where historic pumping was placed. Understanding the amount and location of historic pumping is as important as evaluating the volume of groundwater flow into and out of the district, between aquifers within the district (as applicable), interactions with surface water (as applicable), recharge to the aquifer system (as applicable), and other metrics that describe the impacts of that pumping. In addition, assumptions regarding precipitation, recharge, and streamflow are specific to a particular historic time period.

Because the application of the groundwater model was designed to address regional scale questions, the results are most effective on a regional scale. The TWDB makes no warranties or representations relating to the actual conditions of any aquifer at a particular location or at a particular time.

It is important for groundwater conservation districts to monitor groundwater pumping and groundwater levels in the aquifer. Because of the limitations of the groundwater model and the assumptions in this analysis, it is important that the groundwater conservation districts work with the TWDB to refine this analysis in the future given the reality of how the aquifer responds to the actual amount and location of pumping now and in the future. Historic precipitation patterns also need to be placed in context as future climatic conditions, such as dry and wet year precipitation patterns, may differ and affect groundwater flow conditions.

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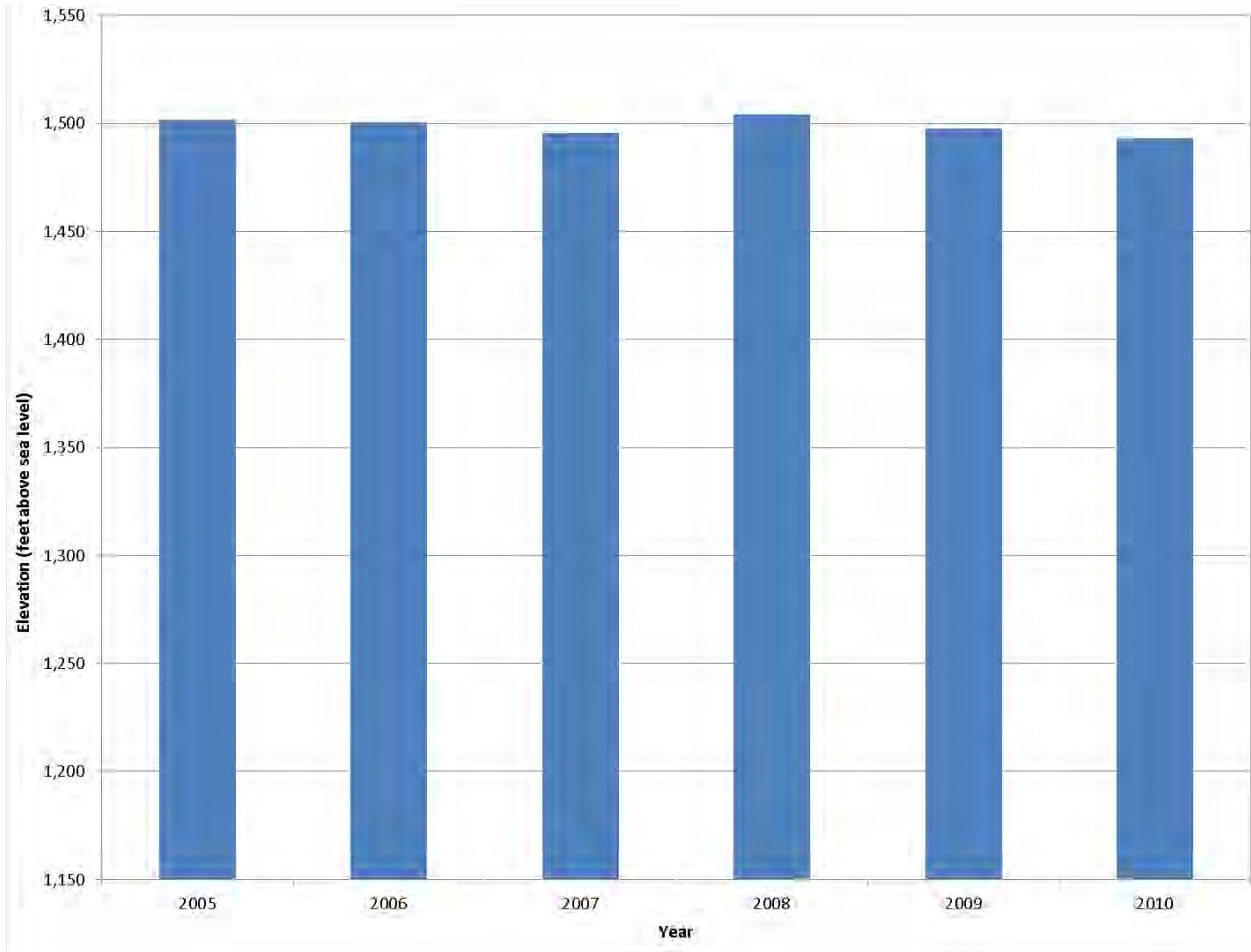
June 30, 2017

Page 28 of 37

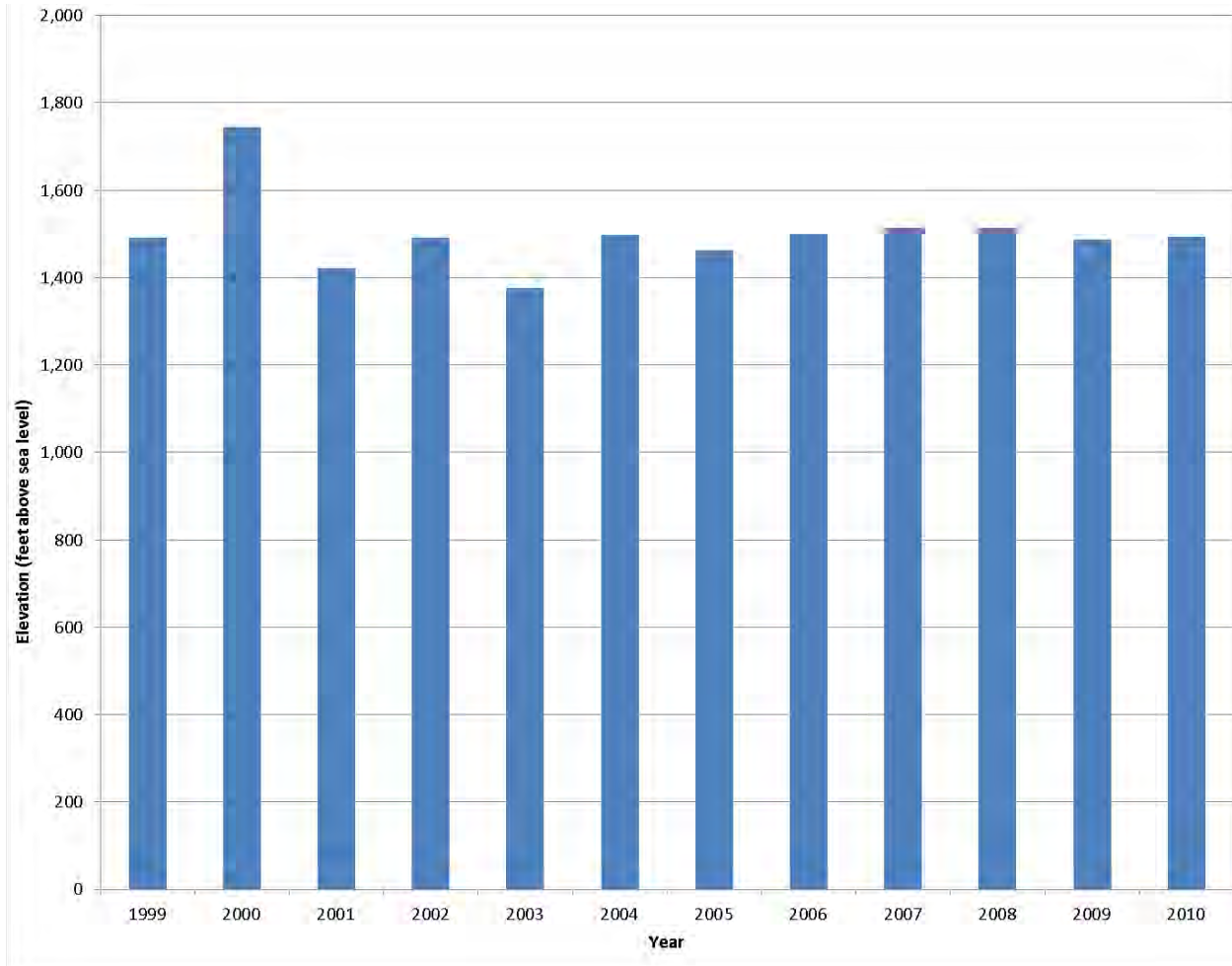
## ***Appendix A***

### Water Level Hydrograph

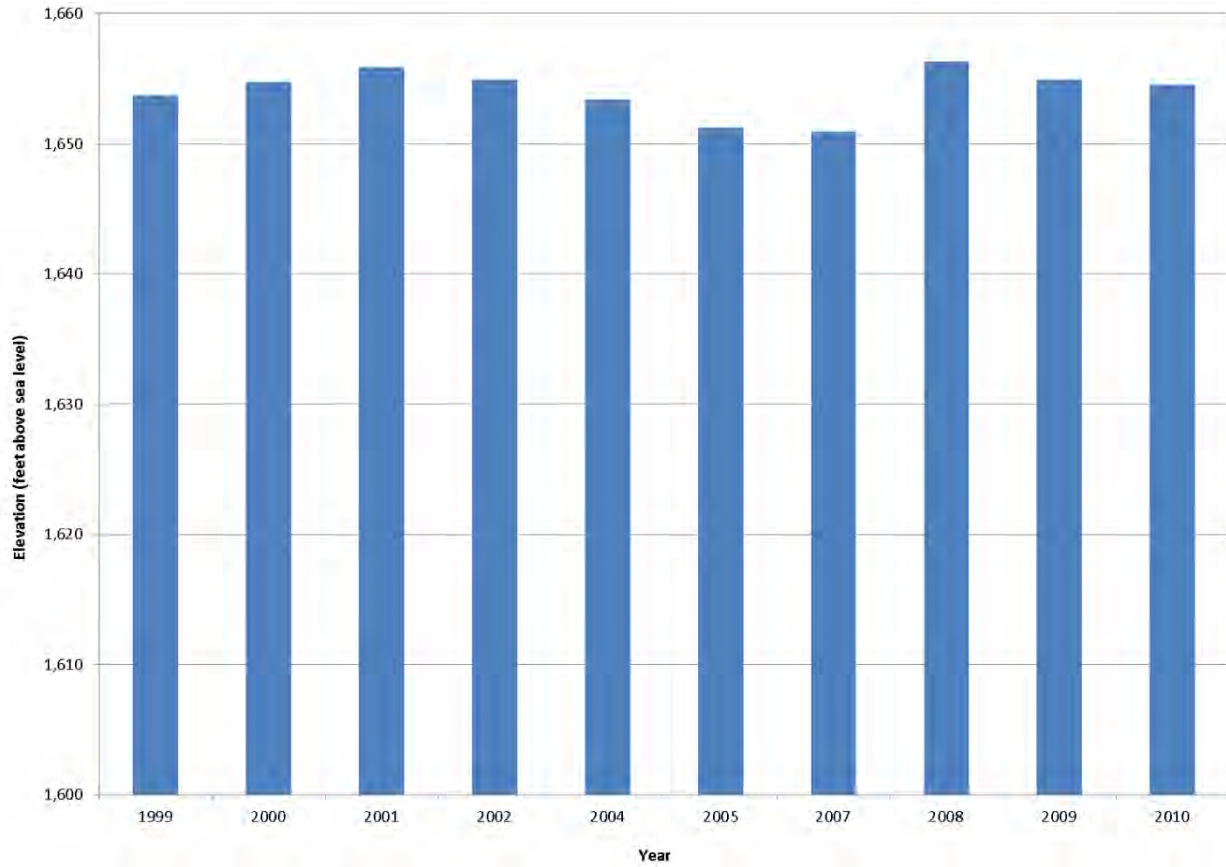




**FIGURE A1. AVERAGE WATER-LEVEL HYDROGRAPH OF SEYMOUR AQUIFER IN BAYLOR, HASKELL, AND KNOX COUNTIES BETWEEN 2005 AND 2010.**



**FIGURE A2. AVERAGE WATER-LEVEL HYDROGRAPH OF SEYMOUR AQUIFER IN BAYLOR, HASKELL, AND KNOX COUNTIES BETWEEN 1999 AND 2010.**



**FIGURE A3. WATER-LEVEL HYDROGRAPH OF BLAINE AQUIFER IN CHILDRESS COUNTY (STATE WELL NUMBER 1231804) BETWEEN 1999 AND 2010.**

June 30, 2017

Page 32 of 37

## ***Appendix B***

### Desired Future Conditions and Simulated Drawdowns

**TABLE B1. MODELED DRAWDOWN IN SEYMOUR AQUIFER IN GROUNDWATER MANAGEMENT AREA (GMA) 6. MODELED DRAWDOWN WAS CALCULATED BY TWDB BASED ON MODFLOW HEAD FILE FROM GMA 6 SUBMITTAL, WHICH USED AVERAGE PUMPING OF LAST FIVE YEARS OF THE CALIBRATED MODEL. PUMPING WAS SLIGHTLY MODIFIED, AS NEEDED.**

Seymour Aquifer Pod	County	Groundwater Conservation District	Modeled Drawdown (feet 2010 to 2070)	Desired Future Condition (feet drawdown)	Groundwater Availability Model
1	Childress, Collingsworth	Mesquite, Gateway	22.41	no more than 33	Ewing and others (2004)
2	Hall	Mesquite	9.91	no more than 15	Ewing and others (2004)
3	Briscoe, Hall, and Motley	Mesquite, Gateway	13.23	no more than 15	Ewing and others (2004)
4	Childress, Foard, and Hardeman	Gateway	0.97	no more than 1.0	Ewing and others (2004)
6	Knox	Rolling Plains	12.46	no more than 18	Ewing and others (2004)
7	Baylor, Haskell, and Knox	Rolling Plains	7.30	no more than 18	Jigmond and others (2014)
8	Baylor	Rolling Plains	14.80	no more than 18	Ewing and others (2004)
11	Fisher	Clear Fork	0.86	no more than 1.0	Ewing and others (2004)

**TABLE B2. MODELED DRAWDOWN IN BLAINE AQUIFER IN GROUNDWATER MANAGEMENT AREA 6. MODELED DRAWDOWN WAS CALCULATED BASED ON A PREDICTIVE SIMULATION BY TWDB.**

County	Groundwater Conservation District	Modeled Drawdown (feet 2010 to 2070)	Desired Future Condition (feet drawdown)	Groundwater Availability Model
Childress North of Red River	Mesquite, Gateway	5.94	no more than 9	Ewing and others (2004)
Childress South of Red River	Gateway	1.93	no more than 2	Ewing and others (2004)
Collingsworth	Mesquite	8.43	no more than 9	Ewing and others (2004)
Cottle	Gateway	1.68	no more than 2	Ewing and others (2004)
Fisher	Clear Fork	2.41	no more than 4	Ewing and others (2004)
Foard	Gateway	6.48	no more than 10	Ewing and others (2004)
Hall	Mesquite	4.79	no more than 9	Ewing and others (2004)
Hardeman	Gateway	1.15	no more than 2	Ewing and others (2004)

**TABLE B3. MODELED DRAWDOWN IN OGALLALA AQUIFER IN GROUNDWATER MANAGEMENT AREA (GMA) 6. MODELED DRAWDOWN WAS BASED ON GMA 2 DESIRED FUTURE CONDITIONS GROUNDWATER PREDICTIVE MODEL.**

County	Groundwater Conservation District	Modeled Drawdown (feet 2010 to 2070)	Desired Future Condition (feet drawdown)	Groundwater Availability Model
Motley	Gateway	17	17	Deeds and Jigmond (2015)

June 30, 2017

Page 35 of 37

**TABLE B4. MODELED DRAWDOWN IN DOCKUM AQUIFER IN GROUNDWATER MANAGEMENT AREA (GMA) 6. MODELED DRAWDOWN WAS BASED ON GMA 2 DESIRED FUTURE CONDITIONS GROUNDWATER PREDICTIVE MODEL.**

<b>County</b>	<b>Groundwater Conservation District</b>	<b>Modeled Drawdown (feet 2010 to 2070)</b>	<b>Desired Future Condition (feet drawdown)</b>	<b>Groundwater Availability Model</b>
Fisher	Clear Fork	0	0	Deeds and Jigmond (2015)
Motley	Gateway	6	6	Deeds and Jigmond (2015)

June 30, 2017

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## ***Appendix C***

### Summary of Model Dry Cells



**TABLE C1. MODEL DRY CELLS FROM PREDICTIVE SIMULATION OF SEYMOUR AQUIFER OF POD 7 IN BAYLOR, HASKELL, AND KNOX COUNTIES.**

County	Stress Periods	Active Cells	Dry Cells	Wet Cells	Percent of Dry Cells
Baylor	1 to 408 (1980 to 2070)	5,753	401	5,352	7
Haskell	1 to 408 (1980 to 2070)	23,697	596	23,101	3
Knox	1 to 408 (1980 to 2070)	15,927	3,117	12,810	20

**TABLE C2. MODEL DRY CELLS FROM PREDICTIVE SIMULATION OF SEYMOUR AND BLAINE AQUIFERS.**

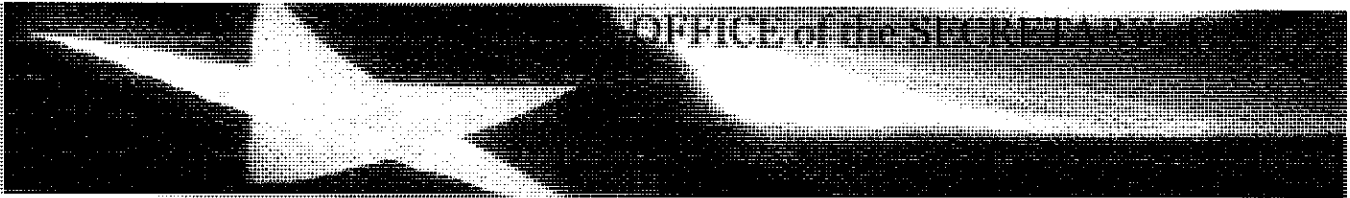
Desired Future Condition Zone	Stress Period	Active Cells	Dry Cells	Wet Cells	Percent of Dry Cells
Seymour (Pod 1)	1 to 60 (2011 to 2070)	296	109	187	37
Seymour (Pod 2)	1 to 60 (2011 to 2070)	133	48	85	36
Seymour (Pod 3)	1 to 60 (2011 to 2070)	66	30	36	45
Seymour (Pod 4)	1 to 60 (2011 to 2070)	453	85	368	19
Seymour (Pod 6)	1 to 60 (2011 to 2070)	58	33	25	57
Seymour (Pod 8)	1 to 60 (2011 to 2070)	45	11	34	24
Seymour (Pod 11)	1 to 60 (2011 to 2070)	280	94	186	34
Blaine (North of Red River of Childress)	1 to 60 (2011 to 2070)	309	0	309	0
Blaine (South of Red River of Childress)	1 to 60 (2011 to 2070)	408	0	408	0
Blaine (Collingsworth)	1 to 60 (2011 to 2070)	930	0	930	0
Blaine (Cottle)	1 to 60 (2011 to 2070)	907	0	907	0
Blaine (Fisher)	1 to 60 (2011 to 2070)	900	0	900	0
Blaine (Foard)	1 to 60 (2011 to 2070)	706	0	706	0
Blaine (Hall)	1 to 60 (2011 to 2070)	900	0	900	0
Blaine (Hardeman)	1 to 60 (2011 to 2070)	708	0	708	0



**Appendix D**

**Notices of Management Plan Hearing**





Amy Crowell

[Log Off](#)

## Open Meeting Submission

**TRD:** 2018007558  
**Date Posted:** 08/23/2018  
**Status:** Accepted  
**Agency Id:** 1027  
**Date of Submission:** 08/23/2018  
**Agency Name:** Mesquite Groundwater Conservation District  
**Board:** Mesquite Groundwater Conservation District  
**Date of Meeting:** 09/20/2018  
**Time of Meeting:** 07:00 PM ( ##:## AM Local Time)  
**Street Location:** 303 S. 8th  
**City:** Memphis  
**State:** TX  
**Liaison Name:** Amy Crowell  
**Liaison Id:** 1  
**Additional Information Obtained From:** Lynn Smith @(844) 445-2800  
**Agenda:** MESQUITE GROUNDWATER CONSERVATION DISTRICT'S NOTICE OF PUBLIC HEARING FOR THE PURPOSE OF ADOPTING A REVISED MANAGEMENT PLAN

TO: ALL INTERESTED PERSONS.

The Mesquite Groundwater Conservation District ("District") will conduct a public hearing concerning the District's intent to adopt a revised Management Plan.

The public hearing is to provide interested members of the public the opportunity to appear and provide oral or written comments on the proposed revisions to the Management Plan.

Date, Time, and Place of Public Hearing.

79095. All written comments must be filed with the District and date-stamped no later than Wednesday, September 19, 2018 at 4:00 p.m. Daylight Savings Time.

2. Written comments should be filed on 8½ x 11 inch paper and be typed or legibly written. Written comments must indicate whether the comments are general and directed at all of the proposed revisions of the Management Plan, or whether they are directed at specific items in the proposed Management Plan. If directed at specific items in the proposed Management Plan, the number of the proposed item must be identified and followed by the comments on the specifically identified item of the Management Plan.

#### C. Response to Comments:

Please note that while the District Board and staff will consider both oral and written comments, the staff may not prepare written responses to these comments for review and consideration by the Board of Directors of the District when it deliberates on whether to adopt the proposed revisions to the District's Management Plan.

Procedure for Obtaining the Revised Management Plan.

Copies of the proposed Management Plan may be obtained from the District by:

1. telephoning (844) 445-2800;
2. e-mailing a request to the District at [manager@mesquitegcd.org](mailto:manager@mesquitegcd.org);
- 3 visiting the offices of the District at 802 9th Street, Wellington, Texas; or,
4. visiting the District's website at [www.mesquitegcd.org](http://www.mesquitegcd.org).

Opportunity to Attend the Board Meeting  
at which the Revised Management Plan May be Adopted.

The meeting of the District's Board of Directors to consider the adoption of the proposed revised Management Plan will be held on September 20, 2018 at 7:30 p.m. Daylight Savings Time at the Memphis Public Library, 303 South 8th Street, Memphis, Texas 79245.

#### SUMMARY OF REVISIONS TO THE DISTRICT'S MANAGEMENT PLAN

- (1) Addressing the strategies to achieve the Desired Future Conditions (DFC): Updated the Desired Future Condition from the previously approved DFCs to the currently approved DFCs. All current DFCs were included in a new appendix;
- (2) Addressing providing for the most efficient use of groundwater within the District: Updated the date of required pumping data to be recorded by the District to May 1st of each year;
- (3) Addressing strategies to enhance water supplies: The District is to review the recharge enhancement feasibility study annually; and
- (4) Addressing Rainwater Harvesting: The District will annually publish a rainwater harvesting article in local newspapers, including any projects in the District.



Amy Crowell

[Log Off](#)

### Open Meeting Submission

**TRD:** 2018007559  
**Date Posted:** 08/23/2018  
**Status:** Accepted  
**Agency Id:** 1027  
**Date of Submission:** 08/23/2018  
**Agency Name:** Mesquite Groundwater Conservation District  
**Board:** Mesquite Groundwater Conservation District  
**Date of Meeting:** 09/20/2018  
**Time of Meeting:** 07:00 PM ( ###:## AM Local Time)  
**Street Location:** 303 S. 8th  
**City:** Memphis  
**State:** TX  
**Liaison Name:** Amy Crowell  
**Liaison Id:** 1  
**Additional Information Obtained From:** Lynn Smith (844) 445-2800

Date of Hearing: 09/20/2108  
 Time of Hearing: 7:00 PM  
 Location: 303 S. 8th  
 Memphis, Texas 79245

**Agenda:** Hearing Agenda  
  
 Call Hearing to Order  
 • Opening Comments  
 1. Present the Proposed 2018 Groundwater Management Plan and receive public comment  
 • Adjourn

[New Submission](#)

**MESQUITE GROUNDWATER CONSERVATION DISTRICT'S  
NOTICE OF PUBLIC HEARING FOR THE PURPOSE OF  
ADOPTING A REVISED MANAGEMENT PLAN**

---

**TO: ALL INTERESTED PERSONS.**

The Mesquite Groundwater Conservation District ("District") will conduct a public hearing concerning the District's intent to adopt a revised Management Plan.

The public hearing is to provide interested members of the public the opportunity to appear and provide oral or written comments on the proposed revisions to the Management Plan.

**Date, Time, and Place of Public Hearing.**

The date, time and place of the public hearing is as follows:

Date: **September 20, 2018.**  
Time: **7:00 p.m. Daylight Savings Time**  
Location: Memphis Public Library  
303 South 8<sup>th</sup> Street  
Memphis, Texas 79245.

**Procedures for Submitting Public Comments  
on the Revised Management Plan.**

**A. Oral Comments:**

Any person may appear in person, or by authorized representative, at the public hearing regarding the proposed revisions to the District's Management Plan. Any person making an appearance must indicate their desire to make oral comments on the registration form provided by the District at the public hearing. A person must disclose any affiliation on the registration form and if applicable, the legal authority to speak for a person represented. Any other person attending the public hearing will be considered by the District to be an observer not desiring to make comment on the proposed Management Plan. The District will not consider any comments of an observer in its proceedings.

All persons must indicate on the registration form whether their comments are generally directed to the entire proposed revised Management Plan, or whether they are directed at specific items in the proposed revised Management Plan. If directed at specific items in the proposed revised Management Plan, the number of the items in the proposed revised Management Plan must be identified on the registration form. If it becomes apparent during the oral comments that what were indicated to be merely general comments are, in fact, specific comments, the presiding officer may ask the person to specifically identify the proposed items in the proposed revised Management Plan to which the oral comments are directed.

The presiding officer will establish the order of oral comments of persons at the hearing. As appropriate, the presiding officer may limit:

1. the number of times a person may speak;
2. the time period for oral comments;
3. cumulative, irrelevant, or unduly repetitious comments;



4. general comments that are so vague, undeveloped, or immaterial as to be impracticable for the District to ascertain the intent or purpose of the person making the general oral comments and that are otherwise unhelpful to the District in analyzing the proposed revisions to the Management Plan;
5. the time period for asking or responding to questions; and
6. other matters that come to the attention of the presiding officer as requiring limitation.

**B. Written Comments:**

1. Written comments on the proposed revisions to the Management Plan must be filed with the District by mail or hand-delivery at the District's office at 802 9<sup>th</sup> Street, Wellington, Texas 79095. All written comments must be filed with the District and date-stamped no later than **Wednesday, September 19, 2018 at 4:00 p.m. Daylight Savings Time.**
2. Written comments should be filed on 8½ x 11 inch paper and be typed or legibly written. Written comments must indicate whether the comments are general and directed at all of the proposed revisions of the Management Plan, or whether they are directed at specific items in the proposed Management Plan. If directed at specific items in the proposed Management Plan, the number of the proposed item must be identified and followed by the comments on the specifically identified item of the Management Plan.

**C. Response to Comments:**

Please note that while the District Board and staff will consider both oral and written comments, the staff may not prepare written responses to these comments for review and consideration by the Board of Directors of the District when it deliberates on whether to adopt the proposed revisions to the District's Management Plan.

**Procedure for Obtaining the Revised Management Plan.**

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**Opportunity to Attend the Board Meeting  
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The meeting of the District's Board of Directors to consider the adoption of the proposed revised Management Plan will be held on September 20, 2018 at 7:30 p.m. Daylight Savings Time at the Memphis Public Library, 303 South 8<sup>th</sup> Street, Memphis, Texas 79245.

## SUMMARY OF REVISIONS TO THE DISTRICT'S MANAGEMENT PLAN

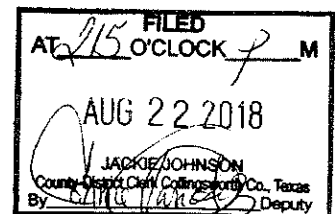
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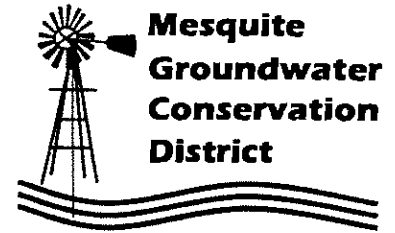
**Issued** this 22<sup>nd</sup> day of August, 2018.

*/s/ Lynn Smith*

\_\_\_\_\_  
Lynn Smith, General Manager,  
Mesquite Groundwater Conservation District



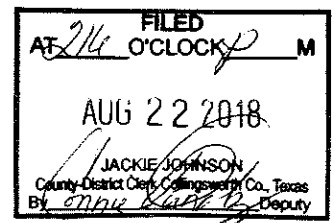
Date of Meeting: 09/20/2108  
Time of Meeting: 7:00 PM  
Location: 303 S. 8th  
Memphis, Texas 79245



### Regular Meeting Agenda

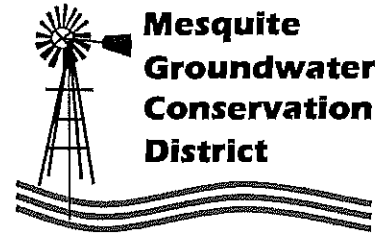
#### Call Hearing to Order

- Opening Comments
- 1. Present the Proposed 2018 Groundwater Management Plan and receive public comment
- Adjourn



*At any time during the meeting and in compliance with the Texas Open Meetings Act, Chapter 551, Government Code, Vernon's Texas Codes, Annotated, the Mesquite Groundwater Conservation District Board may meet in executive session for any of the following purposes: Consultations with Attorney (§551.071). Any subject discussed in executive session may be subject to action during an open meeting.*

Date of Meeting: 09/20/2108  
Time of Meeting: 7:00 PM  
Location: 303 S. 8th  
Memphis, Texas 79245



### Regular Meeting Agenda

#### Call Hearing to Order

- 
- 1. Groundwater Management Plan and receive public comment
- 

Opening Comments  
Present the Proposed 2018

Adjourn

1001 EAST ST  
HALL COUNTY TEXAS  
Howard D. Stovall  
2018 AUG 22 PM 2:56

**MESQUITE GROUNDWATER CONSERVATION DISTRICT'S  
NOTICE OF PUBLIC HEARING FOR THE PURPOSE OF  
ADOPTING A REVISED MANAGEMENT PLAN**

---

**TO: ALL INTERESTED PERSONS.**

The Mesquite Groundwater Conservation District ("District") will conduct a public hearing concerning the District's intent to adopt a revised Management Plan.

The public hearing is to provide interested members of the public the opportunity to appear and provide oral or written comments on the proposed revisions to the Management Plan.

**Date, Time, and Place of Public Hearing.**

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Date: **September 20, 2018.**  
Time: **7:00 p.m. Daylight Savings Time**  
Location: Memphis Public Library  
303 South 8<sup>th</sup> Street  
Memphis, Texas 79245.

CLERK OF DISTRICT OF  
HALL COUNTY, TEXAS  
Dorinda S. Sheppard  
2018 AUG 22 PM 2:56

**Procedures for Submitting Public Comments  
on the Revised Management Plan.**

**A. Oral Comments:**

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## SUMMARY OF REVISIONS TO THE DISTRICT'S MANAGEMENT PLAN

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**Issued** this 22<sup>nd</sup> day of August, 2018.

/s/ Lynn Smith

Lynn Smith, General Manager,  
Mesquite Groundwater Conservation District



**FILED**  
Time 3:47 PM

**MESQUITE GROUNDWATER CONSERVATION DISTRICT'S  
NOTICE OF PUBLIC HEARING FOR THE PURPOSE OF  
ADOPTING A REVISED MANAGEMENT PLAN**

AUG 22 2018

*Bens Heater*  
County & District Clerk, Biefcoe County, Texas

**TO: ALL INTERESTED PERSONS.**

The Mesquite Groundwater Conservation District ("District") will conduct a public hearing concerning the District's Intent to adopt a revised Management Plan.

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**Opportunity to Attend the Board Meeting  
at which the Revised Management Plan May be Adopted.**

The meeting of the District's Board of Directors to consider the adoption of the proposed revised Management Plan will be held on September 20, 2018 at 7:30 p.m. Daylight Savings Time at the Memphis Public Library, 303 South 8<sup>th</sup> Street, Memphis, Texas 79245.

### SUMMARY OF REVISIONS TO THE DISTRICT'S MANAGEMENT PLAN

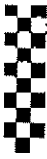
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- (1) Addressing the strategies to achieve the Desired Future Conditions (DFC): Updated the Desired Future Condition from the previously approved DFCs to the currently approved DFCs. All current DFCs were included in a new appendix;
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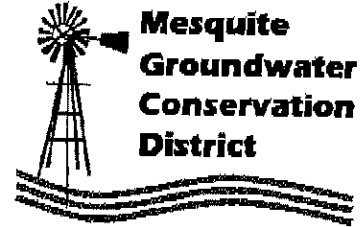
Issued this 22<sup>nd</sup> day of August, 2018.

/s/ Lynn Smith

Lynn Smith, General Manager,  
Mesquite Groundwater Conservation District



Date of Hearing: 09/20/2108  
Time of Hearing: 7:00 PM  
Location: 303 S. 8<sup>th</sup>  
Memphis, Texas 79245



### Hearing Agenda

#### Call Hearing to Order

- Opening Comments
- 1. Present the Proposed 2018 Groundwater Management Plan and receive public comment
- Adjourn

From: Lynn Smith

Fax: (800) 419-1016

To: Barbara Spitzer

Fax: (940) 937-3708

Page 1 of 1 08/22/2018 3:30 PM

Date of Hearing: 09/20/2108

Time of Hearing: 7:00 PM

Location: 303 S. 8<sup>th</sup>  
Memphis, Texas 79245

### Hearing Agenda

#### Call Hearing to Order

- Opening Comments
  1. Present the Proposed 2018 Groundwater Management Plan and receive public comment
- Adjourn

*At any time during the meeting and in compliance with the Texas Open Meetings Act, Chapter 551, Government Code, Vernon's Texas Codes, Annotated, the Mesquite Groundwater Conservation District Board may meet in executive session for any of the following purposes: Consultations with Attorney (§551.071). Any subject discussed in executive session may be subject to action during an open meeting.*

**MESQUITE GROUNDWATER CONSERVATION DISTRICT'S  
NOTICE OF PUBLIC HEARING FOR THE PURPOSE OF  
ADOPTING A REVISED MANAGEMENT PLAN**

---

**TO: ALL INTERESTED PERSONS.**

The Mesquite Groundwater Conservation District ("District") will conduct a public hearing concerning the District's intent to adopt a revised Management Plan.

The public hearing is to provide interested members of the public the opportunity to appear and provide oral or written comments on the proposed revisions to the Management Plan.

**Date, Time, and Place of Public Hearing.**

The date, time and place of the public hearing is as follows:

Date: **September 20, 2018.**  
Time: **7:00 p.m. Daylight Savings Time**  
Location: Memphis Public Library  
303 South 8<sup>th</sup> Street  
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4. general comments that are so vague, undeveloped, or immaterial as to be impracticable for the District to ascertain the intent or purpose of the person making the general oral comments and that are otherwise unhelpful to the District in analyzing the proposed revisions to the Management Plan;
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**SUMMARY OF REVISIONS TO THE DISTRICT'S MANAGEMENT PLAN**

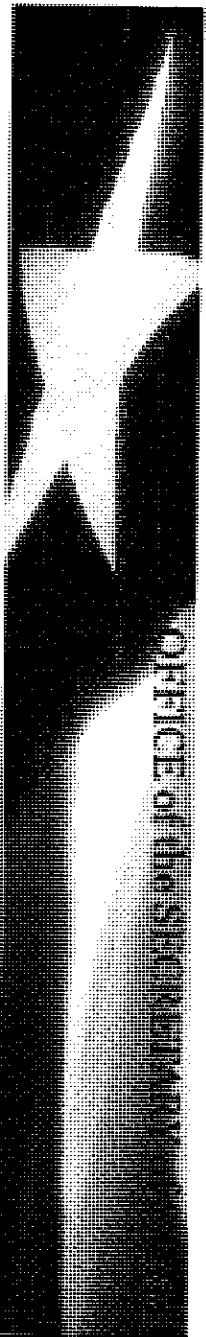
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Issued this 22<sup>nd</sup> day of August, 2018.

/s/ Lynn Smith

Lynn Smith, General Manager,  
Mesquite Groundwater Conservation District

FILED FOR RECORD  
 CHILDRESS COUNTY, TEXAS  
 2018 AUG 23 AM 8:38  
 BARBARA SPITZER  
 DISTRICT-COUNTY CLERK



Amy Crowell

[Log Off](#)

### Open Meeting Submission

**TRD:** 2018008223  
**Date Posted:** 09/25/2018  
**Status:** Accepted  
**Agency Id:** 1027  
**Date of Submission:** 09/25/2018  
**Agency Name:** Mesquite Groundwater Conservation District  
**Board:** Mesquite Groundwater Conservation District  
**Date of Meeting:** 10/19/2018  
**Time of Meeting:** 09:00 AM (###:## AM Local Time)  
**Street Location:** 802 9th Street  
**City:** Wellington  
**State:** TX  
**If Emergency Meeting, Reason:** 8444452800  
**Liaison Name:** Amy Crowell  
**Liaison Id:** 1

**Additional Information Obtained From:** Lynn Smith @ (844) 445-2800

**Agenda:**

1 FKG Clients/MGCD/Management Plans/2018 Management Plan/Notice of Public Hearing  
 1 MESQUITE GROUNDWATER CONSERVATION DISTRICT'S  
 NOTICE OF PUBLIC HEARING FOR THE PURPOSE OF  
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 TO: ALL INTERESTED PERSONS.  
 The Mesquite Groundwater Conservation District ("District") will conduct a public hearing  
 concerning the District's intent to adopt a revised Management Plan.



## Open Meeting Submission :

The public hearing is to provide interested members of the public the opportunity to appear and provide oral or written comments on the proposed revisions to the Management Plan.

Date, Time, and Place of Public Hearing.

The date, time and place of the public hearing is as follows:

Date: October 19, 2018.

Time: 9:00 a.m. Daylight Saving Time

Location: Memphis Public Library

303 South 8th Street

Memphis, Texas 79245.

Procedures for Submitting Public Comments  
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- FKG Clients/MGCD/Management Plans/2018 Management Plan/Notice of Public Hearing

- 2
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FKG Clients/MGCD/Management Plans/2018 Management Plan/Notice of Public Hearing

3

**SUMMARY OF REVISIONS TO THE DISTRICT'S MANAGEMENT PLAN**

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Open Meeting Submission :

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Issued this 21st day of September, 2018.  
/s/ Lynn Smith  
Lynn Smith, General Manager,  
Mesquite Groundwater Conservation District

New Submission

- HOME
- TEXAS REGISTER
- TEXAS ADMINISTRATIVE CODE
- OPEN MEETINGS

**MESQUITE GROUNDWATER CONSERVATION DISTRICT'S  
NOTICE OF PUBLIC HEARING FOR THE PURPOSE OF  
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FILED FOR RECORD  
HALL COUNTY, TEXAS  
M. MORMOND - Deputy Clerk  
2018 SEP 24 AM 9:35

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### **SUMMARY OF REVISIONS TO THE DISTRICT'S MANAGEMENT PLAN**

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**Issued** this 21<sup>st</sup> day of September, 2018.

/s/ Lynn Smith

Lynn Smith, General Manager,  
Mesquite Groundwater Conservation District

**MESQUITE GROUNDWATER CONSERVATION DISTRICT'S  
NOTICE OF PUBLIC HEARING FOR THE PURPOSE OF  
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/s/ Lynn Smith

Lynn Smith, General Manager,  
Mesquite Groundwater Conservation District

FILED FOR RECORD  
 CHILDRESS COUNTY, TEXAS  
 2018 SEP 24 PM 12:33  
 BARBARA A. SPLIZER  
 DISTRICT-COUNTY CLERK

**FILED**  
Time 1:32 PM

SEP 24 2018

**MESQUITE GROUNDWATER CONSERVATION DISTRICT'S  
NOTICE OF PUBLIC HEARING FOR THE PURPOSE OF  
ADOPTING A REVISED MANAGEMENT PLAN**

*Bena Hester*  
County & District Clerk, Tarrant County, Texas

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2. Written comments should be filed on 8½ x 11 inch paper and be typed or legibly written. Written comments must indicate whether the comments are general and directed at all of the proposed revisions of the Management Plan, or whether they are directed at specific items in the proposed Management Plan. If directed at specific items in the proposed Management Plan, the number of the proposed item must be identified and followed by the comments on the specifically identified item of the Management Plan.

**C. Response to Comments:**

Please note that while the District Board and staff will consider both oral and written comments, the staff may not prepare written responses to these comments for review and consideration by the Board of Directors of the District when it deliberates on whether to adopt the proposed revisions to the District's Management Plan.

**Procedure for Obtaining the Revised Management Plan.**

Copies of the proposed Management Plan may be obtained from the District by:

1. telephoning (844) 445-2800;
2. e-mailing a request to the District at [manager@mesquitegcd.org](mailto:manager@mesquitegcd.org);
3. visiting the offices of the District at 802 9<sup>th</sup> Street, Wellington, Texas; or,
4. visiting the District's website at [www.mesquitegcd.org](http://www.mesquitegcd.org).

**Opportunity to Attend the Board Meeting at which the Revised Management Plan May be Adopted.**

A meeting of the District's Board of Directors will be held on October 19, 2018 at 8:00 a.m. Daylight Saving Time at the Memphis Public Library, 303 South 8<sup>th</sup> Street, Memphis, Texas 79245. The meeting will then be recessed at 9:00 a.m. Daylight Saving Time to conduct the public Hearing on the District's proposed Management Plan. The agenda item addressing adoption of the Management Plan will be addressed during the meeting, but after the Management Plan Hearing.

**SUMMARY OF REVISIONS TO THE DISTRICT'S MANAGEMENT PLAN**

---

- (1) Addressing the strategies to achieve the Desired Future Conditions (DFC): Updated the Desired Future Condition from the previously approved DFCs to the currently approved DFCs. All current DFCs were included in a new appendix;
- (2) Addressing providing for the most efficient use of groundwater within the District: Updated the date of required pumping data to be recorded by the District to May 1<sup>st</sup> of each year;
- (3) Addressing strategies to enhance water supplies: The District is to review the recharge enhancement feasibility study annually; and
- (4) Addressing Rainwater Harvesting: The District will annually publish a rainwater harvesting article in local newspapers, including any projects in the District.

**Issued** this 21<sup>st</sup> day of September, 2018.

/s/ Lynn Smith

Lynn Smith, General Manager,  
Mesquite Groundwater Conservation District

**MESQUITE GROUNDWATER CONSERVATION DISTRICT'S  
NOTICE OF PUBLIC HEARING FOR THE PURPOSE OF  
ADOPTING A REVISED MANAGEMENT PLAN**

**TO: ALL INTERESTED PERSONS.**

The Mesquite Groundwater Conservation District ("District") will conduct a public hearing concerning the District's intent to adopt a revised Management Plan.

The public hearing is to provide interested members of the public the opportunity to appear and provide oral or written comments on the proposed revisions to the Management Plan.

**Date, Time, and Place of Public Hearing.**

The date, time and place of the public hearing is as follows:

Date: **October 19, 2018.**  
Time: **9:00 a.m. Daylight Saving Time**  
Location: Memphis Public Library  
303 South 8<sup>th</sup> Street  
Memphis, Texas 79245.

**Procedures for Submitting Public Comments  
on the Revised Management Plan.**

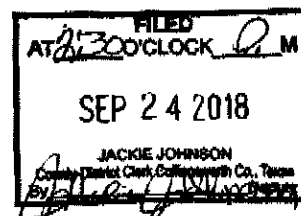
**A. Oral Comments:**

Any person may appear in person, or by authorized representative, at the public hearing regarding the proposed revisions to the District's Management Plan. Any person making an appearance must indicate their desire to make oral comments on the registration form provided by the District at the public hearing. A person must disclose any affiliation on the registration form and if applicable, the legal authority to speak for a person represented. Any other person attending the public hearing will be considered by the District to be an observer not desiring to make comment on the proposed Management Plan. The District will not consider any comments of an observer in its proceedings.

All persons must indicate on the registration form whether their comments are generally directed to the entire proposed revised Management Plan, or whether they are directed at specific items in the proposed revised Management Plan. If directed at specific items in the proposed revised Management Plan, the number of the items in the proposed revised Management Plan must be identified on the registration form. If it becomes apparent during the oral comments that what were indicated to be merely general comments are, in fact, specific comments, the presiding officer may ask the person to specifically identify the proposed items in the proposed revised Management Plan to which the oral comments are directed.

The presiding officer will establish the order of oral comments of persons at the hearing. As appropriate, the presiding officer may limit:

1. the number of times a person may speak;
2. the time period for oral comments;
3. cumulative, irrelevant, or unduly repetitious comments;



4. general comments that are so vague, undeveloped, or immaterial as to be impracticable for the District to ascertain the intent or purpose of the person making the general oral comments and that are otherwise unhelpful to the District in analyzing the proposed revisions to the Management Plan;
5. the time period for asking or responding to questions; and
6. other matters that come to the attention of the presiding officer as requiring limitation.

**B. Written Comments:**

1. Written comments on the proposed revisions to the Management Plan must be filed with the District by mail or hand-delivery at the District's office at 802 9<sup>th</sup> Street, Wellington, Texas 79095. All written comments must be filed with the District and date-stamped no later than **Wednesday, October 17, 2018 at 4:00 p.m. Daylight Saving Time**.
2. Written comments should be filed on 8½ x 11 inch paper and be typed or legibly written. Written comments must indicate whether the comments are general and directed at all of the proposed revisions of the Management Plan, or whether they are directed at specific items in the proposed Management Plan. If directed at specific items in the proposed Management Plan, the number of the proposed item must be identified and followed by the comments on the specifically identified item of the Management Plan.

**C. Response to Comments:**

Please note that while the District Board and staff will consider both oral and written comments, the staff may not prepare written responses to these comments for review and consideration by the Board of Directors of the District when it deliberates on whether to adopt the proposed revisions to the District's Management Plan.

**Procedure for Obtaining the Revised Management Plan.**

Copies of the proposed Management Plan may be obtained from the District by:

1. telephoning (844) 445-2800;
2. e-mailing a request to the District at [manager@mesquitegcd.org](mailto:manager@mesquitegcd.org);
3. visiting the offices of the District at 802 9<sup>th</sup> Street, Wellington, Texas; or,
4. visiting the District's website at [www.mesquitegcd.org](http://www.mesquitegcd.org).

**Opportunity to Attend the Board Meeting  
at which the Revised Management Plan May be Adopted.**

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**SUMMARY OF REVISIONS TO THE DISTRICT'S MANAGEMENT PLAN**

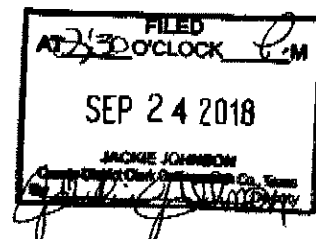
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- (1) Addressing the strategies to achieve the Desired Future Conditions (DFC): Updated the Desired Future Condition from the previously approved DFCs to the currently approved DFCs. All current DFCs were included in a new appendix;
- (2) Addressing providing for the most efficient use of groundwater within the District: Updated the date of required pumping data to be recorded by the District to May 1<sup>st</sup> of each year;
- (3) Addressing strategies to enhance water supplies: The District is to review the recharge enhancement feasibility study annually; and
- (4) Addressing Rainwater Harvesting: The District will annually publish a rainwater harvesting article in local newspapers, including any projects in the District.

**Issued** this 21<sup>st</sup> day of September, 2018.

*/s/ Lynn Smith*

Lynn Smith, General Manager,  
Mesquite Groundwater Conservation District



PROOF OF PUBLICATION

Affidavit

STATE OF TEXAS

COUNTY OF COLLINGSWORTH

On this 2nd day of Oct., 2018 personally appeared Bev Odom who states that she is the Wellington Editor of *The Red River Sun*, a newspaper of general circulation published in Collingsworth County, State of Texas and upon being duly sworn to me on oath states that the advertisement or legal notice appearing herewith is a true and correct copy of the same as published in said newspaper on the following date:

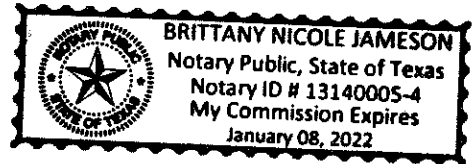
Sept. 24, 2018

Bev Odom

Agent

Subscribed and sworn to BEFORE ME on this 2nd day of October, 2018.

Brittany Jameson  
Notary Public, State of Texas





## PUBLIC NOTICE

### MESQUITE GROUNDWATER CONSERVATION DISTRICT'S NOTICE OF PUBLIC HEARING FOR THE PURPOSE OF ADOPTING A REVISED MANAGEMENT PLAN

#### TO: ALL INTERESTED PERSONS.

The Mesquite Groundwater Conservation District ("District") will conduct a public hearing concerning the District's intent to adopt a revised Management Plan.

The public hearing is to provide interested members of the public the opportunity to appear and provide oral or written comments on the proposed revisions to the Management Plan.

#### Date, Time, and Place of Public Hearing.

The date, time and place of the public hearing is as follows:

Date: **October 19, 2018.**  
Time: **9:00 a.m. Daylight Saving Time**  
Location: Memphis Public Library  
303 South 8th Street  
Memphis, Texas 79245.

#### Procedures for Submitting Public Comments on the Revised Management Plan.

##### A. Oral Comments:

Any person may appear in person, or by authorized representative, at the public hearing regarding the proposed revisions to the District's Management Plan. Any person making an appearance must indicate their desire to make oral comments on the registration form provided by the District at the public hearing. A person must disclose any affiliation on the registration form and if applicable, the legal authority to speak for a person represented. Any other person attending the public hearing will be considered by the District to be an observer not desiring to make comment on the proposed Management Plan. The District will not consider any comments of an observer in its proceedings.

All persons must indicate on the registration form whether their comments are generally directed to the entire proposed revised Management Plan, or whether they are directed at specific items in the proposed revised Management Plan. If directed at specific items in the proposed revised Management Plan, the number of the items in the proposed revised Management Plan must be identified on the registration form. If it becomes apparent during the oral comments that what were indicated to be merely general comments are, in fact, specific comments, the presiding officer may ask the person to specifically identify the proposed items in the proposed revised Management Plan to which the oral comments are directed.

The presiding officer will establish the order of oral comments of persons at the hearing. As appropriate, the presiding officer may limit:

1. the number of times a person may speak;
2. the time period for oral comments;
3. cumulative, irrelevant, or unduly repetitious comments;
4. general comments that are so vague, undeveloped, or immaterial as to be impracticable for the District to ascertain the intent or purpose of the person making the general oral comments and that are otherwise unhelpful to the District in analyzing the proposed revisions to the Management Plan;
5. the time period for asking or responding to questions; and
6. other matters that come to the attention of the presiding officer as requiring limitation.

##### B. Written Comments:

PUBLIC NOTICES

MOSQUITO GROUNDWATER CONSERVATION DISTRICT'S NOTICE OF PUBLIC HEARING FOR THE PURPOSE OF ADOPTING A REVISED MANAGEMENT PLAN

TO: ALL INTERESTED PERSONS.

The Mosquito Groundwater Conservation District ("District") will conduct a public hearing concerning the District's intent to adopt a revised Management Plan.

The public hearing is to provide interested members of the public the opportunity to appear and provide oral or written comments on the proposed revisions to the Management Plan.

Date, Time, and Place of Public Hearing.

The date, time and place of the public hearing is as follows:

Date: October 19, 2018
Time: 9:00 a.m. Daylight Saving Time
Location: Memphis Public Library, 808 South 8th Street, Memphis, MO 64687-2045

Procedures for Submitting Public Comments on the Revised Management Plan.

A. Oral Comments:

Any person may appear in person, or by authorized representative, at the public hearing regarding the proposed revisions to the District's Management Plan. Any person making an appearance must indicate their desire to make oral comments on the registration form provided by the District at the public hearing. A person must disclose any affiliation on the registration form and if applicable, the legal authority to speak for a person represented. Any other person attending the public hearing will be considered by the District to be an observer not desiring to make comments on the proposed Management Plan. The District will not consider any comments of an observer in its proceedings.

All persons must indicate on the registration form whether their comments are generally directed to the entire proposed revised Management Plan, or whether they are directed at specific items in the proposed revised Management Plan. If directed at specific items in the proposed revised Management Plan, the number of the items in the proposed revised Management Plan must be identified on the registration form. If it becomes apparent during the oral comments that what were indicated to be merely general comments are, in fact, specific comments, the presiding officer may ask the person to specifically identify the proposed items in the proposed revised Management Plan to which the oral comments are directed.

The presiding officer will establish the order of oral comments of persons at the hearing. An approximate, non-binding schedule is:

- 1. the manner or times a person may speak;
2. the time period for oral comments;
3. cumulative, irrelevant, or unduly repetitive comments;
4. general comments that are so vague, undeveloped, or immaterial as to be unresponsive to the District to ascertain the intent or purpose of the person making the general oral comments and that are otherwise unhelpful to the District in analyzing the proposed revisions to the Management Plan;
5. the time period for asking or responding to questions; and
6. other matters that come to the attention of the presiding officer as requiring attention.

B. Written Comments:

- 1. Written comments on the proposed revisions to the Management Plan must be filed with the District by mail or hand delivery at the District's office at 808 9th Street, Wellington, Texas 79092. All written comments must be filed with the District and date stamped no later than Wednesday, October 17, 2018 at 4:00 p.m. Daylight Saving Time.
2. Written comments should be filed on 8 1/2 x 11 inch paper and be typed or legible words. Written comments must indicate whether the comments are general and directed at all of the proposed revisions of the Management Plan, or whether they are directed at specific items in the proposed Management Plan. If directed at specific items in the proposed Management Plan, the number of the proposed item must be identified and followed by the comments on the specifically identified item of the Management Plan.

C. Response to Comments:

Please note that while the District Board and staff will consider both oral and written comments, the staff may not prepare written responses to those comments for review and consideration by the Board of Directors of the District when it deliberates on whether to adopt the proposed revisions to the District's Management Plan.

Procedure for Obtaining the Revised Management Plan.

Copies of the proposed Management Plan may be obtained from the District by:

- 1. telephoning (817) 448-2800;
2. e-mailing a request to the District at manager@mosquitogwd.org;
3. visiting the office of the District at 808 9th Street, Wellington, Texas, 79;
4. visiting the District's website at www.mosquitogwd.org.

Opportunity to Attend the Board Meeting at which the Revised Management Plan May be Adopted.

A meeting of the District's Board of Directors will be held on October 18, 2018 at 8:00 a.m. Daylight Saving Time at the Memphis Public Library, 808 South 8th Street, Memphis, Texas 79044. The meeting will then be recessed at 9:00 a.m. Daylight Saving Time to conduct the public hearing on the District's proposed Management Plan. The agenda item addressing adoption of the Management Plan will be addressed during the meeting, but after the Management Plan hearing.

SUMMARY OF REVISIONS TO THE DISTRICT'S MANAGEMENT PLAN

- (1) Addressing the strategies to achieve the Desired Future Conditions (DFC): Updated the Desired Future Condition from the previously approved DFCs to the currently approved DFCs. All current DFCs were included in a new appendix.
(2) Addressing providing for the most efficient use of groundwater within the District: Updated the date of required pumping data to be recorded by the District to May 1st of each year.
(3) Addressing strategies to enhance water supplies: The District is to review the recharge enhancement feasibility study annually and.
(4) Addressing Rainwater Harvesting: The District will annually publish a rainwater harvesting article in local newspapers, including any projects in the District.

Job Opening City Manager City of Turkey

The City Manager is responsible for carrying out the policies and ordinances of the City Council and for overseeing the day-to-day operations including water, sewer and solid waste services. Preference will be given to applicants with successful local government experience to include at least 3 years as a City or County Manager/Administrator.

Additional Requirements: Bachelors Degree in Public Administration, Business or related field is preferred.

This is a Full Time Position with HealthCare, Paid Sick/Vacation. For more information or an application, contact the City of Turkey, P.O. Box 415, Turkey, Texas 79261, 602 Lyles Street, or at (806) 423-1033.

JOB OPENING: CITY OF TURKEY GARBAGE TRUCK DRIVER

The City of Turkey is currently accepting applications for a Garbage Truck Driver. This position operates the trash truck that services the Turkey, Quitaque and Flomont areas and is responsible for hauling waste to the disposal site. The qualified applicant typically works two days per week with occasional carry over to a third day for certain weeks. These tasks are usually performed on Mondays and Tuesdays, but, on occasion, must be rescheduled to other days of the week. Must be at least 21 years of age and have a valid Medical Examiners Certification (medical card) or obtain prior to hire. Must not have DUI's, OVI's, license suspensions and no more than 3 moving violations in last 2 years. Must have at least a valid Class B, Texas-CM and successfully complete pre-employment testing. For an application, contact the City of Turkey at 423-1033, or stop by the office.

Legal Notice Request of Bids

The City of Turkey, Texas is accepting bids for the following: Sewer Roof Job With Mains to City Hall & Campus. All bids must be received by 3:00pm CST Wednesday October 3, 2018 at Turkey City Hall, 602 Lyles Street, Turkey Texas. Plans and specifications will be available for viewing at the Turkey City Hall during regular business hours from Thursday September 25th through October 5. City of Turkey EMS is accepting bids for the following: Street Sweeper Load Cot with universal floor plate, Siro-Pro Model 6020, Power DR1 XT. The City of Turkey reserves the right to accept or reject any or all bids & to waive any formalities and irregularities in the bid process.

Public Notice

Notice of Drinking Water, Nitrate Violation

Mandatory language for a Maximum Contaminant Level Violation (MCL) SINGLE SAMPLE / NITRATE: The Texas Commission on Environmental Quality (TCEQ) has notified the City of Turkey public water system that the drinking water being supplied to customers has exceeded the Maximum Contaminant Level (MCL) for nitrate. The U.S. Environmental Protection Agency (U.S. EPA) has established the MCL for nitrate to be 10 milligrams per liter (mg/L) based on a single sample, and has determined that it is a health concern at levels above the MCL. Analysis of drinking water in your community for nitrate indicates a compliance value of 15 mg/L. Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome. If your child is under the age of six months, the child must be given an alternative water supply for any consumption. Boiling the affected water is not an alternative treatment for nitrate removal. Most consumers do not need to use an alternative water supply. However, if you have health concerns, you may want to talk to your doctor to get more information about how this may affect you. At this time, the health effects to fetuses of pregnant women are unclear. If you are pregnant, you may also choose to use an alternative source of water for drinking and cooking purposes. We are taking the following actions to address this issue: Please share this information with all people who drink this water, especially those who may not have received this notice directly (i.e., people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail. If you have questions regarding this matter, you may contact City Administrator Stephanie Hobbs at 806-423-1033. Protocol Delivered on: 9/25/2018 Public Water System ID 60660002.

Notice Of Drinking Water, NITRATE Violation

Mandatory Public Notification Language:

The Texas Commission on Environmental Quality (TCEQ) has notified the CITY OF QUITAQUE TX that the drinking water being supplied to customers has exceeded the Maximum Contaminant Level (MCL) for NITRATE. The U.S. Environmental Protection Agency (U.S. EPA) has established the MCL for NITRATE at 10 milligrams per liter (mg/L) based on a single sample, and has determined that it is a health concern at levels above the MCL. Analysis of drinking water in your community for NITRATE indicates a Compliance value is quarter three 2018 of 15 mg/L for 4P000.

Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome. If your child is under the age of six months, the child must be given an alternative water supply for any consumption. Boiling the affected water is not an effective treatment for nitrate removal.

Most consumers do not need to use an alternative water supply. However, if you have health concerns, you may want to talk to your doctor to get more information about how this may affect you. At this time, the health effects to fetuses of pregnant women are unclear. If you are pregnant, you may also choose to use an alternative source of water for drinking and cooking purposes.

We are taking the following actions to address this issue:

We are currently working with the EPA, TCEQ, USDA and OJD Engineering in build a plant to clean the nitrates in our water below the MCL. Until then, bottled water is available through City Hall for pregnant women, nursing mothers and babies under six months of age or infants with a doctor's prescription.

Please share this information with all other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

If you have any questions regarding this matter, you may contact:

Walter Skumera, P.O. Box 427, Quitaque, TX 79085, (806) 452-1435, Public Water System ID# 0230002

Statement of Ownership, Management, and Circulation (Required Publications Only) The Valley Tribune. Includes circulation data for various categories like Total Copies, Paid and Unpaid Circulation, and Subscriptions.

**Appendix E**

**Transcript of Management Plan Hearing**



2018 Proposed Management Plan Hearing

10-19-18

Name:

Who are you representing?

Are you speaking?

NO Visitors Present



**PUBLIC HEARING - October 19, 2018**

BEFORE THE MESQUITE GROUNDWATER  
CONSERVATION DISTRICT

---

PUBLIC HEARING

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On the 19th day of October, 2018, the following Public Hearing came on to be held before the Mesquite Groundwater Conservation District Board in the conference room at the Memphis Public Library, 303 South 8th Street, Memphis, Hall County, Texas.

Proceedings reported by computerized stenotype machine in accordance with Chapter 36.1071 of the Texas Water Code.

**PUBLIC HEARING - October 19, 2018**

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APPEARANCES

BOARD OF DIRECTORS:

- Mr. Jerry Lewis, President
- Mr. Johnny Lindley, Vice-President
- Mr. Mat Montgomery, Secretary
- Mr. Rex Fuston
- Mr. Danny Wischkaemper
- Mr. Curtis Scrivner
- Mr. Terry Canada
  
- Mr. Lynn Smith, General Manager
- Ms. Whitney Wiebe, Administrative Assistant
- Ms. Amy Bush
- Mr. Ray Brady
- Mr. Good, General Counsel
- Ms. Ellen Orr

ATTACHMENTS

- Mesquite Groundwater Conservation District's Notice of Public Hearing for the Purpose of Adopting Revised Management Plan
- Newspaper Publication
- Mesquite Groundwater Conservation District Proposed Revised Management Plan



**PUBLIC HEARING - October 19, 2018**

1 PUBLIC HEARING

2 MR. SMITH: We've got a young lady here  
3 that's going to be taking notes, and if you're going to  
4 ask me questions, feel free to ask questions, but speak  
5 loudly, and it's probably helpful if you'll state your  
6 name before you go forward. Is that what you want?

7 MR. GOOD: Lynn, she will swear you in.

8 (Mr. Lynn Smith duly sworn.)

9 MR. SMITH: My name is Lynn Smith. I'm the  
10 General Manager of the Mesquite Groundwater Conservation  
11 District. The current Groundwater Management Plan was  
12 approved in March 2014, and is due for review in March of  
13 2019.

14 The District updated the desired future  
15 conditions in 2016, and as part of the Joint Planning  
16 Process within the Groundwater Management Area 6. Recent  
17 legislation required that those desired future conditions  
18 and the resulting modeled available groundwater volumes be  
19 incorporated into the District's Groundwater Management  
20 Plan by the winter of 2018.

21 While the District's Groundwater Management  
22 Plan is actually a 10-year plan, updates are occasionally  
23 necessary due to legislative changes and are usually  
24 addressed as needed at the five-year review date.

25 The process the District used for making

**PUBLIC HEARING - October 19, 2018**

1 updates to the Management Plan is: Staff and consultant  
2 review current Management Plan and identify areas for  
3 improvement.

4 General Manager created Proposed Management  
5 Plan which addresses the areas for improvement, while  
6 keeping other areas the same or similar.

7 Then staff and consultants reviewed  
8 Proposed Management Plan, corrections were made.

9 At that point, the District's Board  
10 reviewed the Proposed Management Plan.

11 Texas Water Development Board provided an  
12 informal review for the Proposed Management Plan,  
13 additions and corrections were made.

14 The District's Board set a date for the  
15 Management Plan hearing.

16 Staff provided notices at the local and  
17 state levels as required by District rules and by statute.

18 Copies of the Proposed 2018 Management Plan  
19 were made available to the public at the District office  
20 and on its website. Updates as they were made through  
21 that process were also made available to the public.

22 Texas Water Development Board finally  
23 provided a formal precertification review of the Proposed  
24 Management Plan. Additions and corrections were made at  
25 that time, as well.

**PUBLIC HEARING - October 19, 2018**

1           Four steps remain in the process: The  
2 hearing, which we are conducting today; Board approval,  
3 which we will likely conduct today; submittal of the  
4 finalized plan; and approval from Texas Water Development  
5 Board's Executive Administrator.

6           So that's kind of an introduction to our  
7 procedure that we're in.

8           Now I'm going to talk to you a little bit  
9 about the changes. The Proposed Management Plan follows  
10 the general form of the current plan, but it's been  
11 modified to more closely fit into the Texas Water  
12 Development Board's review process, particularly with  
13 regard to wording of the Goals portion of the plan.

14           The Desired Future Conditions were changed  
15 from the previously approved DFCs to the current (2016)  
16 approved DFCs.

17           The DFCs are now included within the body  
18 of the Proposed Management Plan, rather than being  
19 relegated to an appendix.

20           Modeled Available Groundwater is now  
21 included within the body of the Proposed Management Plan.  
22 The District chose to use a weighted average to step  
23 yearly from the 2010 MAG to the 2020 MAG, due to the  
24 relatively large change within that decade, while holding  
25 other decades constant, because they were relatively small

**PUBLIC HEARING - October 19, 2018**

1 increments.

2           The performance standard addressing the due  
3 date for pumping data was changed to May 1st to allow for  
4 the timely submittal of producer's Annual Production  
5 Reports or adequate time for staff to read the large  
6 number of meters present in the District now.

7           Either method the District uses in the  
8 future for reporting would be acceptable under the  
9 proposed Performance Standard.

10           Several changes were made to the Recharge  
11 Enhancement Performance Standards. The need to perform a  
12 District's Recharge Enhancement Feasibility Study was  
13 deleted since it's now been completed. A review of that  
14 study that is to be completed at least annually by  
15 September 30th was added. Participation in recharge  
16 enhancement projects with public or private entities if  
17 opportunity and funding become available was also added.

18           The goal for rainwater harvesting was  
19 separated from recharge enhancement and given its own  
20 section. The performance standards were updated with the  
21 first one being publishing an article in the newspaper of  
22 standard circulation at least once per year regarding  
23 rainwater harvesting. The second standard involves  
24 providing a summary of rainwater harvesting projecting  
25 within the District through the Board and the public.

**PUBLIC HEARING - October 19, 2018**

1           A new appendix section was created with  
2 context -- or section was created with contact information  
3 for individuals responsible for creation of the plan and  
4 was added. There were minor corrections for formatting,  
5 spelling and word choice throughout the remaining  
6 document.

7           Does anybody have any questions or comment?

8           MR. GOOD: Lynn, I have one question, just  
9 for the record. I don't believe you received any written  
10 commentary on the Proposed Management Plan have you?

11           MR. SMITH: We've not received any written  
12 public commentary.

13           MR. GOOD: Okay.

14           MR. SMITH: We did receive the review from  
15 Water Development Board in writing, but I don't believe  
16 that's what you're referring to.

17           MR. GOOD: No, sir.

18           MR. SMITH: Okay.

19           MR. GOOD: I'm getting coached here. So we  
20 have no public comments at this time?

21           MR. SMITH: The District has received no  
22 public comment oral or written.

23           MR. GOOD: Okay. Thank you.

24           MR. SCRIVNER: Do we move to accept the  
25 plan?

**PUBLIC HEARING - October 19, 2018**

1                   MR. GOOD: Not yet. You'll do that in open  
2 session. You can close the meeting, close the hearing.

3                   MR. LEWIS: We need a motion to close the  
4 public hearing on the Proposed Management Plan.

5                   MR. CANADA: I'll make a motion to close  
6 it.

7                   MR. LEWIS: Second? I'll second it. All  
8 in favor of that motion say aye.

9                   (Multiple voices say aye.)

10                  MR. LEWIS: Opposed?

11                  (No response.)

12                  MR. LEWIS: Motion carried, no no's.

13                  (Public Hearing Closed.)

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**PUBLIC HEARING - October 19, 2018**1  
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## CERTIFICATION

I, Dana Foster Moreland, Certified Shorthand Reporter in and for the State of Texas, do hereby certify that the above and foregoing contains a true and correct transcription of the Public Hearing of the Mesquite Groundwater Conservation District held on October 19, 2018, that as of 1:23 p.m. October 29, 2018, no additional written comments had been received by me.

Certified to by me on this 29th day of October, 2018.



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DANA FOSTER MORELAND, CSR  
Texas CSR 2341  
Amarillo Court Reporting, Inc.  
P.O. Box 19628  
Houston, Texas 79114  
Telephone: 806.374.4091  
Expiration: 12/31/19





**Appendix F**

**Mesquite GCD Contact Information  
For  
Management Plan Questions or Clarifications**



## Mesquite GCD Contact Information

All questions and correspondence regarding this document should be directed to the District's General Manager.

District Phone Number 844-445-2800

District Address           Mesquite GCD  
802 9<sup>th</sup> Street  
Wellington, TX 79095

District Staff            General Manager – Mr. Lynn Smith, P.G.  
Email – [manager@mesquitegcd.org](mailto:manager@mesquitegcd.org)  
Cell Phone – 940-273-4230

Administrative Assistant – Mrs. Whitney Wiebe  
Email – [admin@mesquitegcd.org](mailto:admin@mesquitegcd.org)



**Appendix G**

**2018 Groundwater Management Plan**

**Adoption Resolution**



**BOARD RESOLUTION OF  
MESQUITE GROUNDWATER CONSERVATION DISTRICT  
2018 REVISED GROUNDWATER MANAGEMENT PLAN**

**WHEREAS**, Texas Water Code, Chapter 36, Section 36.1071 requires the Mesquite Groundwater Conservation District ("the District") to develop a comprehensive management plan to address specific management goals; and,

**WHEREAS**, the District issued Notice of the 2018 Groundwater Management Plan Hearing that was held on October 19, 2018 at 9:00 a.m. on September 21, 2018 by posting the said Notice on the District's website and by publishing the said Notice in *The Red River Sun* and *The Valley Tribune* on September 26, 2018; and,

**WHEREAS**, the District also gave notice of the District's intent to propose the adoption of the 2018 Revised Groundwater Management Plan at its October 19, 2018 regular Board Meeting; and,

**WHEREAS**, the District held a public hearing on October 19, 2018 to receive public comment regarding the proposed 2018 Revised Groundwater Management Plan that was transcribed by Court Reporter, Dana Moreland; and,

**WHEREAS**, no members of the public appeared on February 13, 2018 to offer public comment regarding the proposed 2018 Revised Groundwater Management Plan and no oral, or written, public comment has been received by the District as of October 19, 2018; and,

**WHEREAS**, Texas Water Code, Section 36.1071 also requires the District to identify the performance standards and management objectives under which the District will operate to achieve its management goals; and,

**WHEREAS**, the Board of Directors of the Mesquite Groundwater Conservation District believes that the 2018 Revised Management Plan of the District reflects the best management of the groundwater for the District and meets the requirements of Section 36.1071 as applicable; and,

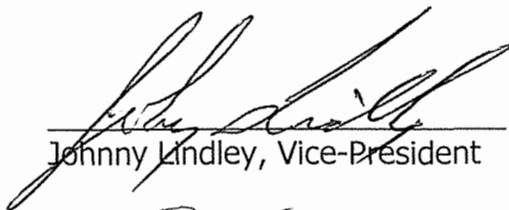
**WHEREAS**, the Board further believes that the description of activities, programs, and procedures of the District included in the Revised Management Plan provide performance standards and management goals and objectives necessary to affect the Revised Plan in accordance with Section 36.1071.

**NOW, THEREFORE, BE IT RESOLVED, AND IT IS HEREBY RESOLVED, THAT** the Board of Directors of the Mesquite Groundwater Conservation District does hereby adopt the 2018 Mesquite Groundwater

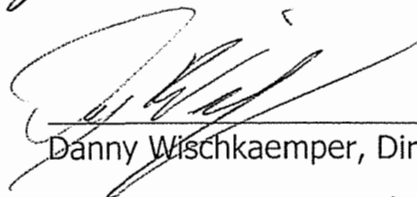
Conservation District Revised Management Plan on this 19th day of October, 2018.


  
\_\_\_\_\_  
Jerry Lewis, President

  
\_\_\_\_\_  
Mat Montgomery, Secretary


  
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Johnny Lindley, Vice-President

\_\_\_\_\_  
Gene Pena, Director

  
\_\_\_\_\_  
Danny Wischkaemper, Director

  
\_\_\_\_\_  
Terry Canada, Director

  
\_\_\_\_\_  
Curtis Scrivner, Director

  
\_\_\_\_\_  
Ray Futo