LOST PINES GROUNDWATER CONSERVATION DISTRICT

MANAGEMENT PLAN

Adopted September 15, 2004;
Revised August 10, 2010;
Revised September 19, 2012;
Revised September 20, 2017

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APPENDICES

Section 1. THE DISTRICT

The Lost Pines Groundwater Conservation District (District) was created in 1999 by Senate Bill 1911, 76th Texas legislature, pursuant to Section 59, Article 16 of the Texas Constitution and Article 7880-3c, Texas Civil Statutes (now Chapter 36, Texas Water Code); ratified by the 77th Texas Legislature in 2001; and confirmed by voters in Bastrop and Lee counties in November 2002.

The District includes all of Bastrop and Lee counties (**Map 1**).

For state water planning purposes, the District was designated by the Texas Water Development Board (TWDB) as part of Groundwater Management Area 12 (GMA 12) (**Map 2**). The District participates in GMA 12 along with Mid-East Texas Groundwater Conservation District, Brazos Valley Groundwater Conservation District, Post Oak Savannah Groundwater Conservation District, and Fayette County Groundwater Conservation District.

The District participates in two of the State's sixteen Regional Planning Areas: Bastrop County is in Lower Colorado Regional Planning Group or Region K and Lee County is in Brazos River Regional Planning Group or Region G (**Map 3**).

Section 2. DISTRICT MISSION AND GUIDING PRINCIPLES:
Actions, Procedures, Performance and Avoidance Necessary to Effectuate the Management Plan

Mission. The District's mission is to conserve, preserve and protect interests in groundwater in Bastrop and Lee counties, while addressing statutory goals and requirements. In fulfilling its mission, the District will endeavor to manage groundwater to meet demands on a sustainable basis, by which the District means development, use, and reasonable long-term management of groundwater resources so that those resources can continue to be used by future generations. The District will address applicable statutory management goals, including:

- Providing the most efficient use of groundwater
- Controlling and preventing waste of groundwater
- Addressing conjunctive surface water management issues
- Addressing natural resource issues that impact the use and availability of groundwater and are impacted by the use of groundwater
- Addressing drought conditions
- Addressing conservation, recharge enhancement, rainwater harvesting, precipitation enhancement, or brush control, where appropriate and cost effective, and
- Addressing the desired future conditions (meaning a quantitative description, adopted in accordance with Chapter 36, Texas Water Code,[1] of the desired condition of the groundwater resources for relevant aquifers (DFCs)), as those DFCs may be amended from time to time.

Based on current conditions, the statutory goal of controlling and preventing subsidence is not applicable to the District.

Guiding Principles. The District's guiding principles derive from its mission statement. Groundwater resources within the District are of vital importance to the residents and businesses in Bastrop and Lee counties and effectively constitute the only source of water available for most of the District. The District was created to provide for the conservation, preservation, protection, recharging, and prevention of waste of groundwater within the two counties, while complying with statutory requirements. The District believes its groundwater resources can be managed in a prudent manner through education and conservation coupled with reasonable regulation, and based on increasing quantitative understanding of available groundwater resources, recharge, and current and future demand, including real-time information on aquifer conditions developed via a network of monitoring wells.

Policy.

1. District groundwater is to be conserved, preserved, and protected and waste prevented to maintain the viability of the groundwater supply for future generations in the two counties, while complying with statutory requirements, as amended from time to time, including those applicable

[1] See §§ 36.001(30) (defining DFC) and 36.108 (joint planning process). References herein to "Chapter 36" are to Chapter 36, Texas Water Code. All references to a section of Chapter 36 are shown as "§ 36.[section number]."

to permits for transport of water out-of-District, and including without limitation certain provisions of Chapter 36 which are summarized in Appendix A (which may be supplemented when appropriate).

2. To the extent consistent with statutory goals and requirements and with its DFCs, the District will attempt to manage District aquifers on a sustainable basis. The District defines sustainability as development, use, and reasonable long-term management of groundwater resources so that those resources can continue to be used by future generations.

3. The District, in cooperation with local municipalities and water supply companies, has established a monitoring well network and an aquifer water level monitoring program (the "Monitoring Well Program"), and a system for reporting water levels. The District will measure and monitor water levels to detect declines, to allow the District to consider appropriate action to avoid or minimize depletion of the water supply and to maintain or achieve water levels which are consistent with the DFCs. For instance, it may be necessary for the District to reduce the amount of groundwater that non-exempt users pump to avoid or to minimize depletion of the groundwater supply in specified areas within the District and to achieve water levels which are consistent with the DFCs.

4. This Management Plan and the District rules, as amended from time to time, will be based on the best technical advice available to the District. The District will undertake investigations of the District's groundwater resources, including through the Monitoring Well Program, and will cooperate with investigations of groundwater resources and the interaction of groundwater and surface water by TWDB, TCEQ, GMA 12 or other entities, and will make the results of such investigations available to the Board and to the public. The District recognizes that good long-term groundwater management is built on availability of high-quality data, improved understanding of groundwater flow systems, and increasingly better understanding of the interaction between groundwater and surface water. The District recognizes the uncertainties inherent in long-term management of groundwater resources created by such factors as climate, drought, changes in exempt uses such as mining and oil and gas development, socioeconomic change and population growth, and also recognizes the uncertainties created by the geology and other characteristics of relevant aquifers. The District believes that uncertainties affecting decision-making can be reduced to some extent by reliance on high-quality data.

5. The District will treat all citizens equally. The District may exercise its discretion to consider unique situations or local conditions and the potential for adverse economic and environmental consequences, guided by this Management Plan, and such exercise of discretion shall not be construed as limiting the power and authority of the District.

6. In implementing this Management Plan, the District will seek cooperation from municipalities, water supply companies, irrigators, and other groundwater users, and will also seek to cooperate and coordinate with state and regional water planning authorities and agencies as well as the districts of GMA 12.

7. In support of its mission of conserving, protecting and preserving interests in groundwater within Bastrop and Lee counties, while addressing statutory goals and requirements, the Board may, among other actions, after notice and hearing, amend or revoke any permit for non-compliance, or reduce the groundwater production authorized by permit for

the purpose of managing District groundwater resources consistent with the DFCs. The District may also enforce the terms and conditions of permits and District rules by fine and/or by enjoining the permit holder in a court of competent jurisdiction as provided by § 36.102.

The District's Board of Directors will implement this Management Plan and any necessary changes or modifications to adhere to the policy stated herein.

The rules are on the District website: http://www.lostpineswater.org/Forms----Documents.aspx.

Section 3. TIME PERIOD COVERED BY THE MANAGEMENT PLAN

This Management Plan was originally adopted on September 15, 2004. The first revision was on August 10, 2010, the second revision was approved on September 19, 2012, and this third revision was approved on September 20, 2017. The District may review the Management Plan annually, but at least once every five years, the District will review and re-adopt its Management Plan, with or without change, and submit it to TWDB pursuant to Chapter 36.[2]

[2] See § 36.1072.

Section 4. GOVERNANCE

Board of Directors. The District is governed by a ten-member Board of Directors, five appointed by the Bastrop County Judge and five appointed by the Lee County Judge, qualified and sworn as required by law. After the initial appointment of directors and the setting of staggered terms, each Director is appointed to a four-year term beginning in January. Thus, every second year, following the initial appointment of directors, two directors are appointed by the Bastrop County Judge and two Directors are appointed by the Lee County Judge. The succeeding second year, three Directors are appointed by the Lee County Judge and three Directors are appointed by the Bastrop County Judge.

Each year, in January, the Board selects one of its members to serve as president to preside over Board meetings and proceedings, a second member to serve as vice-president to preside over Board meetings and proceedings in the absence or recusal of the president, and a third to serve as secretary-treasurer to keep a true and correct account of all proceedings of the Board. The Board may appoint an assistant secretary to assist the secretary-treasurer. Unless a vacancy occurs, members of the Board and officers serve until their successors are appointed, qualified to hold office, and sworn in. In the event of a vacancy in any office, the Board shall select one of its members to fill out the term of office. In the absence of a General Manager, the president of the Board will serve as General Manager.

The president may establish committees for formulation of policy recommendations to the Board and may appoint the chair and membership of the committees, which may include members of the Board and/or non-board members. Committee members serve at the pleasure of the president.

The Board will hold regular meetings at least four times a year on a day and at a place that the Board may establish from time to time by Board resolution. At the request of the president, or by written request of at least three Board members, the Board may hold a special meeting. The business of the District will be conducted at regular or special Board meetings when a quorum is present. All Board meetings will be conducted in accordance with the Open Meetings Act.

Daily Operations. The Board may employ a person to be the General Manager, with full authority to manage and to operate the affairs of the District, subject only to direction provided by the Board through policies and orders adopted by the Board. The General Manager may, with Board approval, employ all persons necessary to carry out daily operations. The General Manager may delegate duties as may be necessary to efficiently and expeditiously accomplish those duties; provided that no delegation will relieve the General Manager from his or her responsibilities under the Texas Water Code, the District enabling act, District rules, or District policies, orders and permits.

The Board shall establish by resolution an official office of the District, and the office will maintain regular business hours.

Section 5. DISTRICT DESIRED FUTURE CONDITIONS (DFCs)

On August 10, 2010, the GMA-12 DFCs were adopted for the relevant aquifers, i.e., the major and minor Aquifers within the District other than the Yegua-Jackson (the Sparta, Queen City, Carrizo, Calvert Bluff, Simsboro, and Hooper Aquifers) and submitted to TWDB. The Yegua-Jackson Aquifer was considered not relevant for the District and a DFC was not established for it. See **Appendix A**. On September 8, 2010, TWDB notified GMA 12 that the GMA-12 DFC submission was administratively complete.

On April 27, 2017, the second round of DFCs was formally adopted by GMA-12. At the time of the preparation of this Management Plan, the TWDB had not finished reviewing the GMA-12 DFC submittal packet.

In adopting and submitting the GMA-12 DFCs, the District stated that in its Management Plan it would further divide the recommended DFCs by county. The District's DFCs by county and by aquifer that were approved in 2017 are presented in **Table 1**.

Table 1- Desired Future Conditions

Aquifer	County	District-wide DFC in 2070 (Average drawdown in feet)	DFC in 2070 (County-wide average drawdown in feet)
Sparta	Bastrop Lee	5	-9 10
Queen City	Bastrop Lee	15	16 16
Carrizo	Bastrop Lee	62	74 64
Calvert Bluff	Bastrop Lee	100	81 142
Simsboro	Bastrop Lee	240	174 350
Hooper	Bastrop Lee	165	153 225

Section 6. MODELED AVAILABLE GROUNDWATER

Pursuant to the 2011 amendment of § 36.1071(e)(3), TWDB provided estimates of modeled available groundwater totals for the District, based on the DFCs established by GMA 12 under § 36.108. The modeled available groundwater totals provided by the TWDB in 2012 are presented below in **Table 2**.

Table 2 - Modeled Available Groundwater Totals for the District

All values are in acre-feet/year

AQUIFER	2010	2020	2030	2040	2050	2060
Sparta	2,405	2,236	5,315	1,980	1,885	1,877
Queen City	1,315	1,215	2,880	1,144	1,134	1,133
Carrizo	6,610	7,618	8,358	9,263	11,800	12,052
Calvert Bluff	1,785	2,226	2,633	3,183	3,912	3,985
Simsboro	29,556	32,731	31,362	34,916	36,544	37,249
Hooper	1,174	1,427	1,715	2,095	2,589	2,592
TOTAL	42,845	47,453	52,263	52,581	57,864	58,888

TWDB GAM Runs 10-044 MAG, 10-045 MAG, and 10-046 MAG.

Section 7. DISTRICT GROUNDWATER RESOURCES

This section presents information on District groundwater and surface water resources. The estimated historical groundwater use in the District for the last five years is provided in **Table 3**. The estimates in **Tables 4-6** are from TWDB GAM Run 16-014, March 6, 2017, which is provided in **Attachment A**. The estimates below in **Tables 7-10** comprise data from the TWDB 2017 State Water Plan Dataset for the District, which is provided in **Attachment B**.

The District considered and used all information referenced in this Management Plan, including without limitation the information in **Table 9** (water supply needs) and **Table 10** (water supply management strategies).

Table 3 - Estimated Historical Groundwater Use

Year	County	Municipal	Manufacturing	Mining	Steam Electric (Power)	Irrigation	Livestock	Total
2011	Bastrop	12,129	81	2,110	0	3,861	260	18,441
2012	Bastrop	11,010	60	45	0	2,829	215	14,159
2013	Bastrop	10,611	81	44	0	2,533	191	13,460
2014	Bastrop	9,771	93	34	3,400	2,444	206	15,948
2015	Bastrop	10,466	98	44	5,519	3,204	211	19,542
2011	Lee	2,895	7	7,707	0	1,609	422	12,640
2012	Lee	2,503	6	5,677	0	1,017	357	9,560
2013	Lee	2,538	6	6,081	0	837	305	9,767
2014	Lee	2,327	6	439	0	802	316	3,890
2015	Lee	2,316	7	6,889	0	519	324	10,055

A. GROUNDWATER RESOURCES

Except for a small area along the northwest border of Bastrop County south of the Colorado River that is not an aquifer, the geologic units exposed in Bastrop and Lee counties are Tertiary and Quaternary in age. All the Tertiary age geologic units dip or tilt to the southeast, and are composed of varying portions of sand, silt, and clay. From oldest (westernmost) to youngest (easternmost), these exposed Tertiary geologic units include the Midway Group, the Wilcox Group, the Carrizo Formation, the Reklaw Formation, the Queen City Sand, the Weches Formation, the Sparta Sand, the Cook Mountain Formation, the Yegua Formation, and the Jackson Group. Quaternary geologic units include river or stream alluvium, such as along the Colorado River and Middle Yegua Creek, as well as topographically higher terrace deposits.

AQUIFERS

Most of these geologic formations found within the District will yield some quantity of water to wells, as shown by the stratigraphic section below in **Figure 1**.

Figure 1 - Stratigraphic Section

Aquifer or Unit	Maximum Thickness (feet)	Description	Water-Bearing Properties
Alluvium	100	Sand, gravel, silt, and clay	Yields small to moderate quantities of fresh to slightly saline water to wells
Yegua-Jackson	900	Medium to fine sand, silt, clay, some lignite	Yields small to moderate quantities of fresh to slightly saline water to wells
Cook Mountain Formation	400	Clay with some sand	Yields small quantities of fresh to slightly saline water to wells
Sparta Sand	170	Fine to medium sand with some clay and silt	Yields small to large quantities of fresh to slightly saline water to wells
Weches Greensand	100	Glauconitic clay and sand	Not known to yield significant quantities of water to wells
Queen City Sand	600	Fine to medium sand, clay, with some conglomerate	Yields small to large quantities of fresh to slightly saline water to wells
Reklaw Formation	100	Glauconitic sand and silt (lower) and clay with some sand (upper)	Yields very small water to wells in upper part of formation
Carrizo Sand	600	Fine to coarse sand with some sandstone and clay	Capable of yielding large quantities of water to wells
Calvert Bluff Formation (Wilcox Group)	1500	Fine to coarse grained sand and sandstone with some silt, mudstone, and lignite	Capable of yielding moderate quantities of water to wells
Simsboro Sand (Wilcox Group)	800	Massive, fine to medium, well sorted sand	Capable of yielding large quantities of water to wells

Hooper Formation (Wilcox Group)	1300	Predominantly mudstone, with some sand and lignite.	Capable of yielding small to moderate quantities of water to wells
Midway Group	?	Mostly shale	Not known to yield significant quantities of water to wells

However, only the Carrizo, Wilcox, Queen City, Sparta, and Colorado River alluvium aquifers yield sufficient quantities to have wells that have been permitted by the District. Each of these geologic units has different water-bearing characteristics and capabilities, and each is described separately below.

Carrizo-Wilcox Aquifer

The Carrizo Formation and the Wilcox Group (which includes the Hooper Formation (lower), the Simsboro Formation (middle), and the Calvert Bluff Formation (upper)) form a single, hydrologically connected aquifer system recognized by the State as the Carrizo-Wilcox Aquifer. The Carrizo-Wilcox Aquifer is a defined as a major aquifer by the state of Texas, and within Texas it stretches in a wide band from the Rio Grande in South Texas to Louisiana. The Carrizo-Wilcox crops out through the middle of Bastrop County and in the far northeastern portion of Lee County. Wells are completed in the Carrizo-Wilcox Aquifer in and near the outcrop of each of the four individual aquifer units.

Hooper Formation The lowermost aquifer within the Carrizo-Wilcox is the Hooper Formation, which is also generally the least productive of the three Wilcox Group aquifers. The Hooper is used by exempt wells in and near the outcrop area, as well as for municipal purposes by the City of Elgin, Aqua Water Supply Corporation, Manville Water Supply Corporation, and Lee County Water Supply Corporation.

The Hooper is comprised of predominantly mudstone, with varying amounts of sandstone, and some thin lignite beds in the upper part of the formation. The Hooper and the overlying Simsboro and Calvert Bluff Formations are no longer distinguishable as individual units much farther west than the Colorado River. Beyond this point the Wilcox Group aquifer is referred to as undifferentiated Wilcox.

The Hooper crops out in a band approximately 3 miles wide in northwestern Bastrop County near the Travis County line, as well as in far western Lee County. From the outcrop, the Hooper dips at a rate of 125 to 200 feet per mile, with the top of the Hooper reaching a maximum depth of more than 5,000 feet in southern Lee County, although wells completed in the Hooper in the District are generally less than 700 feet deep. The Hooper Formation can be up to 1,300 feet thick within the District.

The Hooper Formation produces a small to moderate amount of water to wells, mainly in the outcrop area. Well yields of larger, non-exempt wells are generally between 200 and 350 gpm, although some Hooper wells can yield more than 500 gpm. Water quality of groundwater produced from the Hooper is generally good, although water quality deteriorates farther downdip from the outcrop.

Simsboro Formation The middle aquifer within the Wilcox Group is the Simsboro Formation. This aquifer is identifiable only from the middle of Bastrop County and eastward, including all of Lee County, and is a highly productive unit. It is used by numerous exempt wells and by the City of Elgin, Aqua Water Supply Corporation, and Manville Water Supply Corporation for municipal supplies. Water is also produced by Alcoa from the Simsboro as part of its mining operations.

The Simsboro is primarily composed of a massive, fine to coarse-grained sand, with relatively small amounts of silt, clay, and mudstone. The Simsboro crops out in a band two to three miles wide across Bastrop and far northwestern Lee County. From the outcrop, the Simsboro dips at a rate of 125 to 200 feet per mile, with the top of the Simsboro reaching a maximum depth of nearly 4,500 feet in southern Lee County. Wells completed in the Simsboro in the District are generally less than 1,000 feet deep, although wells of more than 1,500 feet have been completed in the District. The Simsboro is up to 800 feet thick within the District, although it is generally less than 500 feet thick.

The Simsboro Formation produces large quantities of fresh to slightly saline groundwater to wells. Wells of over 2,000 gpm have been completed in the Simsboro Formation, and yields of 900 to 1,200 gpm in existing non-exempt wells are common. Water quality of groundwater produced from the Simsboro is good, although water quality deteriorates farther downdip from the outcrop.

Calvert Bluff Formation The uppermost aquifer within the Wilcox Group is the Calvert Bluff Formation. The Calvert Bluff is used by numerous exempt wells in and near the outcrop, as well as for irrigation by two non-exempt wells and for municipal purposes by Aqua Water Supply Corporation, Manville Water Supply Corporation, and Bastrop County Water Control Improvement District Nos. 1 and 2.

The Calvert Bluff Formation is comprised primarily of fine to coarse-grained sand and sandstone, interbedded with silt, mudstone, and some lignite. The Calvert Bluff crops out in a band six to eight miles wide in Bastrop and Lee counties, and from the outcrop the Calvert Bluff dips at a rate of 125 to 200 feet per mile. The top of the Calvert Bluff is more than 3,000 feet deep in southern Lee County, although wells completed in the Calvert Bluff within the District are generally less than 1,000 feet deep. The Calvert Bluff is up to 1,500 feet thick within the District.

The Calvert Bluff is more productive than the Hooper but not nearly as productive as the underlying Simsboro or overlying Carrizo aquifers. Typical non-exempt Calvert Bluff well yields within the District are 150 to 350 gpm, although several wells with yields of 500 to 1,000 gpm are present. Water quality in the Calvert Bluff is generally good, although water quality deteriorates farther downdip from the outcrop.

Carrizo Formation The uppermost aquifer within the "Carrizo-Wilcox" Aquifer is the Carrizo Formation. The Carrizo is a highly utilized aquifer within the District, with a large number of smaller, exempt wells producing from it in and near the outcrop. In addition, numerous non-exempt wells produce from the Carrizo for municipal purposes, including those operated by the Cities of Lexington, Smithville, and Giddings, as well as by Aqua Water Supply Corporation and Lee County Water Supply Corporation. Some water produced from the Carrizo is also used for irrigation purposes.

The Carrizo Formation is predominantly a fine to coarse-grained massive sand. It crops out in a band one to two miles wide though Bastrop and Lee counties. From the outcrop the Carrizo dips at a rate of about 140 feet per mile when not affected by faulting, with the top of the

Carrizo being found at more than 2,500 feet in southern Lee County. The Carrizo can be up to 600 feet thick within the District, but is generally between 300 and 500 feet thick. The Carrizo is a highly productive aquifer throughout much of its extent not only in the District but throughout much of Texas.

Yields of non-exempt Carrizo wells within the District are generally between 400 and 750 gpm, although well yields of up to 1,500 gpm have been observed. Water quality in the Carrizo is good, although, as with most aquifers in the District, water quality deteriorates farther downdip from the outcrop.

Queen City Aquifer

The Queen City Aquifer is defined as a minor aquifer by the state of Texas. It is located stratigraphically above the Carrizo-Wilcox aquifer, between the Reklaw and Weches formations. The Queen City is used by a large number of exempt wells within the District, as well as for municipal purposes by the cities of Lincoln and Giddings, and the Lee County Water Supply Corporation.

The Queen City Formation is comprised of a massive to thin-bedded, fine to medium-grained sandstone with some silt, clay, shale, and lignite. It crops out in a band two to four miles wide across both Bastrop and Lee counties. From the outcrop the Queen City dips at a rate of 70 to 140 feet per mile, with the top of the formation being found at approximately 2,000 feet in southern Lee County. However, most Queen City wells are located in or near the outcrop area, with most being less than 1,400 feet deep. The Queen City is generally between 200 and 600 feet thick within the District.

The Queen City yields small to moderate quantities of fresh to slightly saline water to wells in and near the outcrop. Non-exempt Queen City wells in the District area typically yield between 130 and 250 gpm, although one Queen City well produced more than 450 gpm.

Sparta Aquifer

The Sparta Aquifer is defined as a minor aquifer by the state of Texas. It is located stratigraphically above the Queen City aquifer, between the Weches and Cook Mountain formations. The Sparta is used by exempt wells within the District for domestic and livestock purposes, and for municipal purposes by the Lee County Fresh Water Supply District and Lee County Water Supply Corporation.

The Sparta is primarily a loosely cemented, sand-rich unit, with some interbedded silt and clay. The Sparta crops out in a band one to ten miles wide from southern Bastrop County to northeastern Lee County. From the outcrop the Sparta dips at a rate of approximately 100 feet per mile, with the top of the formation being found at approximately 1,500 feet in southern Lee County. Most Sparta wells are located in or near the outcrop and are less than approximately 500 feet deep. However, one well (59-50-706) is nearly 1,500 feet deep. The Sparta is up to 170 feet thick within the District, and yields small to moderate quantities of fresh to slightly saline water to wells. Yields of non-exempt wells in the District typically range from 100 to 250 gpm. Water quality of groundwater produced from the Sparta is generally good, although, as with other dipping aquifers in the District, water quality deteriorates farther downdip from the outcrop area.

Other Aquifers

Colorado River Alluvium Aquifer In addition to the major and minor aquifers described above, the alluvium along the Colorado River also yields significant quantities of water to wells. The Colorado River Alluvium is not defined as a major or a minor aquifer by the State, and a DFC was not established for this aquifer. But this aquifer is used for water for municipal supply by the City of Bastrop, as well as for irrigation purposes, from several non-exempt wells.

The Colorado River Alluvium includes alluvial deposits in river bottom land along the Colorado River. The alluvium generally consists of sand, with some small gravel and disconnected layers of silt and clay. The alluvium can be on one side of the river or on both sides. It is not always connected beneath the river, and the maximum thickness is less than 100 feet. The alluvium along the Colorado River generally yields small to moderate quantities of fresh to slightly saline water.

In addition to the alluvium along the Colorado River, most other streams have some alluvium associated with them. Small, exempt wells may be installed in these very localized alluvial aquifers.

Trinity Aquifer The Trinity Aquifer, classified as a major aquifer by the state of Texas, underlies the District. However, it is virtually unused because of the extreme depth and poor water quality of this aquifer with the District. No known wells are completed in the Trinity Aquifer within the District.

Yegua-Jackson Aquifer The Yegua-Jackson Aquifer is classified as a minor aquifer by the state of Texas, and is found in the southeastern third of Lee County and a very small part of Bastrop County. The Yegua-Jackson Aquifer is comprised of the Yegua Formation and the Jackson Group. These units consist of interbedded sand, silt, and clay, with some lignite beds. The thickness of the Yegua-Jackson Aquifer in the District is as much as 900 feet. A few exempt wells are completed in the Yegua-Jackson Aquifer, primarily in Lee County. Within the District, no non-exempt wells are completed in this aquifer, and it is not expected to yield significant quantities of water to wells within the District.

Midway Group The Midway Group is located stratigraphically beneath the Wilcox Group. The Midway consists of clay, silt, glauconitic sand, and thin beds of limestone and sandstone and can be more than 800 feet thick. Wells drilled into the Midway outcrop may yield small quantities of slightly to moderately saline water, and a few wells within the District have been installed into the Midway.

Reklaw Formation The Reklaw Formation is located stratigraphically between the overlying Carrizo and underlying Queen City Formations. The Reklaw is composed primarily of glauconitic sand and silt, and is about 100 feet thick. It is not considered to be an aquifer by the state of Texas, however a few exempt wells have been completed in the Reklaw within the District, mostly in the outcrop area.

Weches Formation The Weches Formation, sometimes referred to as the Weches Greensand, is located between the Queen City and Sparta Formations. The Weches consists of glauconitic shale, some sandstone, and some thin limestone beds, and is about 100 feet thick. It is not considered to be an aquifer by the state of Texas, however a few exempt wells have been completed in the Weches within the District, mostly in the outcrop area.

Cook Mountain Formation The Cook Mountain Formation is located stratigraphically above the Sparta Formation and below the Yegua Formation. The Cook Mountain consists primarily of clay, with some lenses of sand, sandstone, limestone, glauconite, and gypsum, and can be as much as 400 feet thick within the District. It is not considered to be an aquifer by the state of Texas, however exempt wells producing very small quantities of fresh to moderately saline groundwater have been completed in the Cook Mountain within the District, mostly in the outcrop area.

RECHARGE, DISCHARGE, AND GROUNDWATER FLOW

Recharge is the addition of water to an aquifer. Recharge to aquifers occurs from direct precipitation on aquifer outcrop at ground surface, from losses from surface water bodies to the underlying aquifer, and from inter-formational leakage between aquifers. Recharge estimates for the major and minor aquifers present within the District are included in **Table 4**.

The amount of recharge that occurs due to direct precipitation appears to be more a function of the specific soils in an area than the amount of precipitation. Recharge of direct precipitation where sandy aquifer units crop out is higher than where the soils and formations at ground surface are clay-dominated. Effective recharge from precipitation, i.e. recharge that moves down dip into the deeper portions of the aquifer and is not discharged to surface streams, is typically only a few percent of average annual rainfall. Leakage between formations accounts for a large component of total recharge to an individual aquifer. Losses from surface water bodies to the underlying aquifers appear to be a minimal source of recharge for most of the aquifers in the District.

Discharge is the loss of water from an aquifer. Before the development of aquifers for groundwater supply purposes, all discharge was natural. This includes discharge to surface water sources such as springs, streams, rivers, and lakes, as well as the removal of groundwater from an aquifer by evapotranspiration and inter-formational leakage. Discharge to surface water bodies is shown in **Table 5**. After the development of District aquifers for supply purposes, most discharge that occurs is to wells. Other sources of anthropogenic discharge may include gravel pits, mining operations, or other activities that intersect the water table.

Groundwater moves from areas of higher hydraulic head to areas of lower hydraulic head, which is from areas of recharge to areas of discharge. Under normal conditions within the District, the movement of water is in a downdip direction. However, these normal, undeveloped conditions are altered by pumpage that occurs in the aquifer. Because pumpage has become the dominant form of discharge from many of the aquifers in the District, groundwater tends to flow towards areas of pumpage. These natural and altered flow patterns result in not only the movement of groundwater across District boundaries, but also between aquifers within the District. **Tables 6 and 7** summarize the amount of water that flows laterally into and out of the District to adjacent districts or counties, and the amount of water that moves vertically between aquifers, respectively. These values do not distinguish between fresh, brackish, and saline water, and therefore all flows include all of these water types.

Table 4 - Estimated precipitation recharge totals for major and minor aquifers

	Precipitation Recharge (acre-feet/year)
Sparta	10,142
Queen City	7,255
Carrizo-Wilcox	29,602
Trinity	0
Yegua-Jackson	38,860
Total	85,859

Source: TWDB GAM Run 16-014

Table 5 - Estimated discharge to surface water bodies from major and minor aquifers

	Surface Water Discharge (acre-feet/year)
Sparta	4,564
Queen City	5,488
Carrizo-Wilcox	32,781
Trinity	0
Yegua-Jackson	35,781
Total	78,614

Source: TWDB GAM Run 16-014

Table 6 - Estimated flow into and out of District in major and minor aquifers

	Flow Into District (acre-feet/year)	Flow Out Of District (acre-feet/year)
Sparta	915	593
Queen City	516	2,610
Carrizo-Wilcox	12,660	17,538
Trinity	355	136
Yegua-Jackson	5,882	10,154
Total	20,328	31,031

Source: TWDB GAM Run 16-014

Table 7 - Estimated flow between major/minor and adjacent aquifers

	Flow to/from Overlying Aquifer (acre-feet/year)	Flow to/from Underlying Aquifer (acre-feet/year)
Sparta	883	957
Queen City	934	167
Carrizo-Wilcox	1,313	NA
Trinity	2	NA
Yegua-Jackson	NA	NA
Total	363	791

Source: TWDB GAM Run 16-014. NA= Not applicable per GAM Run 16-014 report.
Note: Figure 1, Stratigraphic Section, lists the overlying and underlying aquifers.

B. SURFACE WATER RESOURCES

Bastrop and Lee counties lie along the inner edge of the Texas Gulf Coastal Plain. The topography is flat to gently rolling, with elevations ranging from slightly less than 400 feet where the Colorado River exits Bastrop County to slightly more than 650 feet along the Bastrop-Lee county line just north of the upper reaches of West Yegua Creek.

The District lies within three river basins: the Guadalupe, Colorado, and Brazos. The Colorado River bisects Bastrop County, and a majority of Bastrop County and the southern quarter of Lee County lie within the Colorado River Basin and its tributaries, including Cummins, Rabbs, Pin

Oak, Big Sandy, Wilbarger, and Cedar Creeks. The remainder of Lee County lies within the Brazos River basin, with the significant tributaries to the Brazos River within Lee County being the Middle and West Yegua Creeks. In addition to the Colorado and Brazos River basins, the extreme southern portion of Bastrop County lies within the Guadalupe River basin, an area drained by Peach Creek.

Currently surface water resources are little used in Bastrop and Lee counties because of lack of availability and because what is available has already been appropriated. Surface water from the Colorado River is used as make-up water for Lake Bastrop (which functions as a cooling pond for the LCRA Sim Gideon power plant), for cooling water for another privately owned power plant in Bastrop County, for some irrigation, and for livestock watering in Lee County. No other District uses of surface water are known. The current availability of surface water within Bastrop and Lee counties is summarized in **Table 8**.

Table 8 - Projected Surface Water Supplies - 2017 State Water Plan

All values are in acre-feet/year

RWPG	Entity Name	County	Source Name	2020	2030	2040	2050	2060	2070
K	COUNTY-OTHER	BASTROP	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	744	744	744	744	744	744
K	IRRIGATION	BASTROP	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	852	742	649	565	492	443
K	LIVESTOCK	BASTROP	LOCAL SURFACE WATER SUPPLY	862	862	862	862	862	862
K	MANUFACTURING	BASTROP	LOCAL SURFACE WATER SUPPLY	48	48	48	48	48	48
K	MINING	BASTROP	LOCAL SURFACE WATER SUPPLY	8	7	7	9	9	9
K	STEAM ELECTRIC POWER	BASTROP	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	12,220	11,834	11,026	10,571	10,571	10,571
G	IRRIGATION	LEE	BRAZOS RUN-OF-RIVER	20	20	20	20	20	20
G	LIVESTOCK	Lee	LOCAL SURFACE WATER SUPPLY	1,935	1,935	1,935	1,935	1,935	1,935

C. DISTRICT WATER DEMANDS, NEEDS AND STRATEGIES

Based on data from the 2017 State Water Plan, over the planning horizon, regional water planning data from Region G and Region K shows population is expected to increase from 95,487 in 2020 in Bastrop County to 382,244 in 2070 (an increase of 302%), and from 19,131 in 2020 in Lee County to 23,889 in 2070 (an increase of 25%). In addition, over the planning horizon, total water demands are projected to increase in Bastrop County from 35,184 acre-feet/year in 2020 to 89,084 acre-feet/year in 2070, and to increase in Lee County from 8,566 acre-feet/year in 2020 to 15,507 acre-feet/year in 2070. Demands within the District are shown in **Table 9**, and a summary by county is shown in **Table 10**. Needs within the District are shown in **Table 11**. Water management strategies included in the State Water Plan within the District are shown in **Table 12**.

Groundwater currently meets virtually all District demand for municipal, manufacturing, mining, livestock, and irrigation purposes, with surface water used principally to meet some irrigation and all steam-electric demand (cooling water). Currently, the two largest uses are mining and municipal purposes, including rural-domestic use. Almost all mining water use is from the Simsboro Aquifer.

It is important to note that the 2017 State Water Plan Projected Net Water Demands below:

- do not distinguish between projected demands met by surface water and those met by groundwater;
- do not include out-of-District demand for District groundwater;
- do not account for groundwater pumpage within the District that is exported out-of-District (such as demand represented by the District's current export of groundwater to Fayette County) (demand estimates from Regions G and K submitted to TWDB are for in-District demands only);
- do not account for demand in areas outside the District which are served by pumpage within the District by retail rural water sellers or other special utility districts whose "Certificate of Convenience and Necessity" (CCN) extends beyond District boundaries.

Such demands must be separately evaluated.

The District expects that improvements to the applicable GAM and expanded data from the Monitoring Well Program will allow better understanding of District groundwater resources and better future estimates of groundwater availability as the District seeks to manage the District's groundwater resources consistently with the DFCs and its mission.

Municipal demands are expected to nearly quadruple in Bastrop County by 2070. Mining demands are also expected to increase significantly in both Bastrop and Lee counties by 2070.

Table 9 - 2017 State Water Plan Projected Net Water Demands

All values are in acre-feet/year

Region	Entity Name	County	WUG Type	2020	2030	2040	2050	2060	2070
K	AQUA WSC	Bastrop	MUNICIPAL	9,228	11,837	15,313	20,116	26,683	35,432
K	BASTROP	Bastrop	MUNICIPAL	1,957	2,598	3,446	4,612	6,201	8,317
K	BASTROP COUNTY WCID #2	Bastrop	MUNICIPAL	378	544	765	1,069	1,482	2,033
K	COUNTY-OTHER, BASTROP	Bastrop	MUNICIPAL	1,873	2,250	2,753	3,444	4,382	5,634
K	CREEDMOOR-MAHA WSC	Bastrop	MUNICIPAL	24	28	35	44	57	74
K	ELGIN	Bastrop	MUNICIPAL	1,298	1,651	2,125	2,782	3,681	4,880
K	IRRIGATION, BASTROP	Bastrop	IRRIGATION	852	742	649	565	492	443
K	LEE COUNTY WSC	Bastrop	MUNICIPAL	103	131	169	221	293	388
K	LIVESTOCK, BASTROP	Bastrop	LIVESTOCK	1,522	1,522	1,522	1,522	1,522	1,522
K	MANUFACTURING, BASTROP	Bastrop	MANUFACTURING	194	227	262	295	319	345
K	MINING, BASTROP	Bastrop	MINING	2,884	6,813	7,498	8,263	9,085	9,996
K	POLONIA WSC	Bastrop	MUNICIPAL	29	36	45	58	75	99
K	SMITHVILLE	Bastrop	MUNICIPAL	842	1,074	1,385	1,817	2,410	3,201
K	STEAM ELECTRIC POWER, BASTROP	Bastrop	STEAM ELECTRIC POWER	14,000	16,720	16,720	16,720	16,720	16,720
G	AQUA WSC	Lee	MUNICIPAL	466	511	536	544	551	555
G	COUNTY-OTHER, LEE	Lee	MUNICIPAL	195	207	218	222	224	226
G	GIDDINGS	Lee	MUNICIPAL	1,120	1,231	1,289	1,307	1,324	1,334
G	IRRIGATION, LEE	Lee	IRRIGATION	459	446	434	421	409	398
G	LEE COUNTY WSC	Lee	MUNICIPAL	908	991	1,035	1,048	1,060	1,067
G	LEXINGTON	Lee	MUNICIPAL	242	265	277	281	284	286
G	LIVESTOCK, LEE	Lee	LIVESTOCK	1,935	1,935	1,935	1,935	1,935	1,935
G	MANUFACTURING, LEE	Lee	MANUFACTURING	13	14	15	16	17	18
G	MINING, LEE	Lee	MINING	3,180	7,289	7,767	8,304	8,904	9,631
G	SOUTHWEST MILAM WSC	Lee	MUNICIPAL	48	53	55	56	56	57

Table 10 - Projected Demands by County

All values are in acre-feet/year

TYPE	County	2020	2030	2040	2050	2060	2070
MINING	Bastrop	2,884	6,813	7,498	8,263	9,085	9,996
STEAM-ELECTRIC	Bastrop	14,000	16,720	16,720	16,720	16,720	16,720
MANUFACTURING	Bastrop	194	227	262	295	319	345
MUNICIPAL	Bastrop	15,732	20,149	26,036	34,163	45,264	60,058
IRRIGATION	Bastrop	852	742	649	565	492	443
LIVESTOCK	Bastrop	1,522	1,522	1,522	1,522	1,522	1,522
MINING	Lee	3,180	7,289	7,767	8,304	8,904	9,631
STEAM-ELECTRIC	Lee	0	0	0	0	0	0
MANUFACTURING	Lee	13	14	15	16	17	18
MUNICIPAL	Lee	2,979	3,258	3,410	3,458	3,499	3,525
IRRIGATION	Lee	459	446	434	421	409	398
LIVESTOCK	Lee	1,935	1,935	1,935	1,935	1,935	1,935

Table 11 - 2017 State Water Plan Projected Water Needs

All values are in acre-feet/year

Region	Entity Name	County	WUG Type	2020	2030	2040	2050	2060	2070
K	AQUA WSC	Bastrop	MUNICIPAL	2,534	4,656	7,145	11,210	17,667	26,269
K	BASTROP	Bastrop	MUNICIPAL	30	671	1,519	2,685	4,274	6,390
K	BASTROP COUNTY WCID #2	Bastrop	MUNICIPAL	0	0	0	0	93	644
K	COUNTY-OTHER	Bastrop	MUNICIPAL	361	519	739	907	1,158	1,490
K	CREEDMOOR-MAHA WSC	Bastrop	MUNICIPAL	0	0	0	0	0	0
K	ELGIN	Bastrop	MUNICIPAL	472	732	1,013	1,533	2,432	3,631
K	IRRIGATION	Bastrop	IRRIGATION	0	0	0	0	0	0
K	LEE COUNTY WSC	Bastrop	MUNICIPAL	0	0	0	0	0	0
K	LIVESTOCK	Bastrop	LIVESTOCK	0	0	0	0	0	0
K	MANUFACTURING	Bastrop	MANUFACTURING	55	87	120	151	174	199
K	MINING	Bastrop	MINING	732	4,662	5,347	6,110	6,932	7,843
K	POLONIA WSC	Bastrop	MUNICIPAL	0	0	0	0	0	0
K	SMITHVILLE	Bastrop	MUNICIPAL	0	0	0	0	0	721
K	STEAM ELECTRIC POWER	Bastrop	STEAM ELECTRIC POWER	0	0	0	0	0	0
G	AQUA WSC	Lee	MUNICIPAL	0	0	0	0	0	0
G	COUNTY-OTHER	Lee	MUNICIPAL	0	0	0	0	0	0
G	GIDDINGS	Lee	MUNICIPAL	0	0	0	0	0	0

G	IRRIGATION	Lee	IRRIGATION	0	0	0	0	0	0
G	LEE COUNTY WSC	Lee	MUNICIPAL	0	0	0	0	0	0
G	LEXINGTON	Lee	MUNICIPAL	0	0	0	0	0	0
G	LIVESTOCK	Lee	LIVESTOCK	0	0	0	0	0	0
G	MANUFACTURING	Lee	MANUFACTURING	0	0	0	0	0	0
G	MINING	Lee	MINING	3,180	7,289	7,767	8,304	8,904	9,631
G	SOUTHWEST MILAM WSC	Lee	MUNICIPAL	0	0	0	0	0	0

Table 12 - Projected Water Management Strategies - 2012 State Water Plan Data

All values are in acre-feet/year

Water Management Strategy	Source Name	2020	2030	2040	2050	2060	2070
AQUA WSC, BASTROP COUNTY (K)							
DROUGHT MANAGEMENT	DEMAND REDUCTION	1,385	1,775	2,297	3,018	4,002	5,366
MUNICIPAL CONSERVATION - AQUA WSC	DEMAND REDUCTION	630	911	978	1,148	1,526	2,026
EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER, BASTROP	2,500	2,500	4,000	4,000	4,000	4,000
LCRA - PRAIRIE SITE RESERVOIR	LCRA NEW OFF-CHANNEL RESERVOIR	0	0	5,000	5,000	10,000	15,000
BASTROP, BASTROP COUNTY (K)							
DROUGHT MANAGEMENT	DEMAND REDUCTION	294	390	517	692	930	1,248
MUNICIPAL CONSERVATION - BASTROP	DEMAND REDUCTION	195	440	688	1,084	1,459	1,958
DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	GROUNDWATER	300	300	300	300	300	0
DIRECT REUSE - BASTROP	REUSE	0	0	300	600	1,120	1,120
LCRA - LANE CITY RESERVOIR	SURFACE WATER	0	0	0	2,500	2,500	2,500
BASTROP COUNTY WCID #2							
DROUGHT MANAGEMENT	DEMAND REDUCTION	19	27	38	53	74	102
EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	GROUNDWATER	0	0	0	0	550	550
COUNTY-OTHER, BASTROP COUNTY (K)							
DROUGHT MANAGEMENT	DEMAND REDUCTION	281	338	413	517	657	845

MUNICIPAL CONSERVATION - BASTROP COUNTY-OTHER	DEMAND REDUCTION	92	196	344	414	527	677
EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	GROUNDWATER	60	60	60	60	60	0
CREEDMOOR-MAHA WSC, BASTROP COUNTY (K)							
DROUGHT MANAGEMENT	DEMAND REDUCTION	1	1	2	2	3	4
ELGIN, BASTROP COUNTY (K)							
DROUGHT MANAGEMENT	DEMAND REDUCTION	195	248	319	417	552	732
EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	GROUNDWATER	300	300	0	0	0	0
LCRA - LANE CITY RESERVOIR	SURFACE WATER	0	3,452	3,371	3,278	3,196	3,119
MANUFACTURING, BASTROP COUNTY (K)							
EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	GROUNDWATER	55	87	120	151	174	199
MINING, BASTROP COUNTY (K)							
DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	GROUNDWATER	0	0	466	466	466	466
DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - QUEEN CITY AQUIFER	GROUNDWATER	110	306	0	0	0	0
POLONIA WSC, BASTROP COUNTY (K)							
LOCAL CARRIZO AQUIFER WITH CONVERSION	GROUNDWATER	0	0	0	0	0	0
SMITHVILLE, BASTROP COUNTY (K)							
DROUGHT MANAGEMENT	DEMAND REDUCTION	126	161	208	273	362	480
MUNICIPAL CONSERVATION - SMITHVILLE	DEMAND REDUCTION	44	72	76	88	117	155
DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - QUEEN CITY AQUIFER	GROUNDWATER	0	0	0	0	0	150
STEAM ELECTRIC POWER, BASTROP COUNTY (K)							
LCRA - EXPAND USE OF GROUNDWATER (CARRIZO-WILCOX AQUIFER)	GROUNDWATER	300	300	300	300	300	300
GIDDINGS, LEE COUNTY (G)							
MUNICIPAL WATER CONSERVATION (RURAL) - GIDDINGS	DEMAND REDUCTION	39	131	231	230	232	233
LEXINGTON, LEE COUNTY (G)							

MUNICIPAL WATER CONSERVATION (RURAL) - LEXINGTON	DEMAND REDUCTION	8	26	23	21	21	21
MINING, LEE COUNTY (G)							
INDUSTRIAL WATER CONSERVATION	DEMAND REDUCTION	95	364	544	581	623	674
SOUTHWEST MILAM WSC, LEE COUNTY (G)							
MUNICIPAL WATER CONSERVATION (RURAL) - SOUTHWEST MILAM WSC	DEMAND REDUCTION	1	0	0	0	0	0

Section 8. MANAGEMENT GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS

A. Statutory Goals.

GOAL 1: Provide the most efficient use of groundwater.

Management Objective 1.1: The District will develop and evaluate a schedule for expanding the monitoring well network in the Monitoring Well Program and will measure and record water levels in the monitoring wells.

> Performance Standard: The District will annually evaluate and report to the Board on the monitoring well network.

Management Objective 1.2: The District will make available to the public information on efficient use of groundwater, at the District office, on the District website, and/or by public workshops or other presentations.

> Performance Standard: The General Manager will report annually to the Board, in the Annual Report or otherwise, on information on efficient use of groundwater which has been made available, identifying the publications and the number and dates of any public workshops or other presentations.

GOAL 2: Controlling and preventing waste of groundwater.

Management Objective 2.1: The District will make available to the public information on controlling and preventing waste of groundwater, at the District office, on the District website, or by public workshops or other presentations.

> Performance Standard: The General Manager will report annually to the Board, in the Annual Report or otherwise, on information on efficient use of groundwater which has been made available, identifying the publications and the number and dates of any public workshops or other presentations.

Management Objective 2.2: The District will document and promptly report to the relevant water supply entity any water leaks from pipelines or distribution systems which are noted or reported to the District.

> Performance Standard: The District will report annually to the Board, in the Annual Report or otherwise, any leaks noted and reported.

GOAL 3: Controlling and preventing subsidence: Under current conditions this goal is not applicable to the District.

GOAL 4: Address conjunctive surface water management issues.

Management Objective 4.1: The District will encourage the use of surface water supplies, where available and practical, to meet the needs of specific user groups within the District.

> Performance Standard: The District will participate at least annually in the Region G and Region K Regional Water Planning processes, encourage the development of surface water supplies where appropriate, and document any such activity in the Annual Report.

GOAL 5: Address natural resource issues that impact the use and availability of groundwater and which are impacted by the use of groundwater.

Management Objective 5.1: The District will make available to the public at the District Office and/or on the District website or at public meetings or presentations information on issues that impact use and availability of groundwater and are impacted by groundwater use, which may include without limitation such issues as drought, mining, endangered species, District hydrologic data, out-of-District export of groundwater, protection of endangered species, and the spread of phreatophytic vegetation.

> Performance Standard: The General Manager will report annually to the Board, in the Annual Report or otherwise, information made available on natural resource issues that impact the use and availability of groundwater and are impacted by the use of groundwater, identifying the publications and the number and dates of any public workshops or other presentations.

GOAL 6: Address drought conditions.

Management Objective 6.1: The District will monitor information on drought severity and provide a link to the drought information on the District website.

> Performance Standard: The District will monitor a public source on local drought conditions, such as https://waterdatafortexas.org/drought , make the information available to the public on the District website, and report annually to the Board on the status of this objective in the Annual Report or otherwise.

Management Objective 6.2. The District will monitor District monitoring wells at specified intervals.

> Performance Standard: A summary of water levels in District monitoring wells will be provided at least annually to the Board.

GOAL 7: Address conservation, recharge enhancement, rainwater harvesting, precipitation enhancement, or brush control, where appropriate and cost-effective.

Recharge enhancement: The District does not currently have the financial resources to buy property and construct recharge structures. Therefore, based on current conditions, this goal is not currently applicable.

Precipitation enhancement: The District does not know of any precipitation enhancement activity currently applicable to the District. Therefore, this goal is not currently applicable.

Management Objective 7.1: The District will make available to the public at the District office and/or on the District website information on water conservation on topics such as advances in plumbing fixtures that conserve water, xeriscaping, and other related subjects, where appropriate and cost-effective, identified by the District.

> Performance Standard: The General Manager will report annually to the Board, in the Annual Report or otherwise, on information on conservation which has been made available, identifying the information and the number and dates of any public workshops or other presentations.

Management Objective 7.2. The District will make available to the public at the District office and/or on the District website information concerning rainwater harvesting where appropriate and cost effective, including one or more publications related to advances in rainwater harvesting or any other related subject identified by the District.

> Performance Standard: The General Manager will report annually to the Board, in the Annual Report or otherwise, on information on rainwater harvesting which has been made available, identifying the information and the number and dates of any public workshops or other presentations.

Management Objective 7.3. The District will make available to the public information concerning brush control where appropriate and cost effective, including on topics related to brush control or any other related subject identified by the District.

> Performance Standard: The General Manager will report annually to the Board, in the Annual Report or otherwise, on information on brush control which has been made available, identifying the information and the number and dates of any public workshops or other presentations.

GOAL 8: Address desired future conditions (DFCs) of the groundwater resources established pursuant to § 36.108.

Management Objective 8.1: The District will report information on the consistency of water levels with DFCs at least annually.

> Performance Standard: Water levels will be reported at least annually to the Board by the General Manager, and will include information on the consistency of water levels with DFCs, including by county, and upon review and acceptance by the Board, made available to the public.

Management Objective 8.2: The District will regularly assess whether or not management zones should be established within its counties, or, if established, modified.

Performance Standard: The General Manager will at least every five years assess and report to the Board whether management zones should be established within its counties, or, if established, modified.

B. District-Specific Goals

GOAL: Provide public education on groundwater resources.

Management Objective: The District will make available to the public, with a focus on children, information related to the occurrence, distribution, behavior, and use of groundwater.

Performance Standard: At least once each year in each county of the District, the District will present a program dealing with the above matters at a public school.

GOAL: Register all wells within District boundaries.

Management Objective: The District will register all exempt wells drilled since the District Rules became effective and work towards registering all pre-existing exempt wells.

Performance Standard: The District will encourage registration of newly drilled exempt wells by refunding the drilling permit fee upon submittal of completion reports, well logs, and well registration materials. Because registration of exempt wells existing prior to the effective date of District rules is voluntary, the General Manager or the General Manager's designated representative will note the existence of unregistered wells, locate such wells on a map as best possible, and visit with the landowner, if possible, to encourage registration of the wells. The District will document such attempts at the District office.

GOAL: Publicize operating permit requirements

Management Objective: The District will publicize the requirement for operating permits for non-exempt wells, not otherwise excluded, and notify operating permit holders of the need to renew their operating permit at least sixty days prior to expiration.

Performance Standard: At least annually, the District will notify all known water-well drillers and pump installers operating in the District of the requirement for owners of non-exempt wells, not otherwise excluded, to obtain an operating permit and the requirement that the driller and/or pump installer insure that no non-exempt well, not otherwise excluded, is placed into service within the District without an operating permit. Such notice may be by publication in one or more newspapers of general circulation in Bastrop and Lee counties.

GOAL: Publicize transport permit requirements

Management Objective: The District will publicize the requirement for transport permits and to notify holders of transport permits of the need to renew their transfer permit prior to expiration.

Performance Standard: At least annually, the District shall cause to be published in one or more newspapers of general circulation in Bastrop and Lee counties a publication including or related to the requirement to obtain a transport permit to transport groundwater out of the District.

GOAL: Timely process operating permits and transport permits.

Management Objective: The District will endeavor to set an application on the agenda for a Board meeting within sixty (60) days of the date on which the General Manager determines that an application is Administratively Complete as defined by District rules.

Performance Standard: On an annual basis the District will track the dates on which applications and components of requested information are received, the dates on which (following technical review) an application is determined to be administratively complete, and the dates on which the Board considers applications. For any permit application taking longer than sixty days to process, the General Manager will cause a brief comment to be included in the files as to the reason for the delay. The General Manager will include an annual summary of permit application tracking in the Annual Report. Upon review and approval of the Annual Report, the District will make it available for public review at the District office.

GOAL: Maintain a database of registration of exempt wells, operating permits of non-exempt wells, and transport permits, permitting development of spacing and completion information for District wells and other information which facilitates management of groundwater consistent with DFCs.

Management Objective: The District will maintain a database of each registration of an exempt well, each operating permit for a non-exempt well, and each transport permit, such that the District can generate plots of the locations of each registered and permitted well, access available completion and other relevant information for wells, and compute distances between the wells.

Performance Standard: Data on each registration of an exempt well, each operating permit for a non-exempt well, and each transport permit shall be entered in the database within sixty (60) days of issuance of the operating permit or registration. A summary of exempt wells will be provided in the annual hydrological data report.

Section 9. DISTRICT CERTIFICATIONS

A. Regional Cooperation and Coordination

Evidence of coordination by the District with the relevant surface water entities in its boundaries is provided in **Appendix B**. In addition:

Lower Colorado River Regional Planning Group (Region K). The District regularly coordinates with Region K by participating at regional planning meetings and by written and verbal communication as needed.

Brazos River Regional Planning Group (Region G). The District regularly coordinates and communicates with Region G. A District representative commonly attends Region G planning meetings.

Lower Colorado River Authority (LCRA). The District communicates with LCRA through the Region K planning group and directly as needed. The District will participate when regular communication begins on conjunctive use of surface and groundwater (which has not occurred to date in Bastrop and Lee counties).

Brazos River Authority (BRA). The District communicates with BRA through the Region G planning group and directly as needed. BRA representatives commonly attend District Board meetings. The District will participate when regular communication begins on conjunctive use of surface and groundwater (which has not occurred to date in Bastrop and Lee counties).

B. District's Resolution Adopting Management Plan

Appendix C contains a certified copy of the District resolution adopting this Management Plan.

C. Evidence of Public Notice and Hearing of Management Plan

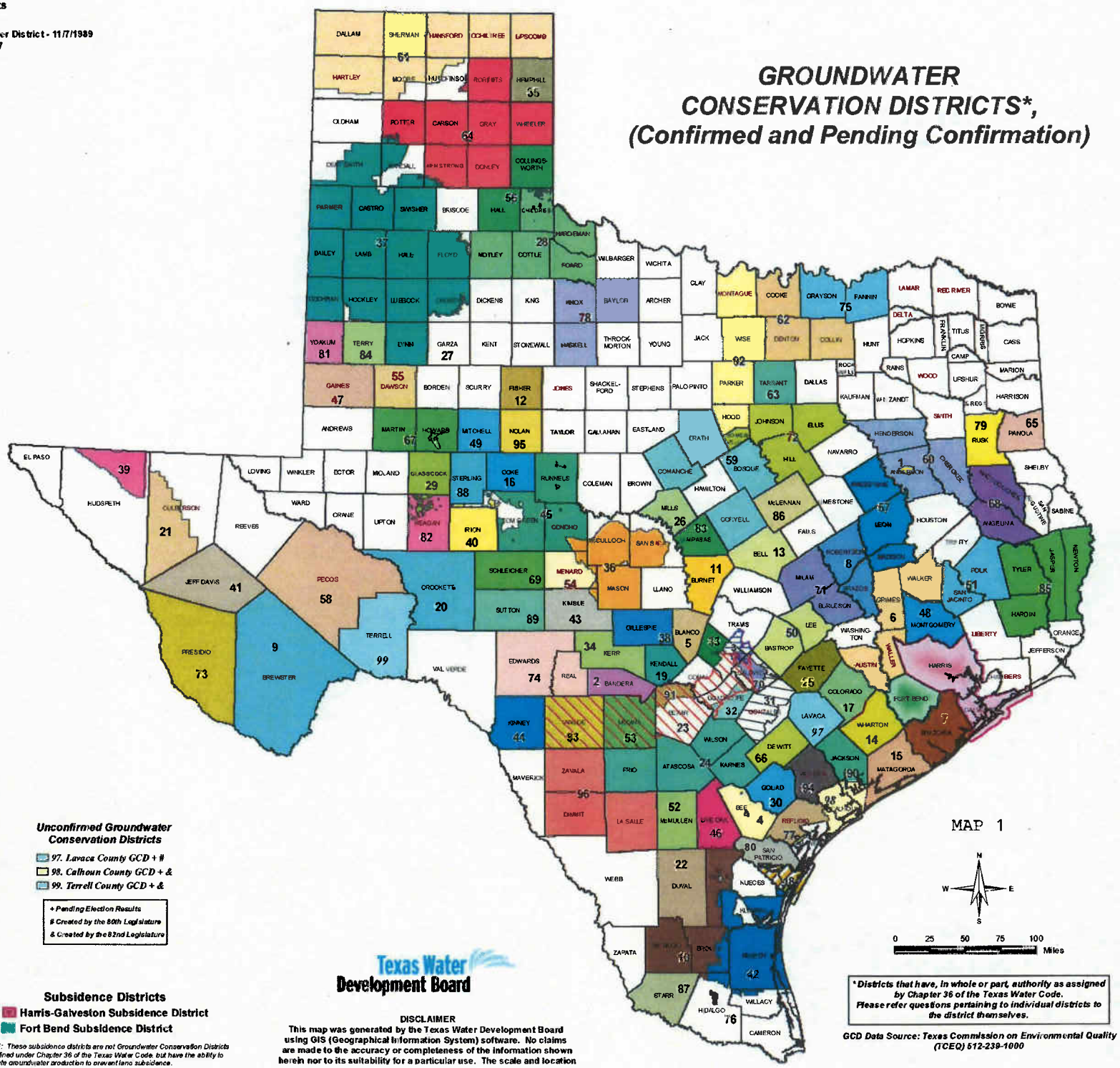
Appendix D contains evidence of public notice and hearing prior to adoption of this Management Plan.

D. Site-Specific Information Provided to the TWDB

No site-specific information is available to provide to the Executive Administrator regarding the estimates required in subsections 31 TAC §356.52(a)(5)(C), (D), and (E).

Maps

GROUNDWATER CONSERVATION DISTRICTS*, (Confirmed and Pending Confirmation)



Confirmed Groundwater Conservation Districts

1. Anderson County UWCD - 10/17/1987
2. Bandera County River Authority & Ground Water District - 11/7/1989
3. Barton Springs/Edwards Aquifer CD - 8/13/1987
4. Bee GCD - 1/20/2001
5. Blanco-Pedernales GCD - 1/23/2001
6. Bluebonnet GCD - 11/5/2002
7. Brazoria County GCD - 11/8/2005
8. Brazos Valley GCD - 11/5/2002
9. Brewster County GCD - 11/6/2001
10. Brush Country GCD - 11/3/2009
11. Central Texas GCD - 9/24/2005
12. Clear Fork GCD - 11/5/2002
13. Clearwater UWCD - 8/21/1999
14. Coastal Bend GCD - 11/6/2001
15. Coastal Plains GCD - 11/6/2001
16. Coke County UWCD - 11/4/1986
17. Colorado County GCD - 11/6/2007
18. Corpus Christi ASRCD - 6/17/2005
19. Cow Creek GCD - 11/5/2002
20. Crockett County GCD - 1/26/1991
21. Culberson County GCD - 5/2/1998
22. Duval County GCD - 7/25/2009
23. Edwards Aquifer Authority - 7/28/1996
24. Evergreen UWCD - 8/30/1965
25. Fayette County GCD - 11/6/2001
26. Fox Crossing Water District - 4/4/1986
27. Garza County UWCD - 11/5/1996
28. Gateway GCD - 5/3/2003
29. Glasscock GCD - 8/22/1981
30. Goliad County GCD - 11/6/2001
31. Gonzales County UWCD - 11/2/1994
32. Guadalupe County GCD - 11/14/1999
33. Hays Trinity GCD - 5/3/2003
34. Headwaters GCD - 11/5/1991
35. Hemphill County UWCD - 11/4/1997
36. Hickory UWCD No. 1 - 8/14/1982
37. High Plains UWCD No.1 - 9/29/1951
38. Hill Country UWCD - 8/8/1987
39. Hudspeth County UWCD No. 1 - 10/5/1957
40. Irion County WCD - 8/2/1985
41. Jeff Davis County UWCD - 11/2/1993
42. Kenedy County GCD - 11/2/2004
43. Kimble County GCD - 5/3/2002
44. Kinney County GCD - 1/12/2002
45. Lipan-Kickapoo WCD - 11/3/1987
46. Live Oak UWCD - 11/7/1988
47. Llano Estacado UWCD - 11/3/1998
48. Lone Star GCD - 11/6/2001
49. Lone Wolf GCD - 2/2/2002
50. Lost Pines GCD - 11/5/2002
51. Lower Trinity GCD - 11/7/2006
52. McMullen GCD - 11/6/2001
53. Medina County GCD - 8/26/1991
54. Menard County UWD - 8/14/1999
55. Mesa UWCD - 1/20/1990
56. Mesquite GCD - 11/4/1986
57. Mid-East Texas GCD - 11/5/2002
58. Middle Pecos GCD - 11/5/2002
59. Middle Trinity GCD - 5/4/2002
60. Neches & Trinity Valleys GCD - 11/6/2001
61. North Plains GCD - 1/2/1955
62. North Texas GCD - 12/1/2009
63. Northern Trinity GCD - 5/15/2007
64. Panhandle GCD - 1/21/1956
65. Panola County GCD - 11/6/2007
66. Pecan Valley GCD - 11/6/2001
67. Permian Basin UWCD - 9/21/1985
68. Pineywoods GCD - 11/6/2001
69. Plateau UWC and Supply District - 3/4/1974
70. Plum Creek CD - 5/1/1993
71. Post Oak Savannah GCD - 11/5/2002
72. Prairielands GCD - 9/1/2009
73. Presidio County UWCD - 8/31/1999
74. Real-Edwards C and R District - 5/30/1959
75. Red River GCD - 9/1/2009
76. Red Sands GCD - 11/5/2002
77. Refugio GCD - 11/6/2001
78. Rolling Plains GCD - 1/26/1999
79. Rusk County GCD - 6/5/2004
80. San Patricio County GCD - 5/12/2007
81. Sandy Land UWCD - 11/7/1989
82. Santa Rita UWCD - 8/19/1989
83. Saratoga UWCD - 11/7/1989
84. South Plains UWCD - 2/8/1992
85. Southeast Texas GCD - 11/2/2004
86. Southern Trinity GCD - 5/19/2009
87. Starr County GCD - 1/6/2007
88. Sterling County UWCD - 11/3/1987
89. Sutton County UWCD - 4/5/1986
90. Texana GCD - 11/6/2001
91. Trinity Glen Rose GCD - 11/5/2002
92. Upper Trinity GCD - 11/6/2007
93. Uvalde County UWCD - 9/1/1993
94. Victoria County GCD - 8/5/2005
95. Wes-Tex GCD - 11/5/2002

Unconfirmed Groundwater Conservation Districts

97. Lavaca County GCD + #
98. Calhoun County GCD + &
99. Terrell County GCD + &

\+ Pending Election Results
\# Created by the 80th Legislature
& Created by the 82nd Legislature

Subsidence Districts

- Harris-Galveston Subsidence District
- Fort Bend Subsidence District

NOTE: These subsidence districts are not Groundwater Conservation Districts as defined under Chapter 36 of the Texas Water Code, but have the ability to regulate groundwater production to prevent land subsidence.

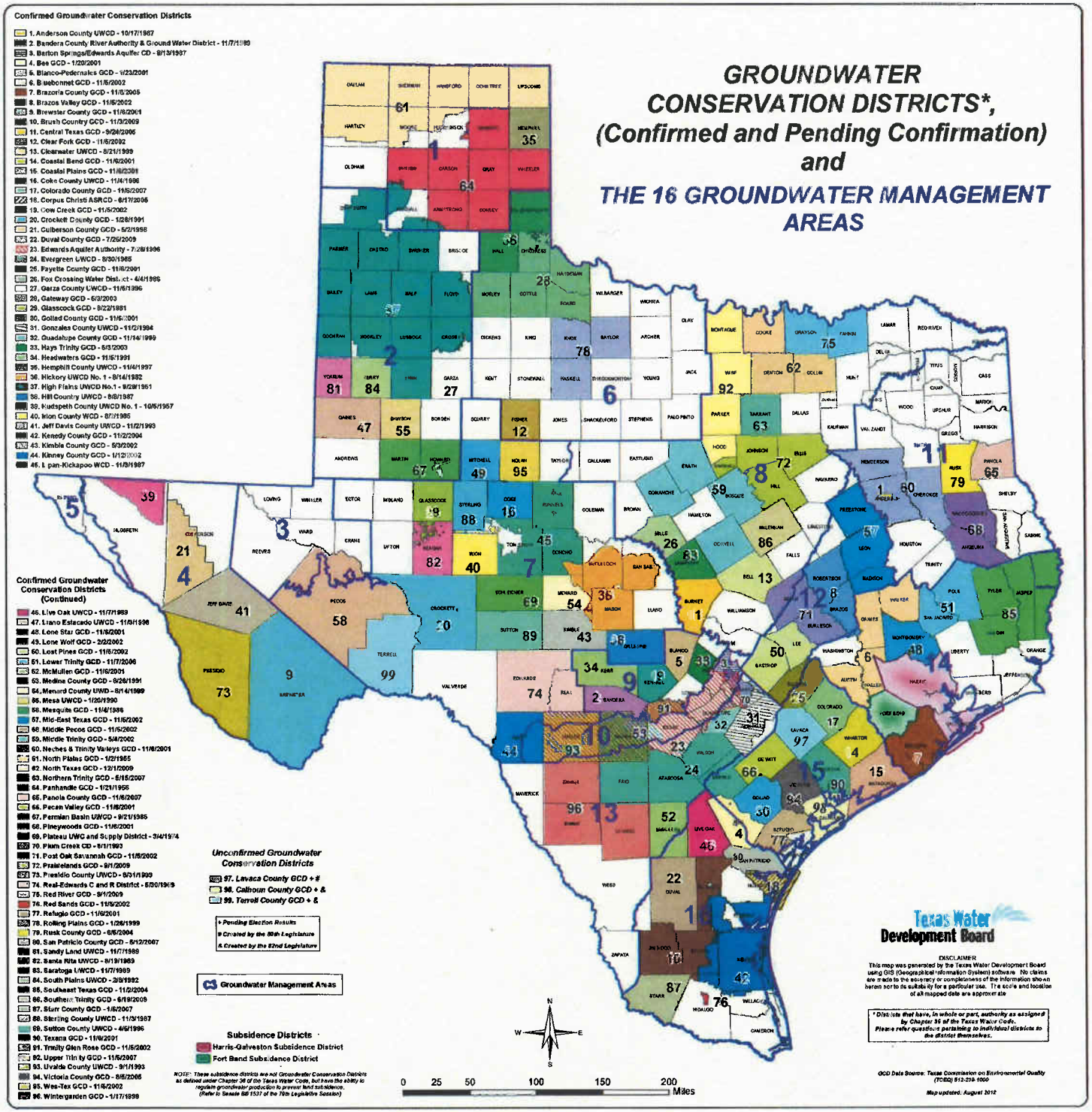
MAP 1

0 25 50 75 100 Miles

*Districts that have, in whole or part, authority as assigned by Chapter 36 of the Texas Water Code. Please refer questions pertaining to individual districts to the district themselves.

GCD Data Source: Texas Commission on Environmental Quality (TCEQ) 512-239-1000

Texas Water Development Board


GROUNDWATER CONSERVATION DISTRICTS*, (Confirmed and Pending Confirmation) and THE 16 GROUNDWATER MANAGEMENT AREAS
Confirmed Groundwater Conservation Districts
1. Anderson County UWCD - 10/17/1987
2. Bandera County River Authority & Ground Water District - 11/7/1989
3. Barton Springs/Edwards Aquifer CD - 8/13/1987
4. Bee GCD - 1/20/2001
5. Blanco-Pedernales GCD - 1/23/2001
6. Bluebonnet GCD - 11/5/2002
7. Brazoria County GCD - 11/5/2005
8. Brazos Valley GCD - 11/5/2002
9. Brewster County GCD - 11/8/2001
10. Brush Country GCD - 11/3/2009
11. Central Texas GCD - 9/24/2006
12. Clear Fork GCD - 11/5/2002
13. Clearwater UWCD - 8/21/1989
14. Coastal Bend GCD - 11/5/2001
15. Coastal Plains GCD - 11/5/2001
16. Coke County UWCD - 11/4/1996
17. Colorado County GCD - 11/5/2007
18. Corpus Christi ASR/CD - 6/17/2006
19. Cow Creek GCD - 11/5/2002
20. Crockett County GCD - 1/28/1991
21. Culberson County GCD - 5/2/1998
22. Duval County GCD - 7/26/2009
23. Edwards Aquifer Authority - 7/28/1996
24. Evergreen UWCD - 8/30/1965
25. Fayette County GCD - 11/6/2001
26. Fox Crossing Water Dist. ct - 4/4/1995
27. Garza County UWCD - 11/6/1996
28. Gateway GCD - 6/3/2003
29. Glasscock GCD - 8/22/1981
30. Goliad County GCD - 11/6/2001
31. Gonzales County UWCD - 11/2/1994
32. Guadalupe County GCD - 11/14/1999
33. Hays Trinity GCD - 5/3/2003
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39. Kudspeth County UWCD No. 1 - 10/5/1957
40. Irion County WCD - 8/7/1995
41. Jeff Davis County UWCD - 11/2/1993
42. Kenedy County GCD - 11/2/2004
43. Kimble County GCD - 5/3/2002
44. Kinney County GCD - 1/12/2002
46. Live Oak UWCD - 11/7/1989
47. Llano Estacado UWCD - 11/6/1996
48. Lone Star GCD - 11/6/2001
49. Lone Wolf GCD - 2/2/2002
50. Lost Pines GCD - 11/6/2002
51. Lower Trinity GCD - 11/7/2006
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53. Medina County GCD - 9/26/1991
54. Menard County UWD - 8/14/1999
55. Mesa UWCD - 1/20/1990
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57. Mid-East Texas GCD - 11/6/2002
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60. Neches & Trinity Valleys GCD - 11/6/2001
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74. Real-Edwards C and R District - 8/30/1969
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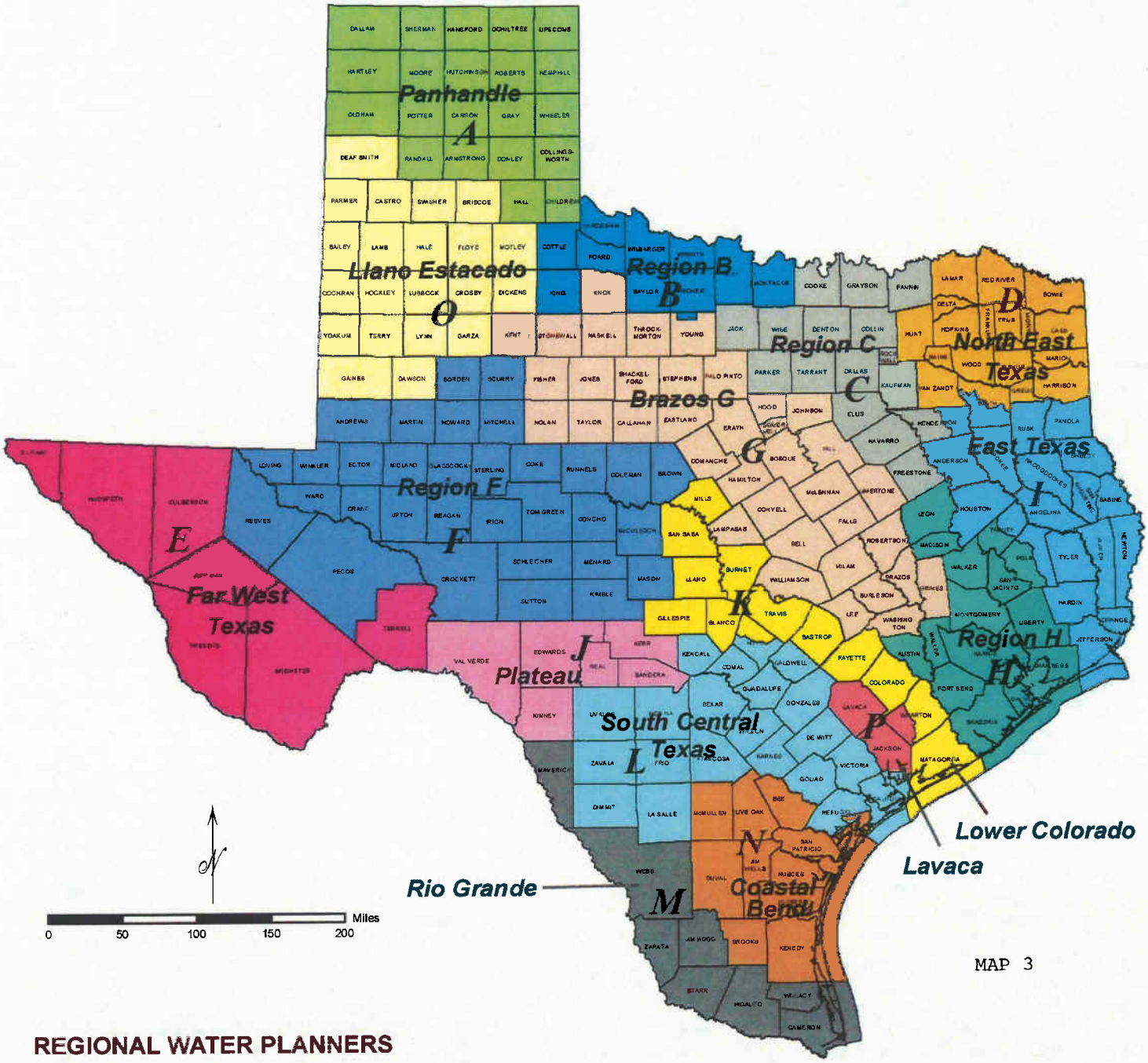
93. Uvalde County UWCD - 9/1/1993
94. Victoria County GCD - 8/5/2005
95. Wes-Tex GCD - 11/6/2002
96. Wintergarden GCD - 1/17/1998
Unconfirmed Groundwater Conservation Districts
97. Lavaca County GCD + #
98. Calhoun County GCD + &
99. Terrell County GCD + &
+ Pending Election Results
# Created by the 80th Legislature
& Created by the 82nd Legislature
Groundwater Management Areas
Subsidence Districts
Harris-Galveston Subsidence District
Fort Bend Subsidence District
NOTE: These subsidence districts are not Groundwater Conservation Districts as defined under Chapter 36 of the Texas Water Code, but have the ability to regulate groundwater production to prevent land subsidence. (Refer to Senate Bill 1527 of the 76th Legislative Session)
N
W
E
S
0 25 50 100 150 200 Miles
Texas Water Development Board
DISCLAIMER
This map was generated by the Texas Water Development Board using GIS (Geographical Information System) software. No claims are made to the accuracy or completeness of the information shown hereon nor to its suitability for a particular use. The scale and location of all mapped data are approximate
* Districts that have, in whole or part, authority as assigned by Chapter 36 of the Texas Water Code. Please refer questions pertaining to individual districts to the district themselves.
GCD Data Source: Texas Commission on Environmental Quality (TCEQ) 512-239-1000
Map updated: August 2012

MAP 2

Regional Water Planning Areas



MAP 3

REGIONAL WATER PLANNERS

Lann Bookout (512) 936 - 9439: Regions G, I & P
Angela Kennedy (512) 463 - 1437: Regions C, N, & O
Temple McKinnon (512) 475 - 2057: Regions D & H
David Meesey (512) 936 - 0852: Region K
Matt Nelson (512) 936 - 3550: Region L
Doug Shaw (512) 463 - 1711: Regions A, B, & F
Connie Townsend (512) 463 - 8290: Regions E, J & M

Texas Water Development Board

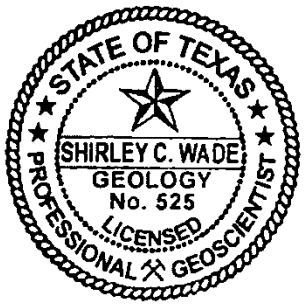
Updated by Erik O'Brian
Mapping Coordinator
11/07/2011

Attachment A

GAM Run 16-014: Lost Pines GCD Groundwater Management Plan

GAM RUN 16-014: LOST PINES GROUNDWATER CONSERVATION DISTRICT GROUNDWATER MANAGEMENT PLAN

Shirley C. Wade, Ph.D., P.G.
Texas Water Development Board
Groundwater Division
Groundwater Availability Modeling Section
(512) 936-0883
March 6, 2017



Shirley C. Wade
3/6/17

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GAM RUN 16-014: LOST PINES GROUNDWATER CONSERVATION DISTRICT GROUNDWATER MANAGEMENT PLAN

Shirley C. Wade, Ph.D., P.G.
Texas Water Development Board
Groundwater Division
Groundwater Availability Modeling Section
(512) 936-0883
March 6, 2017

EXECUTIVE SUMMARY:

Texas State Water Code, Section 36.1071, Subsection (h) (Texas Water Code, 2015), 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 Lost Pines 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 Section. Please direct questions about the water data report to Mr. Stephen Allen at (512) 463-7317 or 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 springs and any surface-water bodies, including lakes, streams, and rivers; 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 Lost Pines Groundwater Conservation District should be adopted by the district on or before August 9, 2017, and submitted to the Executive Administrator of the TWDB on or before September 8, 2017. The current

management plan for the Lost Pines Groundwater Conservation District expires on November 7, 2017.

We used three groundwater availability models to estimate the management plan information for the aquifers within the Lost Pines Groundwater Conservation District. Information for the Trinity Aquifer is from the groundwater availability model (version 2.01) for the northern portion of the Trinity and Woodbine aquifers (Kelley and others, 2014). Information for the Carrizo-Wilcox, Queen City, and Sparta aquifers is from version 2.02 of the groundwater availability model for the central part of the Carrizo-Wilcox, Queen City, and Sparta aquifers (Kelley and others, 2004). Information for the Yegua-Jackson Aquifer is from version 1.01 of the groundwater availability model for the Yegua-Jackson Aquifer (Deeds and others, 2010).

This report replaces the results of GAM Run 10-014 (Hassan, 2010). GAM Run 16-014 meets current standards set after the release of GAM Run 10-014 and includes results from the recently released groundwater availability model for the northern portion of the Trinity and Woodbine aquifers (Kelley and others, 2014). Tables 1 through 5 summarize the groundwater availability model data required by statute and Figures 1 through 5 show the area of the models from which the values in the tables were extracted. If after review of the figures, the Lost Pines 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 State Water Code, Section 36.1071, Subsection (h), the three groundwater availability models mentioned above were used to estimate information for the Lost Pines Groundwater Conservation District management plan. Water budgets were extracted for the historical model periods (Trinity Aquifer— 1980 through 2012, Carrizo-Wilcox, Queen City, and Sparta aquifers— 1980 through 1999, and Yegua-Jackson Aquifer—1980 through 1997) using ZONEBUDGET Version 3.01 (Harbaugh, 2009). The average annual water budget values for recharge, surface-water outflow, inflow to the district, and outflow from the district for the aquifers within the district are summarized in this report.

PARAMETERS AND ASSUMPTIONS:

Trinity Aquifer

- We used version 2.01 of the groundwater availability model for the northern portion of the Trinity and Woodbine aquifers. See Kelley and others (2014) for assumptions and limitations of the model.
- The groundwater availability model for the northern portion of the Trinity and Woodbine aquifers contains eight layers: Layer 1 (the surficial outcrop area of the units in layers 2 through 8 and units younger than Woodbine Aquifer), Layer 2 (Woodbine Aquifer and pass-through cells), Layer 3 (Washita and Fredericksburg, Edwards (Balcones Fault Zone), and pass-through cells), and Layers 4 through 8 (Trinity Aquifer).
- The Woodbine Aquifer does not exist within the Lost Pines Groundwater Conservation District and thus water budgets for this aquifer were not calculated or included for this report.
- The model was run with MODFLOW-NWT (Niswonger and others, 2011).

Carrizo-Wilcox, Queen City, and Sparta aquifers

- We used version 2.02 of the groundwater availability model for the central part of the Carrizo-Wilcox, Queen City, and Sparta aquifers. See Dutton and others (2003) and Kelley and others (2004) for assumptions and limitations of the groundwater availability model for the central part of the Carrizo-Wilcox, Queen City, and Sparta aquifers.
- This groundwater availability model includes eight layers which generally represent the Sparta Aquifer (Layer 1), the Weches Formation confining unit (Layer 2), the Queen City Aquifer (Layer 3), the Reklaw Formation confining unit (Layer 4), the Carrizo Formation (Layer 5), the Calvert Bluff Formation (Layer 6), the Simsboro Formation (Layer 7), and the Hooper Formation (Layer 8). Individual water budgets for the district were determined for the Sparta Aquifer (Layer 1), the Queen City Aquifer (Layer 3), and the Carrizo-Wilcox Aquifer (Layer 5 through Layer 8, collectively).
- The model was run with MODFLOW-96 (Harbaugh and McDonald, 1996).

Yegua-Jackson Aquifer

- We used version 1.01 of the groundwater availability model for the Yegua-Jackson Aquifer. See Deeds and others (2010) for assumptions and limitations of the groundwater availability model.
- This groundwater availability model includes five layers which represent the outcrop of the Yegua-Jackson Aquifer and younger overlying units—the Catahoula Formation (Layer 1), the upper portion of the Jackson Group (Layer 2), the lower portion of the Jackson Group (Layer 3), the upper portion of the Yegua Group (Layer 4), and the lower portion of the Yegua Group (Layer 5).
- An overall water budget for the district was determined for the Yegua-Jackson Aquifer (Layer 1 through Layer 5, collectively, for the portions of the model that represent the Yegua-Jackson Aquifer).
- The model was run with MODFLOW-2000 (Harbaugh and others, 2000).

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 three groundwater availability models covering the aquifers within Lost Pines Groundwater Conservation District and averaged over the historical calibration periods.

1. 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.
2. Surface-water outflow—the total water discharging from the aquifer (outflow) to surface-water features such as streams, reservoirs, and springs.
3. Flow into and out of district—the lateral flow within the aquifer between the district and adjacent counties.
4. 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 5. 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 a district or county boundary, 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.

TABLE 1: SUMMARIZED INFORMATION FOR THE TRINITY AQUIFER FOR THE LOST PINES GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Trinity Aquifer	0
Estimated annual volume of water that discharges from the aquifer to springs and any surface-water body including lakes, streams, and rivers	Trinity Aquifer	0
Estimated annual volume of flow into the district within each aquifer in the district	Trinity Aquifer	355
Estimated annual volume of flow out of the district within each aquifer in the district	Trinity Aquifer	136
Estimated net annual volume of flow between each aquifer in the district	Flow from the Trinity Aquifer into overlying units	2
	Flow to underlying formations	NA[1]

[1] Not available because the model assumes a no-flow boundary condition at the base.

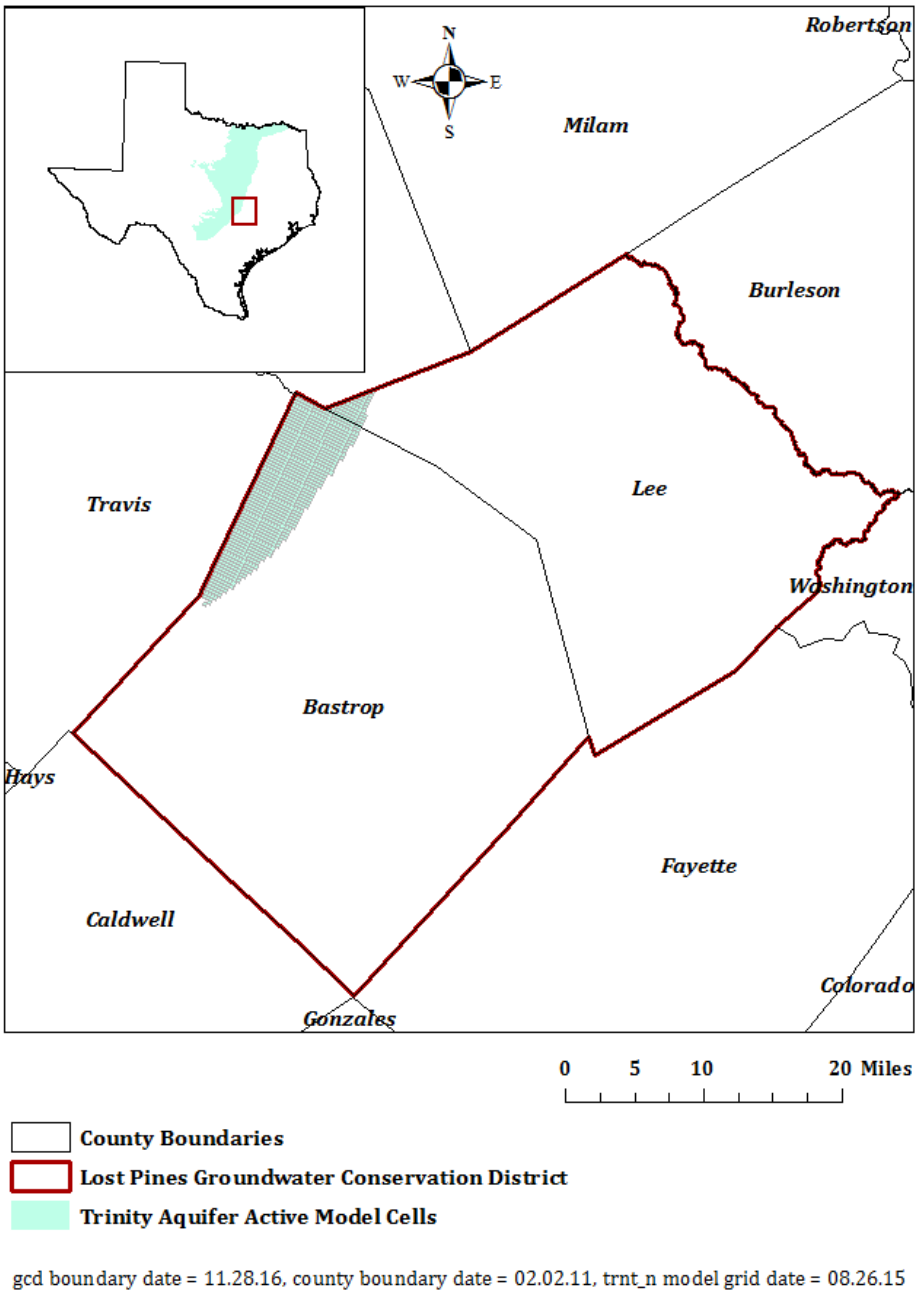

FIGURE 1: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE TRINITY AQUIFER FROM WHICH THE INFORMATION IN TABLE 1 WAS EXTRACTED (THE AQUIFER SYSTEM EXTENT WITHIN THE DISTRICT BOUNDARY).

TABLE 2: SUMMARIZED INFORMATION FOR THE CARRIZO-WILCOX AQUIFER FOR THE LOST PINES GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Carrizo-Wilcox Aquifer	29,602
Estimated annual volume of water that discharges from the aquifer to springs and any surface-water body including lakes, streams, and rivers	Carrizo-Wilcox Aquifer	32,781
Estimated annual volume of flow into the district within each aquifer in the district	Carrizo-Wilcox Aquifer	12,660
Estimated annual volume of flow out of the district within each aquifer in the district	Carrizo-Wilcox Aquifer	17,538
Estimated net annual volume of flow between each aquifer in the district	Flow into the Carrizo-Wilcox Aquifer from overlying units	1,313
	Flow to underlying formations	NA[2]

[2] Not available because the model assumes a no-flow boundary condition at the base.

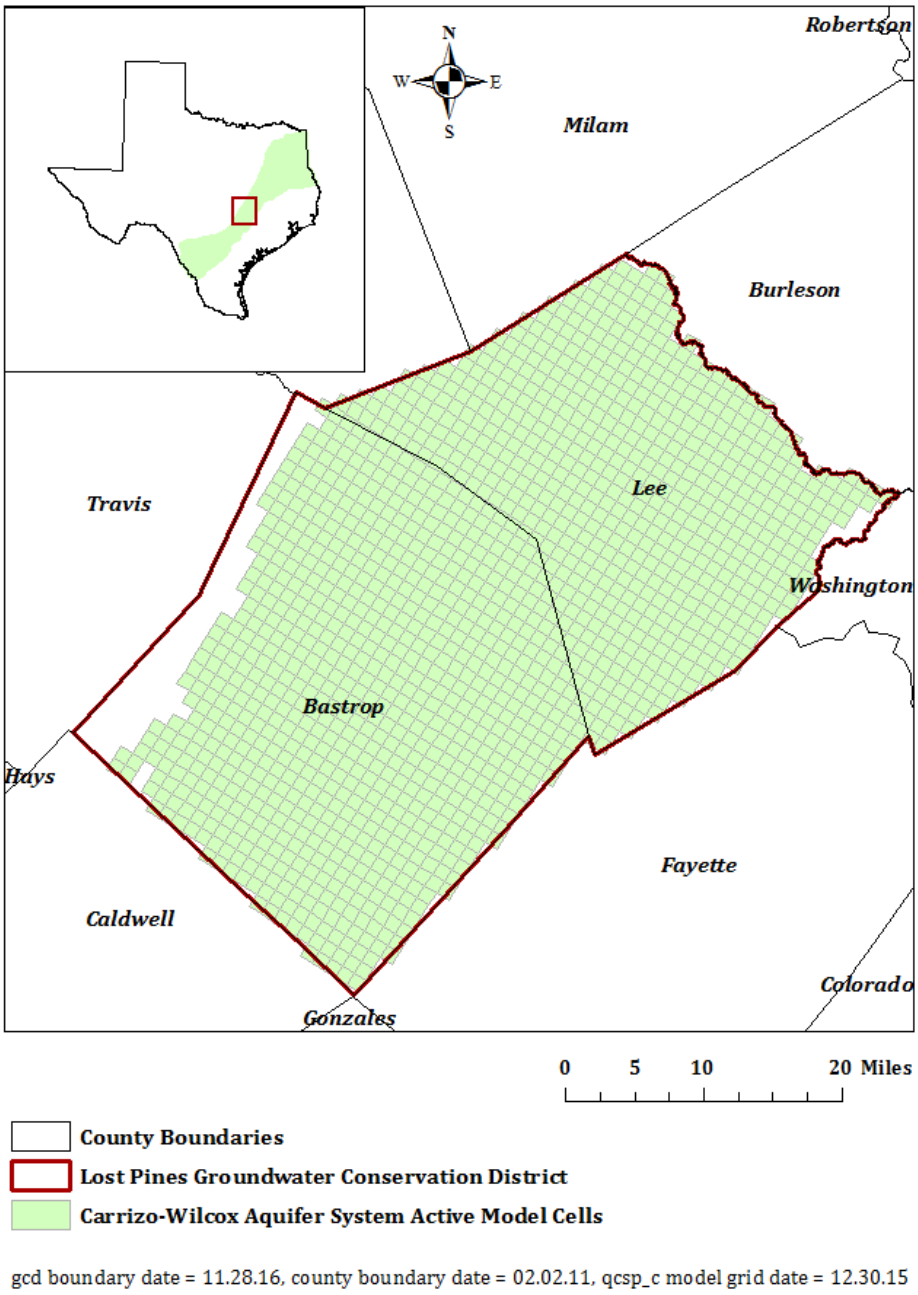

FIGURE 2: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE CARRIZO-WILCOX AQUIFER FROM WHICH THE INFORMATION IN TABLE 2 WAS EXTRACTED (THE AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).

TABLE 3: SUMMARIZED INFORMATION FOR THE QUEEN CITY AQUIFER FOR THE LOST PINES GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Queen City Aquifer	7,255
Estimated annual volume of water that discharges from the aquifer to springs and any surface-water body including lakes, streams, and rivers	Queen City Aquifer	5,488
Estimated annual volume of flow into the district within each aquifer in the district	Queen City Aquifer	516
Estimated annual volume of flow out of the district within each aquifer in the district	Queen City Aquifer	2,610
Estimated net annual volume of flow between each aquifer in the district	Flow from the Queen City Aquifer into overlying units	934
	From Queen City Aquifer into underlying formations	167

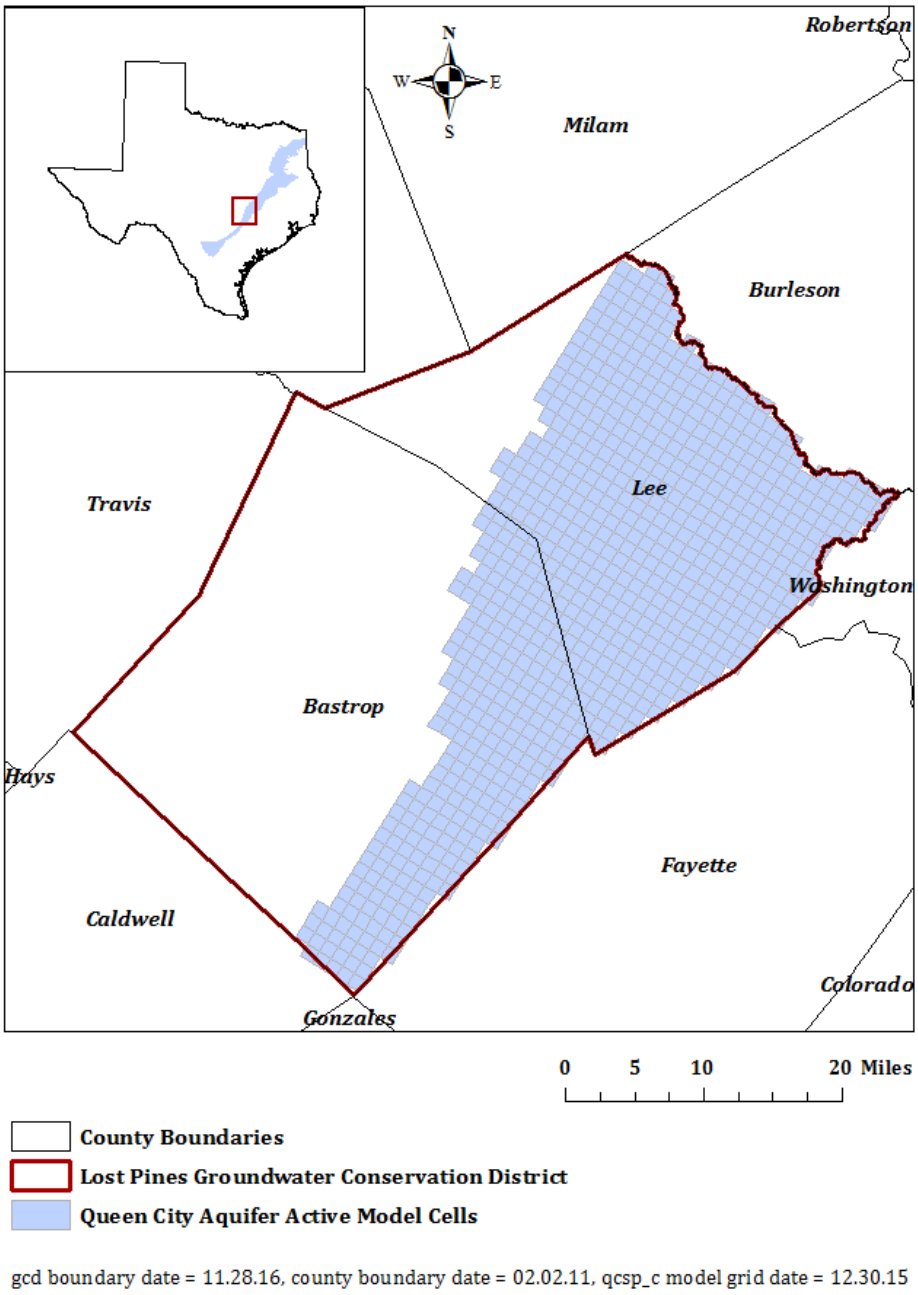

FIGURE 3: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE QUEEN CITY AQUIFER FROM WHICH THE INFORMATION IN TABLE 3 WAS EXTRACTED (THE AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).

TABLE 4: SUMMARIZED INFORMATION FOR THE SPARTA AQUIFER FOR THE LOST PINES GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Sparta Aquifer	10,142
Estimated annual volume of water that discharges from the aquifer to springs and any surface-water body including lakes, streams, and rivers	Sparta Aquifer	4,564
Estimated annual volume of flow into the district within each aquifer in the district	Sparta Aquifer	915
Estimated annual volume of flow out of the district within each aquifer in the district	Sparta Aquifer	593
Estimated net annual volume of flow between each aquifer in the district	Flow into the Sparta Aquifer from underlying units	957
	Flow from the Sparta Aquifer into overlying units	883

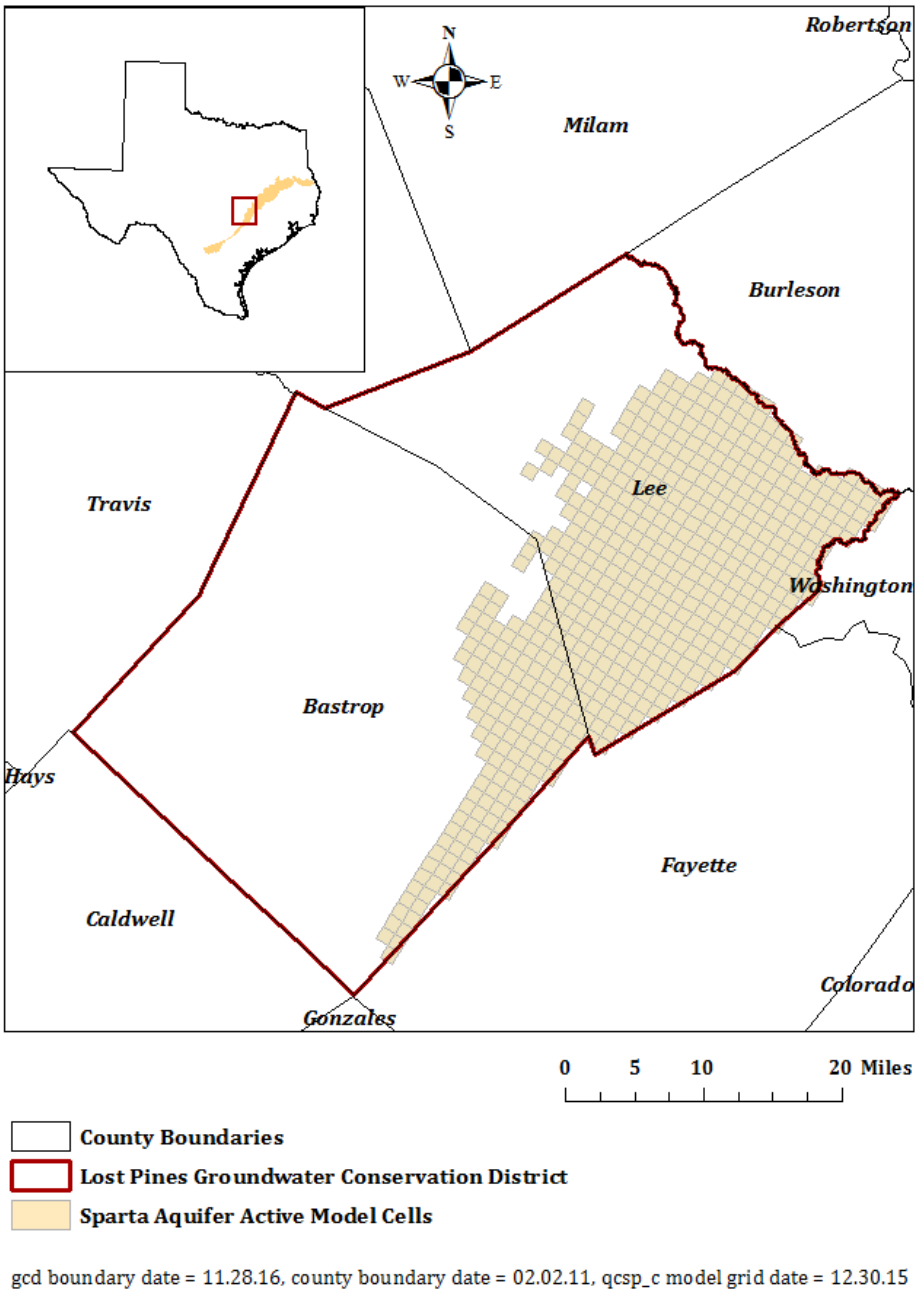

FIGURE 4: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE SPARTA AQUIFER FROM WHICH THE INFORMATION IN TABLE 4 WAS EXTRACTED (THE AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).

TABLE 5: SUMMARIZED INFORMATION FOR THE YEGUA-JACKSON AQUIFER FOR THE LOST PINES GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Yegua-Jackson Aquifer	38,860
Estimated annual volume of water that discharges from the aquifer to springs and any surface-water body including lakes, streams, and rivers	Yegua-Jackson Aquifer	35,781
Estimated annual volume of flow into the district within each aquifer in the district	Yegua-Jackson Aquifer	5,882
Estimated annual volume of flow out of the district within each aquifer in the district	Yegua-Jackson Aquifer	10,154
Estimated net annual volume of flow between each aquifer in the district	Flow to underlying formations	NA[3]

[3] Not available because the model assumes a no-flow boundary condition at the base.

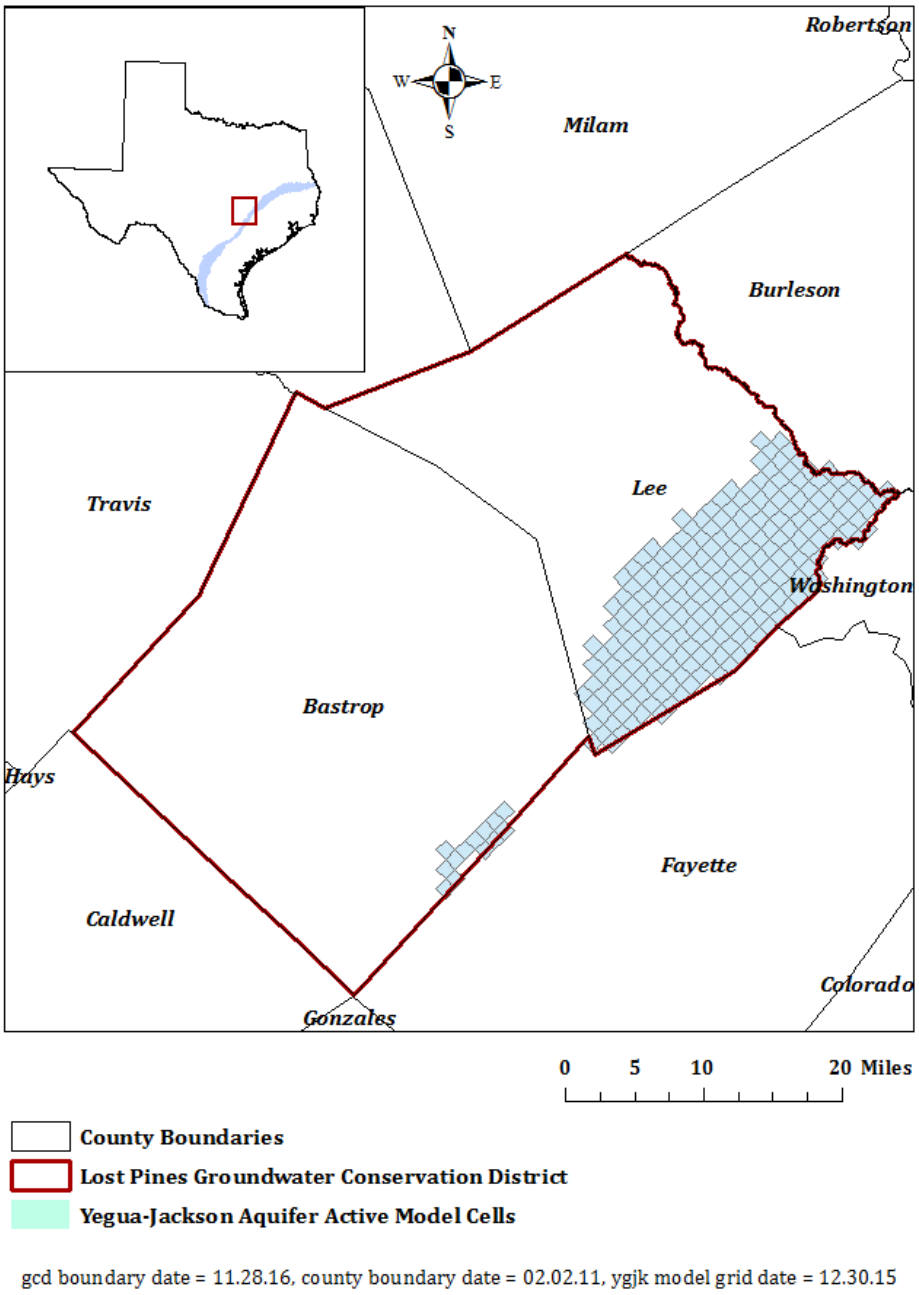

FIGURE 5: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE YEGUA-JACKSON AQUIFER FROM WHICH THE INFORMATION IN TABLE 5 WAS EXTRACTED (THE AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).

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.

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Attachment B

Estimated Historical Water Use and 2017 State Water Plan Datasets: Lost Pines Groundwater Conservation District

Estimated Historical Water Use And 2017 State Water Plan Datasets:

Lost Pines Groundwater Conservation District

by Stephen Allen
Texas Water Development Board
Groundwater Division
Groundwater Technical Assistance Section
stephen.allen@twdb.texas.gov
(512) 463-7317
May 17, 2017

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 Water 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 5/17/2017. 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).

For additional questions regarding this data, please contact Stephen Allen (stephen.allen@twdb.texas.gov or 512-463-7317) or Rima Petrossian (rima.petrossian@twdb.texas.gov or 512-936-2420).

Estimated Historical Water Use
TWDB Historical Water Use Survey (WUS) Data

Groundwater and surface water historical use estimates are currently unavailable for calendar year 2016. TWDB staff anticipates the calculation and posting of these estimates at a later date.

BASTROP COUNTY

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2015	GW	10,466	98	44	5,519	3,204	211	19,542
	SW	0	0	0	2,245	0	839	3,084
2014	GW	9,771	93	34	3,400	2,444	206	15,948
	SW	0	0	3	3,389	0	825	4,217
2013	GW	10,611	81	44	0	2,533	191	13,460
	SW	0	2	0	5,549	531	768	6,850
2012	GW	11,010	60	45	0	2,829	215	14,159
	SW	0	22	0	6,426	952	859	8,259
2011	GW	12,129	81	2,110	0	3,861	260	18,441
	SW	0	23	47	7,646	1,200	1,041	9,957
2010	GW	10,473	74	2,130	0	6,299	261	19,237
	SW	0	5	48	3,491	750	1,046	5,340
2009	GW	11,256	79	2,117	0	2,915	257	16,624
	SW	0	10	48	4,535	0	1,027	5,620
2008	GW	11,075	70	2,105	0	371	267	13,888
	SW	8	12	47	7,306	0	1,065	8,438
2007	GW	9,303	66	0	0	365	232	9,966
	SW	2	30	0	2,019	0	924	2,975
2006	GW	11,021	66	0	0	596	325	12,008
	SW	3	8	0	3,514	0	1,300	4,825
2005	GW	10,071	30	0	0	627	325	11,053
	SW	11	31	0	3,514	0	1,300	4,856
2004	GW	8,741	36	0	0	539	441	9,757
	SW	1	29	0	2,944	0	1,242	4,216
2003	GW	9,663	40	0	0	400	437	10,540
	SW	1	62	0	2,944	0	1,231	4,238
2002	GW	9,169	40	0	0	834	402	10,445
	SW	1	19	0	2,944	869	1,135	4,968
2001	GW	8,593	47	0	0	834	403	9,877
	SW	1	0	0	3,417	869	1,136	5,423
2000	GW	8,689	56	0	0	904	609	10,258
	SW	1	15	0	2,814	942	913	4,685

LEE COUNTY

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2015	GW	2,316	7	6,889	0	519	324	10,055
	SW	0	0	26	0	0	755	781
2014	GW	2,327	6	439	0	802	316	3,890
	SW	0	0	35	0	2	736	773
2013	GW	2,538	6	6,081	0	837	305	9,767
	SW	0	0	9	0	0	712	721
2012	GW	2,503	6	5,677	0	1,017	357	9,560
	SW	0	0	2	0	0	832	834
2011	GW	2,895	7	7,707	0	1,609	422	12,640
	SW	0	0	0	0	0	983	983
2010	GW	2,328	6	6,966	0	1,575	425	11,300
	SW	0	0	0	0	0	993	993
2009	GW	2,371	6	6,895	0	966	464	10,702
	SW	0	0	0	0	0	1,084	1,084
2008	GW	2,305	7	6,705	0	319	439	9,775
	SW	0	0	0	0	0	1,025	1,025
2007	GW	1,996	11	0	0	116	704	2,827
	SW	1	0	0	0	56	1,643	1,700
2006	GW	2,436	15	0	0	426	628	3,505
	SW	1	0	0	0	0	1,465	1,466
2005	GW	2,494	13	0	0	470	667	3,644
	SW	2	0	0	0	0	1,556	1,558
2004	GW	2,307	13	0	0	579	481	3,380
	SW	0	0	0	0	3	1,172	1,175
2003	GW	2,426	12	0	0	571	471	3,480
	SW	0	0	0	0	8	1,148	1,156
2002	GW	2,420	16	0	0	688	467	3,591
	SW	0	0	0	0	634	1,140	1,774
2001	GW	2,462	13	0	0	661	454	3,590
	SW	0	0	0	0	610	1,107	1,717
2000	GW	2,721	11	0	0	495	619	3,846
	SW	0	0	0	0	470	928	1,398

Projected Surface Water Supplies
TWDB 2017 State Water Plan Data

BASTROP COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
K	COUNTY-OTHER, BASTROP	COLORADO	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	744	744	744	744	744	744
K	IRRIGATION, BASTROP	COLORADO	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	852	742	649	565	492	443
K	LIVESTOCK, BASTROP	BRAZOS	BRAZOS LIVESTOCK LOCAL SUPPLY	94	94	94	94	94	94
K	LIVESTOCK, BASTROP	COLORADO	COLORADO LIVESTOCK LOCAL SUPPLY	696	696	696	696	696	696
K	LIVESTOCK, BASTROP	GUADALUPE	GUADALUPE LIVESTOCK LOCAL SUPPLY	72	72	72	72	72	72
K	MANUFACTURING, BASTROP	COLORADO	COLORADO OTHER LOCAL SUPPLY	48	48	48	48	48	48
K	MINING, BASTROP	COLORADO	COLORADO OTHER LOCAL SUPPLY	8	7	7	9	9	9
K	STEAM ELECTRIC POWER, BASTROP	COLORADO	HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	12,220	11,834	11,026	10,571	10,571	10,571
	Sum of Projected Surface Water Supplies (acre-feet)			**14,734**	**14,237**	**13,336**	**12,799**	**12,726**	**12,677**

LEE COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
G	IRRIGATION, LEE	BRAZOS	BRAZOS RUN-OF-RIVER	20	20	20	20	20	20
G	LIVESTOCK, LEE	BRAZOS	BRAZOS LIVESTOCK LOCAL SUPPLY	1,623	1,623	1,623	1,623	1,623	1,623
G	LIVESTOCK, LEE	COLORADO	COLORADO LIVESTOCK LOCAL SUPPLY	312	312	312	312	312	312
	Sum of Projected Surface Water Supplies (acre-feet)			**1,955**	**1,955**	**1,955**	**1,955**	**1,955**	**1,955**

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.

BASTROP COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
K	AQUA WSC	BRAZOS	90	116	150	197	261	348
K	AQUA WSC	COLORADO	9,073	11,638	15,056	19,779	26,236	34,838
K	AQUA WSC	GUADALUPE	65	83	107	140	186	246
K	BASTROP	COLORADO	1,957	2,598	3,446	4,612	6,201	8,317
K	BASTROP COUNTY WCID #2	COLORADO	378	544	765	1,069	1,482	2,033
K	COUNTY-OTHER, BASTROP	BRAZOS	24	31	40	53	69	91
K	COUNTY-OTHER, BASTROP	COLORADO	1,814	2,185	2,681	3,360	4,284	5,516
K	COUNTY-OTHER, BASTROP	GUADALUPE	35	34	32	31	29	27
K	CREEDMOOR-MAHA WSC	COLORADO	24	28	35	44	57	74
K	ELGIN	COLORADO	1,298	1,651	2,125	2,782	3,681	4,880
K	IRRIGATION, BASTROP	BRAZOS	50	44	38	33	29	26
K	IRRIGATION, BASTROP	COLORADO	761	663	580	505	439	396
K	IRRIGATION, BASTROP	GUADALUPE	41	35	31	27	24	21
K	LEE COUNTY WSC	BRAZOS	44	56	72	94	124	165
K	LEE COUNTY WSC	COLORADO	59	75	97	127	169	223
K	LIVESTOCK, BASTROP	BRAZOS	94	94	94	94	94	94
K	LIVESTOCK, BASTROP	COLORADO	1,356	1,356	1,356	1,356	1,356	1,356
K	LIVESTOCK, BASTROP	GUADALUPE	72	72	72	72	72	72
K	MANUFACTURING, BASTROP	COLORADO	184	216	249	280	303	328
K	MANUFACTURING, BASTROP	GUADALUPE	10	11	13	15	16	17
K	MINING, BASTROP	BRAZOS	173	409	450	496	545	600
K	MINING, BASTROP	COLORADO	2,567	6,064	6,673	7,354	8,086	8,896
K	MINING, BASTROP	GUADALUPE	144	340	375	413	454	500
K	POLONIA WSC	COLORADO	29	36	45	58	75	99
K	SMITHVILLE	COLORADO	842	1,074	1,385	1,817	2,410	3,201
K	STEAM ELECTRIC POWER, BASTROP	COLORADO	14,000	16,720	16,720	16,720	16,720	16,720
	Sum of Projected Water Demands (acre-feet)		**35,184**	**46,173**	**52,687**	**61,528**	**73,402**	**89,084**

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.

LEE COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
G	AQUA WSC	BRAZOS	466	511	536	544	551	555
G	COUNTY-OTHER, LEE	BRAZOS	100	106	112	114	115	116
G	COUNTY-OTHER, LEE	COLORADO	95	101	106	108	109	110
G	GIDDINGS	BRAZOS	544	597	626	634	643	647
G	GIDDINGS	COLORADO	576	634	663	673	681	687
G	IRRIGATION, LEE	BRAZOS	449	436	424	412	400	389
G	IRRIGATION, LEE	COLORADO	10	10	10	9	9	9
G	LEE COUNTY WSC	BRAZOS	654	714	746	755	764	769
G	LEE COUNTY WSC	COLORADO	254	277	289	293	296	298
G	LEXINGTON	BRAZOS	242	265	277	281	284	286
G	LIVESTOCK, LEE	BRAZOS	1,623	1,623	1,623	1,623	1,623	1,623
G	LIVESTOCK, LEE	COLORADO	312	312	312	312	312	312
G	MANUFACTURING, LEE	COLORADO	13	14	15	16	17	18
G	MINING, LEE	BRAZOS	2,480	5,685	6,058	6,477	6,945	7,512
G	MINING, LEE	COLORADO	700	1,604	1,709	1,827	1,959	2,119
G	SOUTHWEST MILAM WSC	BRAZOS	48	53	55	56	56	57
	Sum of Projected Water Demands (acre-feet)		**8,566**	**12,942**	**13,561**	**14,134**	**14,764**	**15,507**

Projected Water Supply Needs
TWDB 2017 State Water Plan Data

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

BASTROP COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
K	AQUA WSC	BRAZOS	260	234	200	153	89	2
K	AQUA WSC	COLORADO	-2,534	-4,656	-7,145	-11,210	-17,667	-26,269
K	AQUA WSC	GUADALUPE	185	167	143	110	64	4
K	BASTROP	COLORADO	-30	-671	-1,519	-2,685	-4,274	-6,390
K	BASTROP COUNTY WCID #2	COLORADO	753	643	541	320	-93	-644
K	COUNTY-OTHER, BASTROP	BRAZOS	67	60	51	38	22	0
K	COUNTY-OTHER, BASTROP	COLORADO	-361	-519	-739	-907	-1,158	-1,490
K	COUNTY-OTHER, BASTROP	GUADALUPE	0	1	3	4	6	8
K	CREEDMOOR-MAHA WSC	COLORADO	16	12	5	0	0	0
K	ELGIN	COLORADO	-472	-732	-1,013	-1,533	-2,432	-3,631
K	IRRIGATION, BASTROP	BRAZOS	0	6	12	17	21	24
K	IRRIGATION, BASTROP	COLORADO	435	423	413	404	397	391
K	IRRIGATION, BASTROP	GUADALUPE	0	6	10	14	17	20
K	LEE COUNTY WSC	BRAZOS	102	111	128	152	182	217
K	LEE COUNTY WSC	COLORADO	137	148	172	207	248	291
K	LIVESTOCK, BASTROP	BRAZOS	0	0	0	0	0	0
K	LIVESTOCK, BASTROP	COLORADO	0	0	0	0	0	0
K	LIVESTOCK, BASTROP	GUADALUPE	0	0	0	0	0	0
K	MANUFACTURING, BASTROP	COLORADO	-55	-87	-120	-151	-174	-199
K	MANUFACTURING, BASTROP	GUADALUPE	7	6	4	2	1	0
K	MINING, BASTROP	BRAZOS	-173	-409	-450	-496	-545	-600
K	MINING, BASTROP	COLORADO	-449	-3,947	-4,556	-5,235	-5,967	-6,777
K	MINING, BASTROP	GUADALUPE	-110	-306	-341	-379	-420	-466
K	POLONIA WSC	COLORADO	0	0	0	0	0	0
K	SMITHVILLE	COLORADO	1,006	932	953	663	70	-721
K	STEAM ELECTRIC POWER, BASTROP	COLORADO	2,720	0	0	0	0	0
	Sum of Projected Water Supply Needs (acre-feet)		**-4,184**	**-11,327**	**-15,883**	**-22,596**	**-32,730**	**-47,187**

Projected Water Supply Needs
TWDB 2017 State Water Plan Data

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

LEE COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
G	AQUA WSC	BRAZOS	89	44	19	11	4	0
G	COUNTY-OTHER, LEE	BRAZOS	31	19	8	4	2	0
G	COUNTY-OTHER, LEE	COLORADO	0	0	0	0	0	0
G	GIDDINGS	BRAZOS	298	243	215	206	197	192
G	GIDDINGS	COLORADO	316	259	228	218	209	203
G	IRRIGATION, LEE	BRAZOS	0	0	0	0	0	0
G	IRRIGATION, LEE	COLORADO	37	50	62	75	87	98
G	LEE COUNTY WSC	BRAZOS	1,515	1,411	1,323	1,226	1,122	1,005
G	LEE COUNTY WSC	COLORADO	588	548	513	476	434	389
G	LEXINGTON	BRAZOS	425	402	390	386	383	381
G	LIVESTOCK, LEE	BRAZOS	0	0	0	0	0	0
G	LIVESTOCK, LEE	COLORADO	0	0	0	0	0	0
G	MANUFACTURING, LEE	COLORADO	0	0	0	0	0	0
G	MINING, LEE	BRAZOS	-2,480	-5,685	-6,058	-6,477	-6,945	-7,512
G	MINING, LEE	COLORADO	-700	-1,604	-1,709	-1,827	-1,959	-2,119
G	SOUTHWEST MILAM WSC	BRAZOS	28	20	6	9	7	3
	Sum of Projected Water Supply Needs (acre-feet)		**-3,180**	**-7,289**	**-7,767**	**-8,304**	**-8,904**	**-9,631**

Projected Water Management Strategies
TWDB 2017 State Water Plan Data

BASTROP COUNTY

WUG, Basin (RWPG) All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
AQUA WSC, BRAZOS (K)							
DROUGHT MANAGEMENT	DEMAND REDUCTION [BASTROP]	14	17	23	30	39	52
MUNICIPAL CONSERVATION - AQUA WSC	DEMAND REDUCTION [BASTROP]	6	9	10	11	15	20
		20	**26**	**33**	**41**	**54**	**72**
AQUA WSC, COLORADO (K)							
DROUGHT MANAGEMENT	DEMAND REDUCTION [BASTROP]	1,361	1,746	2,258	2,967	3,935	5,277
EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER [BASTROP]	2,500	2,500	4,000	4,000	4,000	4,000
LCRA - PRAIRIE SITE RESERVOIR	LCRA NEW OFF-CHANNEL RESERVOIR (2030 DECADE) [RESERVOIR]	0	0	5,000	5,000	10,000	15,000
MUNICIPAL CONSERVATION - AQUA WSC	DEMAND REDUCTION [BASTROP]	619	895	960	1,128	1,499	1,992
		4,480	**5,141**	**12,218**	**13,095**	**19,434**	**26,269**
AQUA WSC, GUADALUPE (K)							
DROUGHT MANAGEMENT	DEMAND REDUCTION [BASTROP]	10	12	16	21	28	37
MUNICIPAL CONSERVATION - AQUA WSC	DEMAND REDUCTION [BASTROP]	5	7	8	9	12	14
		15	**19**	**24**	**30**	**40**	**51**
BASTROP, COLORADO (K)							
DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER [BASTROP]	300	300	300	300	300	0
DIRECT REUSE - BASTROP	DIRECT REUSE [BASTROP]	0	0	300	600	1,120	1,120
DROUGHT MANAGEMENT	DEMAND REDUCTION [BASTROP]	294	390	517	692	930	1,248
LCRA - LANE CITY RESERVOIR	LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE) [RESERVOIR]	0	0	0	2,500	2,500	2,500
MUNICIPAL CONSERVATION - BASTROP	DEMAND REDUCTION [BASTROP]	195	440	688	1,084	1,459	1,958
		789	**1,130**	**1,805**	**5,176**	**6,309**	**6,826**

Projected Water Management Strategies
TWDB 2017 State Water Plan Data

WUG, Basin (RWPG) All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
BASTROP COUNTY WCID #2, COLORADO (K)							
DROUGHT MANAGEMENT	DEMAND REDUCTION [BASTROP]	19	27	38	53	74	102
EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER [BASTROP]	0	0	0	0	550	550
		19	**27**	**38**	**53**	**624**	**652**
COUNTY-OTHER, BASTROP, BRAZOS (K)							
DROUGHT MANAGEMENT	DEMAND REDUCTION [BASTROP]	4	5	6	8	10	14
MUNICIPAL CONSERVATION - BASTROP COUNTY-OTHER	DEMAND REDUCTION [BASTROP]	1	2	4	7	8	10
		5	**7**	**10**	**15**	**18**	**24**
COUNTY-OTHER, BASTROP, COLORADO (K)							
DROUGHT MANAGEMENT	DEMAND REDUCTION [BASTROP]	272	328	402	504	643	827
EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER [BASTROP]	60	60	60	60	60	0
MUNICIPAL CONSERVATION - BASTROP COUNTY-OTHER	DEMAND REDUCTION [BASTROP]	89	191	337	403	515	663
		421	**579**	**799**	**967**	**1,218**	**1,490**
COUNTY-OTHER, BASTROP, GUADALUPE (K)							
DROUGHT MANAGEMENT	DEMAND REDUCTION [BASTROP]	5	5	5	5	4	4
MUNICIPAL CONSERVATION - BASTROP COUNTY-OTHER	DEMAND REDUCTION [BASTROP]	2	3	3	4	4	4
		7	**8**	**8**	**9**	**8**	**8**
CREEDMOOR-MAHA WSC, COLORADO (K)							
DROUGHT MANAGEMENT	DEMAND REDUCTION [BASTROP]	1	1	2	2	3	4
		1	**1**	**2**	**2**	**3**	**4**
ELGIN, COLORADO (K)							
DROUGHT MANAGEMENT	DEMAND REDUCTION [BASTROP]	195	248	319	417	552	732
EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER [BASTROP]	300	300	0	0	0	0
LCRA - LANE CITY RESERVOIR	LCRA NEW OFF-CHANNEL RESERVOIRS (2020 DECADE) [RESERVOIR]	0	3,452	3,371	3,278	3,196	3,119
		495	**4,000**	**3,690**	**3,695**	**3,748**	**3,851**

Projected Water Management Strategies
TWDB 2017 State Water Plan Data

WUG, Basin (RWPG) All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
MANUFACTURING, BASTROP, COLORADO (K)							
EXPANSION OF CURRENT GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER [BASTROP]	55	87	120	151	174	199
		55	**87**	**120**	**151**	**174**	**199**
MINING, BASTROP, GUADALUPE (K)							
DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - CARRIZO-WILCOX AQUIFER	CARRIZO-WILCOX AQUIFER [BASTROP]	0	0	466	466	466	466
DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - QUEEN CITY AQUIFER	QUEEN CITY AQUIFER [BASTROP]	110	306	0	0	0	0
		110	**306**	**466**	**466**	**466**	**466**
POLONIA WSC, COLORADO (K)							
LOCAL CARRIZO AQUIFER WITH CONVERSION	CARRIZO-WILCOX AQUIFER [CALDWELL]	0	0	0	0	0	0
		0	**0**	**0**	**0**	**0**	**0**
SMITHVILLE, COLORADO (K)							
DEVELOPMENT OF NEW GROUNDWATER SUPPLIES - QUEEN CITY AQUIFER	QUEEN CITY AQUIFER [BASTROP]	0	0	0	0	0	150
DROUGHT MANAGEMENT	DEMAND REDUCTION [BASTROP]	126	161	208	273	362	480
MUNICIPAL CONSERVATION - SMITHVILLE	DEMAND REDUCTION [BASTROP]	44	72	76	88	117	155
		170	**233**	**284**	**361**	**479**	**785**
STEAM ELECTRIC POWER, BASTROP, COLORADO (K)							
LCRA - EXPAND USE OF GROUNDWATER (CARRIZO-WILCOX AQUIFER)	CARRIZO-WILCOX AQUIFER [BASTROP]	300	300	300	300	300	300
		300	**300**	**300**	**300**	**300**	**300**
Sum of Projected Water Management Strategies (acre-feet)		**6,887**	**11,864**	**19,797**	**24,361**	**32,875**	**40,997**

Projected Water Management Strategies
TWDB 2017 State Water Plan Data

LEE COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
GIDDINGS, BRAZOS (G)							
MUNICIPAL WATER CONSERVATION (RURAL) - GIDDINGS	DEMAND REDUCTION [LEE]	19	64	112	112	113	113
		19	**64**	**112**	**112**	**113**	**113**
GIDDINGS, COLORADO (G)							
MUNICIPAL WATER CONSERVATION (RURAL) - GIDDINGS	DEMAND REDUCTION [LEE]	20	67	119	118	119	120
		20	**67**	**119**	**118**	**119**	**120**
LEXINGTON, BRAZOS (G)							
MUNICIPAL WATER CONSERVATION (RURAL) - LEXINGTON	DEMAND REDUCTION [LEE]	8	26	23	21	21	21
		8	**26**	**23**	**21**	**21**	**21**
MINING, LEE, BRAZOS (G)							
INDUSTRIAL WATER CONSERVATION	DEMAND REDUCTION [LEE]	74	284	424	453	486	526
		74	**284**	**424**	**453**	**486**	**526**
MINING, LEE, COLORADO (G)							
INDUSTRIAL WATER CONSERVATION	DEMAND REDUCTION [LEE]	21	80	120	128	137	148
		21	**80**	**120**	**128**	**137**	**148**
SOUTHWEST MILAM WSC, BRAZOS (G)							
MUNICIPAL WATER CONSERVATION (RURAL) - SOUTHWEST MILAM WSC	DEMAND REDUCTION [LEE]	1	0	0	0	0	0
		1	**0**	**0**	**0**	**0**	**0**
Sum of Projected Water Management Strategies (acre-feet)		**143**	**521**	**798**	**832**	**876**	**928**

Appendix A

Copy of GMA 12 Resolution and Submittal Adopting DFCs

RESOLUTION TO ADOPT DESIRED FUTURE CONDITIONS FOR AQUIFERS IN GROUNDWATER MANAGEMENT AREA 12

THE STATE OF TEXAS §
§
GROUNDWATER MANAGEMENT AREA 12 §
§
GROUNDWATER CONSERVATION DISTRICTS §

WHEREAS, Texas Water Code § 36.108 requires the groundwater conservation districts located in whole or in part in a groundwater management area ("GMA") designated by the Texas Water Development Board to adopt desired future conditions for the relevant aquifers located within the management area;

WHEREAS, the groundwater conservation districts located wholly or partially within Groundwater Management Area 12 ("GMA 12"), as designated by the Texas Water Development Board, as of the date of this resolution are as follows: Brazos Valley Groundwater Conservation District, Fayette County Groundwater Conservation District, Lost Pines Groundwater Conservation District, Mid-East Texas Groundwater Conservation District, and Post Oak Savannah Groundwater Conservation District (collectively hereinafter "the GMA 12 Districts");

WHEREAS, the GMA 12 Districts are each a local government operating under Chapter 36, Texas Water Code and their specific enabling act;

WHEREAS, the GMA 12 Districts desire to fulfill the requirements of Texas Water Code §36.108 through mutual cooperation and joint planning efforts;

WHEREAS, the GMA 12 Districts have had numerous public meetings, including stakeholder meetings for the specific purpose of receiving comments and input from stakeholders within GMA 12, and they have engaged in joint planning efforts to promote comprehensive management of the aquifers located in whole or in part in Groundwater Management Area 12;

WHEREAS, GMA 12 held meetings on July 25, 2013; December 19, 2013; June 6, 2014; June 27, 2014; December 4, 2014; February 26, 2015; March 27, 2015; April 30, 2015; May 28, 2015; June 25, 2015; August 13, 2015; September 24, 2015; October 22, 2015; December 17, 2015; February 4, 2016; March 24, 2016; April 15, 2016; October 11, 2016, December 1, 2016; April 27, 2017; May, 25, 2017; and September 20, 2017, in compliance with its statutory duty to publicly consider the desired future conditions considerations listed in § 36.108(d);

WHEREAS, the GMA 12 Districts have considered the following factors, listed in §36.108(d), in establishing the desired future conditions for the aquifer(s):

(1) groundwater availability models and other data or information for the management area;
(2) aquifer uses or conditions within the management area, including conditions that differ substantially from one geographic area to another;
(3) the water supply needs and water management strategies included in the state water plan;
(4) hydrological conditions, including for each aquifer in the management area the total estimated recoverable storage as provided by the Texas Water Development Board Executive Administrator and the average annual recharge inflows, and discharge;

(5) other environmental impacts, including impacts on spring flow and other interactions between groundwater and surface water;
(6) the impact of subsidence;
(7) socioeconomic impacts reasonably expected to occur;
(8) the impact on the interests and rights in private property, including ownership and the rights of management area landowners and their lessees and assigns in groundwater as recognized under Texas Water Code §36.002;
(9) the feasibility of achieving the desired future conditions; and
(10) any other information relevant to the specific desired future conditions, including comments received from the Texas Water Development Board regarding the initially submitted desired future conditions;

WHEREAS, the desired future conditions provide a balance between the highest practicable level of groundwater production and the conservation, preservation, protection, recharging, and prevention of waste of groundwater in the management area;

WHEREAS, after considering the factors listed in 36.108(d), Texas Water Code, the GMA 12 Districts may establish different desired future conditions for: (1) each aquifer, subdivision of an aquifer, or geologic strata located in whole or in part within the boundaries of GMA 12; or (2) each geographic area overlying an aquifer in whole or in part or subdivision of an aquifer within the boundaries of GMA 12;

WHEREAS, the GMA 12 Districts recognize that GMA 12 includes a geographically and hydrologically diverse area with a variety of land uses and a diverse mix of water users;

WHEREAS, at least two-thirds of the GMA 12 Districts had a voting representative in attendance at the April 15, 2016, meeting in accordance with Section 36.108, Texas Water Code; and the following districts had a voting representative in attendance at the meeting: Brazos Valley Groundwater Conservation District, Fayette County Groundwater Conservation District, Lost Pines Groundwater Conservation District, Mid-East Texas Groundwater Conservation District, and Post Oak Savannah Groundwater Conservation District, and;

WHEREAS, the member GCDs in which the Carrizo-Wilcox, Queen City, Sparta, Yegua Jackson and Brazos River Alluvium aquifers are relevant for joint planning purposes held open meetings within each said district between April 18, 2016 and July 20, 2016 to take public comment on the proposed DFCs for that district during the minimum ninety (90) day public comment period of April 18, 2016 through July 20, 2016, and;

WHEREAS, on December 1, 2016, the district representatives reconvened to review the reports and consider any district-suggested revisions to the proposed desired future conditions.

WHEREAS, on September 20, 2017, the district representatives reconvened to review the comments made by the Texas Water Development Board staff concerning calculated drawdowns in the Sparta, Queen City, Carrizo, Simsboro and Hooper aquifers and consider any district-suggested revisions to the proposed desired future conditions;

WHEREAS, on this day of September 20, 2017, at an open meeting duly noticed and held in accordance with law at the Post Oak Savannah Groundwater Conservation District's office located at 310 East Avenue C, Milano, Texas, the GCDs within GMA 12, having considered at this meeting comments submitted to the individual districts during the comment period and at this meeting, have voted, 5 districts in favor, 0 districts opposed, to adopt

the following DFCs for in the following counties and districts through the year 2070 as follows:

NOW, THEREFORE, BE IT RESOLVED BY THE AUTHORIZED VOTING REPRESENTATIVES OF THE GMA 12 DISTRICTS AS FOLLOWS:

1. The above recitals are true and correct.
2. The authorized voting representatives of the GMA 12 Districts hereby establish the desired future conditions of the aquifer(s) as set forth in Attachment B by the vote reflected in the above recitals.
3. The authorized voting representatives of the GMA 12 Districts declare that the following aquifers are non-relevant for the purpose of adopting Desired Future Conditions in Groundwater Management Area 12, as the districts determined that aquifer characteristics, groundwater demands, and current groundwater uses do not warrant adoption of a desired future condition for the: the Gulf Coast Aquifer in Brazos County; the Trinity Aquifer in Bastrop, Lee, and Williamson counties; the Yegua-Jackson Aquifer in Bastrop and Lee counties; and the Wilcox portion of the Carrizo-Wilcox Aquifer in Fayette County. Technical justifications of the non-relevant aquifers, as required by 31 Tex. Admin. Code §356.31, is set forth in Attachment C.
4. The GMA 12 Districts and their agents and representatives, individually and collectively, are further authorized to take all actions necessary to implement this resolution.
5. The desired future conditions of the aquifer(s) adopted by the GMA 12 Districts and attached hereto, along with the explanatory report, and proof of the notice of the meeting in which desired future conditions adoption occurred, shall be submitted to the Texas Water Development Board and sent to the GMA 12 Districts, as required by Section 36.108(d-3), Texas Water Code.

AND IT IS SO ORDERED. PASSED AND ADOPTED on this 20th day of September, 2017.

ATTEST:

Brazos Valley Groundwater Conservation District

Fayette County Groundwater Conservation District

Lost Pines Groundwater Conservation District

Mid-East Texas Groundwater Conservation District

Post Oak Savannah Groundwater Conservation

ATTACHMENTS

A: Copies of notices of September 20, 2017, meeting
B: Desired Future Conditions
C: Non-relevant Aquifers

Attachment A
Notice for September 20, 2017 GMA 12 Meeting

Fayette County Groundwater Conservation District

255 Svoboda Lane, Room 115
La Grange, Texas 78945
Telephone: (979) 968-3135
Fax: (979) 968-3194

COPY
THE ORIGINAL INSTRUMENT WAS
FILED IN FAYETTE COUNTY TEXAS ON
9-6-17 1:45pm MK

NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 12
September 20, 2017 – 10:00 a.m.
Post Oak Savannah GCD Offices
310 East Ave. C (Highway 79)
Milano, Texas

AGENDA

Notice is hereby given that the groundwater conservation districts located wholly or partially within Groundwater Management Area (GMA) 12, as designated by the Texas Water Development Board, consisting of the Post Oak Savannah Groundwater Conservation District (GCD), Fayette County GCD, Lost Pines GCD, Mid-East Texas GCD, and Brazos Valley GCD, will hold a ***Joint Planning meeting at 10:00 a.m. on Wednesday, September 20, 2017,*** in the Post Oak Savannah GCD Offices, located at 310 East Ave. C (Highway 79), Milano, Texas. The meeting will be open to the public.

The subjects to be discussed or considered, or upon which any formal action may be taken, are as listed below. Items may or may not be taken in the same order as shown on this meeting notice.

1. Invocation
2. Call meeting to order and establish quorum
3. Welcome and introductions
4. Minutes of May 25, 2017 GMA 12 Meeting
5. Response from Texas Water Development Board to GMA 12 concerning submission of Desired Future Conditions and Explanatory Report for GMA 12
6. Re-adoption of Desired Future Conditions for GMA 12
7. Re-adoption of resolution of Desired Future Conditions for relevant aquifers of GMA 12 and identification of non-relevant aquifers of GMA 12
8. Explanatory Report for GMA 12
9. Public Comment
10. Agenda items and Date for next meeting
11. Adjourn

Signed this 6th day of September, 2017.

David A. Van Dresar, General Manager, FCGCD
255 Svoboda Ln., Rm. 115, La Grange, Texas 76556
Phone: 979-968-3135

NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 12
September 20, 2017 – 10:00 a.m.
Post Oak Savannah GCD Offices
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Milano, Texas

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8. Explanatory Report for GMA 12
9. Public Comment
10. Agenda items and Date for next meeting
11. Adjourn

Signed this 6th day of September, 2017.

Gary Westbrook

Gary Westbrook, General Manager, POSGCD
310 East Avenue C, Milano, Texas 76556
Phone: 512-455-9900

***Questions, requests for additional information, or comments concerning the subjects listed above may be submitted to the person posting this notice.*

RECEIVED
SEP 14 2017
Post Oak Savannah

Filed 14th day of September
in 1055, At 8 M.
BARBARA VANSA
County Clerk, Milam County, Texas
By [illegible]
Deputy

NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 12
September 20, 2017 – 10:00 a.m.
Post Oak Savannah GCD Offices
310 East Ave. C (Highway 79)
Milano, Texas

AGENDA

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8. Explanatory Report for GMA 12
9. Public Comment
10. Agenda items and Date for next meeting
11. Adjourn

Signed this 6th day of September, 2017.

Gary Westbrook

Gary Westbrook, General Manager, POSGCD
310 East Avenue C, Milano, Texas 76556
Phone: 512-455-9900

***Questions, requests for additional information, or comments concerning the subjects listed above may be submitted to the person posting this notice.*

FILED
at 3:57 o'clock P M
SEP 06 2017
ANNA L. SCHIELACK
CLERK, BURLESON CO., TEX.

BRAZOS VALLEY GROUNDWATER CONSERVATION DISTRICT

P.O. BOX 528 · HEARNE, TX 77859 · (979)279-9350 · FAX: (979)279-0035
WWW.BRAZOSVALLEYGCD.ORG

NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 12
September 20, 2017 – 10:00 a.m.
Post Oak Savannah GCD Offices
310 East Ave. C (Highway 79)
Milano, Texas
AGENDA

Notice is hereby given that the groundwater conservation districts located wholly or partially within Groundwater Management Area (GMA) 12, as designated by the Texas Water Development Board, consisting of the Post Oak Savannah Groundwater Conservation District (GCD), Fayette County GCD, Lost Pines GCD, Mid-East Texas GCD, and Brazos Valley GCD, will hold a ***Joint Planning meeting at 10:00 a.m. on Wednesday, September 20, 2017***, in the Post Oak Savannah GCD Offices, located at 310 East Ave. C (Highway 79), Milano, Texas. The meeting will be open to the public. **The subjects to be discussed or considered, or upon which any formal action may be taken, are as listed below. Items may or may not be taken in the same order as shown on this meeting notice.**

Accepted for Filing in:
Robertson County
On: Sep 06,2017 at 04:06P
By: Maxine Lattimore

1. Invocation
2. Call meeting to order and establish quorum
3. Welcome and introductions
4. Minutes of May 25, 2017 GMA 12 Meeting
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8. Explanatory Report for GMA 12
9. Public Comment
10. Agenda items and date for next meeting
11. Adjourn

Signed this 6th day of September, 2017.

Alan M. Day, General Manager, BVGCD
112 W. 3rd Street, Hearne, Texas 77859
Phone: 979-279-9350

**Questions, requests for additional information, or comments concerning the subjects listed above may be submitted to the person posting this notice.

BRAZOS VALLEY GROUNDWATER CONSERVATION DISTRICT

P.O. BOX 528 · HEARNE, TX 77859 · (979)279-9350 · FAX: (979)279-0035
WWW.BRAZOSVALLEYGCD.ORG

FILED FOR RECORD
DATE 9-6-17
AT 4:10 O'CLOCK P M
KAREN MCQUEEN
BRAZOS COUNTY CLERK
By

NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 12
September 20, 2017 – 10:00 a.m.
Post Oak Savannah GCD Offices
310 East Ave. C (Highway 79)
Milano, Texas
AGENDA

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9. Public Comment
10. Agenda items and date for next meeting
11. Adjourn

Signed this 6th day of September, 2017.

Alan M. Day, General Manager, BVGCD
112 W. 3rd Street, Hearne, Texas 77859
Phone: 979-279-9350

**Questions, requests for additional information, or comments concerning the subjects listed above may be submitted to the person posting this notice.

09/07/2017 09:57 9795422623 LEE COUNTY CLERK PAGE 01/01
SEP/07/2017/THU 09:56 AM FAX No. P. 002

NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 12
September 20, 2017 – 10:00 a.m.
Post Oak Savannah GCD Offices
310 East Ave. C (Highway 79)
Milano, Texas

AGENDA

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8. Explanatory Report for GMA 12
9. Public Comment
10. Agenda items and Date for next meeting
11. Adjourn

Signed this 7th day of September, 2017.

Peggy Campion

Peggy Campion, Lost Pines GCD
P O Box 1027 Smithville, TX 78957
512-360-5088

***Questions, requests for additional information, or comments concerning the subjects listed above may be submitted to the person posting this notice.*

FILED AND RECORDED

SEP 07 2017

COUNTY COURT OF LEE COUNTY TEXAS

Sharon Blasig
SHARON BLASIG
COUNTY CLERK, LEE COUNTY TEXAS

FILED

SEP 07 2017 10:26 A

Rose Pietsch
Bastrop County Clerk

NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 12

September 20, 2017 – 10:00 a.m.
Post Oak Savannah GCD Office
310 East Ave. C (Highway 79)
Milano, Texas

Agenda

Notice is hereby given that the groundwater conservation districts located wholly or partially within Groundwater Management Area (GMA) 12, as designated by the Texas Water Development Board, consisting of the Mid-East Texas Groundwater Conservation District (METGCD), Fayette County GCD, Lost Pines GCD, Post Oak Savannah GCD, and Brazos Valley GCD, will hold a ***Joint Planning meeting at 10:00 a.m. on Wednesday, September 20, 2017,*** in the Post Oak Savannah GCD Offices, located at 310 East Ave C. (Highway 79), Milano, Texas. The meeting will be open to the public.

The subjects to be discussed or considered, or upon which any formal action may be taken, are as listed below. Items may or may not be taken in the same order as shown on this meeting notice.

1. Invocation
2. Call meeting to order and establish quorum
3. Welcome and introductions
4. Minutes of May 25, 2017 GMA 12 Meeting
5. Response from Texas Water Development Board to GMA 12 concerning submission of Desired Future Conditions and Explanatory Report for GMA 12
6. Re-adoption of Desired Future Conditions for GMA 12
7. Re-adoption of resolution of Desired Future Conditions for relevant aquifers of GMA 12 and identification of non-relevant aquifers of GMA 12
8. Explanatory Report for GMA 12
9. Public Comment
10. Agenda items and Date for next meeting
11. Adjourn

Signed this 6th day of September 2017.

David M. Bailey, General Manager, METGCD
101 W. Main Rm B22, Madisonville, TX 77864
Phone: 936-348-3212

Questions, requests for additional information, or comments concerning the subjects listed above may be submitted to the person posting this notice.

FILED FOR RECORD
At 3:15, o'clock P M

SEP 6 - 2017

LINDA JARVIS
Clerk County Court, Freestone County, Texas
By Melissa Santana

NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 12

September 20, 2017 – 10:00 a.m.
Post Oak Savannah GCD Office
310 East Ave. C (Highway 79)
Milano, Texas

Agenda

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Signed this 6th day of September 2017.

David M. Bailey, General Manager, ~~METGCD~~
101 W. Main Rm B22, Madisonville, TX 77864
Phone: 936-348-3212

Questions, requests for additional information, or comments concerning the subjects listed above may be submitted to the person posting this notice.

FILED
1:30 PM
SEP - 6 2017
CHRISTIE WAKEFIELD
CLERK COUNTY COURT
BY
LEON COUNTY, TEXAS

NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 12

September 20, 2017 – 10:00 a.m.
Post Oak Savannah GCD Office
310 East Ave. C (Highway 79)
Milano, Texas

COPY
Original Filed
AT 1:40 O'CLOCK P M
SEP 06 2017
SUSANNE MORRIS, Madison County Clerk
BY Heidi Ellis DEPUTY
Copies NOT Compared

Agenda

Notice is hereby given that the groundwater conservation districts located wholly or partially within Groundwater Management Area (GMA) 12, as designated by the Texas Water Development Board, consisting of the Mid-East Texas Groundwater Conservation District (METGCD), Fayette County GCD, Lost Pines GCD, Post Oak Savannah GCD, and Brazos Valley GCD, will hold a ***Joint Planning meeting at 10:00 a.m. on Wednesday, September 20, 2017,*** in the Post Oak Savannah GCD Offices, located at 310 East Ave C. (Highway 79), Milano, Texas. The meeting will be open to the public.

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7. Re-adoption of resolution of Desired Future Conditions for relevant aquifers of GMA 12 and identification of non-relevant aquifers of GMA 12
8. Explanatory Report for GMA 12
9. Public Comment
10. Agenda items and Date for next meeting
11. Adjourn

Signed this 6th day of September 2017.

David M. Bailey, General Manager, METGCD
101 W. Main Rm B22, Madisonville, TX 77864
Phone: 936-348-3212

Questions, requests for additional information, or comments concerning the subjects listed above may be submitted to the person posting this notice.

Subject: S.O.S. Acknowledgment of Receipt
Date: Friday, September 8, 2017 at 2:49:11 PM Central Daylight Time
From: TexReg@sos.texas.gov
To: gwestbrook@posgcd.org

Acknowledgment of Receipt

Agency: Groundwater Management Area 12

Liaison: Gary Westbrook

The Office of the Secretary of State has posted

notice of the following meeting:

Board: GROUNDWATER MANAGEMENT AREA 12

Committee: GROUNDWATER MANAGEMENT AREA 12

Date: 09/20/2017 10:00 AM "TRD# 2017007675"

Notice posted: 09/08/17 02:49 PM

Proofread your current open meeting notice at:

http://texreg.sos.state.tx.us/public/pub_om_lookup$.startup?Z_TRD=2017007675

Gary Westbrook Log Off

Open Meeting Submission

TRD:	2017007675
Date Posted:	09/08/2017
Status:	Accepted
Agency Id:	1116
Date of Submission:	09/08/2017
Agency Name:	Groundwater Management Area 12
Board:	GROUNDWATER MANAGEMENT AREA 12
Committee:	GROUNDWATER MANAGEMENT AREA 12
Date of Meeting:	09/20/2017
Time of Meeting:	10:00 AM (**##:## AM Local Time)**
Street Location:	310 East Ave. C (Highway 79)
City:	Milano
State:	TX
Liaison Name:	Gary Westbrook
Liaison Id:	1
Additional Information Obtained From:	Gary Westbrook, General Manager, POSGCD 310 East Avenue C, Milano, Texas 76556 Phone: 512-455-9900
Agenda:	1. Invocation 2. Call meeting to order and establish quorum 3. Welcome and introductions 4. Minutes of May 25, 2017 GMA 12 Meeting 5. Response from Texas Water Development Board to GMA 12 concerning submission of Desired Future Conditions and Explanatory Report for GMA 12 6. Re-adoption of Desired Future Conditions for GMA 12 7. Re-adoption of resolution of Desired Future Conditions for relevant aquifers of GMA 12 and identification of non-relevant aquifers of GMA 12 8. Explanatory Report for GMA 12 9. Public Comment 10. Agenda items and Date for next meeting

11. Adjourn

New Submission

Attachment B
GMA 12 DESIRED FUTURE CONDITIONS

A. Sparta, Queen City, Carrizo, Calvert Bluff, Simsboro, and Hooper Aquifers

The Sparta, Queen City, and Carrizo aquifers are present and used in all GCDs within GMA 12. Therefore, all GCDs submitted DFCs for these aquifers. The Calvert Bluff, Simsboro, and Hooper aquifers are present in all GCDs but not used in Fayette County. Therefore, GMA 12 declared these aquifers not relevant for Fayette County, and Fayette County GCD did not submit a DFC for these aquifers. For the purpose of establishing DFCs, the Groundwater Availability Model (GAM) for the Queen City and Sparta Aquifers (Kelley and others, 2004) was used to determine the compatibility and physical possibility of the DFCs proposed by each GCD. Note that this GAM also includes the Carrizo-Wilcox Aquifer. The DFCs proposed by each GCD for these six aquifers are provided in **Table 2-1**, as well as the DFC adopted by GMA 12 as a whole. The DFC is based on the average drawdown from January 2000 through December 2069. Note that the DFCs for Fayette County GCD in the Sparta, Queen City, and Carrizo aquifers are for all of Fayette County, and not just the portion of Fayette County within GMA 12. This is because GMA 15 has declared these aquifers not relevant for Fayette County, and all joint groundwater planning for these aquifers is done through GMA 12.

Table 2-1 Adopted DFCs for the Sparta, Queen City, Carrizo, Calvert Bluff, Simsboro, and Hooper Aquifers

GCD or County	Average Aquifer Drawdown (ft) measured from January 2000 through December 2069					
	Sparta	Queen City	Carrizo	Calvert Bluff	Simsboro	Hooper
Brazos Valley GCD	12	12	61	125	295	207
Fayette County GCD	47*	64*	110*	--	--	--
Lost Pines GCD	5	15	62	100	240	165
Mid-East Texas GCD	5	2	80	90	138	125
Post Oak Savannah GCD	28	30	67	149	318	205
Falls County	--	--	--	--	-2	27
Limestone County	--	--	--	11	50	50
Navarro County	--	--	--	-1	3	3
Williamson County	--	--	--	-11	47	69
GMA-12	*16*	*16*	*75*	*114*	*228*	*168*

* Fayette County GCD DFCs are for all of Fayette County.

Based on the principle of using the GAM as a joint planning tool and the fact that the GAM predictions contain uncertainty, GMA 12 considered the DFCs to be compatible and physically possible if the difference between modeled drawdown results and the DFC drawdown targets are within a 10 percent or 5-foot variance, whichever is greater, for all aquifers in the Queen City-Sparta/Carrizo-Wilcox GAM with the exception of the Simsboro, which would be held within a 5

percent or 5-foot variance, whichever is greater, of the GAM simulation. Factors considered for determining tolerance criteria include:

- model calibration results and statistics;
- information used to calibrate the GAM;
- aquifer and recharge information collected since the GAM was developed;
- sensitivity of the GAM calibration and GAM predictions to change in the model parameters; and
- range of uncertainty in the model parameters including historical and future pumping, temporal variation in recharge distribution and magnitude.

Reference:
Kelley, V.A., Deeds, N.E. Fryar, D.G., and Nicot, J.P., 2004. Groundwater Availability Models for the Queen City and Sparta Aquifers, prepared for the Texas Water Development Board, Austin, Texas.

B. Yegua-Jackson Aquifer

The Yegua-Jackson Aquifer is present in all GCDs in GMA 12. All GCDs except Brazos Valley GCD manage the Yegua-Jackson Aquifer as a single unit. Consequently, the Brazos Valley GCD adopted two DFCs for the Yegua-Jackson Aquifer: a DFC for the Jackson Aquifer and separate DFC for the Yegua Aquifer. The DFCs proposed by each GCD for the Yegua-Jackson Aquifer are provided in **Table 2-2**, as well as the DFC adopted by GMA 12 as a whole. Lost Pines GCD did not propose a DFC because the district has declared the Yegua-Jackson Aquifer as a non-relevant aquifer. For the purpose of establishing and evaluating DFCs, the GAM for the Yegua-Jackson Aquifer (Deeds and others, 2010) was used to determine the compatibility and physical possibility of the DFCs submitted by each GCD. The DFC is based on the average drawdown from January 2010 through December 2069.

Table 2-2 Adopted DFCs for the Yegua and Jackson Aquifers

GCD	Average Aquifer Drawdown (ft) measured from January 2010 through December 2069		
	Yegua	Jackson	Yegua-Jackson
Brazos Valley GCD	70	114	--
Fayette County GCD	--	--	77
Lost Pines GCD	--	--	--
Mid-East Texas GCD	--	--	7
Post Oak Savannah GCD	--	--	100
GMA-12	--	--	*65*

Based on the principle of using the GAM as a joint planning tool and the fact that the GAM predictions contain uncertainty, GMA 12 considered the DFCs to be compatible and physically possible if the difference between modeled drawdown results and the DFC drawdown targets are

within a 10 percent or 5-foot variance, whichever is greater, for both aquifers in the Yegua-Jackson GAM simulation. Factors considered for determining tolerance criteria include:

- model calibration results and statistics;
- information used to calibrate the GAM;
- aquifer and recharge information collected since the GAM was developed;
- sensitivity of the GAM calibration and GAM predictions to change in the model parameters; and
- range of uncertainty in the model parameters including historical and future pumping, temporal variation in recharge distribution and magnitude.

Reference:
Deeds, N.E., Yan, T., Sungh, A., Jones, T.L., Kelley, V.A., Knox, P.R., and Young, S.C., 2010, Groundwater Availability Model for the Yegua-Jackson Aquifer, final report prepared for the Texas Water Development Board, March, 2010, 582 pp.

C. Brazos Alluvium Aquifer

In GMA 12, the Brazos River Alluvium Aquifer is only present in Post Oak Savannah GCD and the Brazos Valley GCD. For this reason, GMA 12 adopted DFCs at a county level in these two GCDs, as shown in **Table 2-3**. DFCs for the Brazos River Alluvium Aquifer were not adopted for GMA 12 as a whole.

Table 2-3 Adopted DFCs for the Brazos River Alluvium Aquifer

GCD	County	Brazos River Alluvium Aquifer
Brazos Valley	Brazos & Robertson	North of State Highway 21: Percent saturation shall average at least 30% of total well depth. South of State Highway 21: Percent saturation shall average at least 40% of total well depth.
Post Oak Savannah	Burleson	A decrease in 6 feet in the average saturated thickness over the period from 2010 to 2070.
	Milam	A decrease of 5 feet in average saturated thickness over the period from 2010 to 2070

D. Non-relevant Areas of Aquifers

There are four areas where aquifers were declared non-relevant during the current cycle of joint groundwater planning. The Trinity Aquifer was declared non-relevant in Bastrop, Lee and Williamson counties because of its small areal coverage, great depth and poor water quality. The Yegua-Jackson Aquifer was declared non-relevant in Lost Pines GCD because it has a minimal amount of pumpage within the district. The Gulf Coast Aquifer was declared non-relevant in Brazos Valley GCD within GMA 12 since the small outcrop in the southernmost part of Brazos County is thin, can only provide water in small quantities and is very limited in areal extent. Also, the Wilcox portion of the Carrizo-Wilcox Aquifer in Fayette County was declared non-relevant because of the great depth to these units and the poor water quality.

Attachment C
NON-RELEVANT AQUIFER: GULF COAST AQUIFER IN BRAZOS COUNTY

I. INTRODUCTION

The Texas Water Development Board, in its July 2013 document, Explanatory Report for Submittal of Desired Future Conditions to the Texas Water Development Board, offers the following guidance regarding documentation for aquifers that are to be classified not relevant for purposes of joint planning:

> *Districts in a groundwater management area may, as part of the process for adopting and submitting desired future conditions, propose classification of a portion or portions of a relevant aquifer as non-relevant (31 Texas Administrative Code 356.31 (b)). This proposed classification of an aquifer may be made if the districts determine that aquifer characteristics, groundwater demands, and current groundwater uses do not warrant adoption of a desired future condition.*
>
> *The districts must submit to the TWDB the following documentation for the portion of the aquifer proposed to be classified as non-relevant:*
>
> 1. *A description, location, and/or map of the aquifer or portion of the aquifer;*
> 2. *A summary of aquifer characteristics, groundwater demands, and current groundwater uses, including the total estimated recoverable storage as provided by the TWDB, that support the conclusion that desired future conditions in adjacent or hydraulically connected relevant aquifer(s) will not be affected; and*
> 3. *An explanation of why the aquifer or portion of the aquifer is non-relevant for joint planning purposes.*

This technical memorandum provides the required documentation to classify the Gulf Coast Aquifer as not relevant for purposes of joint planning.

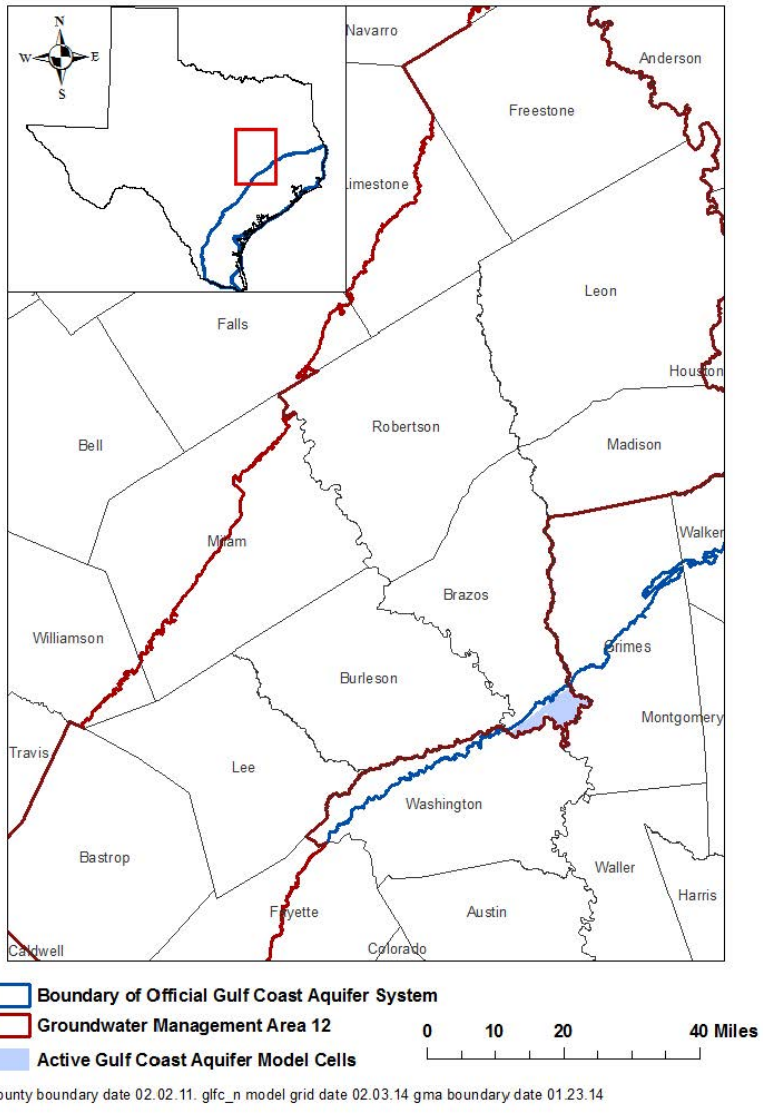
II. AQUIFER DESCRIPTION AND LOCATION

As described in George and others (2011):

> ***The Gulf Coast Aquifer*** *is a major aquifer paralleling the Gulf of Mexico coastline from the Louisiana border to the border of Mexico. It consists of several aquifers, including the Jasper, Evangeline, and Chicot aquifers, which are composed of discontinuous sand, silt, clay, and gravel beds. The maximum total sand thickness of the Gulf Coast Aquifer ranges from 700 feet in the south to 1,300 feet in the north. Freshwater saturated thickness averages about 1,000 feet. Water quality varies with depth and locality: it is generally good in the central and northeastern parts of the aquifer, where the water contains less than 500 milligrams per liter of total dissolved solids, but declines to the south, where it typically contains 1,000 to more than 10,000 milligrams per liter of total dissolved solids and where the productivity of the aquifer decreases. High levels of radionuclides, thought mainly to be naturally occurring, are found in some wells*

in Harris County in the outcrop and in South Texas. The aquifer is used for municipal, industrial, and irrigation purposes. In Harris, Galveston, Fort Bend, Jasper, and Wharton counties, water level declines of as much as 350 feet have led to land subsidence. The regional water planning groups, in their 2006 Regional Water Plans, recommended several water management strategies that use the Gulf Coast Aquifer, including drilling more wells, pumping more water from existing wells, temporary overdrafting, constructing new or expanded treatment plants, desalinating brackish groundwater, developing conjunctive use projects, and reallocating supplies.

Figure 1 (taken from Wade and others, 2014) shows the limited extent of the Gulf Coast Aquifer in GMA 12. Note that it occurs only in a small portion of Brazos County.



II.

Figure 1. Location of Gulf Coast Aquifer in GMA 12

III. AQUIFER CHARACTERISTICS

The Catahoula Sandstone, the very basal unit to the Gulf Coast Aquifer, occurs in the very south part of Brazos County with the outcrop covering the upper part of low rolling hills with the Jackson Group below the Catahoula Sandstone. The Catahoula Sandstone is described as clay, tuff, sand, sandstone in interbedded layers with a capacity to yield small quantities of fresh to slightly saline water. The aquifer covers about 1.3 percent of the Brazos Valley Groundwater Conservation District and is less than 250 feet in thickness.

IV. GROUNDWATER DEMANDS AND CURRENT GROUNDWATER USES

The Texas Water Development Board pumping database lists limited pumping from the Gulf Coast Aquifer in Brazos County that ranged from 6 to 23 acre-feet/year between 2007 and 2012.

V. TOTAL ESTIMATED RECOVERABLE STORAGE

Wade and others (2014) developed total estimated recoverable storage for the Gulf Coast Aquifer in GMA 12 as follows:

County	*Total Storage (acre-feet)*	*25 percent of Total Storage (acre-feet)*	*75 percent of Total Storage (acre-feet)*
Brazos	450,000	112,500	337,500
Total	450,000	112,500	337,500

Total storage is given in the first column. Lower percentages of storage are given in the next two columns.

VI. EXPLANATION OF NON-RELEVANCE

Due to its very limited areal extent, shallow depth and low use, the Gulf Coast Aquifer is classified as not relevant for purposes of joint planning in Groundwater Management Area 12.

VII. REFERENCES

George, P.G., Mace, R.E., and Petrossian, R., 2011. Aquifers of Texas. Texas Water Development Board Report 380, July 2011, 182p.

Wade, S. and Shi, J., 2014. GAM Task 13-035 Version 2: Total Estimated Recoverable Storage for Aquifers in Groundwater Management Area 12. Texas Water Development Board, Groundwater Resources Division, May 16, 2014, 43p.

NON-RELEVANT AQUIFER:
THE TRINITY AQUIFER IN BASTROP, LEE AND WILLIAMSON COUNTIES

I. INTRODUCTION

The Texas Water Development Board, in its July 2013 document, Explanatory Report for Submittal of Desired Future Conditions to the Texas Water Development Board, offers the following guidance regarding documentation for aquifers that are to be classified not relevant for purposes of joint planning:

> *Districts in a groundwater management area may, as part of the process for adopting and submitting desired future conditions, propose classification of a portion or portions of a relevant aquifer as non-relevant (31 Texas Administrative Code 356.31 (b)). This proposed classification of an aquifer may be made if the districts determine that aquifer characteristics, groundwater demands, and current groundwater uses do not warrant adoption of a desired future condition.*
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> *The districts must submit to the TWDB the following documentation for the portion of the aquifer proposed to be classified as non-relevant:*
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> 1. *A description, location, and/or map of the aquifer or portion of the aquifer;*
> 2. *A summary of aquifer characteristics, groundwater demands, and current groundwater uses, including the total estimated recoverable storage as provided by the TWDB, that support the conclusion that desired future conditions in adjacent or hydraulically connected relevant aquifer(s) will not be affected; and*
> 3. *An explanation of why the aquifer or portion of the aquifer is non-relevant for joint planning purposes.*

This technical memorandum provides the required documentation to classify the Trinity Aquifer as not relevant for purposes of joint planning.

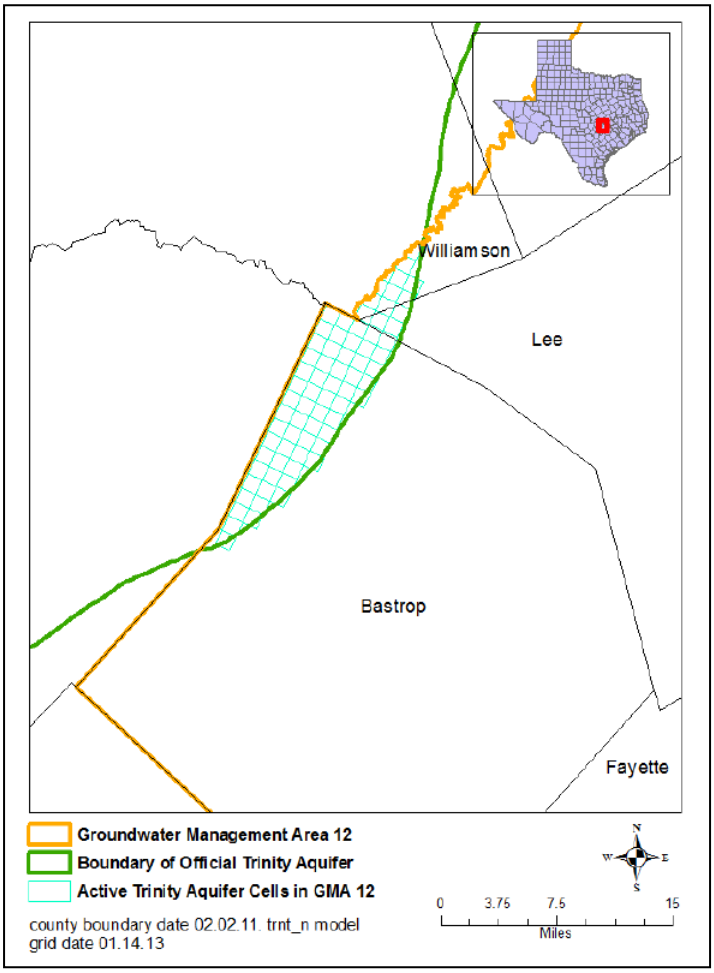
II. AQUIFER DESCRIPTION AND LOCATION

As described in George and others (2011):

> ***The Trinity Aquifer*** *extends across much of the central and northeastern part of the state. It is composed of several smaller aquifers contained within the Trinity Group. Although referred to differently in different parts of the state, they include the Antlers, Glen Rose, Paluxy, Twin Mountains, Travis Peak, Hensell, and Hosston aquifers. These aquifers consist of limestones, sands, clays, gravels, and conglomerates. Their combined freshwater saturated thickness averages about 600 feet in North Texas and about 1,900 feet in Central Texas. In general, groundwater is fresh but very hard in the outcrop of the aquifer. Total dissolved solids increase from less than 1,000 milligrams per liter in the east and southeast to between 1,000 and 5,000 milligrams per liter, or slightly to moderately saline, as the depth to the aquifer increases. Sulfate and chloride concentrations also tend*

to increase with depth. The Trinity Aquifer discharges to a large number of springs, with most discharging less than 10 cubic feet per second. The aquifer is one of the most extensive and highly used groundwater resources in Texas. Although its primary use is for municipalities, it is also used for irrigation, livestock, and other domestic purposes. Some of the state's largest water level declines, ranging from 350 to more than 1,000 feet, have occurred in counties along the IH-35 corridor from McLennan County to Grayson County. These declines are primarily attributed to municipal pumping, but they have slowed over the past decade as a result of increasing reliance on surface water. The regional water planning groups, in their 2006 Regional Water Plans, recommended numerous water management strategies for the Trinity Aquifer, including developing new wells and well fields, pumping more water from existing wells, overdrafting, reallocating supplies, and using surface water and groundwater conjunctively.

Figure 1 (taken from Wade and others, 2014) shows the limited extent of the Trinity Aquifer in GMA 12. Note that it occurs only in a small portion of Bastrop, Lee, and Williamson Counties.



I.

Figure 1. Location of Trinity Aquifer in GMA 12

III. AQUIFER CHARACTERISTICS

The Trinity Aquifer is a highly prolific aquifer across much of the northern part of the state. However, within GMA 12 it is only found at extreme depths in a very small portion of the GMA. There are no known wells in this area that produce from the Trinity, and therefore the aquifer characteristics within GMA 12 are unknown.

IV. GROUNDWATER DEMANDS AND CURRENT GROUNDWATER USES

The Texas Water Development Board pumping database lists limited pumping from the Trinity Aquifer in Williamson County that ranged from 1,353 and 3,116 acre-feet/year between 2007 and 2014. However, all of this is from the portion of Williamson County that lies outside of GMA 12. As noted above, there are no known wells producing from the Trinity Aquifer within GMA 12. The Texas Water Development Board pumping database shows no production from the Trinity Aquifer in Bastrop or Lee Counties.

V. TOTAL ESTIMATED RECOVERABLE STORAGE

Wade and others (2014) developed total estimated recoverable storage for the Trinity Aquifer in GMA 12 as follows:

County	*Total Storage (acre-feet)*	*25 percent of Total Storage (acre-feet)*	*75 percent of Total Storage (acre-feet)*
Bastrop	9,000,000	2,250,000	6,750,000
Lee	500,000	125,000	375,000
Williamson	1,600,000	400,000	1,200,000
Total	11,100,000	2,775,000	8,325,000

Total storage is given in the first column. Lower percentages of storage are given in the next two columns.

VI. EXPLANATION OF NON-RELEVANCE

Due to its very limited areal extent, extreme depth and no known use within GMA 12, the Trinity Aquifer is classified as not relevant for purposes of joint planning in Groundwater Management Area 12.

VII. REFERENCES

George, P.G., Mace, R.E., and Petrossian, R., 2011. Aquifers of Texas. Texas Water Development Board Report 380, July 2011, 182p.

Wade, S. and Shi, J., 2014. GAM Task 13-035 Version 2: Total Estimated Recoverable Storage for Aquifers in Groundwater Management Area 12. Texas Water Development Board, Groundwater Resources Division, May 16, 2014, 43p.

NON-RELEVANT AQUIFER:
THE YEGUA-JACKSON AQUIFER IN BASTROP AND LEE COUNTIES

I. INTRODUCTION

The Texas Water Development Board, in its July 2013 document, Explanatory Report for Submittal of Desired Future Conditions to the Texas Water Development Board, offers the following guidance regarding documentation for aquifers that are to be classified not relevant for purposes of joint planning:

> *Districts in a groundwater management area may, as part of the process for adopting and submitting desired future conditions, propose classification of a portion or portions of a relevant aquifer as non-relevant (31 Texas Administrative Code 356.31 (b)). This proposed classification of an aquifer may be made if the districts determine that aquifer characteristics, groundwater demands, and current groundwater uses do not warrant adoption of a desired future condition.*
>
> *The districts must submit to the TWDB the following documentation for the portion of the aquifer proposed to be classified as non-relevant:*
>
> 1. *A description, location, and/or map of the aquifer or portion of the aquifer;*
> 2. *A summary of aquifer characteristics, groundwater demands, and current groundwater uses, including the total estimated recoverable storage as provided by the TWDB, that support the conclusion that desired future conditions in adjacent or hydraulically connected relevant aquifer(s) will not be affected; and*
> 3. *An explanation of why the aquifer or portion of the aquifer is non-relevant for joint planning purposes.*

This technical memorandum provides the required documentation to classify the Yegua-Jackson Aquifer as not relevant for purposes of joint planning in Bastrop and Lee Counties (the Lost Pines GCD).

II. AQUIFER DESCRIPTION AND LOCATION

As described in George and others (2011):

> ***The Yegua-Jackson Aquifer*** *is a minor aquifer stretching across the southeast part of the state. It includes water-bearing parts of the Yegua Formation (part of the upper Claiborne Group) and the Jackson Group (comprising the Whitsett, Manning, Wellborn, and Caddell formations). These geologic units consist of interbedded sand, silt, and clay layers originally deposited as fluvial and deltaic sediments. Freshwater saturated thickness averages about 170 feet. Water quality varies greatly owing to sediment composition in the aquifer formations, and in all areas the aquifer becomes highly mineralized with depth. Most groundwater is produced from the sand units of the aquifer, where the water is fresh and ranges from less than 50 to 1,000 milligrams per liter of total dissolved solids. Some*

slightly to moderately saline water, with concentrations of total dissolved solids ranging from 1,000 to 10,000 milligrams per liter, also occurs in the aquifer. No significant water level declines have occurred in wells measured by the TWDB. Groundwater for domestic and livestock purposes is available from shallow wells over most of the aquifer's extent. Water is also used for some municipal, industrial, and irrigation purposes. The regional water planning groups, in their 2006 Regional Water Plans, recommended several water management strategies that use the Yegua-Jackson Aquifer, including drilling more wells and desalinating the water.

Figure 1 (taken from Wade and others, 2014) shows the limited extent of the Yegua-Jackson Aquifer in GMA 12.

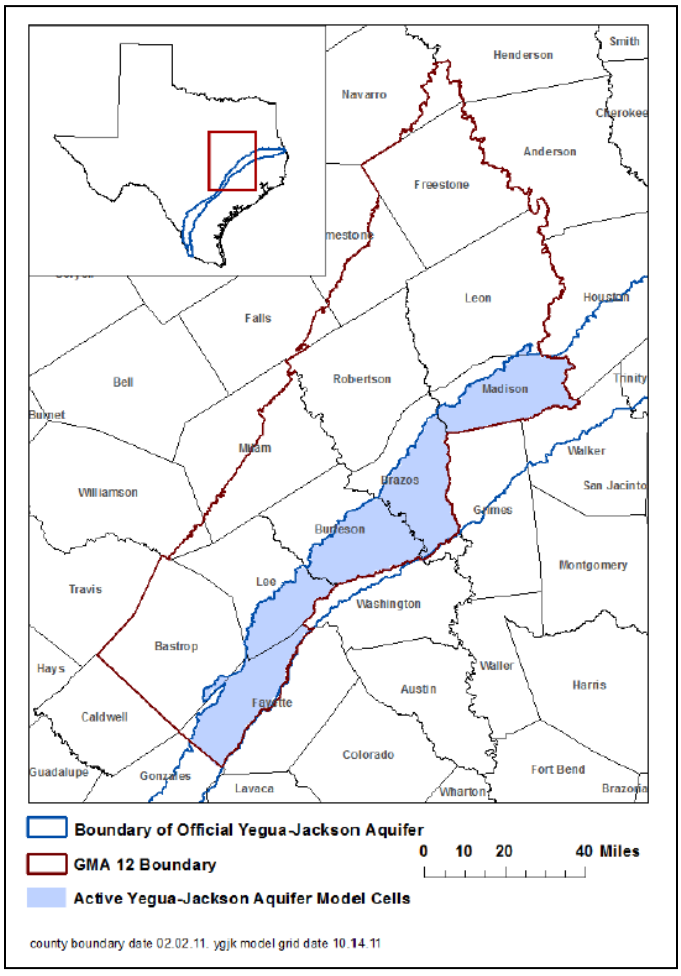


Figure 1. Location of Yegua-Jackson Aquifer in GMA 12

III. AQUIFER CHARACTERISTICS

The Yegua-Jackson Aquifer occurs in the very southern part of Bastrop County and the lower third of Lee County. The aquifer is described as interbedded layers of sand, silt, and clay with a capacity to yield small quantities of fresh to moderately saline water. Wells producing from the Yegua-Jackson Aquifer can produce as much as 500 gpm, although well capacities are typically much lower than that.

IV. GROUNDWATER DEMANDS AND CURRENT GROUNDWATER USES

The Texas Water Development Board pumping database lists limited pumping from the Yegua-Jackson Aquifer in Bastrop County that ranged from 2 to 3 acre-feet/year and 46 to 76 acre-feet/year in Lee County between 2007 and 2014. There is no permitted pumpage from the Yegua-Jackson Aquifer within the Lost Pines GCD and all use listed in the TWDB database is estimated to be rural domestic and livestock use.

V. TOTAL ESTIMATED RECOVERABLE STORAGE

Wade and others (2014) developed total estimated recoverable storage for the Yegua-Jackson Aquifer in the Lost Pines GCD as follows:

County	*Total Storage (acre-feet)*	*25 percent of Total Storage (acre-feet)*	*75 percent of Total Storage (acre-feet)*
Bastrop	290,000	72,500	217,500
Lee	10,000,000	2,500,000	7,500,000
Total	10,290,000	2,572,500	7,717,500

Total storage is given in the first column. Lower percentages of storage are given in the next two columns.

VI. EXPLANATION OF NON-RELEVANCE

Due to its very low use, lack of permitted production, and no anticipated permitted production in the future, the Yegua-Jackson Aquifer is classified as not relevant for purposes of joint planning in Bastrop and Lee Counties (the Lost Pines GCD) in Groundwater Management Area 12.

VII. REFERENCES

George, P.G., Mace, R.E., and Petrossian, R., 2011. Aquifers of Texas. Texas Water Development Board Report 380, July 2011, 182p.

Wade, S. and Shi, J., 2014. GAM Task 13-035 Version 2: Total Estimated Recoverable Storage for Aquifers in Groundwater Management Area 12. Texas Water Development Board, Groundwater Resources Division, May 16, 2014, 43p.

NON-RELEVANT AQUIFER: THE WILCOX PORTION OF THE CARRIZO-WILCOX AQUIFER IN FAYETTE COUNTY

I. INTRODUCTION

The Texas Water Development Board, in its July 2013 document, Explanatory Report for Submittal of Desired Future Conditions to the Texas Water Development Board, offers the following guidance regarding documentation for aquifers that are to be classified not relevant for purposes of joint planning:

> *Districts in a groundwater management area may, as part of the process for adopting and submitting desired future conditions, propose classification of a portion or portions of a relevant aquifer as non-relevant (31 Texas Administrative Code 356.31 (b)). This proposed classification of an aquifer may be made if the districts determine that aquifer characteristics, groundwater demands, and current groundwater uses do not warrant adoption of a desired future condition.*
>
> *The districts must submit to the TWDB the following documentation for the portion of the aquifer proposed to be classified as non-relevant:*
>
> 1. *A description, location, and/or map of the aquifer or portion of the aquifer;*
> 2. *A summary of aquifer characteristics, groundwater demands, and current groundwater uses, including the total estimated recoverable storage as provided by the TWDB, that support the conclusion that desired future conditions in adjacent or hydraulically connected relevant aquifer(s) will not be affected; and*
> 3. *An explanation of why the aquifer or portion of the aquifer is non-relevant for joint planning purposes.*

This technical memorandum provides the required documentation to classify the Wilcox portion of the Carrizo-Wilcox Aquifer in Fayette County as not relevant for purposes of joint planning.

II. AQUIFER DESCRIPTION AND LOCATION

As described in George and others (2011):

> ***The Carrizo-Wilcox Aquifer*** *is a major aquifer extending from the Louisiana border to the border of Mexico in a wide band adjacent to and northwest of the Gulf Coast Aquifer. It consists of the Wilcox Group and the overlying Carrizo Formation of the Claiborne Group. The aquifer is primarily composed of sand locally interbedded with gravel, silt, clay, and lignite. Although the Carrizo-Wilcox Aquifer reaches 3,000 feet in thickness, the freshwater saturated thickness of the sands averages 670 feet. The groundwater, although hard, is generally fresh and typically contains less than 500 milligrams per liter of total dissolved solids in the outcrop, whereas softer groundwater with total dissolved solids of more than 1,000 milligrams per liter occurs in the subsurface. High iron and*

manganese content in excess of secondary drinking water standards is characteristic of the deeper subsurface portions of the aquifer. Parts of the aquifer in the Winter Garden area are slightly to moderately saline, with total dissolved solids ranging from 1,000 to 7,000 milligrams per liter. Irrigation pumping accounts for slightly more than half the water pumped, and pumping for municipal supply accounts for another 40 percent. Water levels have declined in the Winter Garden area because of irrigation pumping and in the northeastern part of the aquifer because of municipal pumping. The regional water planning groups, in their 2006 Regional Water Plans, recommended several water management strategies that use the Carrizo-Wilcox Aquifer, including developing new wells and well fields, withdrawing additional water from existing wells, desalinating brackish water, using surface water and groundwater conjunctively, reallocating supplies, and
transporting water over long distances.

Figure 1 (taken from Wade and others, 2014) shows the extent of the Carrizo-Wilcox Aquifer in GMA 12.

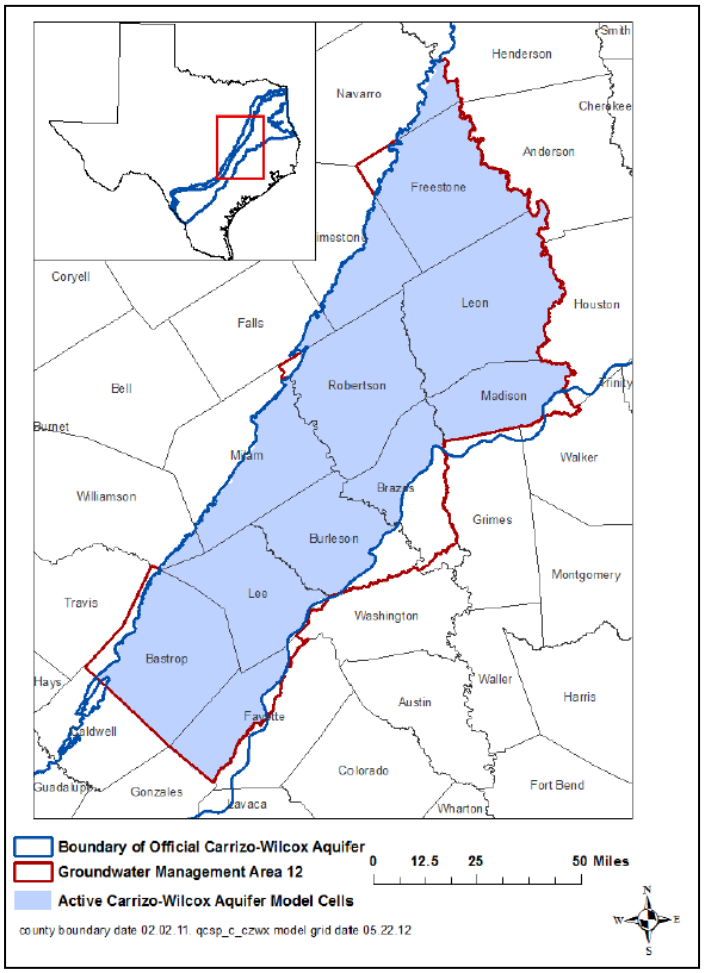


Figure 1. Location of Carrizo-Wilcox Aquifer in GMA 12

III. AQUIFER CHARACTERISTICS

The Wilcox portion of the Carrizo-Wilcox Aquifer occurs below the Carrizo Aquifer. In Fayette County, the depth of wells producing from the Carrizo Aquifer ranges from 1,700 to 3,200 feet. The Wilcox units (including the Calvert Bluff, Simsboro, and Hooper) occur below the Carrizo, and therefore wells producing from these units would be at least 2,000 feet deep. Water quality in these Wilcox units is estimated to be brackish to saline. There are no known wells in the Wilcox units within Fayette County, and therefore the aquifer characteristics within the county are unknown.

IV. GROUNDWATER DEMANDS AND CURRENT GROUNDWATER USES

The Texas Water Development Board pumping database lists limited pumping from the Carrizo-Wilcox Aquifer in Fayette County that ranged from 10 to 126 acre-feet/year between 2007 and 2014. However, this use is all from the Carrizo portion of the Carrizo-Wilcox Aquifer, as there are no known wells producing from the Wilcox units within Fayette County.

V. TOTAL ESTIMATED RECOVERABLE STORAGE

Wade and others (2014) developed total estimated recoverable storage for the Carrizo-Wilcox Aquifer in GMA 12 as follows:

County	*Total Storage (acre-feet)*	*25 percent of Total Storage (acre-feet)*	*75 percent of Total Storage (acre-feet)*
Fayette	95,000,000	23,750,000	71,250,000
Total	95,000,000	23,750,000	71,250,000

Total storage is given in the first column. Lower percentages of storage are given in the next two columns.

VI. EXPLANATION OF NON-RELEVANCE

Due to its extreme depth, poor water quality, lack of use and zero anticipated use in the future, the Wilcox portion of the Carrizo-Wilcox Aquifer is classified as not relevant for purposes of joint planning in Fayette County in Groundwater Management Area 12.

VII. REFERENCES

George, P.G., Mace, R.E., and Petrossian, R., 2011. Aquifers of Texas. Texas Water Development Board Report 380, July 2011, 182p.

Wade, S. and Shi, J., 2014. GAM Task 13-035 Version 2: Total Estimated Recoverable Storage for Aquifers in Groundwater Management Area 12. Texas Water Development Board, Groundwater Resources Division, May 16, 2014, 43p.

Appendix B

Evidence of Coordination with Surface Water Management Entities

Lost Pines Groundwater Conservation District
908 NE Loop 230
Post Office Box 1027
Smithville, TX 78957
Tax ID Number 74-2955722

512-360-5088
FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Region K Regional Water Planning Group
LCRA
Attn: Region K
Mailstop R325
P O Box 220
Austin, TX 78767-0220

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

Please do not hesitate to call if you have any questions.

Very truly yours,

James Totten
General Manager

Lost Pines Groundwater Conservation District
908 NE Loop 230
Post Office Box 1027
Smithville, TX 78957
Tax ID Number 74-2955722

512-360-5088
FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Brazos G Regional Water Planning Group
Mr. Trey Buzbee, Administrative Agent
Brazos River Authority
Ms. Jennifer White
c/o Brazos G Regional Water Planning Group
P O Box 7555
Waco, TX 76714

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

Please do not hesitate to call if you have any questions.

Very truly yours,

James Totten
General Manager

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908 NE Loop 230
Post Office Box 1027
Smithville, TX 78957
Tax ID Number 74-2955722

512-360-5088
FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Brazos River Authority
P O Box 7555
Waco, TX 76714

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

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Please do not hesitate to call if you have any questions.

Very truly yours,

James Totten
General Manager

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James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Lower Colorado River Authority
P O Box 220
Austin, TX 78767-0220

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

Please do not hesitate to call if you have any questions.

Very truly yours,

James Totten
General Manager

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908 NE Loop 230
Post Office Box 1027
Smithville, TX 78957
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512-360-5088
FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Bastrop West Water Company
379 Highway 95 N
Bastrop, TX 78602

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

Please do not hesitate to call if you have any questions.

Very truly yours,

James Totten
General Manager

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908 NE Loop 230
Post Office Box 1027
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512-360-5088
FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

City of Austin
P O Box 1088
Austin, TX 78767-1088

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

Please do not hesitate to call if you have any questions.

Very truly yours,

James Totten
General Manager

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512-360-5088
FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Southwest Milam WSC
P O Box 232
Rockdale, TX 78567

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

Please do not hesitate to call if you have any questions.

Very truly yours,

James Totten
General Manager

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Post Office Box 1027
Smithville, TX 78957
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512-360-5088
FAX: 512-360-5448
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James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Manville WSC
P O Box 248
Coupland, TX 78615-0248

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

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Very truly yours,

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General Manager

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James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Lincoln WSC
P O Box 336
Lincoln, TX 78948-0336

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

Please do not hesitate to call if you have any questions.

Very truly yours,

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General Manager

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908 NE Loop 230
Post Office Box 1027
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512-360-5088
FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

City of Lexington
P O Box 56
Lexington, TX 78947

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

Please do not hesitate to call if you have any questions.

Very truly yours,

James Totten
General Manager

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908 NE Loop 230
Post Office Box 1027
Smithville, TX 78957
Tax ID Number 74-2955722

512-360-5088
FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

City of Giddings
118 E Richmond St.
Giddings, TX 78942

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

Please do not hesitate to call if you have any questions.

Very truly yours,

James Totten
General Manager

Lost Pines Groundwater Conservation District
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Tax ID Number 74-2955722

512-360-5088
FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Polonia WSC
P O Box 778
Lockhart, TX 78644

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

Please do not hesitate to call if you have any questions.

Very truly yours,

James Totten
General Manager

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Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Lee County WSC
P O Box 8
Giddings, TX 78942

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

Please do not hesitate to call if you have any questions.

Very truly yours,

James Totten
General Manager

Lost Pines Groundwater Conservation District
908 NE Loop 230
Post Office Box 1027
Smithville, TX 78957
Tax ID Number 74-2955722

512-360-5088
FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

K & K Water Company
231 Mandy Lane
Red Rock, TX 78662

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

Please do not hesitate to call if you have any questions.

Very truly yours,

James Totten
General Manager

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512-360-5088
FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Creedmoor-MAHA WSC
12100 Laws Road
Buda, TX 78610-9607

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

Please do not hesitate to call if you have any questions.

Very truly yours,

James Totten
General Manager

Lost Pines Groundwater Conservation District
908 NE Loop 230
Post Office Box 1027
Smithville, TX 78957
Tax ID Number 74-2955722

512-360-5088
FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

City of Elgin
P O Box 591
Elgin, TX 78621

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

Please do not hesitate to call if you have any questions.

Very truly yours,

James Totten
General Manager

Lost Pines Groundwater Conservation District
908 NE Loop 230
Post Office Box 1027
Smithville, TX 78957
Tax ID Number 74-2955722

512-360-5088
FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

City of Bastrop
P O Box 427
Bastrop, TX 78602

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

Please do not hesitate to call if you have any questions.

Very truly yours,

James Totten
General Manager

Lost Pines Groundwater Conservation District
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Post Office Box 1027
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Tax ID Number 74-2955722

512-360-5088
FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Aqua WSC
P O Drawer P
Bastrop, TX 78602

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

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Very truly yours,

James Totten
General Manager

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FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Lee-Fayette Counties Cummins Creek WCID 1
P O Box 1026
LaGrange, TX 78945

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

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Very truly yours,

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Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Lee County FWSD 1
P O Box 74
Dime Box, TX 77853

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

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Very truly yours,

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General Manager

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Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

XS Ranch MUD
8500 Bluffstone Cove, Suite B 104
Austin, TX 78759

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

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General Manager

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Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

The Colony MUD IF
100 Congress Ave., Suite 1300
Armbrust & Brown LLP
Austin, TX 78701

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

Please take notice that on September 20, 2017, following notice and public hearing, the Board of Directors of the Lost Pines Groundwater Conservation District adopted an amended Management Plan. A copy of the amended and adopted Management Plan is enclosed for your review and comment, pursuant to 31 TAC §356.6(a)(4), concerning coordination with all surface water management entities in the District's boundaries.

Please do not hesitate to call if you have any questions.

Very truly yours,

James Totten
General Manager

Lost Pines Groundwater Conservation District
908 NE Loop 230
Post Office Box 1027
Smithville, TX 78957
Tax ID Number 74-2955722

512-360-5088
FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

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James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Bastrop County WCID 3
P O Box 1627
Bastrop, TX 78602

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James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Bastrop County WCID 1
P O Box 814
McDade, TX 78650

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Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Bastrop County WCID 2
P O Box 708
Bastrop, TX 78602

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FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Bastrop County MUD 1
3200 Southwest Freeway Suite 2600
Allen Boone Humphries Robinson LLP
Houston, TX 77027-7597

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

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Smithville, TX 78957
Tax ID Number 74-2955722

512-360-5088
FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

City of Smithville
P O Box 449
Smithville, TX 78957

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

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Smithville, TX 78957
Tax ID Number 74-2955722

512-360-5088
FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Forestar Group
6300 Bee Caves Rd.
Bldg, 2, Suite 500
Austin, TX 78746

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

Dear Sir or Madam:

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FAX: 512-360-5448
Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Griffin Industries, LLC
264 FM 2336
Bastrop, TX 78602

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

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James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Heart of Texas Suppliers
4605 Post Oak Pl., Ste. 212
Houston, TX 77027

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

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Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Hunters Crossing, LGC
P O Box 427
Bastrop, TX 78602

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

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Email: lpgcd@lostpineswater.org
Web Site: www.lostpineswater.org

James Totten, General Manager

September 27, 2017

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

Recharge Water LP
c/o Bryan Joiner
2104 Westridge Dr.
Plano, TX 75075

RE: Notice of Adoption of Amended Management Plan by Lost Pines Groundwater Conservation District

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Very truly yours,

James Totten
General Manager

Appendix C

Certified Copy of District Resolution Adopting Management Plan

No. 2017-09-01

RESOLUTION ADOPTING AMENDMENTS TO LOST PINES GROUNDWATER CONSERVATION DISTRICT'S MANAGEMENT PLAN

WHEREAS, the Board of Directors of the Lost Pines Groundwater Conservation District ("District") proposes to amend the District's Management Plan to be consistent with data used in the most recently adopted Texas State Water Plan ("Proposed Amendments") as required by Texas Water Code § 36.1071; and

WHEREAS, after proper notice under District Rule 14.1, the Board of Directors of the District (the "Board") held a public hearing on the Proposed Amendments at 7:00 p.m. on September 20, 2017, at the Bastrop City Hall in Bastrop, Texas; and

WHEREAS, the Board received no comments related to the Proposed Amendments; and

WHEREAS, at the same meeting on September 20, 2017, the Board closed the public hearing on the Proposed Amendments; and

WHEREAS, at the a Board meeting on September 20, 2017, upon considering the factors as set out in Chapter 36 of the Texas Water Code and the District Rules, the Board voted to approve the Proposed Amendments;

NOW, THEREFORE, BE IT RESOLVED by the Lost Pines Groundwater Conservation District that:

1. The District's Management Plan is amended to be consistent with the most recently adopted Texas State Water Plan and the Proposed Amendments attached hereto.

2. The General Manager is directed to update the District's Management Plan to reflect the revisions in the Proposed Amendments.

PASSED AND APPROVED ON September 20, 2017.

Mike Talbot, President

ATTEST:

Doug Prinz, Secretary-Treasurer

Appendix D

Evidence of Public Notice and Hearing on Management Plan

08/24/2017 11:16 9795422623 LEE COUNTY CLERK PAGE 01/01
AUG/24/2017/THU 11:16 AM FAX No. P. 002

LOST PINES GROUNDWATER CONSERVATION DISTRICT

NOTICE OF HEARING ON MANAGEMENT PLAN

TIME, DATE AND LOCATION
The Board of Directors of the Lost Pines Groundwater Conservation District ("District") will conduct a hearing on proposed revision and amendment of the Management Plan at:

7:00 p.m., September 20, 2017
Bastrop City Hall
1311 Chestnut Street
Bastrop, Texas 78602

BRIEF EXPLANATION OF SUBJECT OF HEARING
The proposed amendments to the District's existing Management Plan are related to updating data in the plan to be consistent with data used in the most recently adopted State Water Plan.

COPIES OF PROPOSED MANAGEMENT PLAN
The proposed Management Plan is available for review and copying at the District offices, 908 Loop 230, Smithville, Texas 78957, or at the District's website, www.lostpineswater.org.

WRITTEN AND ORAL COMMENTS
The District will accept written comments on the proposed Management Plan filed before or at the hearing. In addition, the District will accept oral comments at the hearing.

For additional information, please contact the District by calling 512-360-5088 or e-mailing lpgcd@lostpineswater.org.

Date: Aug. 24, 2017

Peggy Campion
Assistant Secretary

FILED AND RECORDED

AUG 24 2017

COUNTY COURT OF LEE COUNTY, TEXAS
Sharon Blasig
SHARON BLASIG
COUNTY CLERK, LEE COUNTY TEXAS

FILED

AUG 24 2017 11:40 AM

Rose Pietsch
Bastrop County Clerk

AUSTIN COMMUNITY NEWSPAPERS

PROOF OF PUBLICATION

STATE OF TEXAS

PUBLIC NOTICE

Before me, the undersigned authority, a Notary Public in and for the County of Bastrop, State of Texas, on this day personally appeared Alejandro Cado, Advertising Agent of the Bastrop Advertiser, which is a newspaper of general circulation published in the county of Bastrop in the state of Texas, who being duly sworn by me, states that the attached advertisement was published at the lowest published rate for Classified advertising in said newspaper on the following date(s), to wit, and that the attached is a true copy of said advertisement: the following date(s), LOST PINES GROUNDWATER CONSERVATION DISTRICT NOTICE OF HEARING ON MANAGEMENT PLAN TIME, DATE AND LOCATION The Board of Directors of the Lost Pines Ground, first date of Publication 08/31/2017, last date of Publication 08/31/2017, web and print times Published 1.

LOST PINES GROUNDWATER
CONSERVATION DISTRICT
PO BOX 1027
SMITHVILLE, TX 78957

Invoice/Order Number:	0000206592
Ad Cost:	$216.00
Paid:	$216.00
Balance Due:	$0.00

Signed _____
(Legal Advertising Agent)

Sworn or affirmed to, and subscribed before me, this 6th day of September, 2017 in Testimony whereof, I have hereunto set my hand and affixed my official seal, the day and year aforesaid.

Signed _____
(Notary)

ROSIE STEPHENS
Notary Public, State of Texas
Comm. Expires 09-26-2020
Notary ID 7831322

Please see Ad on following page(s).

LOST PINES GROUNDWATER
CONSERVATION DISTRICT
PO BOX 1027
SMITHVILLE, TX 78957

Invoice/Order Number:	0000206592
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Date: August 24, 2017
Peggy Campion
Assistant Secretary

8-31/2017
0000206592-01

STATE OF TEXAS
COUNTY OF LEE

BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED _____

Sloan Preuss, PUBLISHER OF THE GIDDINGS TIMES & NEWS, A WEEKLY NEWSPAPER PUBLISHED ON THURSDAY OF EACH WEEK AT GIDDINGS, LEE COUNTY, TEXAS WHO BEING BY ME DULY SWORN DECLARED THAT THE ATTACHED Notice of Hearing on Management plan WAS PUBLISHED 1 TIMES IN SAID NEWSPAPER. THE DATES OF SAID PUBLICATION BEING AS FOLLOWS:

August 31, 2017

AND THAT THE ATTACHED CLIPPING IS A TRUE COPY OF SAID PUBLICATION.

Sloan Preuss
EDITOR-PUBLISHER

CANDACE SCHUMANK
Notary Public, State of Texas
My Commission Expires
JULY 25, 2018

WITNESS MY HAND AND SEAL THIS 31 DAY OF August 20 17

Candace Schumank
NOTARY PUBLIC, LEE COUNTY, TEXAS

LOST PINES GROUNDWATER CONSERVATION DISTRICT

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Assistant Secretary

Lost Pines Groundwater