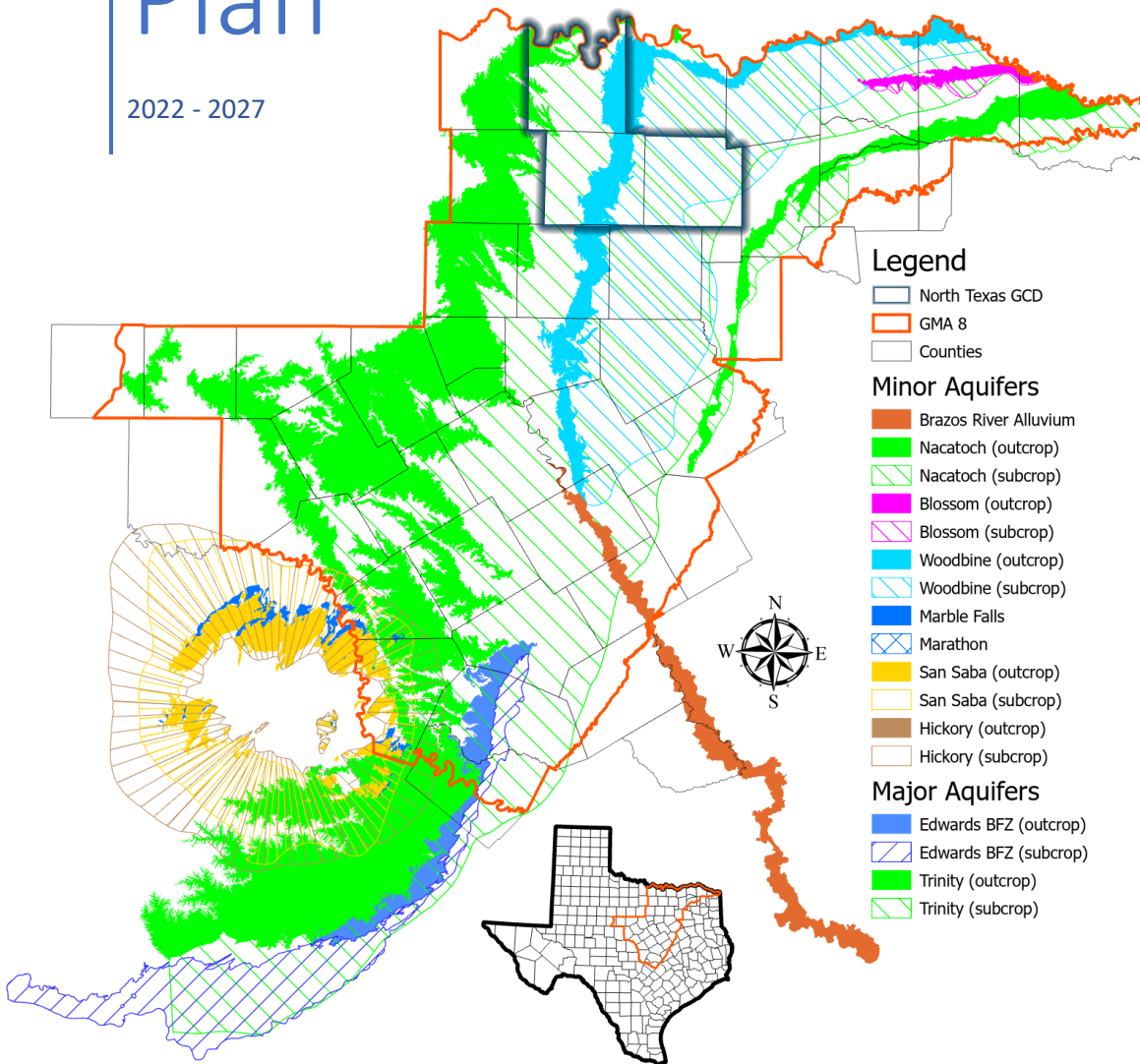


# 2022 Management Plan

2022 - 2027



Adopted: August 9, 2022



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## **INTRODUCTION**

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The North Texas Groundwater Conservation District (the District), after notice and hearing, adopts this Management Plan according to the requirements of Texas Water Code §36.1071. The North Texas Groundwater Conservation District Management Plan represents the management goals of the District for the next five years, including the desired future conditions of the aquifers within the jurisdictional boundaries of the District. These desired future conditions were adopted through the joint planning process in Groundwater Management Area 8 as prescribed in Chapter 36, Texas Water Code.

### **DISTRICT MISSION**

The mission of the District is to develop and adopt a management plan and develop and enforce rules to provide protection to protect existing wells and the rights of landowners, prevent waste, promote conservation, provide a framework that will allow availability and accessibility of groundwater for future generations, protect the quality of the groundwater in the recharge zone of the aquifers, ensure that the residents of Collin, Cooke, and Denton counties maintain local control over their groundwater, and operate the District in a fair and equitable manner for all residents.

### **STATEMENT OF GUIDING PRINCIPLES**

The District is committed to manage and protect the groundwater resources within its jurisdiction and to work with others to ensure a sustainable, adequate, high quality and cost-effective supply of water, now and in the future. The District will strive to develop, promote, and implement water conservation, augmentation, and management strategies to protect water resources for the benefit of the citizens, economy, and environment of the District. The preservation of this most valuable resource can be managed in a prudent and cost-effective manner through conservation, education, and management. Any action taken by the District shall only be after full consideration and respect has been afforded to the individual property rights of all citizens of the District.

## **HISTORY AND PURPOSE OF THE MANAGEMENT PLAN**

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The purpose of the management plan is to identify the goals of the District and to document the management objectives and performance standards that will be used to accomplish those goals.

The 75th Texas Legislature in 1997 enacted Senate Bill 1 (SB 1) to establish a comprehensive statewide water planning process. In particular, SB 1 contained provisions that require each groundwater conservation district (GCD) to prepare a management plan to identify the water supply resources and water demands that will shape the decisions of the GCD. SB 1 designed the management plans to include management goals for each GCD to manage and conserve the groundwater resources within their boundaries. In 2001, the Texas Legislature enacted Senate Bill 2 (SB 2) to build on the planning requirements of SB 1 and to further clarify the actions necessary for GCDs to manage and conserve the groundwater resources of the state of Texas.

The Texas Legislature enacted significant changes to the management of groundwater resources in Texas with the passage of House Bill 1763 (HB 1763) in 2005. HB 1763 created a long-term planning process in which GCDs in each Groundwater Management Area (GMA) were required

to meet and determine the Desired Future Conditions (DFCs) for the groundwater resources within their boundaries by September 1, 2010. In 2011, Senate Bills 660 and 737 further modified these groundwater laws and GCD management requirements in Texas.

Texas groundwater law is clear in establishing the sequence that a GCD is to follow in accomplishing statutory responsibilities related to the conservation and management of groundwater resources. The three primary steps, each of which must occur at least once every five years, are the following: (1) to adopt desired future conditions (Texas Water Code Section 36.108(c)), (2) to develop and adopt a management plan that includes goals designed to achieve the desired future conditions (Texas Water Code Section 36.1071(a)(8)), (3) to amend and adopt rules necessary to achieve goals included in the management plan (Texas Water Code Section 36.101(a)(5)).

Senate Bill 660 required that GMA representatives must participate within each applicable regional water planning group (RWPG). It also required the Regional Water Plans (RWP) be consistent with the DFCs in place when the regional plans are initially developed. TWDB technical guidelines indicate that the MAG volume (within each county and basin) is the maximum amount of groundwater that can be used for existing uses and new strategies in the Regional Water Plans. In other words, the MAG volumes are a cap on groundwater production for TWDB planning purposes.

“Managed available groundwater” was redefined as “modeled available groundwater” in Senate Bill 737 by the 82<sup>nd</sup> Legislature. Modeled available groundwater is “the amount of water that can be produced on an average annual basis” to achieve a desired future condition.

## **CRITERIA FOR PLAN APPROVAL**

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### **PLANNING HORIZON**

This management plan becomes effective upon adoption by the District Board of Directors and subsequent approval by the Executive Administrator of the Texas Water Development Board (TWDB). This management plan incorporates a planning period of five years in accordance with 31 Texas Administrative Code (TAC) §356.5(a).

### **PLAN ADOPTION**

Public notices documenting that the plan was adopted following appropriate public meetings and hearings are located in Appendix A: and Appendix B: Evidence that the Management Plan was Adopted.

### **COORDINATION WITH SURFACE MANAGEMENT ENTITIES**

A template letter transmitting copies of this plan to the surface water management entities in the District along with a list of the surface water management entities to which the plan was sent are located in Appendix C: Evidence that the District Coordinated Development of the Management Plan with the Surface Water Management Entities.

## DISTRICT INFORMATION

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### CREATION

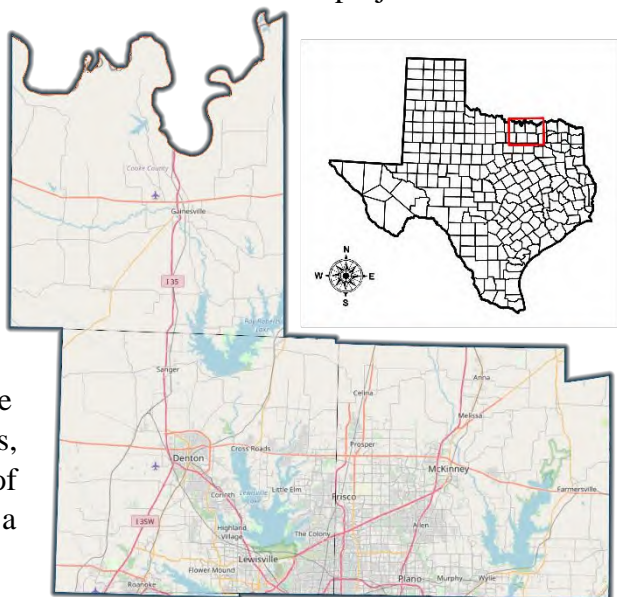
The District was created by the 81<sup>st</sup> Texas Legislature under the authority of Section 59, Article XVI, of the Texas Constitution, and in accordance with Chapter 36 of the Texas Water Code by the Act of May 27, 2009, 81<sup>st</sup> Leg., R.S., Chapter 248, 2009 Tex. Gen. Laws 686, codified at Texas Special District Local Laws Code Ann. Chapter 8856 (the District Act).

The District is a governmental agency and a body politic and corporate. The District was created to serve a public use and benefit and is essential to accomplish the objectives set forth in Section 59, Article XVI, of the Texas Constitution. The District's boundaries are coextensive with the boundaries of Collin, Denton, and Cooke counties, Texas (Figure 1) and all lands and other property within these boundaries will benefit from the works and projects that will be accomplished by the District.

The creation of the District was confirmed by the Commissioners Court of Collin County on August 10, 2009; the Commissioners Court of Denton County on August 11, 2009; and the Commissioners Court of Cooke County on August 10, 2009.

### LOCATION AND EXTENT

The District's boundaries are coextensive with the boundaries of Cooke, Collin and Denton Counties, Texas. The District covers an area of approximately 2,740 square miles. Figure 1 is a map of the District's jurisdiction.



*Figure 1: Map of the District's Jurisdiction.*

### DIRECTORS

The District is governed by a Board of Directors, which is comprised of nine appointed Directors, three from each of the three county commissioners courts comprising the District. Each county commissioners courts appoint a member to represent the largest municipal groundwater producer, other groundwater producers, and county representative.

### AUTHORITY AND FRAMEWORK

The District has the rights and responsibilities provided for in Chapter 36 of the Texas Water Code and Chapter 356, Title 31 of the Texas Administrative Code. The District is charged with conducting hydrogeological studies, adopting a management plan, providing for the permitting of certain water wells and implementing programs to achieve statutory mandates. The District has rulemaking authority to implement the policies and procedures needed to manage the groundwater resources of Cooke, Collin and Denton counties.

## POPULATION

Primary activities involved in the development of a water resources management plan include the analysis and development of projections of population, historical and current water use, and water demands in the future (for a defined period of time). In order to develop projections for how much water supply we will need in the future, three questions must be answered: (1) how many people are there now and how much water has been used in the recent past, (2) how many people will there be in the future (population projections), and (3) how much water will be required to meet the needs of the projected population and other water use sectors in the future. These analyses to develop water demand projections are primarily conducted in Texas as part of the regional water supply planning process (created by the 75<sup>th</sup> Texas Legislature through the passage of Senate Bill 1 in 1997). Water demand projections are developed for the following water user categories; municipal, rural (county-other), irrigation, livestock, manufacturing, mining, and steam-electric power generation.

Based on the 2021 Region C Water Plan, the population projection for the District for 2020 was 1,982,742 increasing 231% to 4,581,579 in 2070 (Figure 2).

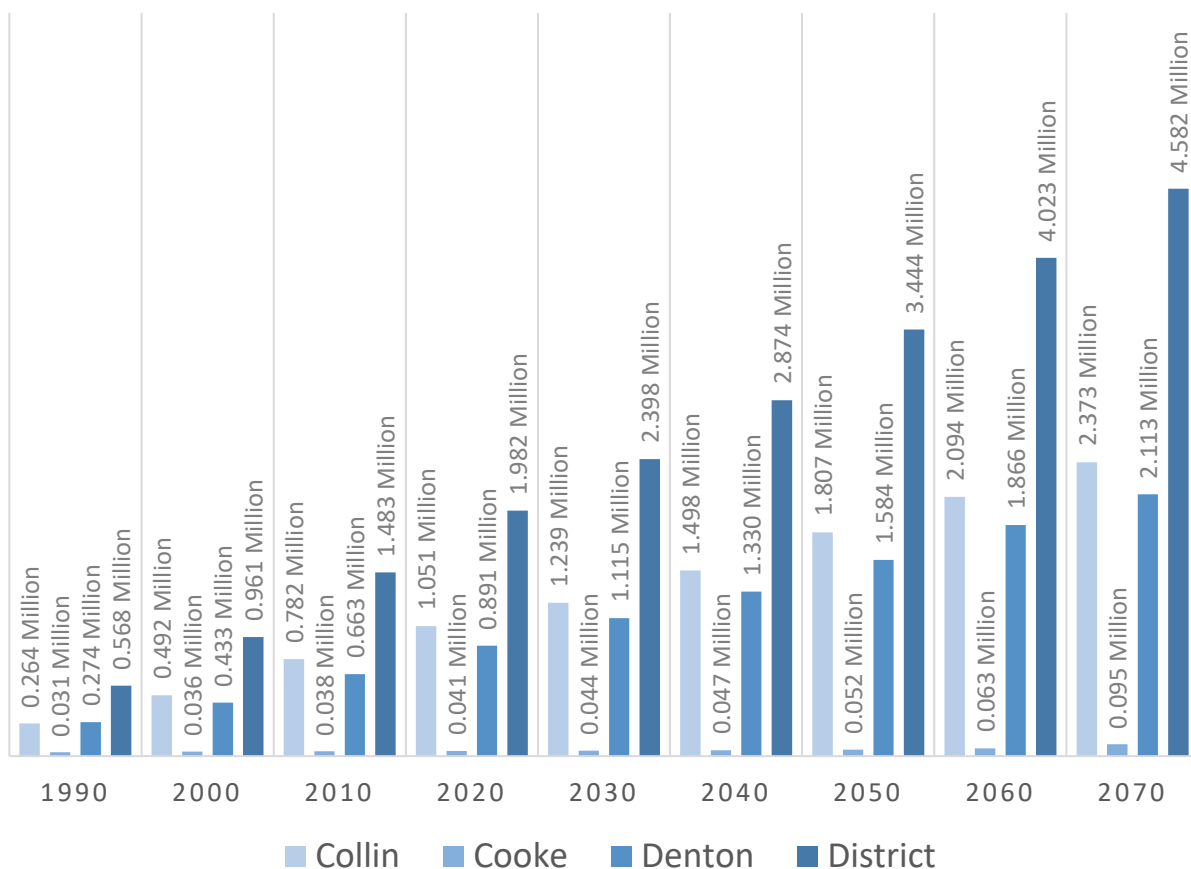


Figure 2: Population Trends



## DISTRICT RULES AND MANAGEMENT OF GROUNDWATER

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With substantial input and feedback from stakeholders, the District’s Board of Directors established the District’s Rules in accordance with state law to successfully implement the management plan. The Rules are strictly and fairly enforced. The District may amend the Rules as necessary to comply with changes to Texas law and to ensure the best management of the groundwater within the District. The Rules govern the management strategies of the District, including, but not limited to, well registration, permitting, well spacing, production limitations, water production reporting and fees, waste of groundwater, and achieving DFCs. The District executes its responsibilities with transparency and places stakeholder involvement as a priority. All District documents are made available to the public pursuant to the Texas Public Information Act. In addition to the District’s management plan, the District’s Rules can be obtained online from the District’s website: [www.northtexasgcd.org](http://www.northtexasgcd.org) and from the District’s office.

## GENERAL GEOLOGY AND HYDROLOGY

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A summary review of the hydrogeology and water resources of the North Texas region that includes the District is presented here to understand better the current “state of groundwater science” and to provide information necessary to develop a strategic plan for future technical efforts by the District. An understanding of currently available groundwater science in the District is important for a number of reasons including:

- Understanding the quantity and quality of groundwater resources available to meet current and future water supply needs of the different water use sectors present,
- Understanding the effects of changing conditions, such as population growth, shifting industrial demands, and climate variability on the availability of and demand for groundwater resources,
- Determining the temporal and spatial variability of aquifer dynamics so that adequate monitoring programs may be designed and implemented, and
- Determining areas of groundwater science for which current information is inadequate to make informed policy decisions, so that additional scientific investigations may be pursued to address targeted scientific deficiencies.

Recent scientific efforts have included significant literature reviews of the hydrogeology and water resources for the Northern Trinity and Woodbine aquifers. For example, Bene and others (2004) discuss the research results of over 46 different studies that were utilized in developing the most recent groundwater availability model for the Northern Trinity and Woodbine aquifers. With respect to the District, the most notable conclusion that can be drawn from Bene and others (2004) is that while the area within the District has been included in a number of regional groundwater water resources investigations, the area has never been the primary or sole focus of such a hydrogeology/water resource study. As the District works in the future to evaluate and adopt desired future conditions during future joint-planning efforts, it is clear that certain site-specific studies will be necessary in order to ensure that these critical policy decisions are based on adequate sound science.

## PREVIOUS STUDIES, OVERVIEW, AND CURRENT UNDERSTANDING OF THE HYDROGEOLOGY OF THE NORTHERN TRINITY AND WOODBINE AQUIFERS IN THE DISTRICT

The vast majority of historical groundwater studies in the District may be divided into four categories; (1) water resources evaluations in support of regional water supply assessments conducted to support the need for large water supply projects and state water planning prior to 1985, (2) studies related to the Critical Area process required with the passage of House Bill 2 in 1985 and the Priority Groundwater Management Area process required with the passage of Senate Bill 1 in 1997, (3) regional water planning efforts required by the passage of Senate Bill 1 in 1997, and (4) groundwater availability modeling efforts for the Northern Trinity and Woodbine aquifers required by the passage of Senate Bill 2 in 2001 and in support of the Groundwater Management Areas/Joint Planning process resulting from the passage of House Bill 1763 in 2005.

For more than a century, there have been a number of regional studies related to the occurrence and availability of groundwater from the Northern Trinity and Woodbine aquifers. The following studies, which only represent a small fraction of the available literature, were reviewed in order to identify availability of information from those regional studies that would benefit the District and to identify any technical gaps that may exist.

In the earliest phase of groundwater development in North Texas (1880s to early 1900s), the science of groundwater hydrology was still poorly understood. The Trinity Aquifer was so charged with groundwater that many early wells flowed at the land surface (Hill, 1901; Mace and others, 1994) (Figure 3). This condition of flowing wells results when groundwater pressure (also known as artesian pressure) builds up under a confining layer. Groundwater pressure also increases with depth because of the weight of the water column confined between rock layers and in some cases, from the weight of the overlying geologic formations. The flowing well penetrates the overlying layers and provides a conduit for flow to the surface and pressure release. Decreasing fluid pressure in the aquifer causes water-level declines (drawdown) in wells. Hundreds of flowing wells were drilled in North Texas in the late 1800s and allowed to flow freely at the surface. At the time this was a novelty (“geysers”), and much of the groundwater was wasted. These wells experienced rapid pressure declines, and most had stopped flowing by 1914 (Leggatt, 1957). Groundwater use declined after 1914 as surface water (impounded lakes) began to be developed (Bene and others, 2004).

By the mid-1900s the population of North Texas was growing, and groundwater use was again increasing. By the 1930s groundwater science had progressed greatly. Methods were developed for calculating productivity (yield) and water-level declines from data collected in water wells. The Texas Board of Water Engineers (predecessor agency to the TWDB) began compiling groundwater data from many Texas counties with the notable exception of the counties in the District. Texas Board of Water Engineers reports emphasized dramatic drawdowns that had already occurred in the North Texas region and documented the relationship between pumping and water level decline. Hundreds of feet of drawdown were common in the Dallas-Ft. Worth area at rates up to 20 feet per year (Bene and others, 2004). In

spite of the efforts of the Texas Board of Water Engineers, few water-level measurements were recorded in wells in the District prior to 1960 (Figure 4).

Also, by the mid-1900s, the geology of North Texas aquifers was becoming increasingly well understood (see summaries in Nordstrom [1982] and Bene and others [2004]). Aquifer geology describes the rock units making up the container that holds the groundwater. Groundwater is present in pores and cracks within the rocks and flows through an interconnected system. The ability of rock layers to store and transmit groundwater varies – aquifers readily store and transmit water, whereas aquitards lack well-interconnected pore systems and therefore inhibit groundwater flow. Geologic studies revealed that the Trinity and Woodbine rock formations are the primary aquifers in North Texas and that they are enclosed in aquitard formations. Thus, the Northern Trinity and Woodbine aquifers are confined by aquitards (confining layers) (Figure 5 and Figure 6). Near land surface, where the upper part of the aquifer is exposed (outcrops), a water table develops that separates saturated (below) from unsaturated (above) parts of the aquifer. The level of the water table corresponds to the volume of groundwater in the aquifer outcrop. Deeper underground, however, the entire aquifer is usually saturated, and fluid pressure corresponds to groundwater volume. Groundwater pumping results in the lowering of water levels in wells, which corresponds directly to lower fluid pressure in the aquifer. The science of hydrogeology encompasses both groundwater (the liquid resource) and aquifer properties (the container). The main data types used to characterize groundwater resources are measured in wells: water levels to quantify volume and pumping tests to quantify yield (flow rate into wells) and aquifer properties such as hydraulic conductivity and storativity. During the 1960s and 1970s, numerous scientific and economic groundwater studies by state agencies and universities included systematic data collection from Texas aquifers and increased the number of water levels measured in the District (Figure 7). Groundwater-use data were also beginning to be collected systematically by the TWDB and other government agencies. Groundwater data and conditions during this period were documented by Nordstrom (1982). By the 1960s and 1970s, North Texas was becoming a major population center and a key focus of water planning efforts by the state through the efforts of the TWDB.

Nordstrom (1982) is one of the classic regional hydrogeologic/water resources investigations available, containing information on 22 counties in the North-Central Texas region including the entire District. Nordstrom (1982) also provides early estimates of historical groundwater use and future availability. Even more notable is the inclusion of pumping tests in this report from throughout the region. Specific to the District, results from 5, 8, and 10 pumping tests in Collin, Cooke, and Denton counties respectively, are included in the report (Figure 8). Analyses for yield, transmissivity, specific capacity, and hydraulic conductivity are provided for most of these tests. In the District, no additional pumping test analyses became available between the time of Nordstrom's study (1982) and the development of the Northern Trinity and Woodbine groundwater availability model (GAM) (Bene and others, 2004). Aquifer properties input to the GAM are based mainly on Nordstrom's (1982) data. Future technical studies by the District will need to take advantage of and add to Nordstrom's (1982) valuable data set of aquifer tests.

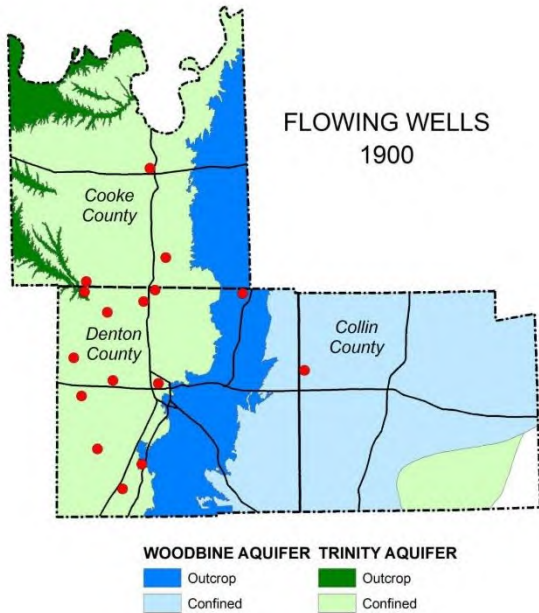


Figure 3: Location of wells flowing at the land surface in 1900 (Hill, 1901).

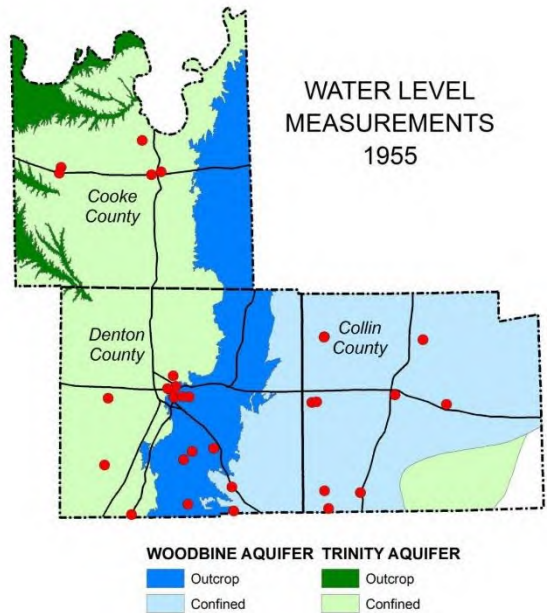


Figure 4: Location of wells having water-level measurements taken in 1955 (Nordstrom, 1982).

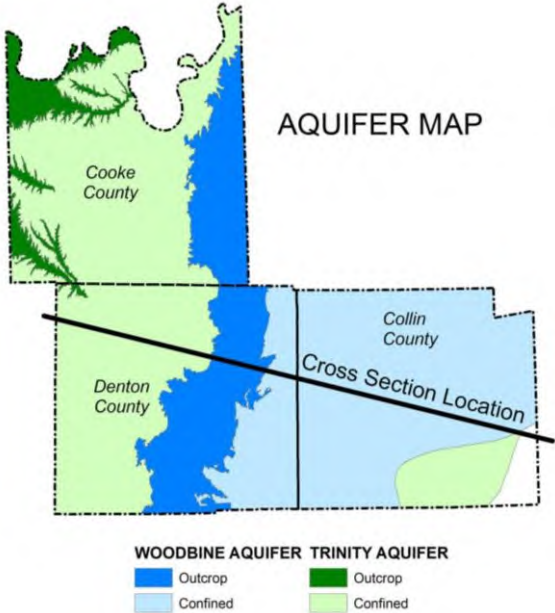


Figure 5: Aquifer Map

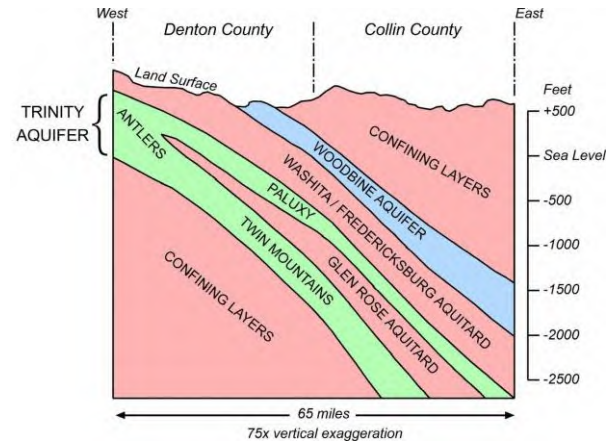


Figure 6: Cross section of the Trinity and Woodbine aquifers in the North Texas GCD.

Groundwater data (primarily water levels and water quality) have been collected by the TWDB and its predecessor and partner agencies from water wells throughout Texas since the early 1900s (Rein and Hopkins, 2008). Groundwater data collected before 1988 primarily represent one-time visits to wells and springs, but since then, monitoring programs have been established to record data annually in the same observation wells. Systematically revisiting the same wells is critical for establishing historical trends in groundwater conditions. Historical trend data track changes through time and can be used to make future projections. Historical trends in groundwater

conditions are necessary input data for groundwater availability modeling. Many agencies and stakeholders cooperate with the TWDB to collect the measurements that go into the TWDB groundwater database: Texas Commission on Environmental Quality, U.S. Geological Survey, GCDs, water-supply corporations, municipalities, individual landowners, and other entities. GCDs actually provide the majority of water-level measurements in the TWDB groundwater database. In 2010, the counties of the District contained 555 wells having water levels in the TWDB database, but only 39 of these were observation wells (Figure 9). In 2015, there were 24 TWDB wells in the District for which 2015 water level data were available (Figure 10). These water level data are useful for the evaluation of “state of the aquifer” conditions relative to the DFCs.

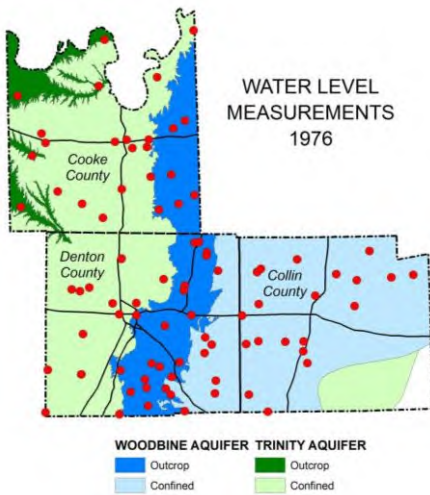


Figure 7: Location of wells having water-level measurements taken in 1976 (Nordstrom, 1982).

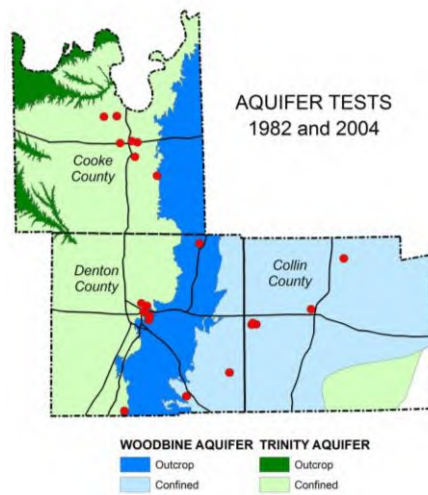


Figure 8: Location of wells having pumping test data reported by Nordstrom (1982) and used by Bene and others (2004) in the Northern Trinity/Woodbine GAM.

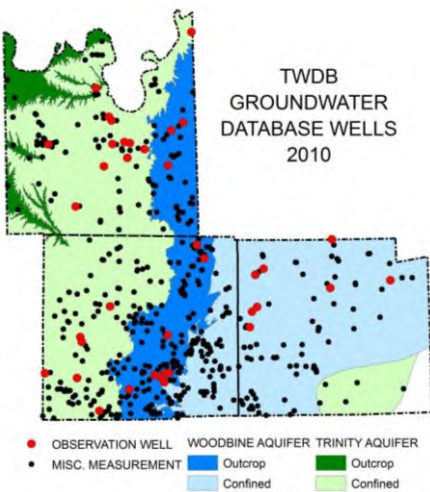


Figure 9: Location of wells having water-level measurements in the TWDB groundwater database. Observation wells that are monitored annually are shown in red.

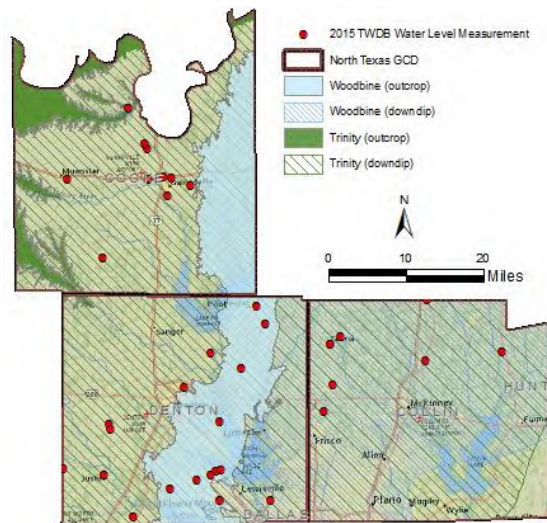


Figure 10: Location of wells having water-level measurements in the TWDB database in year 2015.

Since the passage of House Bill 2 in 1985, the reliability and vulnerability of groundwater resources in North-Central Texas have been a priority issue for the Texas Commission on Environmental Quality and its predecessor agencies. Specifically, the issue of focus has been areas of the state that are experiencing or are expected to experience critical groundwater problems in the next 20-25 years. As required by statute, the region, as a result of recognized critical groundwater problems, has been the subject of multiple studies and reviews to evaluate the status of groundwater resources in this area. Baker and others (1990) conducted the first study as a result of the critical area process. This report highlights the declines in water-level elevations between 1976 and 1989 in the Antlers and Twin Mountain aquifers from 100 to 250 feet with declines in the Paluxy and Woodbine aquifers being up to 150 feet. Baker and others (1990) also noted concerns regarding water quality in the region, some of which were naturally occurring, while others were suggested to be the result of poor well completion techniques, leaking underground petroleum storage tanks, brine contamination resulting from oil and gas activities, and industrial activities in the outcrop/recharge areas. It is interesting to note that in this study, the conclusion is drawn that if additional surface water supplies are not developed by 2010, some rural areas in the region could face water supply shortages. No groundwater availability estimates specific to the area covered by the District were included in the report. However, one significant finding was that even in 1985 (the period during which data for this report was primarily collected) it was estimated that groundwater demands for the study area were 110,000 acre-feet per year, which was estimated to be 44 percent greater than the annual recharge for the study area, which was estimated to be 76,000 acre-feet per year.

Baker and others (1990) emphasize groundwater sources (recharge), occurrence (location and movement of groundwater), and discharge (natural and pumpage). Much of the science presented by Baker and others (1990) summarizes and updates Nordstrom (1982). New material presented by Baker and others (1990) concerns groundwater use, availability, and related problems. The primary source of groundwater in North Texas is recharge from precipitation on the outcrop. In the District, average annual precipitation ranges from 35 to 40 inches per year. Most precipitation runs off the surface, evaporates, or is used by plants (transpiration), aquifer recharge being only a small fraction of precipitation. Surface-water seepage from lakes and streams on the aquifer outcrop provides a secondary source of recharge.

Water recharged to an aquifer is held in storage. Pumping tests measure aquifer storage: specific yield in outcrop and storativity in the confined part. In the aquifer outcrop water levels remain relatively constant. Lowering of the water table in outcrop requires complete dewatering of the upper part of the aquifer, effectively emptying the porous volume of the rock. Specific yield is a measure of aquifer porosity, which is 15 to 25 percent (of total rock volume) in the Trinity Aquifer and closer to 15 percent in the Woodbine Aquifer (Nordstrom, 1982). In the confined part of the aquifer, groundwater is under pressure, and storativity relates water volume to pressure decline. Much less water is available by pressured decline than by dewatering, but pressure declines have a dramatic effect on water levels in wells. Pumping-induced pressure declines, causing drawdowns of hundreds of feet, have been a major groundwater resource problem in North Texas (Baker and others, 1990).

The movement of groundwater through an aquifer is controlled by pressure gradient (from high to low pressure) and by the ease with which water flows through the aquifer pore system.

Pumping tests measure hydraulic conductivity (rate of flow) and transmissivity (volume of flow). Along with storage, hydraulic conductivity and transmissivity control how much water a well will produce for a given amount of drawdown (specific capacity or well yield). Because hydraulic conductivity and transmissivity are highly variable in the Trinity and Woodbine aquifers (Nordstrom, 1982), additional pumping test data will be needed to adequately characterize groundwater flow throughout the District.

The main groundwater resource problems identified by Baker and others (1990) are water-level declines and localized water-quality issues. Local water-level declines occur when pumpage exceeds flow rates in the aquifer, causing large drawdowns around wells (cones of depression). Cones of depression have been common around pumping centers in North Texas since the early 1900s (Mace and others, 1994). Cones of depression increase the cost of groundwater, because pumps must be lowered, well yields decrease, and it takes more energy to lift the water to the surface. Regional water-level declines occur when discharge (primarily from pumpage) exceeds recharge over large areas. Regional declines effectively mine the aquifer and are not sustainable over the long term.

In response to Senate Bill 1 passed by the Texas Legislature in 1997, Langley (1999) updated the analysis of Baker and others (1990) and addressed the potential for critical water resource problems in North-Central Texas in the following 25 years. Water levels remained relatively stable in the District during the 1990s. Southern Denton County experienced rising water levels in the Twin Mountains Aquifer due to decreased pumping in the Dallas - Ft. Worth area, but water levels in the Paluxy and Woodbine aquifers declined slightly in parts of Denton and Collin counties. Although water-level declines were less during 1989–1997 than during 1966–1989, groundwater use still exceeded availability in Cooke and Denton counties (Langley, 1999). Langley (1999) projections suggest that adequate supplies of groundwater plus surface water exist to meet demands through 2030 and that groundwater use will decline through conservation and conversion to surface water. In the District, however, these projections are based on a small number of wells and therefore subject to significant uncertainty.

Ashworth and Hopkins (1995) provide a general overview of the major and minor aquifers of Texas. In their report, regional characteristics and locations of the Trinity and Woodbine aquifers are presented. This report has served as a standard reference for subsequent hydrogeologic publications and planning documents such as the state water plan with respect to the recognized locations of the aquifers in Texas. The informative “atlas” nature of this report will be a good model for the District as it works to develop more locally- detailed information to educate the general public. This ‘atlas’ was updated in 2011 (George, and others, 2011).

The area covered by the District has now been the subject of four regional water plans, the 2001, 2006, 2011, and 2016 Region C Water Plans. Region C Water Plans summarize groundwater conditions in the Trinity and Woodbine aquifers within the region. The 2001 and 2006 Region C Water Plans include essentially identical aquifer information, much of which was

derived from Nordstrom's comprehensive study (Nordstrom, 1982). The 2001 and 2006 Region C Water Plans emphasize Nordstrom's finding that annual pumpage is greater than aquifer recharge. Overdevelopment of aquifers and resulting water-level declines pose the greatest threat to small water suppliers and rural households. The 2001 and 2006 Region C Water Plans describe water quality as generally acceptable in the Trinity and Woodbine aquifers, although poor water quality occurs locally, and the deeper parts of both aquifers have higher concentrations of dissolved solids.

The 2006 and 2011 Region C Water Plans relied in part on the Northern Trinity/Woodbine GAM and accompanying report (Bene and others, 2004) for aquifer conditions. As reported in the 2006 Region C Water Plan, GAM simulations in 2004 (Bene and others, 2004) showed that groundwater availability in Cooke County is less than estimated in the 2001 Region C Water Plan and that over drafting is occurring in that county. GAM simulations in 2004 also showed that groundwater use in Denton County exceeds the estimated reliable long-term supply (Bene and others, 2004).

The 2011 Region C Water Plan documents that groundwater use in 2006 exceeded the managed (now referred to as modeled) available groundwater estimates in certain Region C counties, including Collin County (Mullican, 2011). Cooke County groundwater use in 2006 was close to but did not exceed managed available groundwater. The 2011 Region C Water Plan states that temporary groundwater over drafting may be necessary while other water supplies are developed. However, it is important to note that while the concept of temporary over drafting has been a common strategy utilized by regional water planning groups to meet certain water supply needs in the 2001, 2006, and 2011, in the 2016 round of regional water planning, planned over drafting (the volume of groundwater utilized in a regional water plan is greater than the modeled available groundwater estimate) was not allowed. Under rules that have been developed to implement House Bill 1763, enacted by the Texas Legislature in 2005, the use of more groundwater in regional and state water planning than is determined to be available through the joint-planning process as expressed by the estimate of modeled available groundwater will result in a conflict, and prevent the approval of regional water plans by the TWDB. Therefore, either in the 2016 Region C Water Plan or in the desired future conditions adopted for GMA 8 by 2016, the volume of groundwater available to meet future water supply needs was revised so that conflicts did not exist.

Development of brackish groundwater is considered in the Region C Water Plan. Although GAMs to determine brackish groundwater availability have not yet been developed, preliminary analysis by the TWDB indicates approximately 85 million acre-feet of brackish groundwater supply may be present in Region C. Further study, perhaps through coordinated efforts of the GCDs, is needed to identify brackish groundwater resources and to deal with water-quality issues.

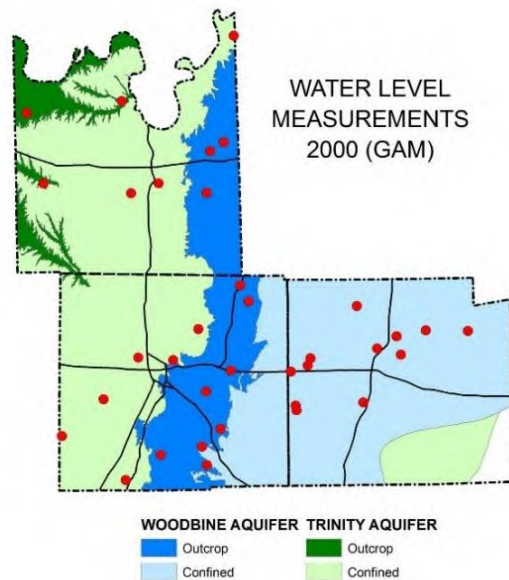
In general, all Region C Water Plans (2001, 2006, 2011, 2016, and 2021) describe the *current* state of fresh groundwater use to be close to long-term sustainable availability. Most water management strategies in the Region C Water Plans emphasize increasing surface water supplies while conserving groundwater supplies. The 2021 Plan indicates that currently available supplies are almost constant over time at 1.7 million acre-feet per year, as sedimentation in



reservoirs is offset by increases in reuse supplies due to increased return flows. With the projected 2070 demand of 2.9 million acre-feet per year, the region has a shortage of 1.2 million acre-feet per year by 2070. Meeting the projected shortage and leaving a reasonable reserve of planned supplies beyond projected needs will require the development of significant new water supplies for Region C over the next 50 years.

### GROUNDWATER AVAILABILITY MODELING EFFORTS FOR THE NORTHERN TRINITY AND WOODBINE AQUIFERS

One of the initial developments to result from the initiation of regional water planning in Texas was the realization that the science and quantification of Texas' surface water and groundwater resources was not sufficiently accurate to meet the requirements of the planning process. As a result, new surface water availability models, referred to as WAMs, were developed by the Texas Commission on Environmental Quality and groundwater availability models, referred to as GAMs, were developed by the Texas Water Development Board. The GAM Program has resulted in significant advancement of our understanding of groundwater resources throughout Texas. GAMs are numerical computer models that produce three-dimensional simulations of groundwater systems that track the “water budget” (inflow, storage, outflow) and spatially distribute aquifer properties (flow rates, volumes, and directions). Once the GAM is calibrated using historical water use and aquifer property data (such as water levels through time), it can then be used to test and evaluate future water use scenarios.



*Figure 11: Location of wells having water-level measurements taken in 2000 that were used in the Northern Trinity/Woodbine GAM (Bene and others, 2004).*

Bene and others (2004) constructed the first regionally comprehensive GAM for the Northern Trinity and Woodbine aquifers in Texas. It is important to note that “Bene and others (2004)” is not the GAM itself but is the technical report that describes the GAM and summarizes, from a regional perspective, relevant data and analyses that were used to build a conceptual model of the Northern Trinity and Woodbine aquifer system. The conceptual model utilized in the

development of the model ideally includes everything affecting groundwater conditions: physiography, climate, geology, water quality, water levels, aquifer properties, recharge, surface-water/groundwater interaction, and discharge (evapotranspiration and pumpage). The design of the GAM is based as closely as possible on the conceptual model. The computer model divides the real world (i.e., the conceptual model) into cells that, in the case of the Northern Trinity and Woodbine aquifer GAM, are one square mile in area and several hundred feet thick. The thickness of the cells is controlled by aquifer layering. The Northern Trinity and Woodbine GAMs contain seven layers of cells representing all of the aquifers and aquitards in the area (see Figure 16, Figure 17, and Table 1). By making the model cells this large (1 square mile), the GAM often times does not do a good job of modeling or predicting local groundwater conditions, rather the GAM is specifically designed to better understand regional trends. Smaller model cells for an area as large as the area covered by the Northern Trinity and Woodbine GAM, however, would require massive amounts of computing power to run the GAM. Furthermore, the regional nature of the available data (widely spaced measurements) would not support a higher resolution model. One solution to the inherent resolution problem of the GAM would be to build a geographically smaller, more focused GAM based on more closely spaced well data for the area covered by the District.

As was the case with previous regional groundwater studies in North Texas, the GAM-related data are especially sparse in the counties of the District. Water-level data for the year 2000, for example, actually include fewer measurements than Nordstrom (1982) used for 1976 (compare Figure 7 and Figure 11) and the GAM used the same aquifer pumping tests reported by Nordstrom (1982).

### **UPDATED GROUNDWATER AVAILABILITY MODEL OF THE NORTHERN TRINITY AND WOODBINE AQUIFERS**

The purpose of the latest model update was “to make improvements to the original 2004 GAM by Bené and others (2004), including incorporation of data collected after the 2004 GAM was developed and results from recent studies in the region, and implementation of the model at a scale that better bridges the gap between regional models and a model that can be used at the scale of a typical GCD for pursuit of their groundwater management objectives. This study provides a model that has been calibrated across the entire period of record through 2012, which is a benefit to GCDs, Groundwater Management Area (GMA) 8, and stakeholders. This study provides significant advancement in the hydrogeological framework and understanding of these aquifers.”

The updated GAM and the information collected and interpreted to support the study provide GCDs with the best available science to inform final rule making, groundwater management within GCD boundaries, and joint planning. The data collected and made public from this study provides a wealth of knowledge to support GCDs in local-scale hydraulic calculations with analytic tool to address such issues as well spacing.

The latest GAM update (Kelley and others, 2014) introduced hydrostratigraphic regions for the Trinity Group formations encompassed by the Northern Trinity GAM (Figure 12). The regions are delineated based on stratigraphic and lithologic similarities (Figure 13).

According to the GAM, Region 1 includes the western and northwestern portions of the model's study area in Texas, Oklahoma and Arkansas, and consists of undifferentiated sandstones and shales referred to as the Antlers Formation, which is locally referred to as the Antlers Aquifer.

Region 2 lies south and east of Region 1. In this region, limestones of the Glen Rose Formation separate the sandstones in the upper portion of the northern Trinity Group from the undifferentiated sandstones and shales in the lower portion of the northern Trinity Group (Figure 14). The boundary between Regions 1 and 2 is defined by a lithological transition between thinly interbedded sandstone and shale in the northwest and thick limestones of the Glen Rose Limestone that exist elsewhere else in the model study area.

In Region 2, the upper sandstones (above the Glen Rose Limestone) are referred to as the Paluxy Formation. The undifferentiated lower sandstones and shales (below the Glen Rose Limestone) are referred to as the Twin Mountains Formation.

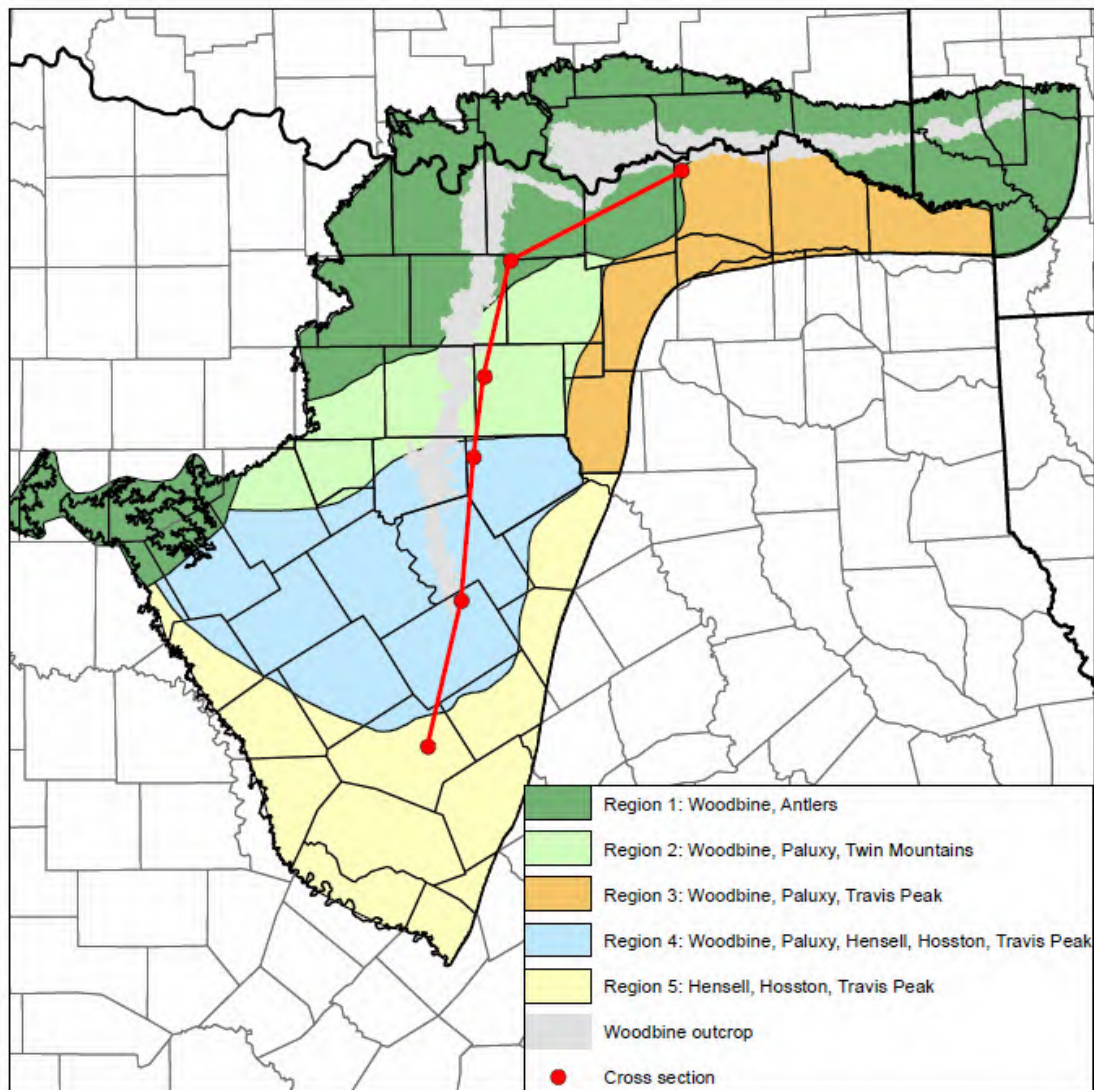
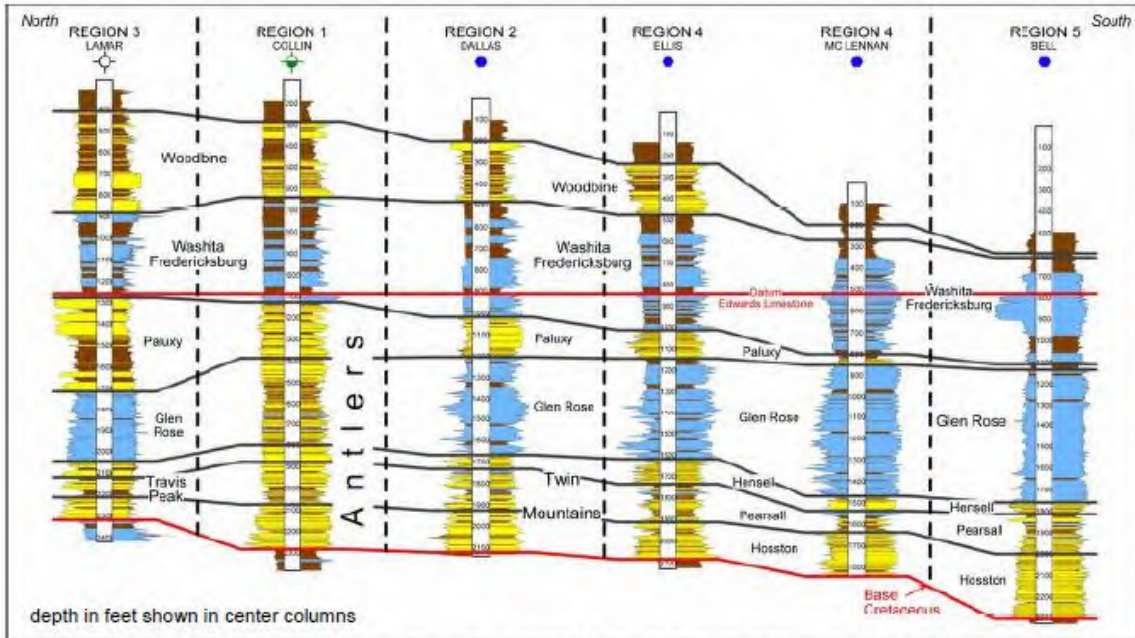


Figure 12: Northern Trinity GAM Regions (from Kelley and others, 2014).



yellow = greater than 50 percent sandstone, blue = greater than 50 percent limestone, brown = greater than 50 percent shale

Figure 13: Cross section through Region 1 through 5 (from Kelley and others, 2014).

Model Terminology	Region 1	Region 2	Region 3	Region 4	Region 5
Woodbine Aquifer	Woodbine	Woodbine	Woodbine	Woodbine	Woodbine (no sand)
Washita/Fredericksburg Groups	Washita/Fredericksburg	Washita/Fredericksburg	Washita/Fredericksburg	Washita/Fredericksburg	Washita/Fredericksburg
Paluxy Aquifer	Antlers	Paluxy	Paluxy	Paluxy	Paluxy (no sand)
Glen Rose Formation	Antlers	Glen Rose	Glen Rose	Glen Rose	Glen Rose
Hensell Aquifer	Antlers	Twin Mountains	Travis Peak	Hensell/Travis Peak	Hensell/Travis Peak
Pearsall Formation	Antlers	Twin Mountains	Travis Peak	Pearsall/Sligo	Pearsall/Sligo
Hosston Aquifer	Antlers	Twin Mountains	Travis Peak	Hosston/Travis Peak	Hosston/Travis Peak

yellow = sandstone aquifers

Figure 14. North Trinity GAM terminology for Region 1 through 5 (from Kelley and others, 2014).

In order to better understand groundwater resources within a groundwater conservation district, Texas Water Code §36.1071 requires that estimates of recharge, discharge, and various other aspects of groundwater flow, such as cross-formational flow and flow into and out of the district, be included in the management plan if a groundwater availability model is available for use. The TWDB, in its role of providing technical assistance to the District, conducted groundwater availability modeling runs for the Northern Trinity and Woodbine aquifers and provided all required estimates for inclusion in the management plan.

### **MODELED AVAILABLE GROUNDWATER BASED ON THE DESIRED FUTURE CONDITIONS**

The term “desired future conditions” was added by the Texas Legislature in 2005 to the list of goals that districts must address when adopting or readopting management plans required by Texas Water Code §36.1071. Desired future conditions are defined in Texas Water Code §36.001(30) as follows, “Desired future condition” means a quantitative description, adopted in accordance with Section 36.108, of the desired condition of the groundwater resources in a management area at one or more specified future times”.

Even before creation of the District by the Texas Legislature in 2009, other districts in Groundwater Management Area 8 adopted, through the joint planning process required by Texas Water Code §36.108, desired future conditions for the Woodbine Aquifer on December 17, 2007, and for the Trinity Aquifer on September 17, 2008. Subsequently, and with participation by the District, designated representatives in Groundwater Management Area 8 voted on April 27, 2011, to readopt the previously adopted desired future conditions without amendment for the Woodbine and Trinity aquifers. Because the District was not in existence during the initial adoption of desired future conditions in 2008 and was still in the organizational stages of development during re-adoption of those desired future conditions in 2011, the District did not have an opportunity to participate in the development of those desired future conditions.

Upon approval of this management plan by the Texas Water Development Board, the District intends to continue collecting as much data and information on the groundwater resources within its boundaries as practically feasible in order to enable it to develop and establish meaningful and reasonable desired future conditions for the aquifers within its jurisdiction in the next round of joint planning. Once those desired future conditions have been established and adopted, the District intends to develop permanent rules that require the permitting of certain wells and that establish a management system that will be designed to achieve the desired future conditions.

To determine the DFCs, a series of simulations using the TWDB’s Groundwater Availability Model (“GAM”) for the Northern Trinity and Woodbine aquifers were completed. Each GAM simulation was done by iteratively applying various amounts of simulated groundwater pumping from the aquifer over a predictive period that included a simulated repeat of the drought of record. Pumping was increased until the amount of pumping that could be sustained by the aquifer without impairing the aquifer conditions selected for consideration as the indicator of the aquifer desired future condition was identified.

In the North Texas District, the geologic units comprising the Trinity are: the Antlers (which includes all of the Trinity Group Formations), the Paluxy Sand, the Glen Rose Limestone, and the

Twin Mountains (which includes the Hensell and the Hosston Formations that are differentiated further to the south). Trinity Formations for which DFCs and MAGs are developed need to be modified in terms of the Antlers, Paluxy and Twin Mountains.

During the second round of joint planning, GMA-8 passed and adopted a resolution proposing DFCs for all relevant aquifers by letter dated April 1, 2016. In February 2017, GMA-8 submitted to the TWDB a Resolution package containing GMA-8’s approved and adopted DFC’s.

The Modeled Available Groundwater (MAG) estimates in GMA-8 for the Woodbine and Trinity aquifers are documented in Table 1 and are based on GAM Run 17-029 MAG. The GAM Run is included as Appendix D. At the time of the adoption of this management plan, GMA 8 is in the process of adopting new DFCs. The new MAG will replace the GAM Run 17-029 MAG and the new MAG is expected to be available later in 2022. The new MAG will be posted on the District’s website with this management plan.

*Table 1: Estimates of Modeled Available Groundwater for pumping within the District (GAM Run 17-029 MAG).*

County	Aquifer	2020	2030	2040	2050	2060	2070
Collin	Trinity (Antlers)	1,966	1,961	1,966	1,961	1,966	1,961
	Trinity (Twin Mountains)	2,207	2,201	2,207	2,201	2,207	2,201
	Trinity (Paluxy)	1,551	1,547	1,551	1,547	1,551	1,547
	Trinity (Glen Rose)	83	83	83	83	83	83
	Woodbine	4,263	4,251	4,263	4,251	4,263	4,251
	Total	10,070	10,043	10,070	10,043	10,070	10,043
Cooke	Trinity (Antlers)	10,544	10,514	10,544	10,514	10,544	10,514
	Woodbine	802	800	802	800	802	800
	Total	11,346	11,314	11,346	11,314	11,346	11,314
Denton	Trinity (Antlers)	16,591	16,545	16,591	16,545	16,591	16,545
	Trinity (Twin Mountains)	8,389	8,366	8,389	8,366	8,389	8,366
	Trinity (Paluxy)	4,832	4,819	4,832	4,819	4,832	4,819
	Trinity (Glen Rose)	339	338	339	338	339	338
	Woodbine	3,616	3,607	3,616	3,607	3,616	3,607
	Total	33,767	33,675	33,767	33,675	33,767	33,675
District	Trinity (Antlers)	29,101	29,020	29,101	29,020	29,101	29,020
	Trinity (Twin Mountains)	10596	10567	10596	10567	10596	10567
	Trinity (Paluxy)	6,383	6,366	6,383	6,366	6,383	6,366
	Trinity (Glen Rose)	422	421	422	421	422	421
	Woodbine	8,681	8,658	8,681	8,658	8,681	8,658
	Total	55,183	55,032	55,183	55,032	55,183	55,032

*Note: Production is in acre-feet.*

### **AMOUNT OF GROUNDWATER BEING USED WITHIN THE DISTRICT**

Estimates of historical water use, especially estimates from recent times, are very important during the process of developing water demand projections during the planning process. This is because changes in the volumes and types of water use, especially on a regional basis, will typically occur

relatively slowly. Therefore, if one has a good understanding of recent water use statistics, then the projections of future water demands will be much more reliable.

Texas Water Code §36.1071(e)(3)(B) requires that a management plan must include recent estimates of groundwater use. The primary source of this information is the TWDB Water Use Survey. Groundwater use estimates for the District for years 2004 through 2019 for the six primary water use sectors from the TWDB Water Use Survey are presented in Appendix E and Table 2.

Estimated historical groundwater use in the District by category was 87 percent for municipal use, nine percent for irrigation use, two percent for livestock use, one percent for manufacturing and mining use, and zero percent for steam-electric power use. In the TWDB Water Use Survey, the municipal use category includes small water providers and rural domestic pumping in addition to municipalities.

Table 2: TWDB’s Estimated Historical Water Use by Water Source

County	Source	Municipal	Manufacturing	Mining	Steam		Livestock	Total
					Electric	Irrigation		
Collin	Groundwater	5,025	208	0	0	725	45	6,002
	Surface Water	168,912	1,928	26	160	1,236	809	173,071
	Total	173,937	2,136	26	160	1,961	854	179,073
Cooke	Groundwater	8,457	85	77	3	429	233	9,283
	Surface Water	423	5	205	0	171	1,226	2,029
	Total	8,880	90	282	3	599	1,458	11,312
Denton	Groundwater	11,779	22	351	0	1,440	280	13,871
	Surface Water	107,218	362	821	136	1,084	612	110,233
	Total	118,997	383	1,172	136	2,524	892	124,104
District	Groundwater	25,261	315	428	3	2,593	558	29,157
	Surface Water	276,553	2,294	1,053	295	2,491	2,647	285,333
	Total	301,814	2,609	1,480	298	5,083	3,204	314,489

Note: The data was averaged from 2004 through 2019. For more information on this data, see Appendix E. Production is in acre-feet.

### ANNUAL AMOUNT OF RECHARGE OF PRECIPITATION

Recharge from precipitation falling on the outcrop of the aquifer (where the aquifer is exposed to the surface) within the North Texas GCD was estimated by the TWDB in the GAM Run 21-001 dated January 13, 2022. Water budget values of recharge extracted for the transient model period indicate that precipitation accounts for 13,916 acre-feet per year of recharge to the Trinity aquifer and 53,946 acre-feet per year of recharge to the Woodbine aquifer within the boundaries of the North Texas GCD (Appendix D).

### ANNUAL VOLUME OF DISCHARGE FROM THE AQUIFER TO SPRINGS AND SURFACE WATER BODIES

The total water discharged from the aquifer to surface water features such as streams, reservoirs, and springs is defined as the surface water outflow. Water budget values of surface water outflow within the North Texas GCD were estimated by the TWDB in the GAM Run 21-001 (Appendix

D). Values from the transient model period are 28,692 acre-feet per year of discharge from the Trinity aquifer and 35,100 acre-feet per year of discharge from the Woodbine aquifer to surface water bodies that are located within the North Texas GCD.

### **ANNUAL VOLUME OF FLOW INTO AND OUT OF THE DISTRICT AND BETWEEN AQUIFERS IN THE DISTRICT**

Flow into and out of the District is defined as the lateral flow within an aquifer between the District and adjacent counties. Flow between aquifers is defined as the vertical flow between aquifers or confining units that occurs within the boundaries of the District. The flow is controlled by hydrologic properties as well as relative water levels in the aquifers and confining units. Water budget values of flow for the North Texas GCD were estimated by the TWDB in the GAM Run 21-001 (Appendix D). Values extracted from the transient model period represent the model's calibration and verification time period (years 1980 through 2012).

For the Woodbine Aquifer, estimated annual flow into and out of the District is 1,115 and 2,912 acre-feet per year, respectively. These volumes indicate that the District gains only half as much water from neighboring portions of the Woodbine Aquifer than it loses. For the Northern Trinity Aquifer, estimated annual flow into and out of the District is 19,118 and 10,881 acre-feet per year, respectively. These volumes indicate that the District gains almost twice as much water from neighboring portions of the Northern Trinity Aquifer than it loses.

The estimated amount of annual flow between aquifers in the District based on GAM Run 21-001 provided by the TWDB are given in Appendix E. The GAM run estimates flow of 898 acre-feet per year from the Woodbine Aquifer to younger units and flow of 9,560 acre-feet per year from the Woodbine Aquifer to the Washita and Fredericksburg confining units. The run also estimated that 20,504 acre-feet per year flows from overlying units to the Trinity Aquifer.

## **PROJECTED WATER SUPPLY NEEDS**

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### **PROJECTED SURFACE WATER SUPPLY IN THE DISTRICT**

Although the primary focus of this management plan is on groundwater resources, the reality is that in areas like the District, decision makers must also consider surface water resources available to meet water supply needs when planning for the sustainable utilization of the resource. Texas Water Code §36.1071 recognizes this need for a more comprehensive evaluation, and as such requires groundwater conservation districts to consider surface water resources available in the District and also water management strategies that are included in the most recently adopted state water plan, regardless of whether the original source is surface water or groundwater. Appendix E summarizes the projected surface water supplies in the District based on the 2022 State Water Plan, as provided by TWDB (2022). This table is organized by county and water user groups and provides projected values for every decade from 2020 to 2070.

Total projected surface water supplies by county are illustrated in Figure 15. The estimated projections range from a maximum of 156,936 acre-feet per year in 2020 to a minimum of 131,709 acre-feet per year in 2070 for Collin County, from a maximum of 3,429 acre-feet per year in 2070



to a minimum of 2,970 acre-feet per year in 2030 for Cooke County, and from a maximum of 144,135 acre-feet per year in 2020 to a minimum of 133,910 acre-feet per year in 2070 for Denton County. These values indicate very little projected surface water supplies in Cooke County. They also indicate that projected surface water supplies for the District, which are on the order of 270,000 acre-feet per year, are significantly greater than historical groundwater use in the District, which is on the order of 20,000 to 35,000 acre-feet per year for 2004 through 2019.

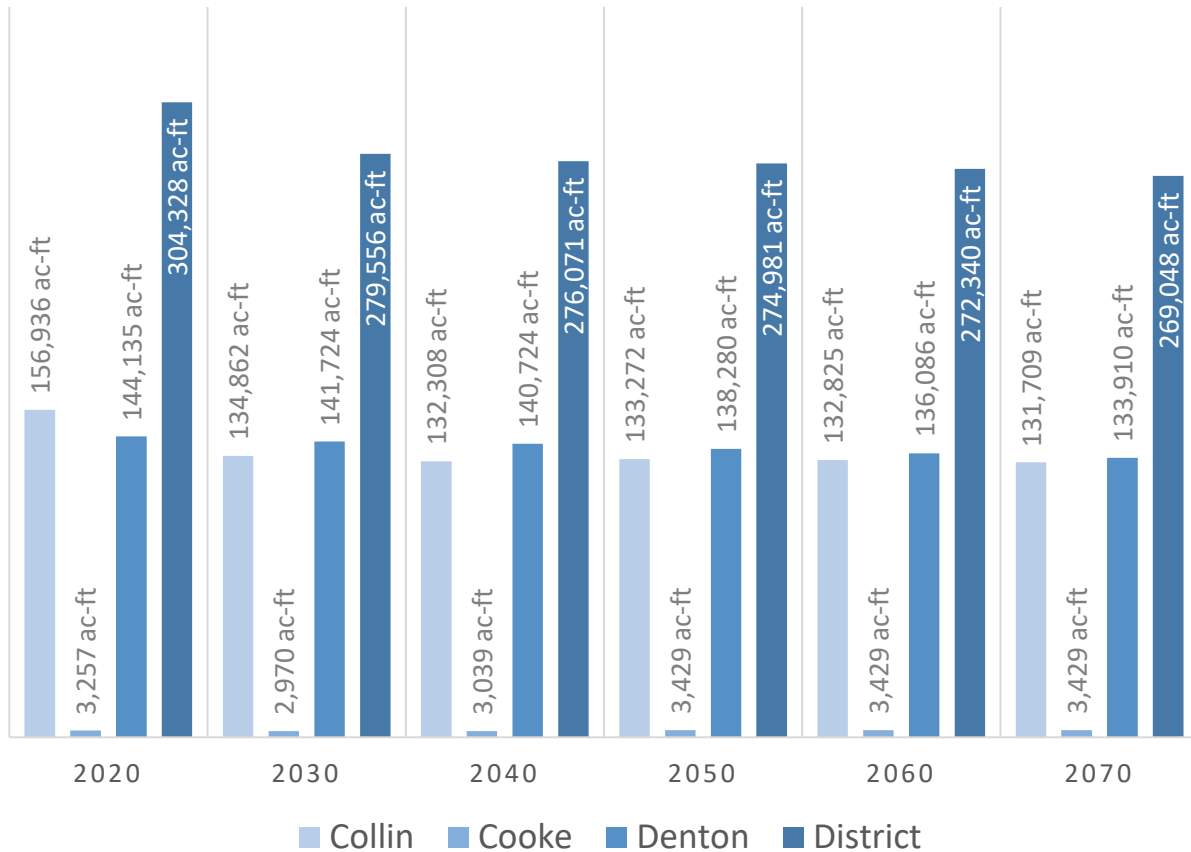


Figure 15: Projected surface water supply within the District by county

### PROJECTED TOTAL DEMAND FOR WATER IN THE DISTRICT

The analyses to develop water demand projections are primarily conducted in Texas as part of the regional water supply planning process (created by the 75th Texas Legislature through the passage of Senate Bill 1 in 1997). Water demand projections are developed for the following water user categories; municipal, rural (county-other), irrigation, livestock, manufacturing, mining, and steam-electric power generation.

Texas Water Code §36.1071(e)(3)(G) requires that a management plan include projections of the total demand for water (surface water and groundwater) from the most recently adopted state water plan. Water demand projections from the 2022 State Water Plan are presented in Appendix E. The projected total demand for the District increases significantly from 436,486 acre-feet per

year in 2020 to 878,513 acre-feet per year in 2070. Projected demands are significantly higher in Collin and Denton counties than in Cooke County (Figure 16).

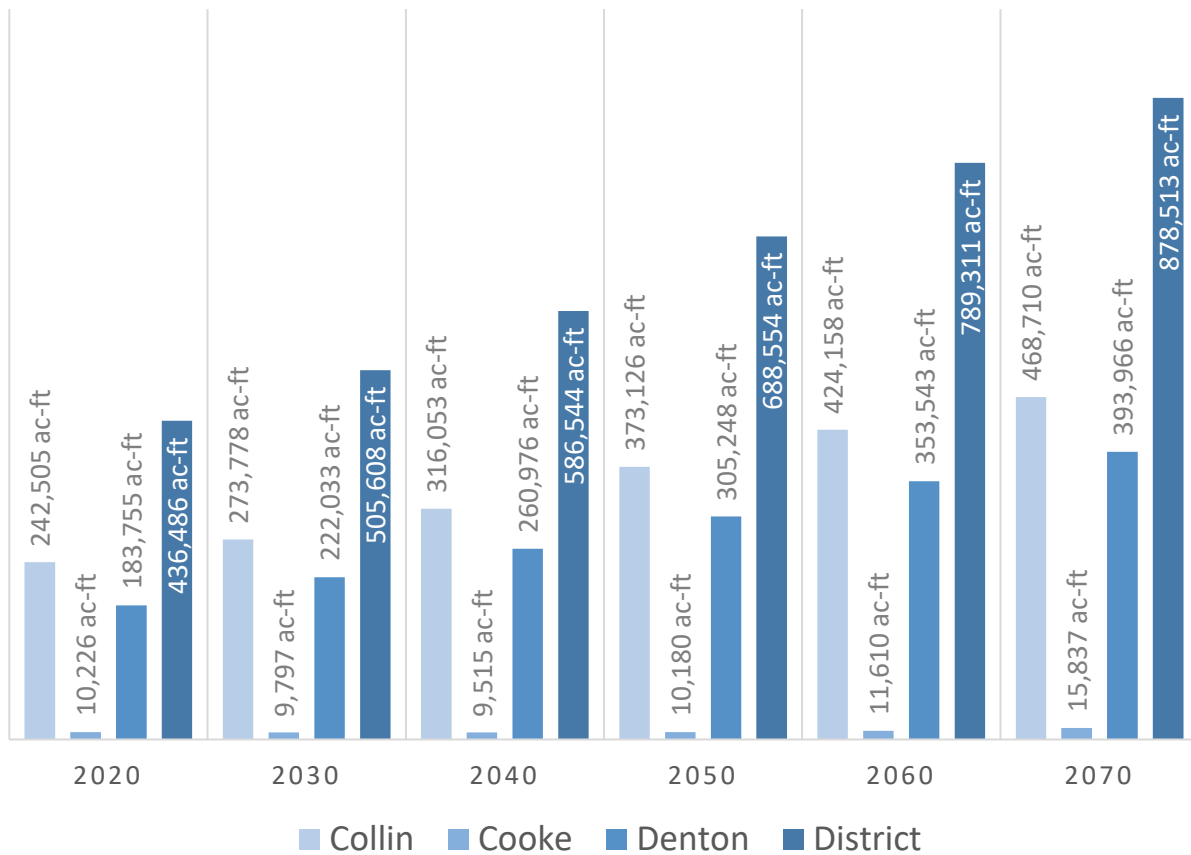


Figure 16: Water demand projections within the District by county

### PROJECTED WATER SUPPLY NEEDS

Projected water needs for the counties in the District have been developed for inclusion in the 2022 State Water Plan. The projected water needs reflect the volume of water needed in the event of a drought of record based on projected water supplies and projected water demands. A need occurs when the projected water demand is greater than the projected water supply. Projected water needs were estimated for all water user groups for every decade from 2020 through 2070 on a county-basin level. Appendix E summarizes the projected water needs for the District based on the database for the 2022 State Water Plan received from TWDB (2022). Data in this table are organized by county, water user group, and basin. The projected total water needs by county are illustrated in Figure 17.

Data for the 2022 State Water Plan projects future water needs for all three of the counties in the District. There are 54 water user groups in Collin County. A water needs at some point between 2020 and 2070 is projected for all but seven of those water users groups. The projected need in Collin County increases significantly from 2,557 acre-feet per year in 2020 to 237,749 acre-feet per year in 2070. Of the 22 water user groups in Cooke County, a need at some point between

2020 and 2070 is projected for 15. The projected need in Cooke County increases from 588 acre-feet per year in 2020 to 5,922 acre-feet per year in 2070. Forty-six water user groups are listed for Denton County. Of those, a need at some point between 2020 and 2070 is projected for all but three of those water users groups. The need in Denton County significantly increases from 3,954 acre-feet per year in 2020 to 210,453 acre-feet per year in 2070. For the District as a whole, the total projected water needs increases from 7,099 acre-feet per year in 2020 to 454,124 acre-feet per year in 2070.

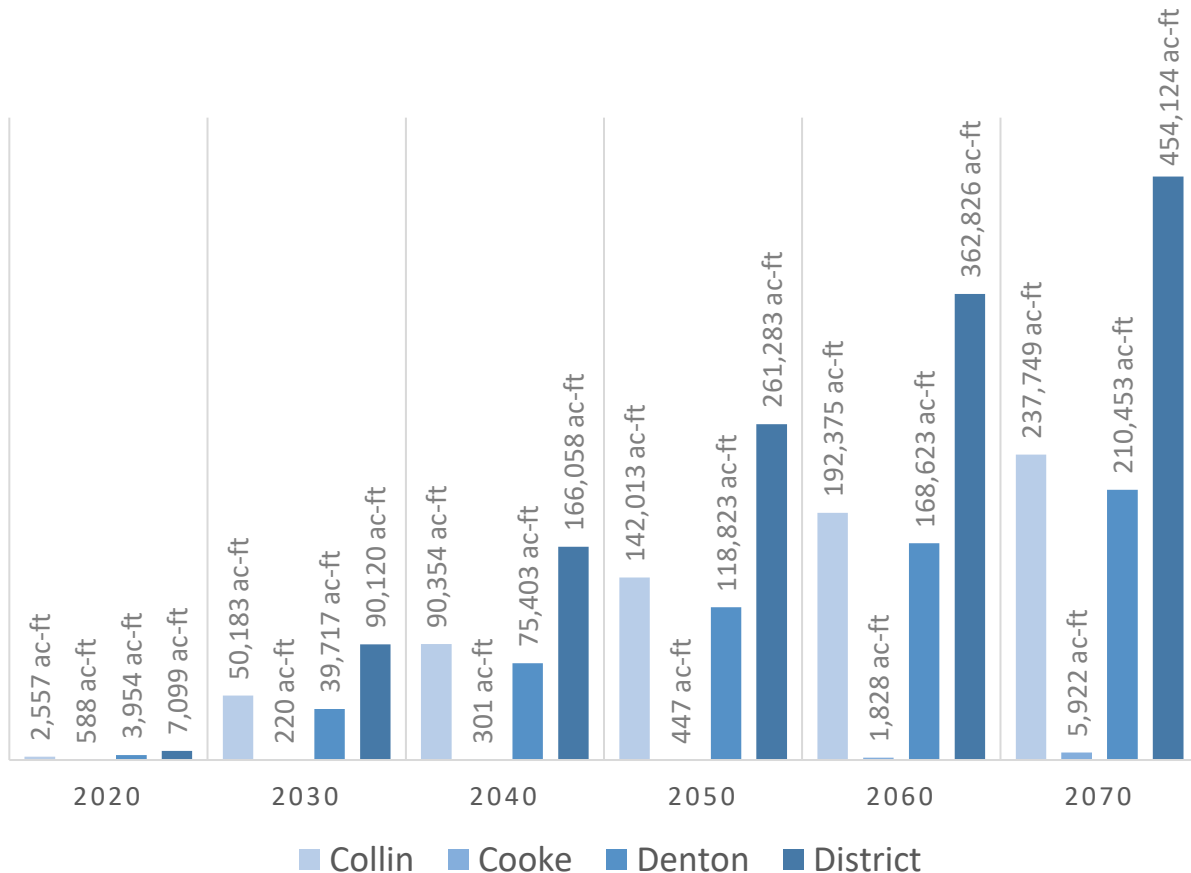


Figure 17: Total projected water supply needs within the District by county

## PROJECTED WATER MANAGEMENT STRATEGIES

The database for the 2022 State Water Plan also includes recommended water management strategies to meet the identified water needs in the District for every decade from 2020 through 2070. Potential strategies identified include conservation, water reuse, expansion, and improvement of existing water supplies, development of additional groundwater and surface water supplies, expansion of existing water treatment plants and construction of new water treatment plants, facility improvements, and purchase of water from water providers. The projected water management strategies for the counties in the District from the 2022 State Water Plan are shown in Appendix E by water user group (“WUG”). Table 3 includes all the water management strategies involving the groundwater resources within the District. The water

management strategies involving groundwater resources consist of new wells for public water systems, manufacturing, and county-other or unallocated groundwater supply utilization for public water systems. These strategies were considered during the joint groundwater planning process.

*Table 3: Groundwater Management Strategies for the District.*

<i>Water Management Strategy</i>	<i>Source Name [Origin]</i>	<i>2020</i>	<i>2030</i>	<i>2040</i>	<i>2050</i>	<i>2060</i>	<i>2070</i>
<i>Anna - New Well(s) in Woodbine Aquifer</i>	Woodbine Aquifer [Collin]	200	200	200	200	200	200
<i>Argyle WSC - New Well(s) in Trinity Aquifer</i>	Trinity Aquifer [Denton]	250	250	250	250	250	250
<i>Black Rock WSC - New Well(s) in Trinity Aquifer</i>	Trinity Aquifer [Denton]	0	0	0	8	82	154
<i>Bolivar WSC - New Well(s) in Trinity Aquifer</i>	Trinity Aquifer [Denton]	232	232	233	234	234	235
<i>County-Other, Denton - New Well(s) in Trinity Aquifer</i>	Trinity Aquifer [Denton]	504	504	504	504	504	504
<i>County-Other, Denton - New Well(s) in Woodbine Aquifer</i>	Woodbine Aquifer [Denton]	817	817	817	817	817	817
<i>Cross Timbers WSC - New Well(s) in Trinity Aquifer</i>	Trinity Aquifer [Denton]	250	250	250	250	250	250
<i>Gainesville - Unallocated Groundwater Supply Utilization</i>	Trinity Aquifer [Cooke]	484	83	77	72	84	56
<i>Justin - New Well(s) in Trinity Aquifer</i>	Trinity Aquifer [Denton]	244	244	244	244	244	244
<i>Krum - New Well(s) in Trinity Aquifer</i>	Trinity Aquifer [Denton]	202	202	202	202	202	202
<i>Manufacturing, Collin - New Well(s) in Woodbine Aquifer</i>	Woodbine Aquifer [Collin]	0	78	78	78	78	78
<i>Pilot Point - New Well(s) in Trinity Aquifer</i>	Trinity Aquifer [Denton]	313	313	313	313	313	313
<i>Verona SUD - New Well(s) in Woodbine Aquifer</i>	Woodbine Aquifer [Collin]	0	31	90	176	235	286
<i>Total (ac-ft)</i>		<i>3,496</i>	<i>3,204</i>	<i>3,258</i>	<i>3,348</i>	<i>3,493</i>	<i>3,589</i>

## **ACTIONS, PROCEDURES, PERFORMANCE, AND AVOIDANCE FOR PLAN IMPLEMENTATION, AND MANAGEMENT OF GROUNDWATER SUPPLIES**

In order to effectuate the District’s management plan, the District continually works to develop, maintain, review, and update the District rules and procedures for the various activities contained in the management plan. In order to monitor performance, (a) the Board of Directors routinely meets to track progress on the various objectives and standards adopted in this management plan and (b) the General Manager prepares and submits an annual report documenting progress made towards implementation of the management plan to the Board of Directors for its review and approval. Also, as needed, and at least annually, the Board of Directors reviews District rules to ensure that all provisions necessary to implement the plan are contained in the rules. The Board of Directors will revise the rules as needed to manage and conserve groundwater resources within the

District more effectively and to ensure that the duties prescribed in Texas Water Code and other applicable laws are carried out.

The District is currently operating pursuant to a set of rules that became effective January 1, 2019. A copy of the District's rules may also be found on the District's website located at [www.northtexasgcd.org/](http://www.northtexasgcd.org/).

The District will work diligently to ensure that all citizens within the District's jurisdictional boundaries are treated as equitably as possible. The District, as needed, will seek the cooperation of federal, state, regional, and local water management entities in the implementation of this management plan and management of groundwater supplies.

The District will continue to enforce its rules to conserve, preserve, protect, and prevent the waste of groundwater resources within its jurisdiction. Texas Water Code Chapter 36.1071(a)(1-8) requires that all management plans contain the following management goals, as applicable:

- providing the most efficient use of groundwater;
- controlling and preventing waste of groundwater;
- controlling and preventing subsidence;
- addressing conjunctive surface water management issues;
- addressing natural resource issues;
- addressing drought conditions;
- addressing conservation, recharge enhancement, rainwater harvesting, precipitation enhancement, or brush control, where appropriate and cost-effective; and
- addressing desired future conditions of the groundwater resources in a quantitative manner.

The following management goals, management objectives, and performance standards have been developed and adopted to ensure the management and conservation of groundwater resources within the District's jurisdiction.

## **METHODOLOGY FOR TRACKING DISTRICT PROGRESS IN ACHIEVING MANAGEMENT GOALS**

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The District's General Manager and staff will prepare an annual report ("Annual Report") and will submit the Annual Report to members of the Board of the District. The Annual Report covers the activities of the District including information on the District's performance in regard to achieving the District's management goals and objectives. The Annual Report will be delivered to the Board following the completion of the District's fiscal year. A copy of the Annual Report will be kept on file and available for public inspection at the District's offices upon approval by the Board.

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

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The following goals, management objectives, and performance standards have been developed and adopted to ensure the management and conservation of groundwater resources within the District's jurisdiction.

For purposes of this management plan, an exempt well means wells that meet any one of the following, unless the context clearly provides otherwise: (1) any well that was applied for or existed prior to January 1, 2019 that is used solely for domestic use, livestock use, or poultry use; (2) any well that was applied for or existed prior to January 1, 2019 that does not have the capacity, as equipped, to produce more than 25 gallons per minute and is used in whole or in part for commercial, industrial, municipal, manufacturing, or public water supply use, use for oil or gas or other hydrocarbon exploration or production, or any other purpose of use other than solely for domestic, livestock, or poultry use, except that if the total sum of the capacities of wells that operate as part of a well system is greater than 25 gallons per minute, the well system and individual wells that are part of it are not considered to be exempt; (3) any new well applied for after January 1, 2019 that does not have the capacity, as equipped, to produce more than 17.36 gallons per minute; or (4) leachate wells, monitoring wells, and piezometers. All wells that do not meet one of these criteria are considered to be non-exempt for purposes of this management plan. The characterization of exempt and non-exempt wells is intended to apply only to wells described in this management plan and shall not be interpreted to mean that the wells will be considered exempt or not exempt from permitting under any rules adopted by the District in the future.

## **GOAL 1: PROVIDING FOR THE MOST EFFICIENT USE OF GROUNDWATER**

The District, through strategies and programs adopted in this management plan and rules, strives to ensure the most efficient use of groundwater in order to sustain available resources for the future while maintaining the vibrant economic growth of the District.

### **I. WELL REGISTRATIONS**

#### **Management Objective:**

- a. The District will require that all wells be registered in accordance with its current rules.
- b. It is the goal of the District that all non-exempt wells and exempt wells be registered. In order to ensure that all wells required by District rules to be registered have been accurately registered the District's Field Technician manages a Field Inspections Program, with the objective of conducting field inspections of at least 60 wells per year. These inspections will confirm that a well has been registered, accuracy of well location, meet the District's spacing requirements, flow test the well to ensure the well meet the flowrate listed on the registration, accuracy of certain other required well registration information and ensure the well comply with the District's Rules.

#### **Performance Standard:**

- a. The Board of Directors will receive quarterly briefings by the General Manager regarding the District's well registration program. These quarterly reports will be included in the Annual Report to the Board of Directors. In addition, a handout will be made available to local realtor associations detailing the benefits of new property owners registering their existing well in full compliance of the District's Rules.
- b. Quarterly briefings by the General Manager will be provided to the Board of Directors regarding the number of well sites inspected each month to confirm well registration requirements have been met. This information will also be included in the Annual Report to the Board of Directors.

## 2. *PERMITTING*

### Management Objective:

- a. Each year, the District will require permits for all non-exempt wells in the District in accordance with the District's Rules.
- b. The District will continue developing methods for determining or evaluating permit requested annual amounts.
- c. Any permit that exceeds their maximum amount authorized by the permit or rule will be subjected to penalties as outlined in Rule 9.8 of the District Rules.

### Performance Standard:

- a. The District will provide information on the approved permits in the Annual Report to the Board of Directors.
- b. The District will work with industry experts to develop and evaluate the District's methods for determining or evaluating permit requested annual amounts. The District staff will report the progress in evaluating and developing the methods as needed to the Board of Directors.
- c. The General Manager will report to the Board of Directors any violations of the permitted maximum amount as needed and the District will report on any violations in the Annual Report.

## 3. *GROUNDWATER MONITORING*

### Management Objective:

- a. In order to evaluate continually the effectiveness of the District's rules in meeting the goal of ensuring the efficient use of groundwater, the District will operate a groundwater monitoring program to collect information on the quantity and quality of groundwater resources throughout the District. This monitoring program is based on the establishment of a network of monitoring wells. In addition, one additional well will be added in each county, for a total of three new wells to the system in accordance with the District's well monitoring plan. For the purpose of water quality sampling, samples collected for water quality taken by Texas Commission on Environmental Quality staff every five years will be used for monitoring purposes initially and may be supplemented in the future as determined by the Board. All information collected in the monitoring program will be entered into the District's geodatabase. The results of the monitoring program will be included in the Annual Report presented by the General Manager.
- b. In order to ensure the efficient use of groundwater, adequate data must be collected to facilitate groundwater availability modeling activities necessary to understand current groundwater resources and the projected availability of those resources in the future. Monitoring wells will be established by the District on a schedule determined by the Board of Directors as funds are available.

### Performance Standard:

- a. Track the number of wells in Collin, Cooke, and Denton counties for which water levels were measured per year as reported in the Annual Report presented by the General Manager to the Board of Directors.
- b. Track the number of wells in Collin, Cooke, and Denton Counties for which water samples were collected for the testing of water quality: The Texas Commission on Environmental

Quality provides a Consumer Confidence Report that provides consumers with information about the quality of drinking water.

- c. The wells for which water level data is available will be accessible online to the well owner.

This data may be reviewed at: [www.tceq.texas.gov/drinkingwater/ccr/](http://www.tceq.texas.gov/drinkingwater/ccr/) for water systems.

#### 4. **METER REQUIREMENTS**

Management Objective:

- a. A critical component of the District’s goal of ensuring the efficient use of groundwater is the collection of accurate water use information. The District’s Rules require that all non-exempt wells be equipped with meters to measure the use of groundwater. The well owner/operator is responsible for maintaining a meter log with at least monthly records of water use. Cumulative water use is to be reported to the District by the well owner/operator quarterly. All water use information will be entered and maintained in the District’s geodatabase. It is the objective of the District that 95 percent of all registered non-exempt wells will report water use by the reporting deadlines established in the District’s rules.
- b. In order to ensure that registered non-exempt wells have been equipped with District-approved meters and that water use is being accurately reported, the District Field Technician facilitates a meter inspection program to ensure that all registered non-exempt wells will be inspected on at least a five-year cycle by District personnel. These inspections will, at a minimum, verify proper installation and operational status of meters and record the meter reading at the time of inspection. This meter reading will be compared to the most recent water use report for the inspected well. Any potential violations of District rules regarding meter installation and reporting requirements will be reported to the Board of Directors at the next practicable meeting for consideration of possible enforcement actions. Annual water use will be included in the Annual Report presented by the General Manager to the Board of Directors.

Performance Standard:

- a. Percent of registered non-exempt wells meeting reporting requirements of water use will be provided in the Annual Report to the Board of Directors.
- b. Percentage of registered non-exempt wells inspected by District personnel annually is provided in the Annual Report presented by the General Manager.

#### 5. **ESTIMATING EXEMPT PRODUCTION**

Management Objective: The District will quantify current and projected annual groundwater production from exempt wells.

Performance Standard: The District will provide the TWDB with its methodology and estimates of current and projected annual groundwater production from exempt wells. The District will also utilize the information in the future in developing and achieving desired future conditions and in developing and implementing its production allocation and permitting system and rules. Information related to implementation of this objective will be included in the Annual Report to the Board of Directors.



## **GOAL 2: CONTROLLING AND PREVENTING WASTE OF GROUNDWATER**

Another important goal of the District is to implement strategies that will control and prevent the waste of groundwater.

### ***1. OUTREACH***

*Management Objective:* The District will annually provide information to the public on eliminating and reducing wasteful practices in the use of groundwater by publishing information on groundwater waste reduction on the District's website.

*Performance Standard:* Information on groundwater waste reduction will be provided on the District's website and the information published on the website will be included in the District's Annual Report to be provided to the Board of Directors.

### ***2. WATER USE FEES***

*Management Objective:* The District will encourage the elimination and reduction of groundwater waste through a collection of water-use fees for non-exempt production wells within the District.

*Performance Standard:* Annual reporting of the total fees paid, and total groundwater used by non-exempt wells will be included in the Annual Report provided to the Board of Directors.

### ***3. RULE ENFORCEMENT***

*Management Objective:*

- a. The District will identify well owners that are not in compliance with District well registration, reporting, and fee payment requirements and bring them into compliance.
- b. The District will investigate instances of potential waste of groundwater.

*Performance Standard:*

- a. The District will compare existing state records and field staff observations with well registration database to identify noncompliant well owners.
- b. District staff will report to Board of Directors as needed regarding potential waste of groundwater and include number of investigations in Annual Report.

## **GOAL 3: CONTROLLING AND PREVENTING SUBSIDENCE**

The District has reviewed the TWDB report on Identification of the Vulnerability of the Major and Minor Aquifers of Texas to Subsidence with Regard to Groundwater Pumping (Furnans, et al., 2017) and used the provided Subsidence Prediction Tool located at <http://www.twdb.texas.gov/groundwater/models/research/subsidence/subsidence.asp> to evaluate the risk of subsidence within the District. The Woodbine Aquifer has a subsidence risk score of 4.5. For the Trinity Aquifer, three wells were used to evaluate the subsidence risk of the aquifer, and the evaluation determine a subsidence risk score between 7.03 and 7.81. The results of the evaluation can be found in Table 4. Based on the subsidence risk score, the District has a medium subsidence risk.

Table 4: Subsidence Prediction Tool Results for Trinity Aquifer Wells in North Texas GCD.

Well Owner	State Well ID	Aquifer Thickness (feet)	Clay Thickness (feet)	Subsidence Risk Score	Minimum Subsidence (feet)	Maximum Subsidence (feet)
Kiowa SUD	19-32-302	1,250	547	7.03	0.56	1.02
City of Celina	18-24-604	1,150	354	7.81	0.53	0.94
Camp Sweeney	19-24-603	800	267	7.19	1.01	1.95

According to Water-Level Declines in the Woodbine, Paluxy, and Trinity Aquifers of North-Central Texas (Mace, Dutton, & Nance, 1994), historical data collected south of the Dallas-Fort Worth area in Ellis County indicates that there has been no detectable land subsidence greater than measurement error between 1957 and 1991. Due to the medium subsidence risk and no detectable land subsidence in areas of large water decline in the Woodbine and Trinity aquifers, problems resulting from water level declines and any resulting subsidence are considered insignificant and as such, a goal addressing subsidence is not applicable. Any reported cases of subsidence will be investigated by the District and reported to the Board of Directors.

#### **GOAL 4: ADDRESSING CONJUNCTIVE SURFACE WATER MANAGEMENT ISSUES**

Surface water resources represent a vital component in meeting current and future water demands in all water use sectors within the District. The District coordinates with surface water management entities within the region by designating a board member or the general manager to attend and coordinate on water supply and management issues with the Region C Water Planning Group.

##### ***1. REGION C WATER PLANNING GROUP***

*Management Objective:* Each year, a representative of the District will participate in the regional water planning process by attending at least one of the Region C Water Planning Group meetings to encourage the development of surface water supplies to meet the needs of water user groups within the District.

*Performance Standard:* The attendance of the District representative at the Region C Water Planning Group meetings will be noted in the Annual Report provided to the Board of Directors.

##### ***2. OUTREACH***

*Management Objective:* The General Manager of the District will monitor and participate in relevant stakeholder meetings concerning water resources relevant to the District such as Groundwater Management Area 8, Texas Water Development Board, and Texas Commission of Environment Quality stakeholder meetings.

*Performance Standard:* The General Manager of the District will monitor and participate in relevant stakeholder meetings that concern water resources relevant to the District. The meetings that are attended will be presented in the District’s Annual Report.

## **GOAL 5: ADDRESSING NATURAL RESOURCE ISSUES THAT IMPACT THE USE AND AVAILABILITY OF GROUNDWATER AND WHICH ARE IMPACTED BY THE USE OF GROUNDWATER**

The District understands the important nexus between water resources and natural resources. The exploration and production of natural resources such as oil and gas along with mining efforts for road aggregate materials such as sand and gravel clearly represent potential management issues for the District. For example, improperly plugged oil and gas wells may provide a conduit for various hydrocarbon and drilling fluids to potentially migrate and contaminate groundwater resources in the District.

### ***1. INJECTION WELL MONITORING***

*Management Objective:* The District has engaged a firm to monitor all injection well applications within the District and notify the General Manager of any potential impacts.

*Performance Standard:* General Manager will report to the Board of Directors any information provided by the consultant engaged to monitor injection well applications within the District to the Board of Directors and document the information in the Annual Report to the Board of Directors.

### ***2. OIL AND GAS WELLS***

*Management Objective:* The District will monitor compliance by oil and gas companies including water well registration, metering, production reporting, and fee payment requirements of the District's rules.

*Performance Standard:* As with other types of wells, instances of non-compliance by owners and operators of water wells for oil and gas activities will be reported to the Board of Directors as appropriate for enforcement action. A summary of such enforcement activities will be included in the Annual Report to the Board of Directors.

## **GOAL 6: ADDRESSING DROUGHT CONDITIONS**

### ***1. OUTREACH***

*Management Objective:* The District will make available through the District's website easily accessible drought information.

*Performance Standard:* Current drought conditions information from multiple resources including the Palmer Drought Severity Index (PDSI) map for the region is available to the public through the District's website at <http://www.northtexasgcd.org/drought-management.html>.

### ***2. DROUGHT CONTINGENCY PLAN***

*Management Objective:* The District will update as necessary the Drought Contingency Plan for the purpose to conserve, preserve, protect, and recharge the groundwater resources of Cooke, Collin and Denton Counties, and to prevent waste and degradation of quality of those

groundwater resources. The plan will include initiation and determination of drought stages and water reduction goals for each stage.

*Performance Standard:* The District Staff will update the Board on the current drought stage and the Board will act as necessary to initiate or terminate the various drought stages. A summary of such initiated and terminated drought stages will be included in the Annual Report to the Board of Directors.

## **GOAL 7: ADDRESSING CONSERVATION, RECHARGE ENHANCEMENT, RAINWATER HARVESTING, PRECIPITATION ENHANCEMENT, AND BRUSH CONTROL**

Texas Water Code §36.1071(a)(7) requires that a management plan include a goal that addresses conservation, recharge enhancement, rainwater harvesting, precipitation enhancement, or brush control, where appropriate and cost-effective. The District has determined that a goal addressing recharge enhancement and precipitation enhancement is not appropriate or cost-effective, and therefore is not applicable to the District.

### **1. CONSERVATION**

#### ***Management Objective:***

- a. The primary goal, perhaps viewed as the “umbrella goal” of the District is to provide for and facilitate the conservation of groundwater resources within the District. The District will include a link on the District’s website to the electronic library of water conservation resources supported by the Water Conservation Advisory Council. For example, one important resource available through this internet-based resource library is the Water Conservation Best Management Practices Guide developed by the Texas Water Conservation implementation Task Force. This Guide contains over 60 Best Management Practices for municipalities, industry, and agriculture that will be beneficial to water users in the District.
- b. The District will provide educational curriculum regarding water conservation offered by the Texas Water Development Board (Major Rivers) to at least one elementary school in each county of the District.

#### ***Performance Standard:***

- a. Link to the electronic library of water conservation resources supported by the Water Conservation Advisory Council is available on the District’s website at <http://www.northtexasgcd.org/conservation-information.html>.
- b. Each year the District will seek to provide water conservation curriculum to at least one elementary school in each county within the District. The elementary schools for which the curriculum is provided will be listed in the Annual Report to the Board of Directors.

### **2. RAINWATER HARVESTING**

*Management Objective:* Rainwater harvesting is assuming a viable role either as a supplemental water supply or as the primary water supply in both urban and rural areas of Texas. As a result, Texas has become internationally recognized for the widespread use and innovative technologies that have been developed, primarily through efforts at the TWDB. To ensure these educational materials are readily available to citizens in the District, a link to rainwater harvesting materials including system design specifications and water quality

requirements will be maintained on the District’s website at [northtexasgcd.org/conservation-information.html](http://northtexasgcd.org/conservation-information.html).

*Performance Standard:* Link to rainwater harvesting resources at the TWDB is available on the District’s website at [northtexasgcd.org/conservation-information.html](http://northtexasgcd.org/conservation-information.html).

### 3. BRUSH CONTROL

*Management Objective:* Educate public on importance of brush control as it relates to water table consumption.

*Performance Standard:* Link to information concerning brush control is available on the District’s website at [northtexasgcd.org/conservation-information.html](http://northtexasgcd.org/conservation-information.html).

## **GOAL 8: ADDRESSING THE DESIRED FUTURE CONDITIONS**

The desired future conditions of the aquifers in Groundwater Management Area 8 represent average water levels in the various aquifers at the end of 50-years based on meeting current and projected groundwater supply needs. The Board of Directors has adopted a strategic approach that includes the adoption of this management plan and rules necessary to achieve the desired future conditions. This management plan and the companion rules have been designed as an integrated program that will systematically collect and review water data on water quantity, water quality, and water use, while at the same time, implementing public awareness and public education activities that will result in a better-informed constituency.

*Management Objective:* Statute requires GCDs to review, amend as necessary, and readopt management plans at least every five years. The General Manager will annually present a summary report on the status of achieving the adopted desired future conditions. Prior to the adoption date of the next management plan, the General Manager will work with the Board of Directors to conduct a focused review to determine if any elements of this management plan or rules need to be amended in order to achieve the adopted desired future conditions, or if the adopted desired future conditions need to be revised to better reflect the needs of the District.

*Performance Standard:*

- a. The General Manager will include a summary report on the status of achieving the adopted desired future conditions in the Annual Report. This summary report will primarily be based on data collected from the District’s groundwater monitoring program.
- b. Comparison of annual water use versus estimates of modeled available groundwater established as a result of the adopted Desired Future Conditions shall be included in the Annual Report presented by the General Manager.

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## **APPENDIX A: HEARING NOTICE**





McKinney Courier Gazette, Star Local Classifieds, Internet

AFFIDAVIT OF LEGAL NOTICE

I, Joni Craghead, Advertising Representative of the McKinney Courier Gazette, Star Local Classifieds, Internet a newspaper printed in the English language in Collin County, State of Texas, do hereby certify that this notice was Published in the McKinney Courier Gazette, Star Local Classifieds, Internet on the following dates, to-wit

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Star Local Classifieds	07/17/22	07/17/22	1
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LEGAL : DISTRICT MANAGEMENT PLAN NOTICE \$291.38

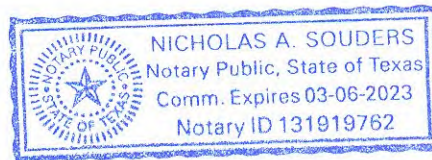
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Advertising Representative of the McKinney Courier Gazette, Star Local Classifieds, Internet

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**LEGAL NOTICE**

**NORTH TEXAS GROUNDWATER CONSERVATION DISTRICT  
 NOTICE OF HEARING ON  
 DISTRICT MANAGEMENT PLAN  
 AUGUST 9, 2022 at 10:00 a.m.**

**NOTICE IS HEREBY GIVEN** to all interested persons in Cooke, Collin and Denton Counties, Texas:

That the Board of Directors of the North Texas Groundwater Conservation District ("District") will hold a public hearing to discuss, consider, receive public comments, and potentially act upon adoption of the District Management Plan.

The public hearing will be held on Tuesday, August 9, 2022, at 10:00 a.m. at the Pilot Point Independent School District Administration office, located at 829 S. Harrison Street, Pilot Point, Texas 76258. Comments on the proposed Management Plan may be presented in written or verbal form at the hearing, and persons interested in submitting written comments in advance may do so by sending comments to the District at P.O. Box 508, Gainesville, Texas 76241 or by email at [ntgcd@northtexasgcd.org](mailto:ntgcd@northtexasgcd.org). Any person who desires to appear at the hearing and present comments may do so in person, by legal representative, or both. The hearing posted in this notice may be recessed from day to day or continued where appropriate. At the conclusion of the hearing or any time or date thereafter, the proposed Management Plan may be adopted in the form presented or as amended based upon comments received from the public, District staff, consultants, or members of the Board without any additional notice.

A copy of the proposed Management Plan will be available not less than 20 days before the date of the hearing by requesting a copy by email to [ntgcd@northtexasgcd.org](mailto:ntgcd@northtexasgcd.org), by accessing the District's website at [www.northtexasgcd.org](http://www.northtexasgcd.org), or by reviewing or copying the proposed Management Plan in person at 5100 Airport Drive, Denison, Texas 75020. The District is committed to compliance with the Americans with Disabilities Act (ADA). Any person who needs special accommodations should contact District staff at (855) 426-4433 at least 24 hours in advance if accommodation is needed. Any person who wishes to receive more detailed information on this notice should contact District staff at (855) 426-4433 or by email at

**LEGAL NOTICE**

**NORTH TEXAS GROUNDWATER CONSERVATION DISTRICT  
 NOTICE OF HEARING ON  
 DISTRICT MANAGEMENT PLAN  
 AUGUST 9, 2022 at 10:00 a.m.**

**NOTICE IS HEREBY GIVEN** to all interested persons in Cooke, Collin and Denton Counties, Texas:

That the Board of Directors of the North Texas Groundwater Conservation District ("District") will hold a public hearing to discuss, consider, receive public comments, and potentially act upon adoption of the District Management Plan.

The public hearing will be held on Tuesday, August 9, 2022, at 10:00 a.m. at the Pilot Point Independent School District Administration office, located at 829 S. Harrison Street, Pilot Point, Texas 76258. Comments on the proposed Management Plan may be presented in written or verbal form at the hearing, and persons interested in submitting written comments in advance may do so by sending comments to the District at P.O. Box 508, Gainesville, Texas 76241 or by email at [ntgcd@northtexasgcd.org](mailto:ntgcd@northtexasgcd.org). Any person who desires to appear at the hearing and present comments may do so in person, by legal representative, or both. The hearing posted in this notice may be recessed from day to day or continued where appropriate. At the conclusion of the hearing or any time or date thereafter, the proposed Management Plan may be adopted in the form presented or as amended based upon comments received from the public, District staff, consultants, or members of the Board without any additional notice.

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# AFFIDAVIT

STATE OF TEXAS  
COUNTY OF COOKE

Advertiser: North Texas Groundwater Conservation District

Before me, the undersigned authority, in this day personally appeared

Andrew Walker

who duly swears, deposes and says that he/she is the Publisher / Advertising Manager / Editor of the **GAINESVILLE DAILY REGISTER**; that said newspaper is regularly published in Gainesville, Cooke County, Texas; and that the attached notice was published in said newspaper on the following date(s):

07/15/2022

[Signature]

Publisher / Advertising Manager / Editor

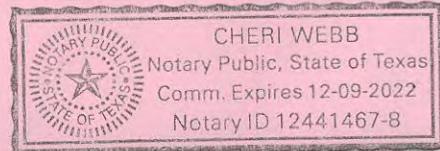
Subscribed and sworn to, before me, this date

7-20-22

Witness my hand and seal of office.

[Signature]

Notary Public, State of Texas



## NORTH TEXAS GROUNDWATER CONSERVATION DISTRICT NOTICE OF HEARING ON DISTRICT MANAGEMENT PLAN AUGUST 9, 2022 at 10:00 a.m.

**NOTICE IS HEREBY GIVEN** to all interested persons in Cooke, Collin and Denton Counties, Texas:

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# Advertising Receipt

Herald-Ban & Gain Reg CLASSIFY

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Greenville, TX 75403

Phone: (903) 455-4220

Fax: (903) 455-6281

475- North Texas Groundwater C

PO Box 508

Attn: Velma Starks

GAINESVILLE , TX 76241

Acct #: 99109498

Ad #: 00060915

Phone: (855)426-4433

Date: 07/13/2022

Ad taker: Lega Salesperson: Lega

Sort Line: NORTH TEXAS GROUNDWATER CONSE Classification 0105

Description	Start	Stop	Ins.	Cost/Day	Total
31 Gainesville Daily Register	07/15/2022	07/15/2022	1	208.80	208.80
34 Gainesville Internet	07/15/2022	07/15/2022	1	7.00	7.00

*Velma Starks*

Ad Text:

Payment Reference:

**PAID**

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Net:	215.80
Prepaid:	-215.80

Total Due: 0.00

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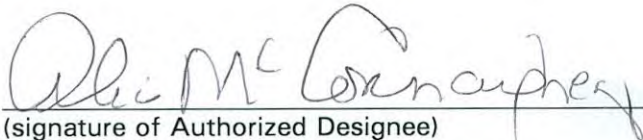
3555 Duchess Drive  
P.O. Box 369  
Denton, TX 76202  
940-387-3811

Publication(s): Denton Record-Chronicle

### PROOF OF PUBLICATION

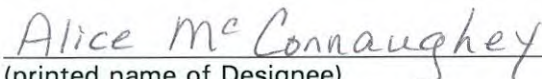
Being duly sworn (s)he is the Publisher/authorized designee of Denton Record-Chronicle, in City of Denton/surrounding areas in Denton County; Newspaper of general circulation which has been continuously and regularly published for a period of not less than one year preceding the date of the attached notice, and that the said notice was published in said newspaper Denton Record-Chronicle on the following dates below:

07/17/2022



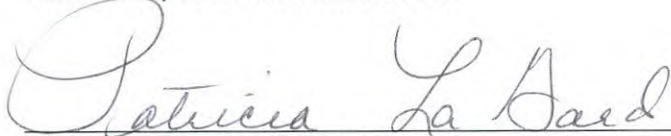
(signature of Authorized Designee)

Subscribed and sworn to before me  
this 17th day of July, 2022 by



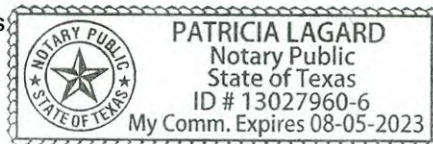
(printed name of Designee)

Witness my hand and official seal:



(signature name of Designee)

Notary Public, Denton County, Texas



NORTH TEXAS GROUNDWATER CONSERVATION DISTRICT  
PO BOX 508  
GAINESVILLE TX 76241

Ad Number: 46466

Price: \$63.40

NORTH TEXAS  
GROUNDWATER  
CONSERVATION DISTRICT  
NOTICE OF HEARING ON  
DISTRICT MANAGEMENT PLAN  
AUGUST 9, 2022 at 10:00 a.m.

NOTICE IS HEREBY GIVEN to  
all interested persons in Cooke,  
Collin and Denton Counties,  
Texas:

That the Board of Directors of the  
North Texas Groundwater  
Conservation District ("District")  
will hold a public hearing to  
discuss, consider, receive public  
comments, and potentially act  
upon adoption of the District  
Management Plan.

The public hearing will be held on  
Tuesday, August 9, 2022, at  
10:00 a.m. at the Pilot Point  
Independent School District  
Administration office, located at  
829 S. Harrison Street, Pilot  
Point, Texas 76258. Comments  
on the proposed Management  
Plan may be presented in written  
or verbal form at the hearing, and  
persons interested in submitting  
written comments in advance  
may do so by sending comments  
to the District at P.O. Box 508,  
Gainesville, Texas 76241 or by  
email at

ntgcd@northtexasgcd.org. Any  
person who desires to appear at  
the hearing and present  
comments may do so in person,  
by legal representative, or both.  
The hearing posted in this notice  
may be recessed from day to day  
or continued where appropriate.  
At the conclusion of the hearing  
or any time or date thereafter, the  
proposed Management Plan may  
be adopted in the form presented  
or as amended based upon  
comments received from the  
public, District staff, consultants,  
or members of the Board without  
any additional notice.

A copy of the proposed  
Management Plan will be  
available not less than 20 days  
before the date of the hearing by  
requesting a copy by email to  
ntgcd@northtexasgcd.org, by  
accessing the District's website at  
www.northtexasgcd.org, or by  
reviewing or copying the  
proposed Management Plan in  
person at 5100 Airport Drive,  
Denison, Texas 75020. The  
District is committed to  
compliance with the Americans  
with Disabilities Act (ADA). Any  
person who needs special  
accommodations should contact  
District staff at (855) 426-4433 at  
least 24 hours in advance if  
accommodation is needed. Any  
person who wishes to receive  
more detailed information on this  
notice should contact District staff  
at (855) 426-4433 or by email at  
ntgcd@northtexasgcd.org.

Drc 07/17/2022

Ad Copy:  
NORTH TEXAS GROUNDWATER CONSERVATION DISTRICT  
NOTICE OF HEARING ON  
DISTRICT MANAGEMENT PLAN  
AUGUST 9, 2022 at 10:00 a.m.

NOTICE IS HEREBY GIVEN to all interested persons in Cooke, Collin and Denton Counties, Texas:

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The public hearing will be held on Tuesday, August 9, 2022, at 10:00 a.m. at the Pilot Point Independent School District Administration office, located at 829 S. Harrison Street, Pilot Point, Texas 76258. Comments on the proposed Management Plan may be presented in written or verbal form at the hearing, and persons interested in submitting written comments in advance may do so by sending comments to the District at P.O. Box 508, Gainesville, Texas 76241 or by email at [ntgcd@northtexasgcd.org](mailto:ntgcd@northtexasgcd.org). Any person who desires to appear at the hearing and present comments may do so in person, by legal representative, or both. The hearing posted in this notice may be recessed from day to day or continued where appropriate. At the conclusion of the hearing or any time or date thereafter, the proposed Management Plan may be adopted in the form presented or as amended based upon comments received from the public, District staff, consultants, or members of the Board without any additional notice.

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Drc 07/17/2022

## **APPENDIX B: EVIDENCE THAT THE MANAGEMENT PLAN WAS ADOPTED**

NOTICE OF PUBLIC MEETING

OF THE  
BOARD OF DIRECTORS of the

**NORTH TEXAS GROUNDWATER CONSERVATION DISTRICT**

**Tuesday, August 9, 2022 at 10:00 a.m.**

**MEETING LOCATION:**

**Pilot Point ISD Administration Office  
829 S. Harrison St.  
Pilot Point, TX 76258**

**Permit Hearing**

The Permit Hearing will begin at 10:00 a.m.

Notice is hereby given that the Board of Directors of the North Texas Groundwater Conservation District ("District") will conduct a permit hearing on the following Production Permit Applications:

**Agenda:**

1. Call to Order; establish quorum; declare hearing open to the public; introduction of Board.
2. Public Comment on the Production Permit Applications (verbal comments limited to three (3) minutes each).
3. Review the Production Permit Applications of:

**New Production Permit and Request for Exception to Spacing Requirements**

- a. **This permit will be tabled until the September Board Meeting upon request of the applicant. No action will be taken.**

**Applicant:** Texas Water Services Group, LLC, dba Monarch Utilities I LP; 1620 Grand Avenue St. 140, Pflugerville, TX 78660

**Location of Well:** 800 CR 131, Gainesville, TX 76240; Latitude: 33.660278°N, Longitude: 97.10375°W; About 300 feet east of the County Road 193 and County Road 131 intersection and about 500 feet north of County Road 131.

**Purpose of Use:** Municipal/Public Water System

**Requested Amount of Use:** 6,930,000 gallons per year

**Production Capacity of Well:** 100 gallons/minute

**Aquifer:** Trinity (Antlers)

**Request for Exception to Spacing Requirements:** Applicant Texas Water Services Group, LLC is requesting an exception to the spacing requirements for a well located approximately 316 feet from the proposed well. The spacing requirement for a 100 gallon per minute well is 1,295 feet from a registered or permitted well.



### **New Production Permit**

- b. **Applicant:** Texas Water Services Group, LLC dba Monarch Utilities I LP; 1620 Grand Avenue St. 140, Pflugerville, TX 78660  
**Location of Well:** 114 CR 142, Whitesboro, TX 76273; Latitude: 33.653417°N, Longitude: 96.987083°W; About 1,800 feet north of the Highway 82 and County Road 142 intersection and about 200 feet west of County Road 142.  
**Purpose of Use:** Municipal/Public Water System  
**Requested Amount of Use:** 4,120,000 gallons per year  
**Production Capacity of Well:** 100 gallons/minute  
**Aquifer:** Trinity (Antlers)
  
- c. **Applicant:** MM Celina 3200, LLC; 1800 Valley View Lane, Farmers Branch, TX 75234  
**Location of Well:** County Road 58, Celina, TX 75009; Latitude: 33.383897°N, Longitude: 96.812197°W; About 500 feet south of the County Road 58 and County Road 59 intersection and about 3,250 feet west of County Road 58.  
**Purpose of Use:** Soil Moisture Conditioning, Concrete Batch Plant, Dust Control, Materials Conditioning, and Lime Stabilization for Paving  
**Requested Amount of Use:** 137,816,000 gallons thru 2029  
**Production Capacity of Well:** 100 gallons/minute  
**Aquifer:** Woodbine
  
- d. **Applicant:** TXI Operations, LP; 1503 Lyndon B Johnson Freeway, Suite 400, Dallas, TX 75234  
**Location of Well:** 1825 FM 546, McKinney, TX 75069; Latitude: 33.162763°N, Longitude: 96.581446°W; About 600 feet north of the County Road 317 and Farm to Market Road 546 intersection and about 1,600 feet east of Farm to Market Road 546.  
**Purpose of Use:** Concrete Production  
**Requested Amount of Use:** 10,100,000 gallons per year  
**Production Capacity of Well:** 100 gallons/minute  
**Aquifer:** Woodbine
  
4. Consider and act upon the Production Permit Applications, including designation of parties and/or granting or denying the Production Permit Applications in whole or in part, as applicable.
  
5. Adjourn or continue permit hearing.

### **Public Hearing to Adopt District Management Plan in Collin, Cooke, and Denton Counties, Texas**

The Public Hearing will begin upon adjournment of the Permit Hearing.

Notice is hereby given that the Board of Directors of the North Texas Groundwater Conservation District ("District") will hold a public hearing, accept public comment, and may discuss and consider adoption of the District's Management Plan in Collin, Cooke, and Denton Counties, Texas.

### **Agenda**

1. Call to Order; establish quorum; declare hearing open to the public; introduction of Board.

2. Review of Management Plan applicable to the District.
3. Public Comment on District's Management Plan (verbal comments limited to three (3) minutes each).
4. Consider and act upon adoption of the Management Plan applicable to the District.

### **Board Meeting**

The regular Board Meeting will begin upon adjournment of the above noticed Management Plan Hearing.

Notice is hereby given that the Board of Directors of the North Texas Groundwater Conservation District ("District") may discuss, consider, and take all necessary action, including expenditure of funds, regarding each of the agenda items below:

#### **Agenda:**

1. Pledge of Allegiance and Invocation.
2. Call to order, establish quorum; declare meeting open to the public.
3. Public comment.
4. Receive presentation from the North Texas Municipal Water District
5. Consider and act upon approval of the minutes from the June 29, 2022, Board meeting.
6. Consider and act upon approval of invoices and reimbursements, Resolution No. 2022-08-09-1.
7. Receive reports from the following Committees\*:
  - a. Investment Committee
    - 1) Receive Quarterly Investment Report
  - b. Management Plan Committee
    - 1) Receive Quarterly Report
8. Discussion and possible action on regular Board Meeting date and time.
9. Update and possible action regarding the process for the development of Desired Future Conditions (DFCs).
10. Consider and act upon compliance and enforcement activities for violations of District rules.
  - a. Argyle ISD
11. General Manager's Report: The General Manager will update the board on operational, educational and other activities of the District.
  - a. District's Disposal/Injection Well Program
  - b. Well Registration Summary and discussion of "Other" well types

c. General Manager

12. Open forum / discussion of new business for future meeting agendas.
13. Adjourn public meeting.

\* Reports from District standing committees will include a briefing by each committee for the Board on the activities of the committee, if any, since the last regular Board meeting.

*The above agenda schedule represents an estimate of the order for the indicated items and is subject to change at any time.*

*These public meetings are available to all persons regardless of disability. If you require special assistance to attend the meeting, please call (855) 426-4433 at least 24 hours in advance of the meeting to coordinate any special physical access arrangements.*

*For questions regarding this notice, please contact Velma Starks at (855) 426-4433, at [ntgcd@northtexasgcd.org](mailto:ntgcd@northtexasgcd.org), or at 5100 Airport Drive, Denison, TX 75020.*

At any time during the meeting or work session and in compliance with the Texas Open Meetings Act, Chapter 551, Government Code, Vernon's Texas Codes, Annotated, the North Texas Groundwater Conservation District Board may meet in executive session on any of the above agenda items or other lawful items for consultation concerning attorney-client matters (§551.071); deliberation regarding real property (§551.072); deliberation regarding prospective gifts (§551.073); deliberation regarding personnel matters (§551.074); deliberation regarding security devices (§551.076); and deliberation regarding cybersecurity (§551.089). Any subject discussed in executive session may be subject to action.

**MINUTES OF THE BOARD OF DIRECTORS' BOARD MEETING AND PUBLIC HEARING  
NORTH TEXAS GROUNDWATER CONSERVATION DISTRICT**

**Tuesday, August 9, 2022, at 10:00 a.m.**

**Pilot Point ISD Administration Office  
829 S. Harrison St.  
Pilot Point, TX 76258**

Please note for in-person attendance that the Board meeting location can only accommodate a limited number of attendees to comply with state requirements related to in-person gatherings. In the event in-person attendance exceeds any state or local requirements, the District may provide an option for virtual participation for any overflow attendees as necessary and authorized by law.

---

Members Present: Lee K. Allison, Allen Knight, Ronny Young, Greg Peters, Joe Helmberger, Ron Sellman, David Flusche, and Thomas Smith

Members Absent: Jimmy Arthur

Staff: Drew Satterwhite, Paul Sigle, and Velma Starks

Visitors: Kristen Fancher, Law Offices of Kristen Fancher, PLLC  
Yambo Li, North Texas Municipal Water District

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**Permit Hearing**

**Agenda:**

1. Call to Order; establish quorum; declare hearing open to the public; introduction of Board.  
Board President Joe Helmberger called the Permit Hearing to order at 10:00 a.m.
2. Public Comment on the Production Permit Applications (verbal comments limited to three (3) minutes each).  
No public comment at this time.
3. Review the Production Permit Applications of:

**New Production Permit and Request for Exception to Spacing Requirements**

- a. **This permit will be tabled until the September Board Meeting upon request of the applicant. No action will be taken.**

**Applicant:** Texas Water Services Group, LLC, dba Monarch Utilities I LP; 1620 Grand Avenue St. 140, Pflugerville, TX 78660

**Location of Well:** 800 CR 131, Gainesville, TX 76240; Latitude: 33.660278°N, Longitude: 97.10375°W; About 300 feet east of the County Road 193 and County Road 131 intersection and about 500 feet north of County Road 131.

**Purpose of Use:** Municipal/Public Water System

**Requested Amount of Use:** 6,930,000 gallons per year

**Production Capacity of Well:** 100 gallons/minute

**Aquifer:** Trinity (Antlers)

**Request for Exception to Spacing Requirements:** Applicant Texas Water Services Group, LLC is requesting an exception to the spacing requirements for a well located approximately 316 feet from the proposed well. The spacing requirement for a 100 gallon per minute well is 1,295 feet from a registered or permitted well.

General Manager Drew Satterwhite informed the board that the applicant agreed to table this permit until next meeting.

**New Production Permit**

- b. **Applicant:** Texas Water Services Group, LLC dba Monarch Utilities I LP; 1620 Grand Avenue St. 140, Pflugerville, TX 78660

**Location of Well:** 114 CR 142, Whitesboro, TX 76273; Latitude: 33.653417°N, Longitude: 96.987083°W; About 1,800 feet north of the Highway 82 and County Road 142 intersection and about 200 feet west of County Road 142.

**Purpose of Use:** Municipal/Public Water System

**Requested Amount of Use:** 4,120,000 gallons per year

**Production Capacity of Well:** 100 gallons/minute

**Aquifer:** Trinity (Antlers)

General Manager Drew Satterwhite reviewed this permit with the Board.

- c. **Applicant:** MM Celina 3200, LLC; 1800 Valley View Lane, Farmers Branch, TX 75234  
**Location of Well:** County Road 58, Celina, TX 75009; Latitude: 33.383897°N, Longitude: 96.812197°W; About 500 feet south of the County Road 58 and County Road 59 intersection and about 3,250 feet west of County Road 58.  
**Purpose of Use:** Soil Moisture Conditioning, Concrete Batch Plant, Dust Control, Materials Conditioning, and Lime Stabilization for Paving  
**Requested Amount of Use:** 137,816,000 gallons thru 2029  
**Production Capacity of Well:** 100 gallons/minute  
**Aquifer:** Woodbine

General Manager Drew Satterwhite reviewed this permit with the Board. Discussion was held.

- d. **Applicant:** TXI Operations, LP; 1503 Lyndon B Johnson Freeway, Suite 400, Dallas, TX 75234  
**Location of Well:** 1825 FM 546, McKinney, TX 75069; Latitude: 33.162763°N, Longitude: 96.581446°W; About 600 feet north of the County Road 317 and Farm to Market Road 546 intersection and about 1,600 feet east of Farm to Market Road 546.  
**Purpose of Use:** Concrete Production  
**Requested Amount of Use:** 10,100,000 gallons per year  
**Production Capacity of Well:** 100 gallons/minute  
**Aquifer:** Woodbine

General Manager Drew Satterwhite reviewed the permit with the Board.

4. Consider and act upon the Production Permit Applications, including designation of parties and/or granting or denying the Production Permit Applications in whole or in part, as applicable.

Board Member Ronny Young made the motion to table Permit a. Board Member Greg Peters seconded the motion. Board Member Thomas Smith made the motion to approve the other permits as presented. Board Member Ronny Young seconded the motion. Motions passed unanimously.

5. Adjourn or continue permit hearing.

Board President Joe Helmberger adjourned the permit hearing at 10:14 a.m.

### **Public Hearing to Adopt District Management Plan in Collin, Cooke, and Denton Counties, Texas**

#### **Agenda**

1. Call to Order; establish quorum; declare hearing open to the public; introduction of Board.  
2. Review of Management Plan applicable to the District.

Paul Sigle, Groundwater Technical Lead, reviewed the Management Plan with the Board. Discussion was held. The Management Plan will be sent back to TWBD for final approval.

3. Public Comment on District's Management Plan (verbal comments limited to three (3) minutes each).

No Public comment.

4. Consider and act upon adoption of the Management Plan applicable to the District.

Board Member Ronny Young made the motion to adopt the Management Plan as presented. Board Member Thomas Smith seconded the motion. Motion passed unanimously.

## Board Meeting

### Agenda:

1. Pledge of Allegiance and Invocation

Board President Joe Helmberger led the Pledge of Allegiance and Board Member Ronny Young provided the invocation.

2. Call to order, establish quorum; declare meeting open to the public.

Board President Joe Helmberger called the meeting to order at 10:33 a.m., established a quorum was present, and declared the meeting open to the public.

3. Public Comment

There were no public comments.

4. Receive presentation from the North Texas Municipal Water District.

Yambo Li, North Texas Municipal Water District, provided the presentation. Discussion was held.

5. Consider and act upon approval of the minutes from the June 29, 2022, Board meeting.

Board President Joe Helmberger asked for approval of the minutes from the June 29, 2022, meeting. Board Member Ron Sellman made the motion to approve the minutes. Board Member Greg Peters seconded the motion. Motion passed. Board Member Thomas Smith abstained.

6. Consider and act upon approval of invoices and reimbursements, Resolution No. 2022-08-09-1.

General Manager Drew Satterwhite reviewed the liabilities with the Board. Board Member Ronny Young made the motion to approve Resolution No. 2022-08-09-1. Board Member Thomas Smith seconded the motion. Motion passed unanimously.

7. Receive reports from the following Committees\*:

- a. Investment Committee
  - 1) Receive Quarterly Investment Report

General Manager Drew Satterwhite reviewed the Quarterly Investment Report with the Board.

- b. Management Plan Committee
  - 1) Receive Quarterly Report

Manager Drew Satterwhite reviewed the Quarterly Report with the Board.

8. Discussion and possible action on regular Board Meeting date and time.

Discussion was held to leave like it is.

9. Update and possible action regarding the process for the development of Desired Future Conditions (DFCs).

General Manager Drew Satterwhite informed the Board that the GMA 8 held meeting on July 26 during which the GMA 8 readopted the DFCs. The GMA 8 elected officers, Mitchell Sodek chair, and Doug Shaw, vice chair. The GMA 8 after a discussion regarding the need for model update formed a committee. The committee will send out RFQs to be reviewed by the committee. TAG created subcommittee for districts to consider vanity ponds.

10. Consider and act upon compliance and enforcement activities for violations of District rules.

a. Argyle ISD

General Manager Drew Satterwhite informed the Board that the District is looking for guidance regarding the Argyle ISD situation. Discussion was held. Board decided that Argyle ISD should pay for water used in the past (eleven years) due to miss reading the meter without its 1000 multiplier. Board Member Thomas Smith made the motion to send them a bill for the water used during the time meter was miss read. Board Member Ronny Young seconded the motion. Motion passed unanimously.

11. General Manager's Report: The General Manager will update the board on operational, educational and other activities of the District.

a. District's Disposal/Injection Well Program

b. Well Registration Summary and discussion of "Other" well types

General Manager Drew Satterwhite reviewed the well registration summary with the Board. Allen Burks, Data Administrator has placed \*Examples of "other" uses: Closed Loop Geothermal, Construction, and Fire suppression at the bottom of the Well Registration Summary.

c. General Manager

General Manager Drew Satterwhite informed the Board that the Committee has three qualified candidates scheduled for interviews to begin at 8 a.m. on Friday morning and on Monday. Board President Joe Helmberger is on the committee.

12. Open forum/discussion of new business for future meeting agendas.

Talk about accounting

13. Adjourn public meeting



Board President Joe Helmberger declared the meeting adjourned at 11:36 a.m.

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Recording Secretary

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Secretary-Treasurer

**APPENDIX C: EVIDENCE THAT THE DISTRICT  
COORDINATED DEVELOPMENT OF THE  
MANAGEMENT PLAN WITH THE SURFACE WATER  
MANAGEMENT ENTITIES**



COLLIN COUNTY - COOKE COUNTY - DENTON COUNTY

## MEMO

TO: Surface Water Management Entities

FROM: Drew Satterwhite, P.E., General Manager

DATE: Friday, August 25, 2022

RE: North Texas Groundwater Conservation District Management Plan

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The North Texas Groundwater Conservation District's Management Plan, adopted at the District's Public Hearing held August 9, 2022, is available on the District website, [www.northtexasgcd.com](http://www.northtexasgcd.com). This copy is being made available for your review and files. The North Texas Groundwater Conservation District is required to make this document available to "Political subdivisions as defined by Texas Water Code, Chapter 15, and identified from Texas Commission on Environmental Quality records which are granted authority to store, take, divert, or supply surface water either directly or by contract under Texas Water Code, Chapter 11, for use within the boundaries of a district.

<b>Surface Entities</b>	<b>Address</b>	<b>Email</b>
Alpha Ranch WCID	2728 N Harwood St, Suite 500 Dallas, TX 75201-1743	rmartin@winstead.com
Belmont FWSD 1 of Denton County	19 Briar Hollow Ln, Suite 245 Houston, TX 77027	ccrawford@crawlaw.net
Belmont FWSD 2 of Denton County	19 Briar Hollow Ln, Suite 245 Houston, TX 77027	ccrawford@crawlaw.net
Caddo Basin SUD	156 CR 1118 Greenville, TX 75401-7514	caddobasin@yahoo.com
City of Allen	305 Century Parkway Allen, Texas 75013	coa@cityofallen.org
City of Anna	P.O. Box 776 120 W. 7th St. Anna, TX 75409	gpeters@annatexas.gov
City of Aubrey	107 S. Main Street Aubrey, TX 76227	lwilson@aubreytx.gov
City of Carrollton	P.O. Box 110535 Carrollton, Texas 75011-0535	contactpublicworks@cityofcarrollton.com
City of Celina	142 N Ohio St Celina, TX 75009	marketing@celina-tx.gov
City of Coppell	P.O. Box 9478 Coppell, TX 75019	citysec@coppelltx.gov
City of Dallas	1500 Marilla St. Room 4A North Dallas, Texas 75201	WaterSpecialtyUnit@dallascityhall.com
City of Denton	601 East Hickory Street Denton, TX 76205	CMO@CITYOFDENTON.COM
City of Fairview	372 Town Place Fairview, TX 75069	awilbourn@fairviewtexas.org
City of Farmersville	205 S. Main Street Farmersville, TX 75442	a.hanks@farmersvilletx.com
City of Fort Worth	200 Texas St. Fort Worth, TX 76102	David.Cooke@fortworthtexas.gov
City of Frisco	6101 Frisco Square Boulevard Frisco, Texas 75034	wpierson@friscotexas.gov
City of Gainesville	200 South Rusk Gainesville, TX 76240	resllman@cogtx.org

<b>Surface Entities</b>	<b>Address</b>	<b>Email</b>
City of Garland	P.O. Box 469002 Garland, TX 75046	waterops@garlandtx.gov
City of Hackberry	119 Maxwell Road Frisco, Texas 75036	city@cityofhackberry.net
City of Haslet	101 Main Street Haslet, TX 76052	smontgomery@haslet.org
City of Highland Village	1000 Highland Village Road Highland Village, TX 75077	kmccoy@highlandvillage.org
City of Josephine	201 S. Main St. Josephine, TX 75173	jturney@cityofjosephintx.com
City of Justin	P.O. Box 129 Justin, TX 76247	cewings@cityofjustin.com
City of Krugerville	5097 Highway 377 South Krugerville, TX 76227	Info@Krugerville.org
City of Krum	P.O. Box 217 Krum, TX 76249	info@cityofkrum.com
City of Lewisville	151 W Church St Lewisville, TX 75057	jkunke@cityoflewisville.com
City of Lucas	665 Country Club Road Lucas, Texas 75002- 7651	jclarke@lucastexas.us
City of McKinney	222 N. Tennessee St. McKinney, Texas 75069	citymgr@mckinneytexas.org
City of Melissa	3411 Barker Avenue Melissa, TX 75454	jlittle@cityofmelissa.com
City of Murphy	206 N. Murphy Road Murphy, TX 75094	mcastro@murphytx.org
City of Oak Point	100 Naylor Road Oak Point, TX 75068	sashley@oakpointtexas.com
City of Parker	5700 E Parker Road Parker, TX 75002	gmachado@parkertexas.us
City of Plano	1520 K Avenue Plano, TX 75074	danielpr@plano.gov
City of Plano	P.O. Box 860358 Plano, TX 75086	ejohnson@plano.gov
City of Princeton	2000 E Princeton Drive Princeton, TX 75407	lgronemeier@princetontx.us

<b>Surface Entities</b>	<b>Address</b>	<b>Email</b>
City of Richardson	411 W. Arapaho Rd Richardson, TX 75080-4551	AskRichardsonPublicServices@cor.gov
City of Roanoke	500 S. Oak Street Roanoke, TX 76262	scampbell@roanoketexas.com
City of Royse City	PO Box 638 Royse City, TX 75189	carl.alsabrook@roysecity.com
City of Sachse	3815 Sachse Road Sachse, TX 75048	lmata@cityofsachse.com
City of Sanger	PO BOX 1729 Sanger, TX 76266	citysecretary@sangertexas.org
City of Southlake	1400 Main Street Suite 460 Southlake, TX 76092	syelverton@ci.southlake.tx.us
City of the Colony	6900 Main Street The Colony, TX 75056	TheColonyCVB@thecolonytx.gov
City of Van Alstyne	152 N Main Dr. Van Alstyne, Texas 75495	jgould@cityofvanalstyne.us
City of Wylie	300 Country Club Road, Building 100, 1st Floor Wylie, TX 75098	citysec@wylietexas.gov
Clear Creek Watershed Authority	202 S DIXON ST STE 208 GAINESVILLE, TEXAS 76240-4764	ccwa-tx@att.net
Collin County MUD 1	19 BRIAR HOLLOW LN STE 245 HOUSTON, TEXAS 77027-2858	ccrawford@crawlaw.net
Denton County Development District 4	2650 FM 407 E Suite 125Bartonville, Texas 76226	cs@lantanatx.com
Elm Ridge WCID	724 Savannah Blvd. Savannah, TX 76227	customerservice@elmridgewcid.org
Denton County FWSD 11-A	19 BRIAR HOLLOW LN STE 245 HOUSTON, TEXAS 77027-2858	ccrawford@crawlaw.net
Denton County FWSD 11-B	19 BRIAR HOLLOW LN STE 245 HOUSTON, TEXAS 77027-2858	ccrawford@crawlaw.net

<b>Surface Entities</b>	<b>Address</b>	<b>Email</b>
Denton County FWSD 11-C	19 BRIAR HOLLOW LN STE 245 HOUSTON, TEXAS 77027-2858	ccrawford@crawlw.net
Denton County FWSD 6	2650 FM 407 E Suite 125Bartonville, Texas 76226	cs@lantanatx.com
Denton County FWSD 7	2650 FM 407 E Suite 125Bartonville, Texas 76226	cs@lantanatx.com
Denton County FWSD 8-A	19 BRIAR HOLLOW LN STE 245 HOUSTON, TEXAS 77027-2858	ccrawford@crawlw.net
Denton County FWSD 8-B	19 BRIAR HOLLOW LN STE 245 HOUSTON, TEXAS 77027-2858	ccrawford@crawlw.net
East Fork FWSD 1	2728 N. Harwood Street, Suite 500 Dallas, Texas 75201	rmartin@winstead.com
East Fork SUD	1355 Troy Road Wylie, TX 75098	customerservice@eastforksud.com
Greater Texoma Utility Authority	5100 Airport Drive Denison, TX 75020	gtua@gtua.org
Lake Cities Municipal Utility Authority	501 N Shady Shores Drive Lake Dallas, Texas 75065	utilitybilling@lcmua.org
Lake Kiowa SUD	133 Kiowa Dr S Lake Kiowa, TX 76240	gm@lksud.org
Meadow Road Improvement District	2728 N. Harwood Street, Suite 500 Dallas, Texas 75201	rmartin@winstead.com
Muenster Water District	PO Box 208 Muenster, TX 76252	cityofmuenster@ntin.net
Mustang SUD	7985 FM 2931 Aubrey, TX, 76227	knichols@mustangwater.com
North Texas Municipal Water District	P.O. Box 2408 Wylie, TX 75098	groberts@ntmwd.com
Red River Authority of Texas	P.O. Box 240 Wichita Falls, Texas 76307	info@rra.texas.gov

<b>Surface Entities</b>	<b>Address</b>	<b>Email</b>
Sabine River Authority	PO Box 579 Orange, TX 77631-0579	ago@sratx.org
Town of Flower Mound	2121 Cross Timbers Road Flower Mound, TX 75028	james.childers@flower-mound.com
Town of Lindsay	PO Box 153 Lindsay, TX 76250-0153	cityoflindsay@ntin.net
Town of Little Elm	100 W. Eldorado Parkway Little Elm, TX 75068	jlitchfield@littleelm.org
Town of Northlake	1500 Commons Circle Suite 300 Northlake, TX 76226	zparker@town.northlake.tx.us
Town of Prosper	250 W. First Street Prosper, TX 75078	ub@prospertx.gov
Town of Westlake	1500 Solana Boulevard Building 7, Suite 7200 Westlake, TX 76262	apiukana@westlake-tx.org
Upper Trinity Regional Water District	PO Box 305 Lewisville, TX 75067	mail@utrwd.com



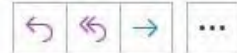
## North Texas Groundwater Conservation District Water Management Plan



North Texas Groundwater Conservation District

To

Bcc rmartin@winstead.com; ccrawford@crawl.net; caddobasin@yahoo.com; coa@cityoffallen.org; Greg Peters, P.E.; lwilson@aubreytx.gov; contactpublicworks@cityofcarrollton.com; **+24 others**



8:51 AM

You forwarded this message on 8/25/2022 8:52 AM.



Please find attached your copy of the North Texas Groundwater Conservation District Water Management Plan.

Thank you.

*Velma Starks*  
Administrative Assistant  
**North Texas Groundwater District**  
PO Box 508  
Gainesville, Texas 76241  
(855)-426-4433  
[v.starks@northtexasgcd.org](mailto:v.starks@northtexasgcd.org)

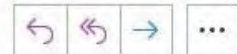
## North Texas Groundwater Conservation District Water Management Plan



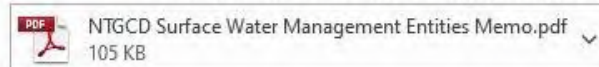
North Texas Groundwater Conservation District

To

Bcc danielpr@plano.gov; ejohnson@plano.gov; lgronemeier@princetontx.us; AskRichardsonPublicServices@cor.gov; scampbell@roanoketexas.com; **+26 others**



8:52 AM



Please find attached your copy of the North Texas Groundwater Conservation District Water Management Plan.

Thank you.

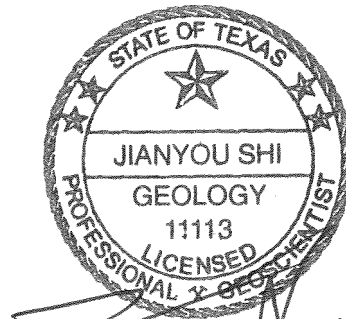
*Velma Starks*  
Administrative Assistant  
**North Texas Groundwater District**  
PO Box 508  
Gainesville, Texas 76241  
(855)-426-4433  
[v.starks@northtexasgcd.org](mailto:v.starks@northtexasgcd.org)

## **APPENDIX D: GAM RUNS**

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**GAM RUN 17-029 MAG:  
MODELED AVAILABLE GROUNDWATER FOR THE  
TRINITY, WOODBINE, EDWARDS  
(BALCONES FAULT ZONE), MARBLE  
FALLS, ELLENBURGER-SAN SABA, AND  
HICKORY AQUIFERS IN  
GROUNDWATER MANAGEMENT AREA 8**

Jerry Shi, Ph.D., P.G.  
Texas Water Development Board  
Groundwater Division  
Groundwater Availability Modeling Department  
(512) 463-5076  
January 19, 2018



1/19/2018

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# **GAM RUN 17-029 MAG: MODELED AVAILABLE GROUNDWATER FOR THE TRINITY, WOODBINE, EDWARDS (BALCONES FAULT ZONE), MARBLE FALLS, ELLENBURGER-SAN SABA, AND HICKORY AQUIFERS IN GROUNDWATER MANAGEMENT AREA 8**

Jerry Shi, Ph.D., P.G.  
Texas Water Development Board  
Groundwater Division  
Groundwater Availability Modeling Department  
(512) 463-5076  
January 19, 2018

## ***EXECUTIVE SUMMARY:***

The Texas Water Development Board (TWDB) has calculated the modeled available groundwater estimates for the Trinity, Woodbine, Edwards (Balcones Fault Zone), Marble Falls, Ellenburger-San Saba, and Hickory aquifers in Groundwater Management Area 8. The modeled available groundwater estimates are based on the desired future conditions for these aquifers adopted by groundwater conservation district representatives in Groundwater Management Area 8 on January 31, 2017. The district representatives declared the Nacatoch, Blossom, and Brazos River Alluvium aquifers to be non-relevant for purposes of joint planning. The TWDB determined that the explanatory report and other materials submitted by the district representatives were administratively complete on November 2, 2017.

The modeled available groundwater values for the following relevant aquifers in Groundwater Management Area 8 are summarized below:

- Trinity Aquifer (Paluxy) – The modeled available groundwater ranges from approximately 24,500 to 24,600 acre-feet per year between 2010 and 2070, and is

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summarized by groundwater conservation districts and counties in [Table 1](#), and by river basins, regional planning areas, and counties in [Table 13](#).

- Trinity Aquifer (Glen Rose) – The modeled available groundwater is approximately 12,700 acre-feet per year between 2010 and 2070, and is summarized by groundwater conservation districts and counties in [Table 2](#), and by river basins, regional planning areas, and counties in [Table 14](#).
- Trinity Aquifer (Twin Mountains) – The modeled available groundwater ranges from approximately 40,800 to 40,900 acre-feet per year between 2010 and 2070, and is summarized by groundwater conservation districts and counties in [Table 3](#), and by river basins, regional planning areas, and counties in [Table 15](#).
- Trinity Aquifer (Travis Peak) – The modeled available groundwater ranges from approximately 93,800 to 94,000 acre-feet per year between 2010 and 2070, and is summarized by groundwater conservation districts and counties in [Table 4](#), and by river basins, regional planning areas, and counties in [Table 16](#).
- Trinity Aquifer (Hensell) – The modeled available groundwater is approximately 27,300 acre-feet per year from 2010 to 2070, and is summarized by groundwater conservation districts and counties in [Table 5](#), and by river basins, regional planning areas, and counties in [Table 17](#).
- Trinity Aquifer (Hosston) – The modeled available groundwater ranges from approximately 64,900 to 65,100 acre-feet per year from 2010 to 2070, and is summarized by groundwater conservation districts and counties in [Table 6](#), and by river basins, regional planning areas, and counties in [Table 18](#).
- Trinity Aquifer (Antlers) – The modeled available groundwater ranges from approximately 74,500 to 74,700 acre-feet per year between 2010 and 2070, and is summarized by groundwater conservation districts and counties in [Table 7](#), and by river basins, regional planning areas, and counties in [Table 19](#).
- Woodbine Aquifer – The modeled available groundwater is approximately 30,600 acre-feet per year from 2010 to 2070, and is summarized by groundwater conservation districts and counties in [Table 8](#), and by river basins, regional planning areas, and counties in [Table 20](#).
- Edwards (Balcones Fault Zone) Aquifer – The modeled available groundwater is 15,168 acre-feet per year from 2010 to 2060, and is summarized by groundwater conservation districts and counties in [Table 9](#), and by river basins, regional planning areas, and counties in [Table 21](#).

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- Marble Falls Aquifer – The modeled available groundwater is approximately 5,600 acre-feet per year from 2010 to 2070, and is summarized by groundwater conservation districts and counties in [Table 10](#), and by river basins, regional planning areas, and counties in [Table 22](#).
- Ellenburger-San Saba Aquifer – The modeled available groundwater is approximately 14,100 acre-feet per year between 2010 and 2070, and is summarized by groundwater conservation districts and counties in [Table 11](#), and by river basins, regional planning areas, and counties in [Table 23](#).
- Hickory Aquifer – The modeled available groundwater is approximately 3,600 acre-feet per year from 2010 to 2070, and is summarized by groundwater conservation districts and counties in [Table 12](#), and by river basins, regional planning areas, and counties in [Table 24](#).

The modeled available groundwater values for the Trinity Aquifer (Paluxy, Glen Rose, Twin Mountains, Travis Peak, Hensell, Hosston, and Antlers subunits), Woodbine Aquifer, and Edwards (Balcones Fault Zone) Aquifer are based on the official aquifer boundaries defined by the TWDB. The modeled available groundwater values for the Marble Falls, Ellenburger-San Saba, and Hickory aquifers are based on the modeled extent, as clarified by Groundwater Management Area 8 on October 9, 2017.

The modeled available groundwater values estimated for counties may be slightly different from those estimated for groundwater conservation districts because of the process for rounding the values. The modeled available groundwater values for the longer leap years (2020, 2040, and 2060) are slightly higher than shorter non-leap years (2010, 2030, 2050, and 2070).

***REQUESTOR:***

Mr. Drew Satterwhite, General Manager of North Texas Groundwater Conservation District and Groundwater Management Area 8 Coordinator.

***DESCRIPTION OF REQUEST:***

In a letter dated February 17, 2017, Mr. Drew Satterwhite provided the TWDB with the desired future conditions of the Trinity (Paluxy), Trinity (Glen Rose), Trinity (Twin Mountains), Trinity (Travis Peak), Trinity (Hensell), Trinity (Hosston), Trinity (Antlers), Woodbine, Edwards (Balcones Fault Zone), Marble Falls, Ellenburger-San Saba, and Hickory aquifers. The desired future conditions were adopted as Resolution No. 2017-01 on January 31, 2017 by the groundwater conservation district representatives in

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Groundwater Management Area 8. The following sections present the adopted desired future conditions for these aquifers:

### Trinity and Woodbine Aquifers

The desired future conditions for the Trinity and Woodbine aquifers are expressed as water level decline or drawdown in feet over the planning period 2010 to 2070 relative to the baseline year 2009, based on a predictive simulation by Beach and others (2016).

The county-based desired future conditions for the Trinity Aquifer subunits, excluding counties in the Upper Trinity Groundwater Conservation District, are listed below (dashes indicate areas where the subunits do not exist and therefore no desired future condition was proposed):

County	Adopted Desired Future Condition (feet of drawdown below 2009 levels)							
	Woodbine	Paluxy	Glen Rose	Twin Mountains	Travis Peak	Hensell	Hosston	Antlers
Bell	—	19	83	—	300	137	330	—
Bosque	—	6	49	—	167	129	201	—
Brown	—	—	2	—	1	1	1	2
Burnet	—	—	2	—	16	7	20	—
Callahan	—	—	—	—	—	—	—	1
Collin	459	705	339	526	—	—	—	570
Comanche	—	—	1	—	2	2	3	9
Cooke	2	—	—	—	—	—	—	176
Coryell	—	7	14	—	99	66	130	—
Dallas	123	324	263	463	348	332	351	—
Delta	—	264	181	—	186	—	—	—
Denton	22	552	349	716	—	—	—	395
Eastland	—	—	—	—	—	—	—	3
Ellis	61	107	194	333	301	263	310	—
Erath	—	1	5	6	19	11	31	12
Falls	—	144	215	—	462	271	465	—
Fannin	247	688	280	372	269	—	—	251
Grayson	160	922	337	417	—	—	—	348
Hamilton	—	2	4	—	24	13	35	—
Hill	20	38	133	—	298	186	337	—
Hunt	598	586	299	370	324	—	—	—



GAM Run 17-029 MAG: Modeled Available Groundwater for the Trinity, Woodbine, Edwards (Balcones Fault Zone), Marble Falls, Ellenburger-San Saba, and Hickory Aquifers in Groundwater Management Area 8

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County	Adopted Desired Future Condition (feet of drawdown below 2009 levels)							
	Woodbine	Paluxy	Glen Rose	Twin Mountains	Travis Peak	Hensell	Hosston	Antlers
Johnson	2	-61	58	156	179	126	235	—
Kaufman	208	276	269	381	323	309	295	—
Lamar	38	93	97	—	114	—	—	122
Lampasas	—	—	1	—	6	1	11	—
Limestone	—	178	271	—	392	183	404	—
McLennan	6	35	133	—	471	220	542	—
Milam	—	—	212	—	345	229	345	—
Mills	—	1	1	—	7	2	13	—
Navarro	92	119	232	—	290	254	291	—
Red River	2	21	36	—	51	—	—	13
Rockwall	243	401	311	426	—	—	—	—
Somervell	—	1	4	31	51	26	83	—
Tarrant	7	101	148	315	—	—	—	148
Taylor	—	—	—	—	—	—	—	0
Travis	—	—	85	—	141	50	146	—
Williamson	—	—	77	—	173	74	177	—

The desired future conditions for the counties in the Upper Trinity Groundwater Conservation District are further divided into outcrop and downdip areas, and are listed below (dashes indicate areas where the subunits do not exist):

Upper Trinity GCD County (crop)	Adopted Desired Future Conditions (feet of drawdown below 2009 levels)			
	Antlers	Paluxy	Glen Rose	Twin Mountains
Hood (outcrop)	—	5	7	4
Hood (downdip)	—	—	28	46
Montague (outcrop)	18	—	—	—
Montague (downdip)	—	—	—	—
Parker (outcrop)	11	5	10	1
Parker (downdip)	—	1	28	46
Wise (outcrop)	34	—	—	—
Wise (downdip)	142	—	—	—

### **Edwards (Balcones Fault Zone) Aquifer**

The desired future conditions adopted by Groundwater Management Area 8 for the Edwards (Balcones Fault Zone) Aquifer are intended to maintain minimum stream and spring flows under the drought of record in Bell, Travis, and Williamson counties over the planning period 2010 to 2070. The desired future conditions are listed below:

<b>County</b>	<b>Adopted Desired Future Condition</b>
Bell	Maintain at least 100 acre-feet per month of stream/spring flow in Salado Creek during a repeat of the drought of record
Travis	Maintain at least 42 acre-feet per month of aggregated stream/spring flow during a repeat of the drought of record
Williamson	Maintain at least 60 acre-feet per month of aggregated stream/spring flow during a repeat of the drought of record

### **Marble Falls, Ellenburger-San Saba, and Hickory Aquifers**

The desired future conditions for the Marble Falls, Ellenburger-San Saba, and Hickory aquifers in Brown, Burnet, Lampasas, and Mills counties are intended to maintain 90 percent of the aquifer saturated thickness over the planning period 2010 to 2070 relative to the baseline year 2009.

### **Supplemental Information from Groundwater Management Area 8**

After review of the explanatory report and model files, the TWDB emailed a request for clarifications to Mr. Drew Satterwhite on August 7, 2017. On September 8, 2017, Mr. Satterwhite provided the TWDB with a technical memorandum from James Beach, Jeff Davis, and Brant Konetchy of LBG-Guyton Associates. On October 9, 2017, Mr. Satterwhite sent the TWDB two emails with additional information and clarifications. The information and clarifications are summarized below:

- a. For the Trinity and Woodbine aquifers, an additional error tolerance defined as five feet of drawdown between the adopted desired future condition and the simulated drawdown is included with the original error tolerance of five percent. Thus, if the drawdown from the predictive simulation is within five feet or five percent from the desired future condition, then the predictive simulation is considered to meet the desired future condition.

Groundwater Management Area 8 provided a new MODFLOW-NWT well package, simulated head file, and simulated budget file on October 9, 2017. The TWDB determined that the distribution of pumping in the new model files was consistent with the explanatory report.

The TWDB evaluates if the simulated drawdown from the predictive simulation meets the desired future condition by county. However, Groundwater Management Area 8 also provided desired future conditions based on groundwater conservation district and the whole groundwater management area.

- b. For the Edwards (Balcones Fault Zone) Aquifer in Bell, Travis, and Williamson counties, the coordinator for Groundwater Management Area 8 clarified that TWDB uses GAM Run 08-010 MAG by Anaya (2008) from the last cycle of desired future conditions with all associated assumptions including a baseline year of 2000.
- c. For the Marble Falls, Ellenburger-San Saba, and Hickory aquifers in Brown, Burnet, Lampasas, and Mills counties, Groundwater Management Area 8 adjusted the desired future condition from “maintain 90 percent of the saturated thickness” to “maintain *at least* 90 percent of the saturated thickness”. Groundwater Management Area 8 also provided estimated pumping to use for the predictive simulation by TWDB.
- d. The Trinity, Woodbine, and Edwards (Balcones Fault Zone) aquifers are based on the official aquifer boundary while the Marble Falls, Ellenburger-San Saba, and Hickory aquifers include the portions both inside and outside the official aquifer boundaries (modeled extent).
- e. The sliver of the Edwards-Trinity (Plateau) Aquifer was declared to be non-relevant by Groundwater Management Area 8.

### ***METHODS:***

The desired future conditions for Groundwater Management Area 8 are based on multiple criteria. For the Trinity and Woodbine aquifers, the desired future conditions are defined as water-level declines or drawdowns over the course of the planning period 2010 through 2070 relative to the baseline year 2009. The desired future conditions for the Edwards (Balcones Fault Zone) Aquifer are based on stream and spring flows under the drought of record over the planning period 2010 to 2070. For the Marble Falls, Ellenburger-San Saba, and Hickory aquifers, the desired future conditions are to maintain aquifer saturated thickness between 2010 and 2070 relative to the baseline year 2009. The methods to calculate the desired future conditions are discussed below.

### **Trinity and Woodbine Aquifers**

The desired future conditions for the Trinity and Woodbine aquifers in Groundwater Management Area 8 are based on a predictive simulation by Beach and others (2016), which used the groundwater availability model for the northern portion of the Trinity and Woodbine aquifers (Kelley and others, 2014). The predictive simulation contained 61 annual stress periods corresponding to 2010 through 2070, with an initial head equal to 2009 of the calibrated groundwater availability model. The desired future conditions are the drawdowns between 2009 and 2070.

Because the baseline year 2009 for the desired future conditions falls within the calibration period 1890 to 2012 of the groundwater availability model, the water levels for the baseline year have been calibrated to observed data and, thus, they were directly used as the initial water level (head) condition of the predictive simulation.

The drawdowns between 2009 and 2070 are calculated from composite heads. [Appendix A](#) presents additional details on methods used to calculate composite head and associated average drawdown values for the Trinity and Woodbine aquifers.

### **Edwards (Balcones Fault Zone) Aquifer**

Per Groundwater Management Area 8 (clarification dated September 1, 2017), the results from GAM Run 08-010 MAG by Anaya (2008) are used for the current round of joint planning. The following summarizes the approach used:

- Ran the model for 141 years, starting with a 100-year initial stress period (pre-1980) followed by 21 years of historical monthly stress periods (1980 to 2000), then 10 years of predictive annual stress periods (2001 to 2010), and ending with 10 years of predictive monthly stress periods (2011 to 2020) to represent a simulated repeat of the 1950s' drought of record.
- Used pumpage and recharge distributions provided to TWDB by the Groundwater Management Area 8 consultant.
- Adjusted pumpage in Williamson County to meet the desired future conditions.
- Extracted projected discharge for drain cells representing Salado Creek in Bell County and drain cells representing aggregated springs and streams in Williamson and Travis counties, respectively, for each of the stress periods from 2011 through 2020 to verify that the desired future conditions were met.

- Determined which stress period reflected the worst case monthly scenario for Salado Springs during a repeat of the 1950s' drought of record.
- Generated modeled available groundwater for all three desired future conditions based on the lowest monthly springflow volume for Salado Springs during a simulated repeat of the 1950s' drought of record.

### **Marble Falls, Ellenburger-San Saba, and Hickory Aquifers**

The TWDB constructed a predictive simulation to analyze the desired future conditions for the Marble Falls, Ellenburger-San Saba, and Hickory aquifers in Brown, Burnet, Lampasas, and Mills counties within Groundwater Management Area 8. This simulation used the groundwater availability model for the minor aquifers in the Llano Uplift region by Shi and others (2016). The predictive simulation contains 61 annual stress periods corresponding to the planning period 2010 through 2070 with an initial head condition from 2009.

Because the baseline year 2009 for the desired future conditions falls within the model calibration period 1980 to 2010, and the water levels for the baseline year have been calibrated to observed data, the simulated head from 2009 of the calibrated groundwater availability model was directly used as the initial water level (head) condition of the predictive simulation.

Additional details on the predictive simulation and methods to estimate the drawdowns between 2009 and 2070 are described in [Appendix B](#).

### **Modeled Available Groundwater**

Once the predictive simulations met the desired future conditions, the modeled available groundwater values were extracted from the MODFLOW cell-by-cell budget files. Annual pumping rates were then divided by county, river basin, regional water planning area, and groundwater conservation district within Groundwater Management Area 8 ([Figures 1](#) through [13](#) and [Tables 1](#) through [24](#)).

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

As defined in Chapter 36 of the Texas Water Code, "modeled available groundwater" is the estimated average amount of water that may be produced annually to achieve a desired future condition. Groundwater conservation districts are required to consider modeled available groundwater, along with several other factors, when issuing permits in order to manage groundwater production to achieve the desired future condition(s). The other factors districts must consider include annual precipitation and production patterns, the

estimated amount of pumping exempt from permitting, existing permits, and a reasonable estimate of actual groundwater production under existing permits.

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

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

#### **Trinity and Woodbine Aquifers**

- Version 2.01 of the updated groundwater availability model for the northern Trinity and Woodbine aquifers by Kelley and others (2014) was used to construct the predictive model simulation for this analysis (Beach and others, 2016).
- The predictive model was run with MODFLOW-NWT (Niswonger and others, 2011).
- The model has eight layers that represent units younger than the Woodbine Aquifer and the shallow outcrop of all aquifers (Layer 1), the Woodbine Aquifer (Layer 2), the Fredericksburg and Washita units (Layer 3), and various combinations of the subunits that comprise the Trinity Aquifer (Layers 4 to 8).
- Multiple model layers could represent an aquifer where it outcrops. For example, the Woodbine Aquifer could span Layers 1 to 2 and the Trinity Aquifer (Hosston) could contain Layers 1 through 8. The aquifer designation in model layers was defined in the model grid files produced by TWDB.
- The predictive model simulation contains 61 transient annual stress periods with an initial head equal to 2009 of the calibrated groundwater availability model.
- The predictive simulation had the same hydrogeological properties and hydraulic boundary conditions as the calibrated groundwater availability model except groundwater recharge and pumping.
- The groundwater recharge for the predictive model simulation was the same as stress period 1 of the calibrated groundwater availability model (steady state period) except stress periods representing 2058 through 2060, which contained lower recharge representing severe drought conditions.
- In the predictive simulation, additional pumping was added to certain counties and some pumping in Layer 1 was moved to lower layer(s) to avoid the automatic pumping reduction enacted by the MODFLOW-NWT code (Beach and others, 2016).

- During the predictive simulation model run, some model cells went dry ([Appendix C](#)). Dry cells occur during a model run when the simulated water level in a cell falls below the bottom of the cell.
- Estimates of modeled drawdown and available groundwater from the model simulation were rounded to whole numbers.

### **Edwards (Balcones Fault Zone) Aquifer**

- Version 1.01 of the groundwater availability model for the northern segment of the Edwards (Balcones Fault Zone) Aquifer (Jones, 2003) was used to construct the predictive model simulation for the analysis by Anaya (2008).
- The model has one layer that represents the Edwards (Balcones Fault Zone) Aquifer.
- The model was run with MODFLOW-96 (Harbaugh and McDonald, 1996).
- The predictive model simulation contains the calibrated groundwater availability model (253 monthly stress periods), stabilization (10 annual stress periods), and drought conditions (120 monthly stress periods).
- The boundary conditions for the stabilization and drought periods (except recharge and pumping) were the same in the predictive simulation as the last stress period (stress period 253) of the calibrated groundwater availability model.
- The groundwater recharge for the stabilization and drought periods and pumping information were from Groundwater Management Area 8 consultant.
- The groundwater pumping in Williamson County was adjusted as needed during the predictive model run simulation to match the desired future conditions.
- Estimates of modeled spring and stream flows from the model simulation were rounded to whole numbers.

### **Marble Falls, Ellenburger-San Saba, and Hickory Aquifers**

- Version 1.01 of the groundwater availability model for the minor aquifers in Llano Uplift region by Shi and others (2016) was used to develop the predictive model simulation used for this analysis.
- The model has eight layers: Layer 1 (the Trinity Aquifer, Edwards-Trinity (Plateau) Aquifer, and younger alluvium deposits), Layer 2 (confining units), Layer 3 (the Marble Falls Aquifer and equivalent unit), Layer 4 (confining units), Layer 5 (Ellenburger-San Saba Aquifer and equivalent unit), Layer 6 (confining units), Layer 7 (the Hickory Aquifer and equivalent unit), and Layer 8 (Precambrian units).

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- The model was run with MODFLOW-USG beta (development) version (Panday and others, 2013).
- The predictive model simulation contains 61 annual stress periods (2010 to 2070) with the initial head equal to 2009 of the calibrated groundwater availability model.
- The boundary conditions for the predictive model except recharge and pumping were the same in the predictive simulation of the last stress period of the calibrated groundwater availability model.
- The groundwater recharge for the predictive model simulation was set equal to the average of all stress periods (1982 to 2010) of the calibrated model except the first stress period.
- The groundwater pumping was initially set to the last stress period of the calibrated groundwater availability model. Additional pumping per county was then added to the model cells of the three aquifers based on the modeled extent to match the total pumping data for each aquifer provided by Groundwater Management area 8.
- During the predictive model run, some active model cells went dry ([Appendix D](#)). Dry cells occur during a model run when the simulated water level in a cell falls below the bottom of the cell.
- Estimates of modeled saturated aquifer thickness values were rounded to one decimal point.

## ***RESULTS:***

The modeled available groundwater for the Trinity Aquifer (Paluxy) that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 24,499 acre-feet per year for the non-leap (shorter) years (2010, 2030, 2050, and 2070) to 24,565 acre-feet per year for the leap (longer) years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in [Table 1](#). [Table 13](#) summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Trinity Aquifer (Glen Rose) that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 12,701 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 12,736 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in [Table 2](#). [Table 14](#)



summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Trinity Aquifer (Twin Mountains) that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 40,827 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 40,939 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in [Table 3](#). [Table 15](#) summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Trinity Aquifer (Travis Peak) that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 93,757 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 94,016 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in [Table 4](#). [Table 16](#) summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Trinity Aquifer (Hensell) that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 27,257 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 27,331 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in [Table 5](#). [Table 17](#) summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Trinity Aquifer (Hosston) that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 64,922 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 65,098 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in [Table 6](#). [Table 18](#) summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Trinity Aquifer (Antlers) that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 74,471 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 74,677 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is

summarized by groundwater conservation district and county in [Table 7](#). [Table 19](#) summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Woodbine Aquifer that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 30,554 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 30,636 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in [Table 8](#). [Table 20](#) summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Edwards (Balcones Fault Zone) Aquifer that achieves the desired future condition adopted by Groundwater Management Area 8 remains at 15,168 acre-feet per year from 2010 to 2060. The modeled available groundwater is summarized by groundwater conservation district and county in [Table 9](#). [Table 21](#) summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Marble Falls Aquifer that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 5,623 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 5,639 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in [Table 10](#). [Table 22](#) summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Ellenburger-San Saba Aquifer that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 14,050 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 14,089 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in [Table 11](#). [Table 23](#) summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Hickory Aquifer that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 3,574 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 3,585 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is

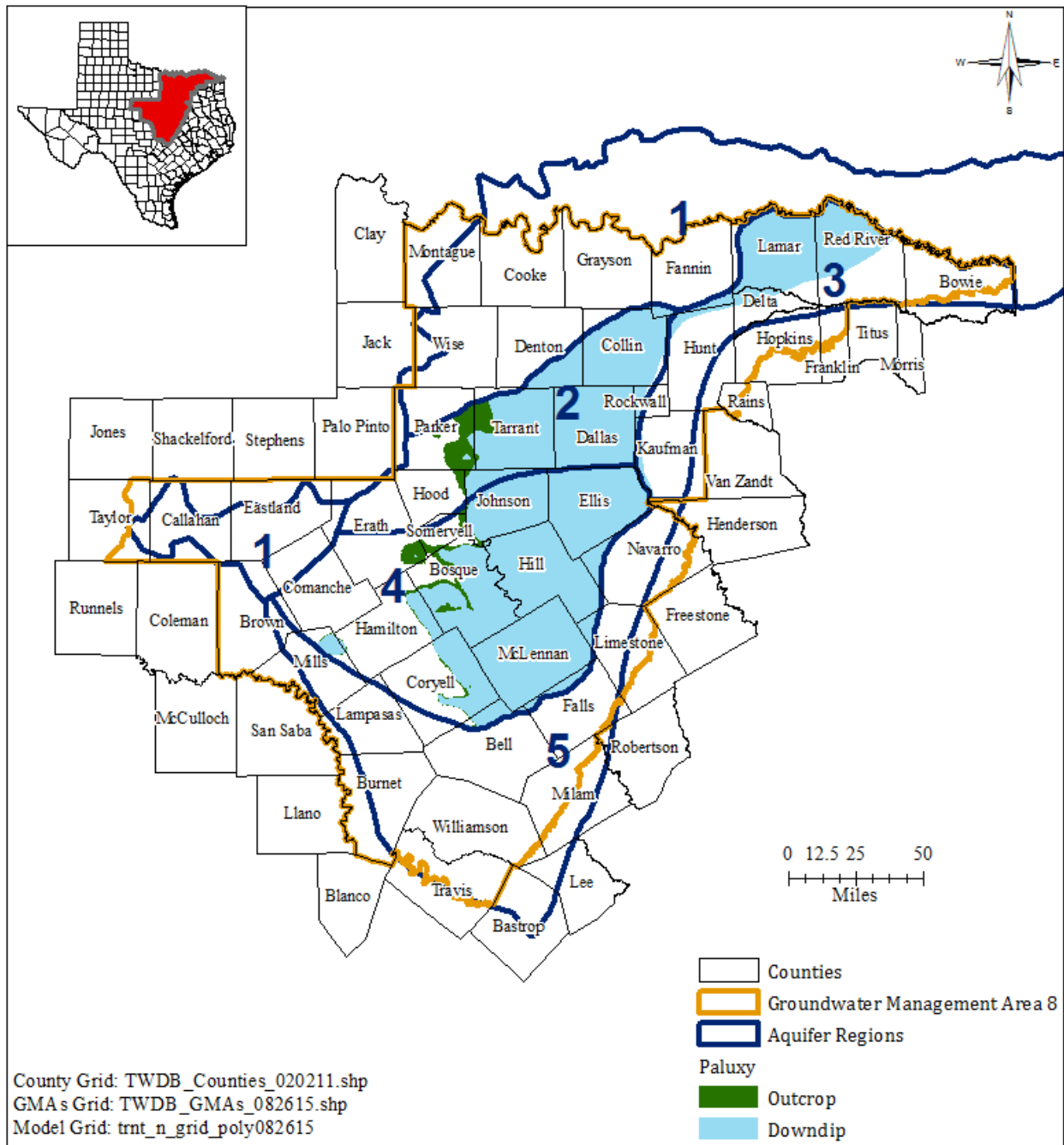
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summarized by groundwater conservation district and county in [Table 12](#). [Table 24](#) summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

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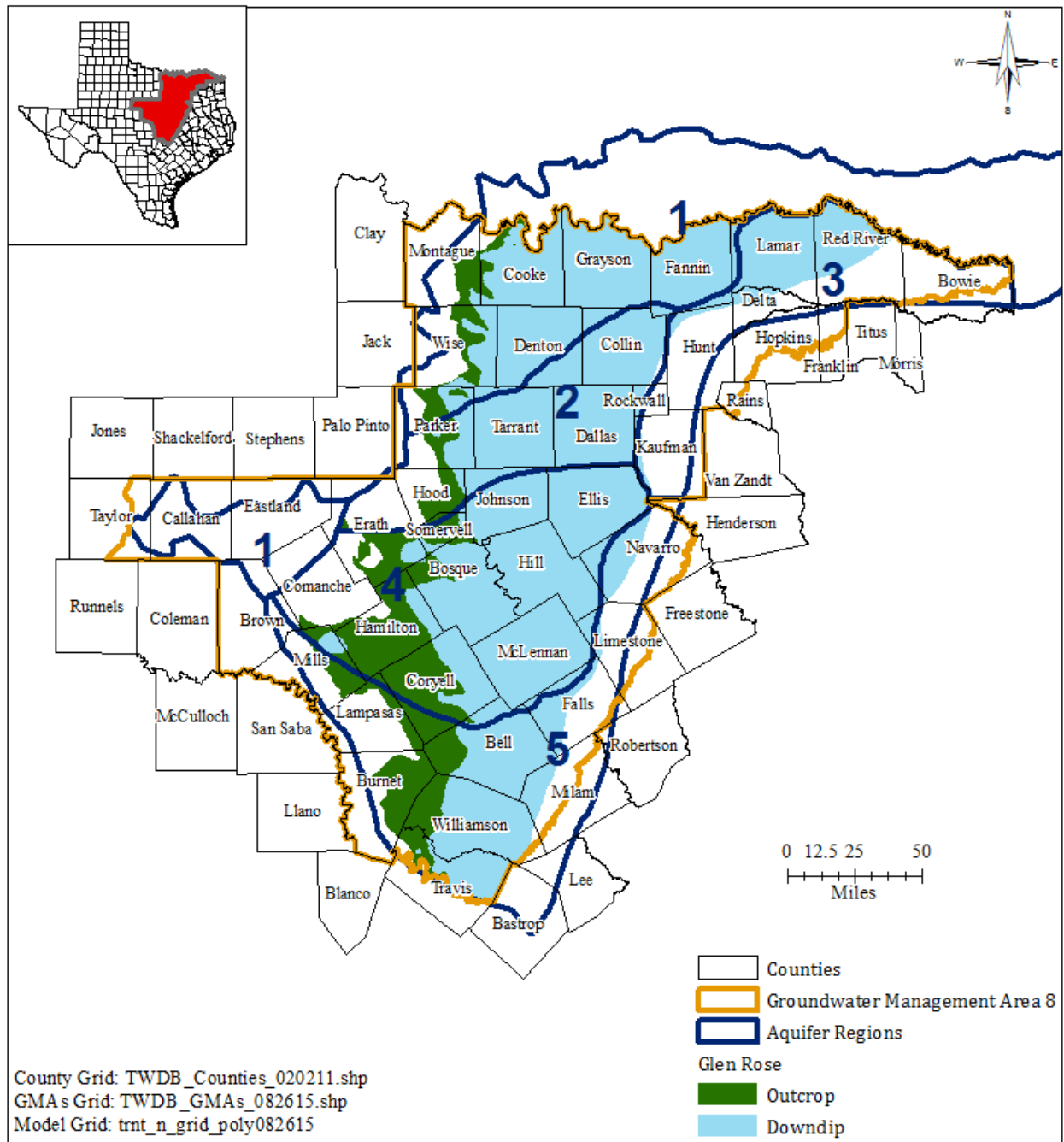
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**FIGURE 1. MAP SHOWING THE TRINITY AQUIFER (PALUXY) WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AND WOODBINE AQUIFERS.**

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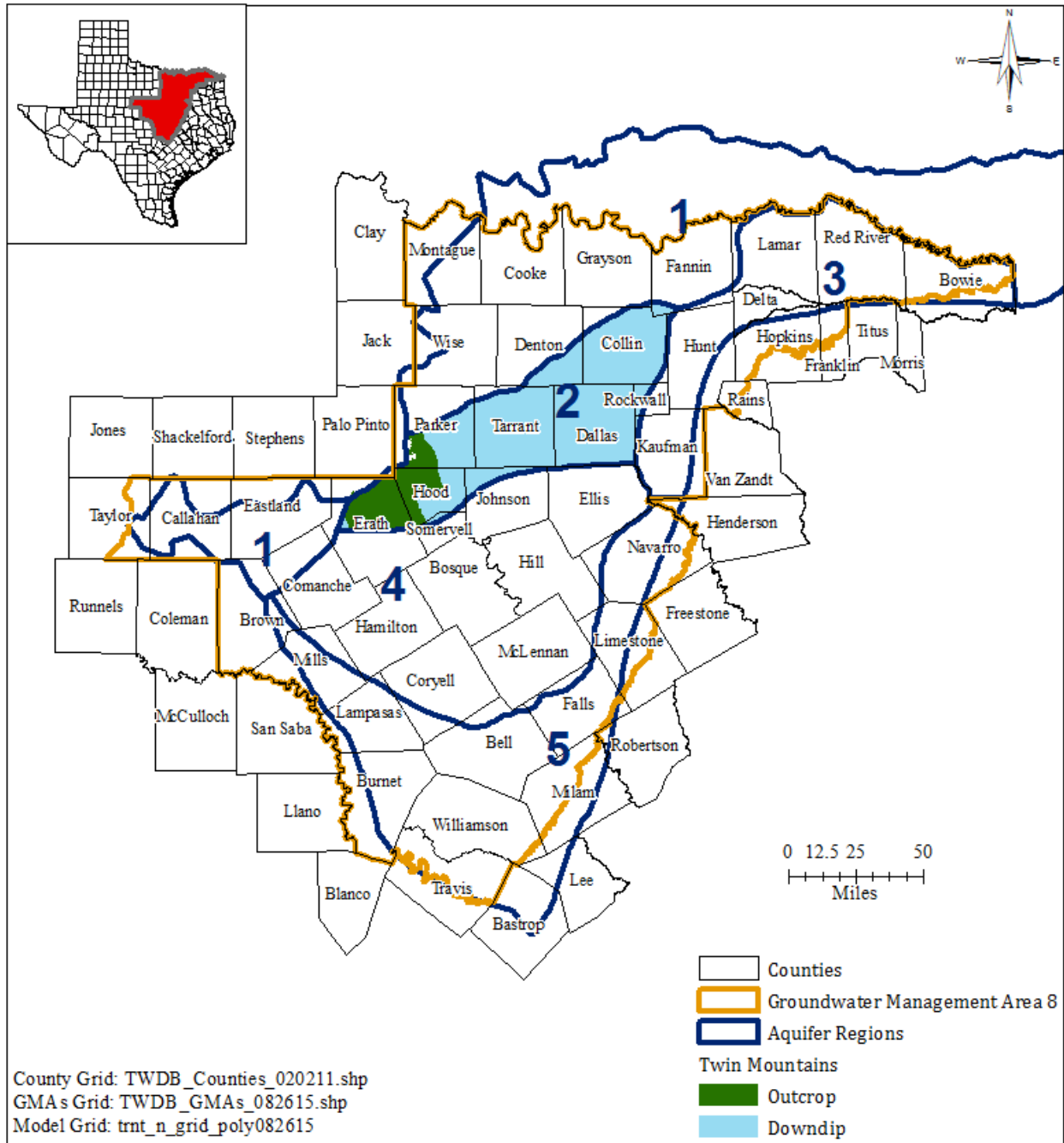
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**FIGURE 2. MAP SHOWING THE TRINITY AQUIFER (GLEN ROSE) WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AND WOODBINE AQUIFERS.**

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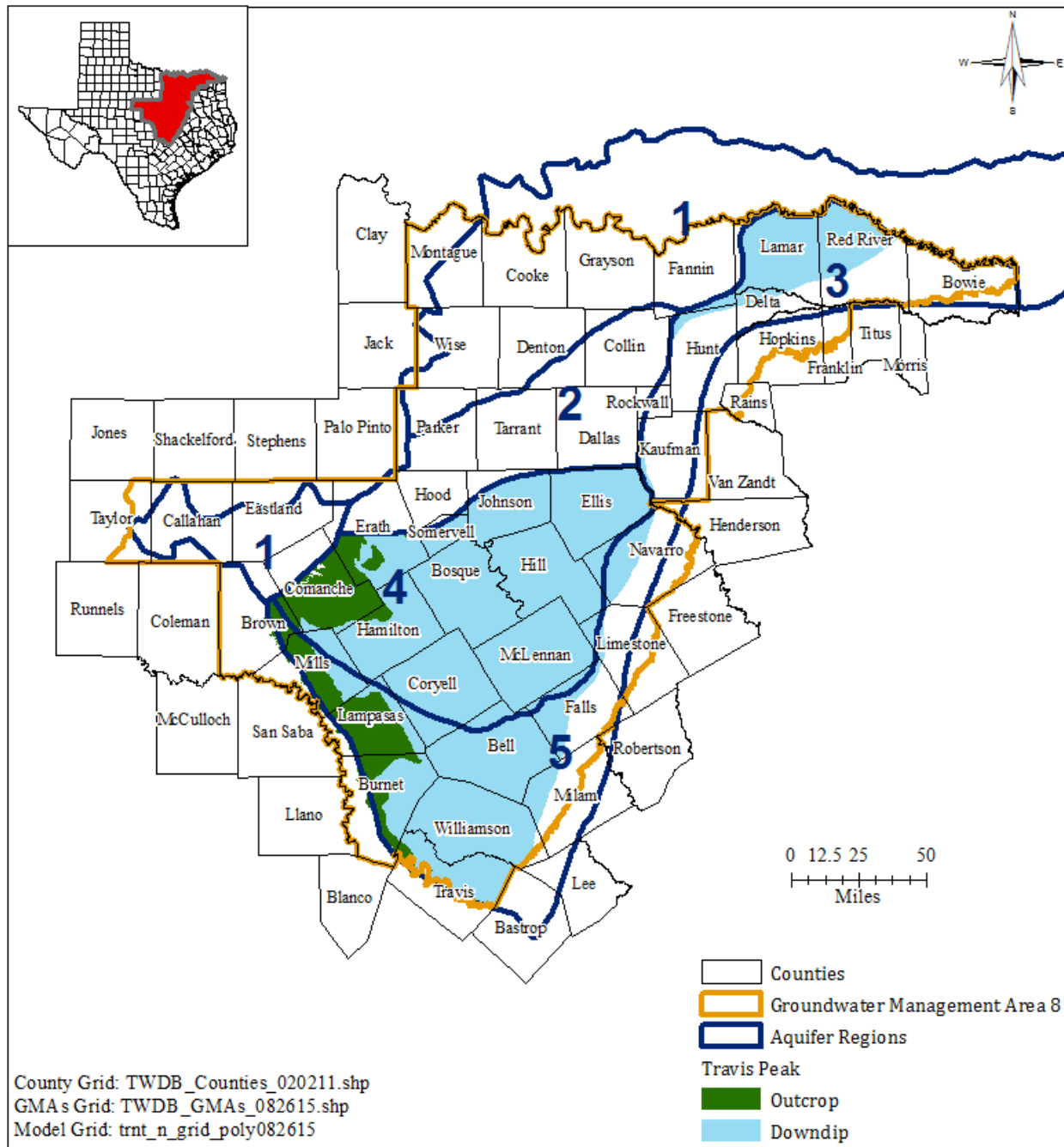
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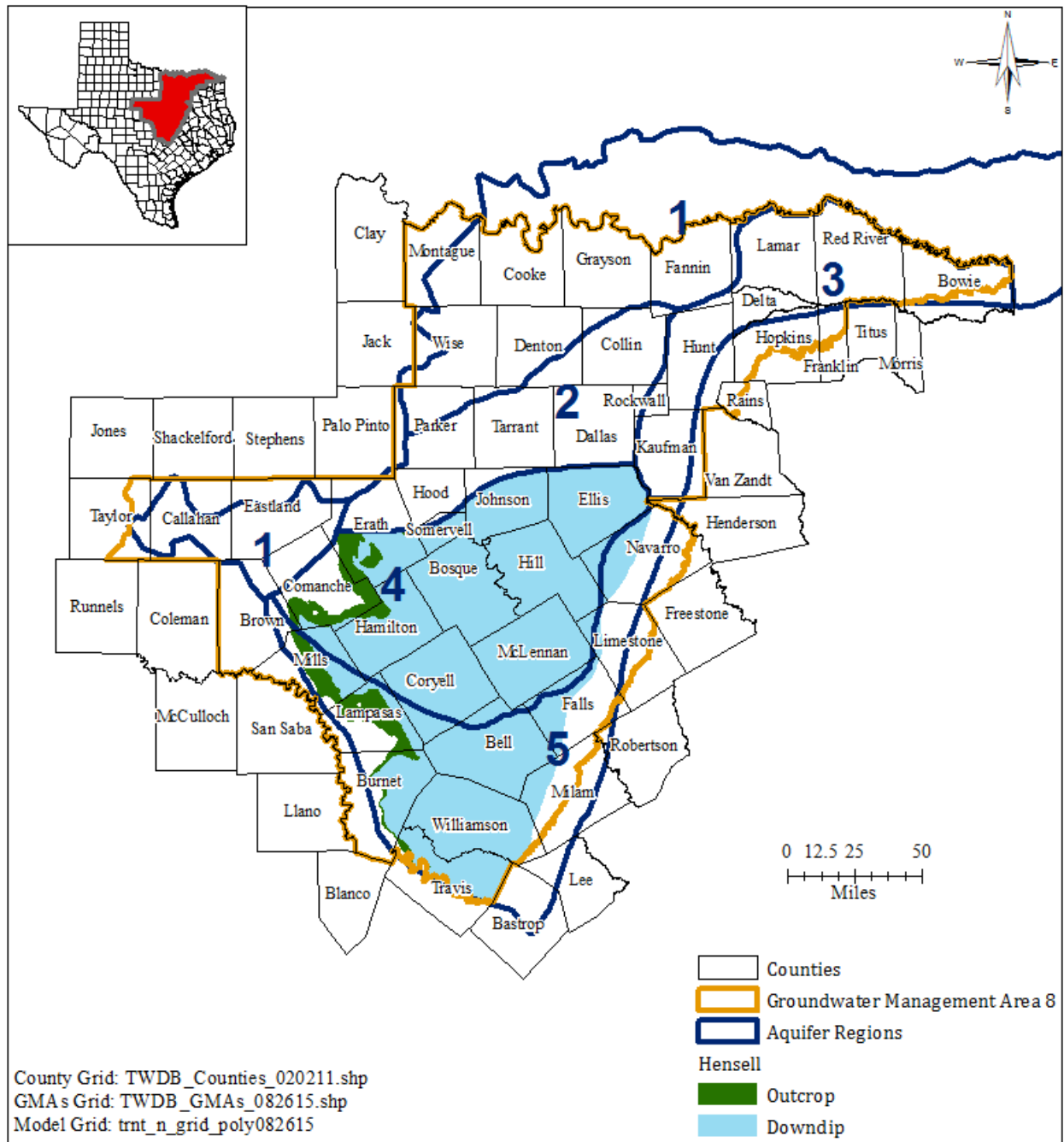
**FIGURE 3. MAP SHOWING THE TRINITY AQUIFER (TWIN MOUNTAINS) WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AND WOODBINE AQUIFERS.**

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**FIGURE 4. MAP SHOWING THE TRINITY AQUIFER (TRAVIS PEAK) WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AND WOODBINE AQUIFERS.**

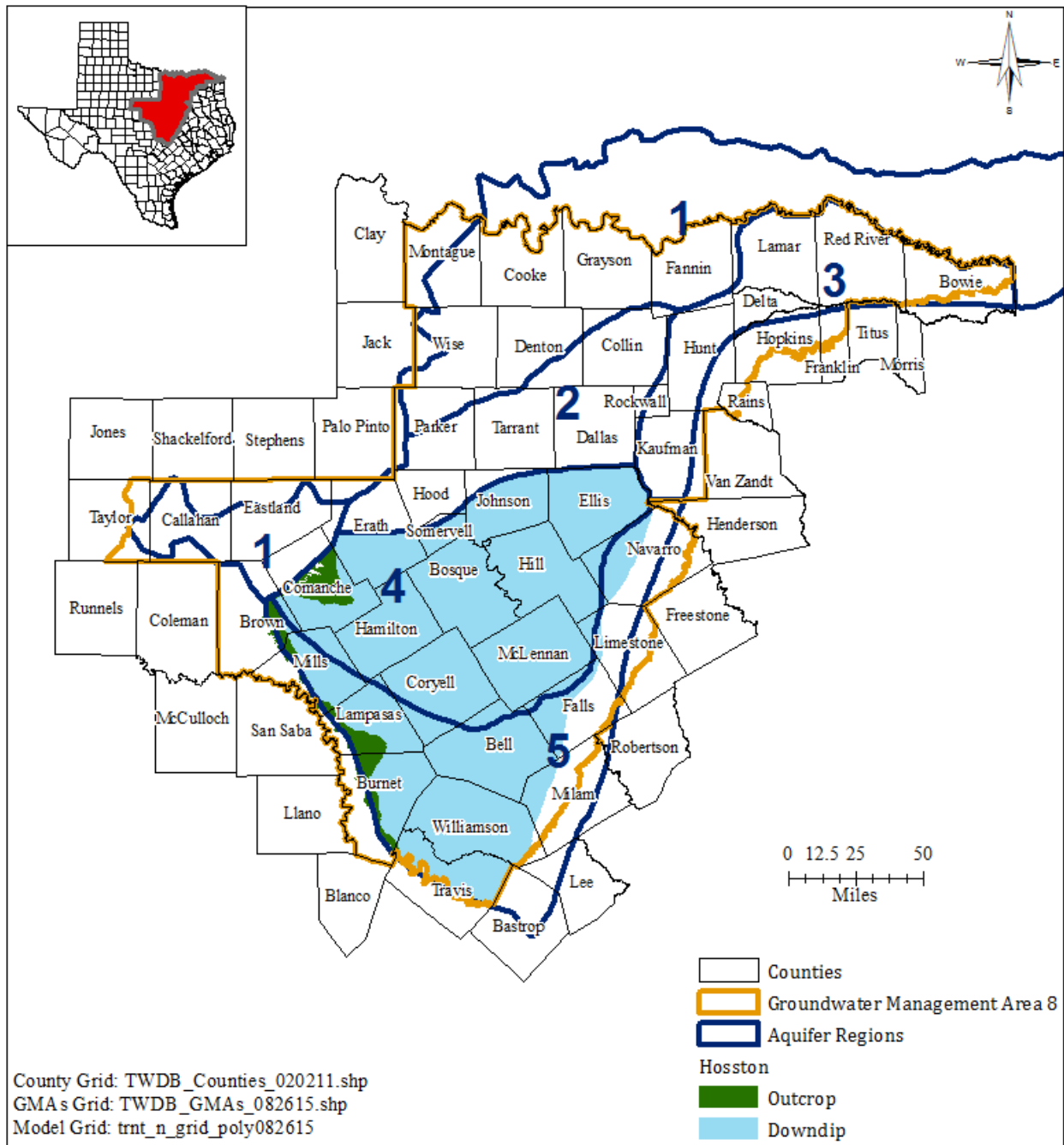


**FIGURE 5. MAP SHOWING THE TRINITY AQUIFER (HENSELL) WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AND WOODBINE AQUIFERS.**



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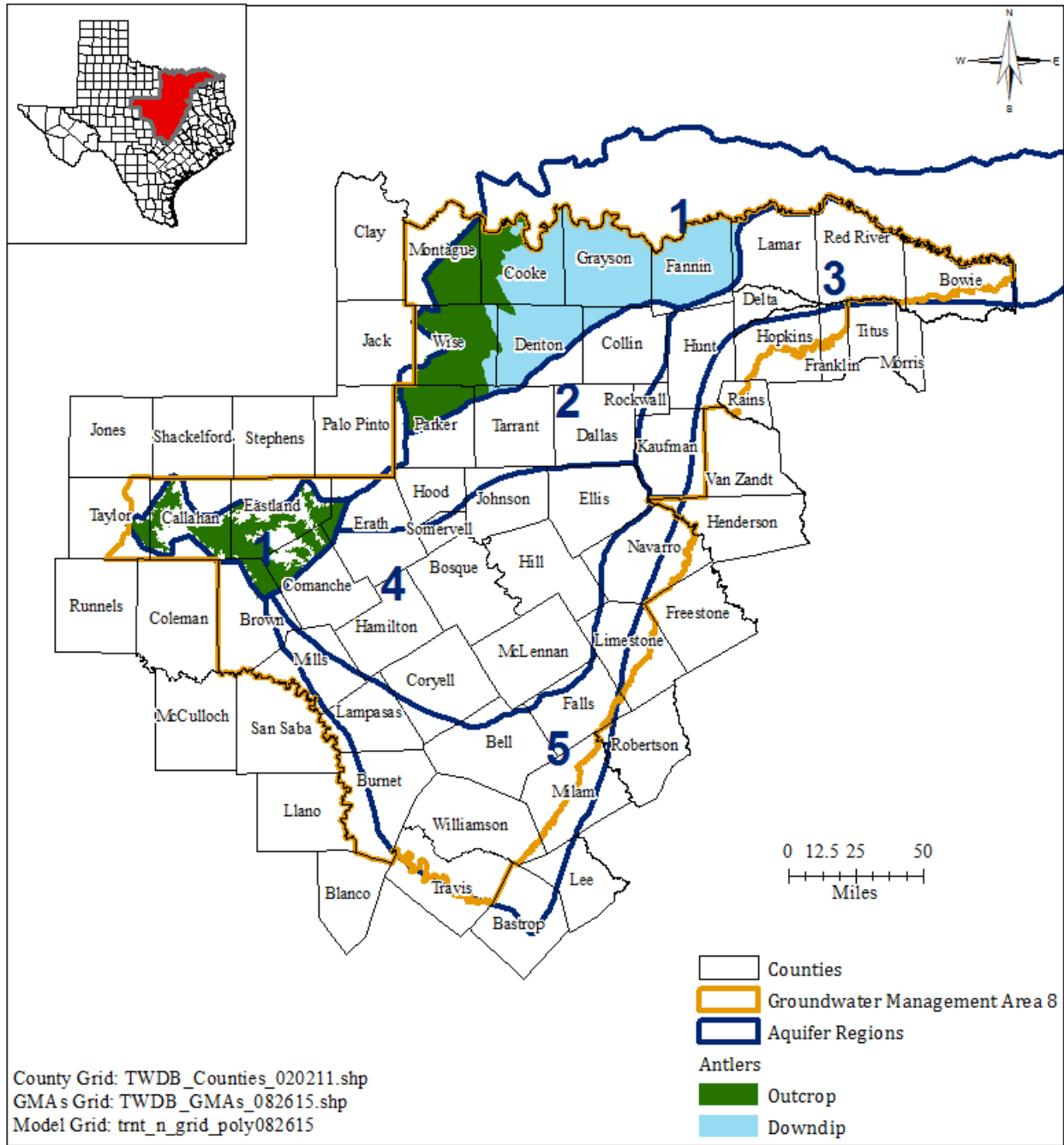
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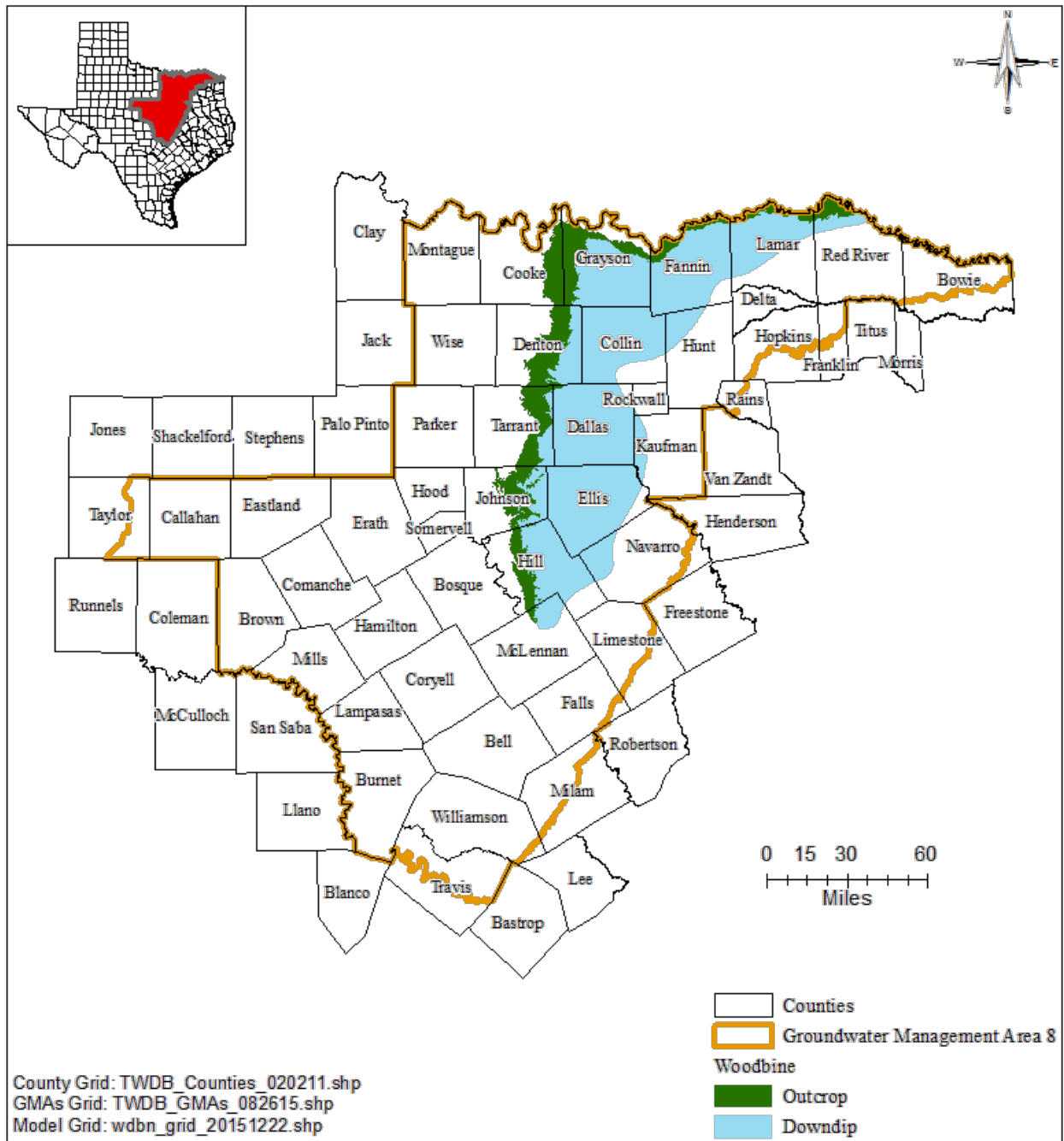
**FIGURE 6. MAP SHOWING THE TRINITY AQUIFER (HOSSTON) WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AND WOODBINE AQUIFERS.**

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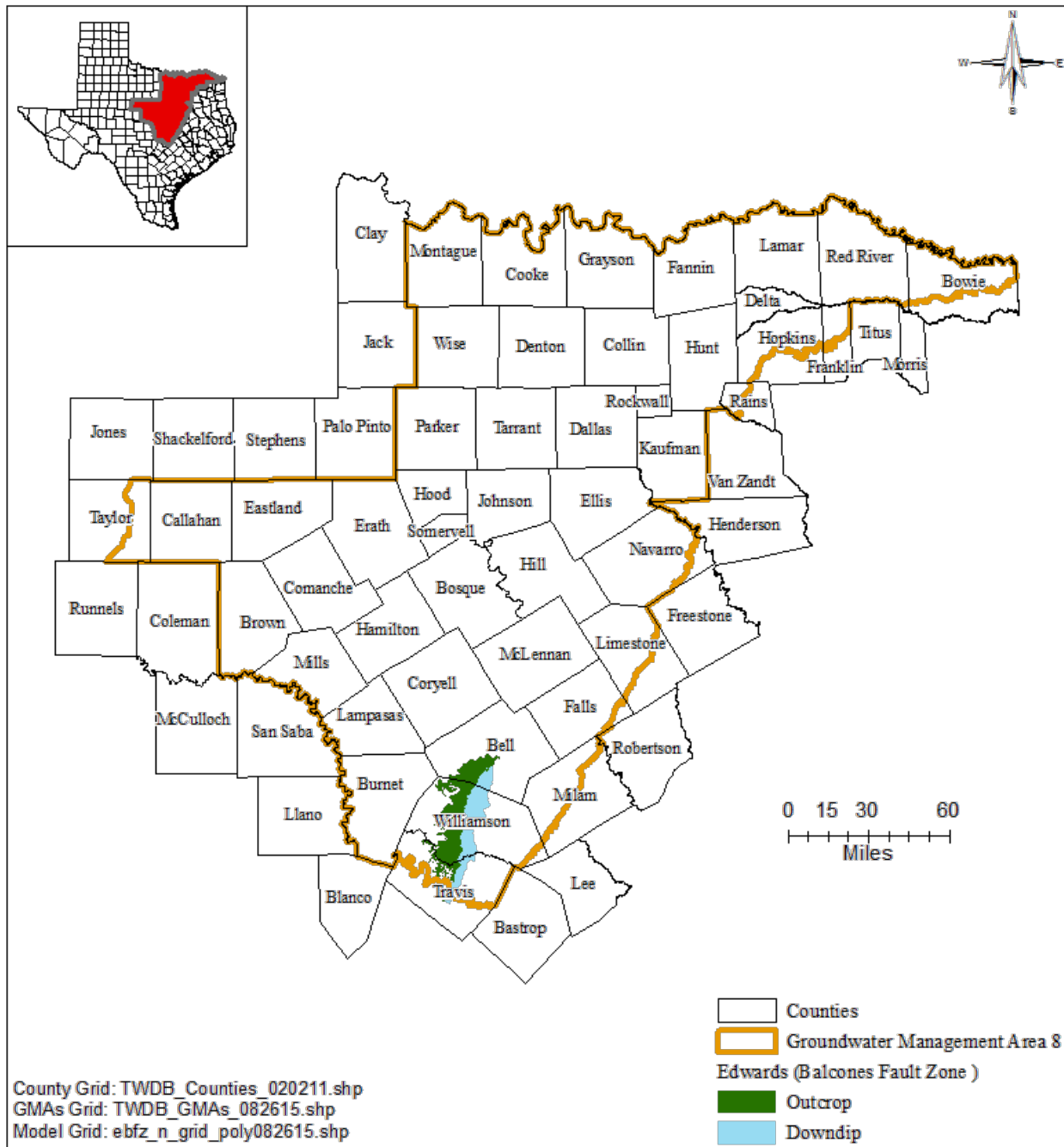
**FIGURE 7. MAP SHOWING THE TRINITY AQUIFER (ANTLERS) WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AND WOODBINE AQUIFERS.**



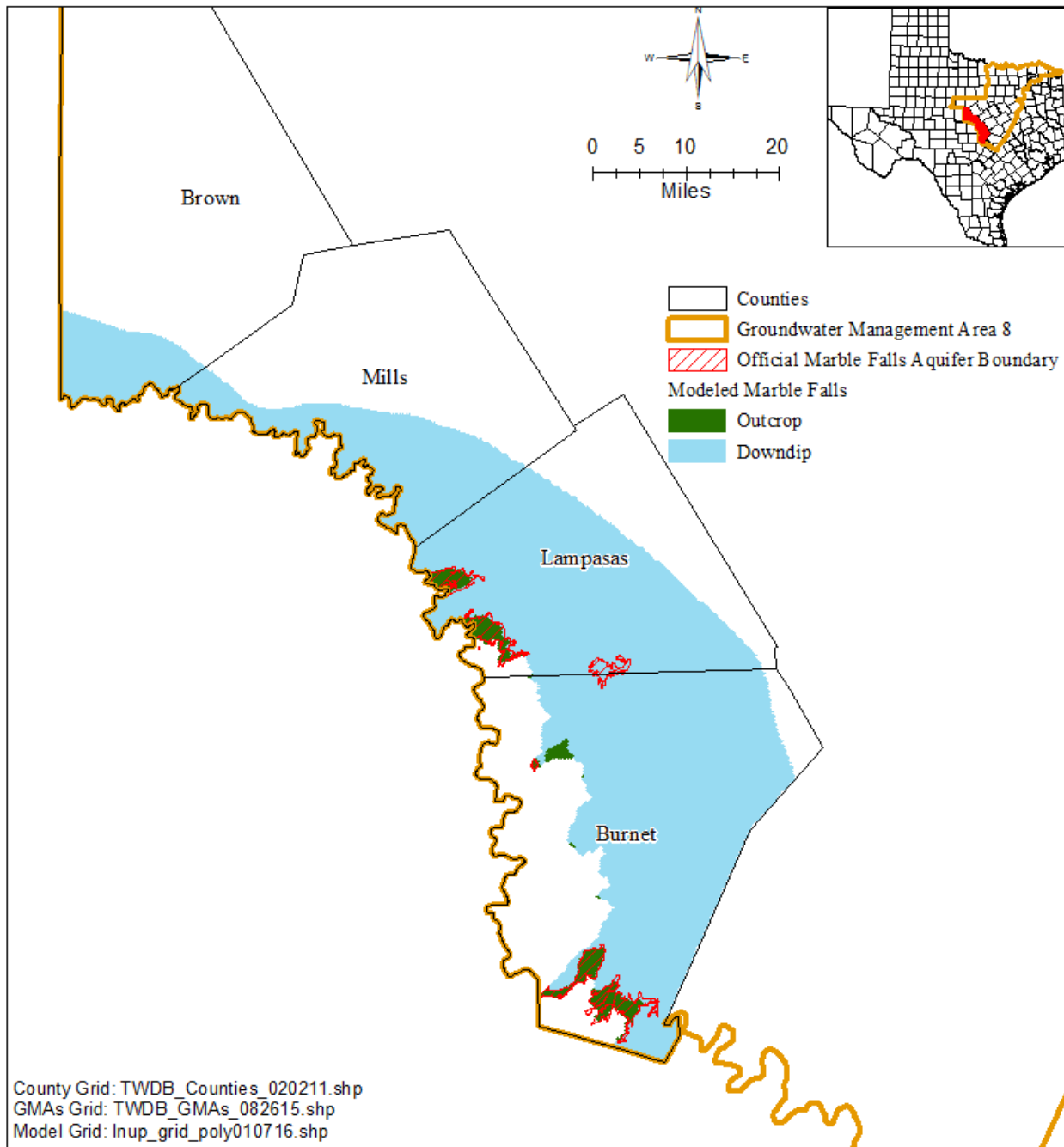
**FIGURE 8. MAP SHOWING THE WOODBINE AQUIFER WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AND WOODBINE AQUIFERS.**

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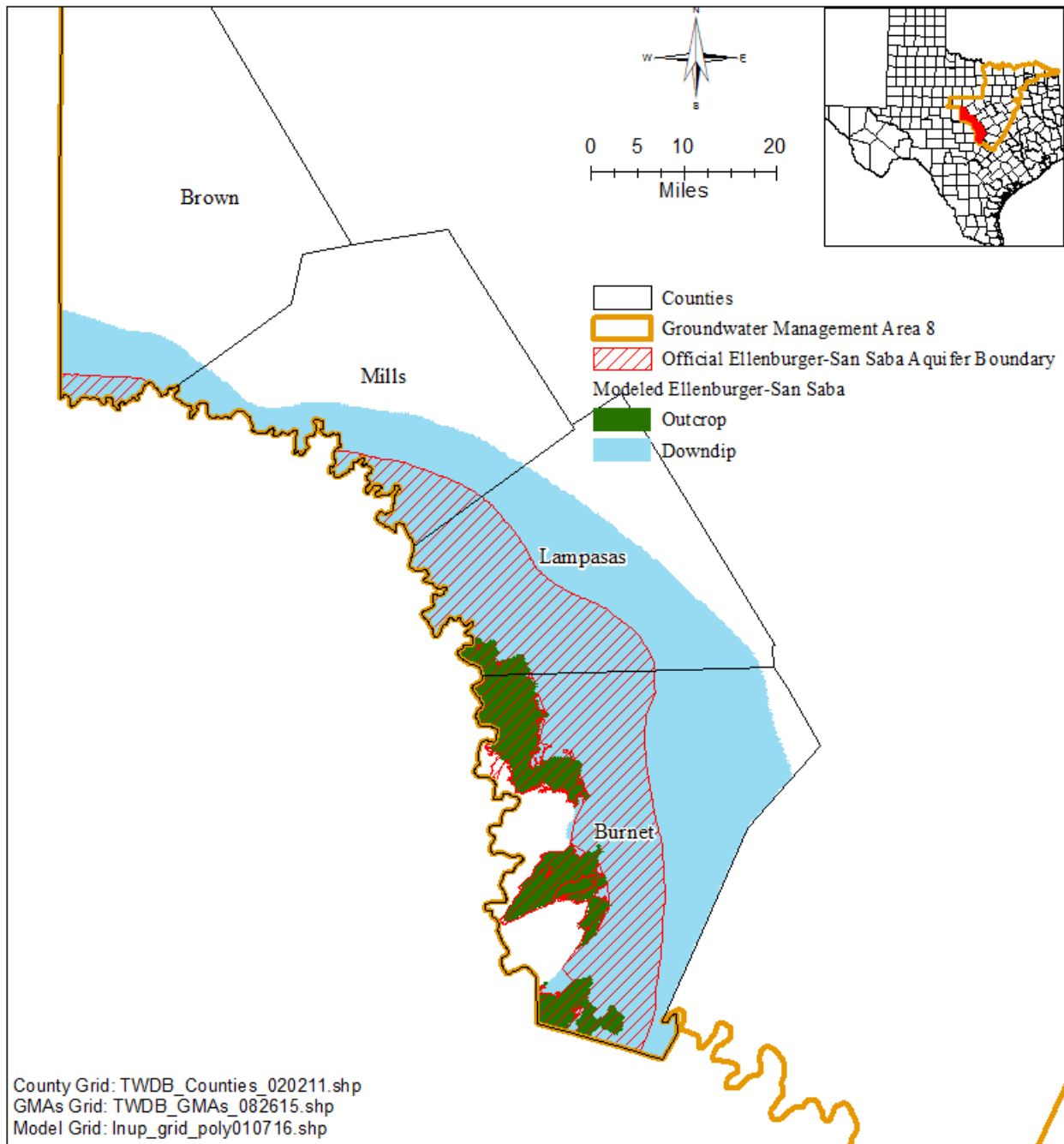
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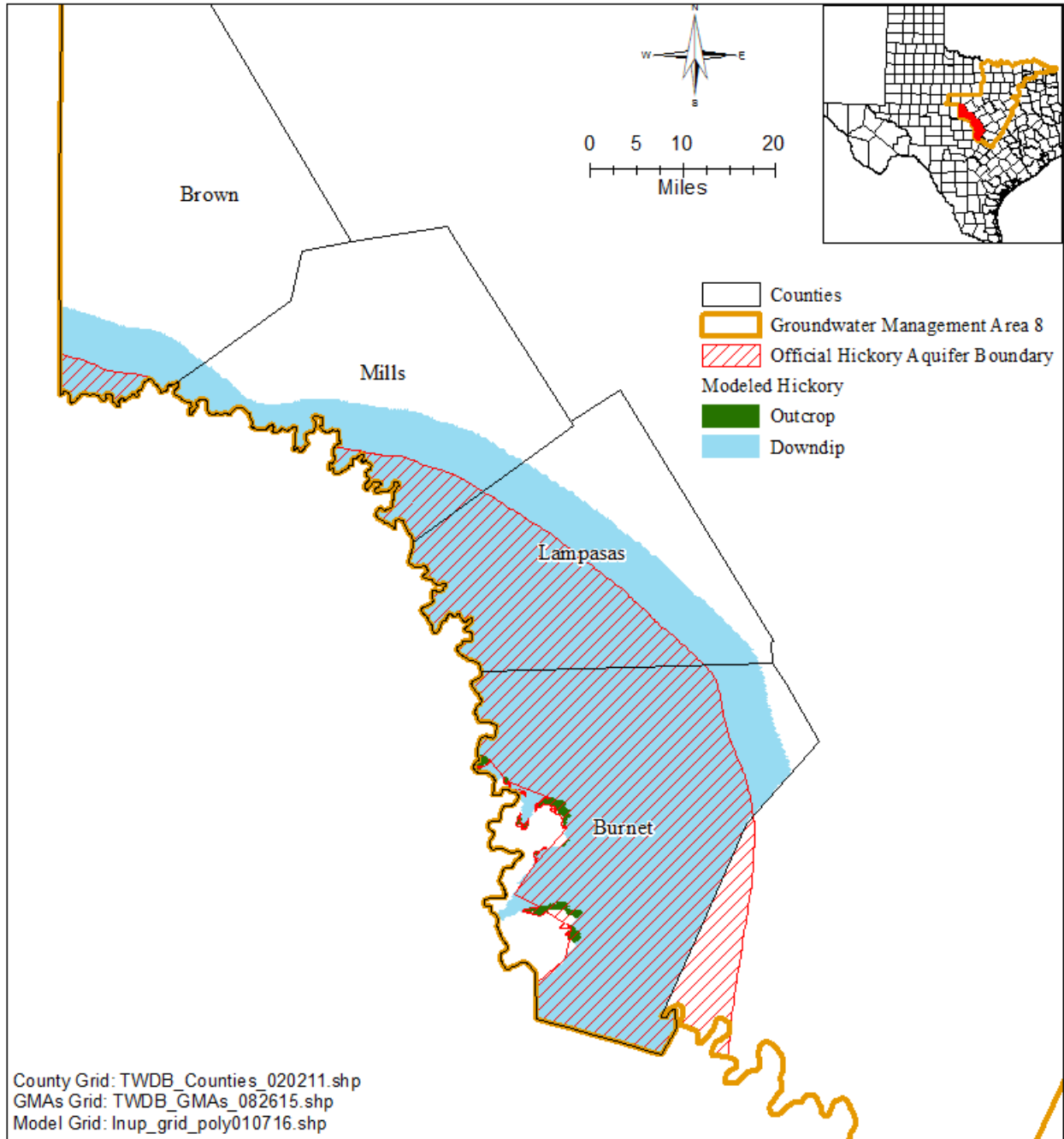
**FIGURE 9. MAP SHOWING THE EDWARDS (BALCONES FAULT ZONE) AQUIFER WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN SEGMENT OF THE EDWARDS (BALCONES FAULT ZONE) AQUIFER.**



**FIGURE 10. MAP SHOWING THE MARBLE FALLS AQUIFER WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE MINOR AQUIFERS IN LLANO UPLIFT REGION.**



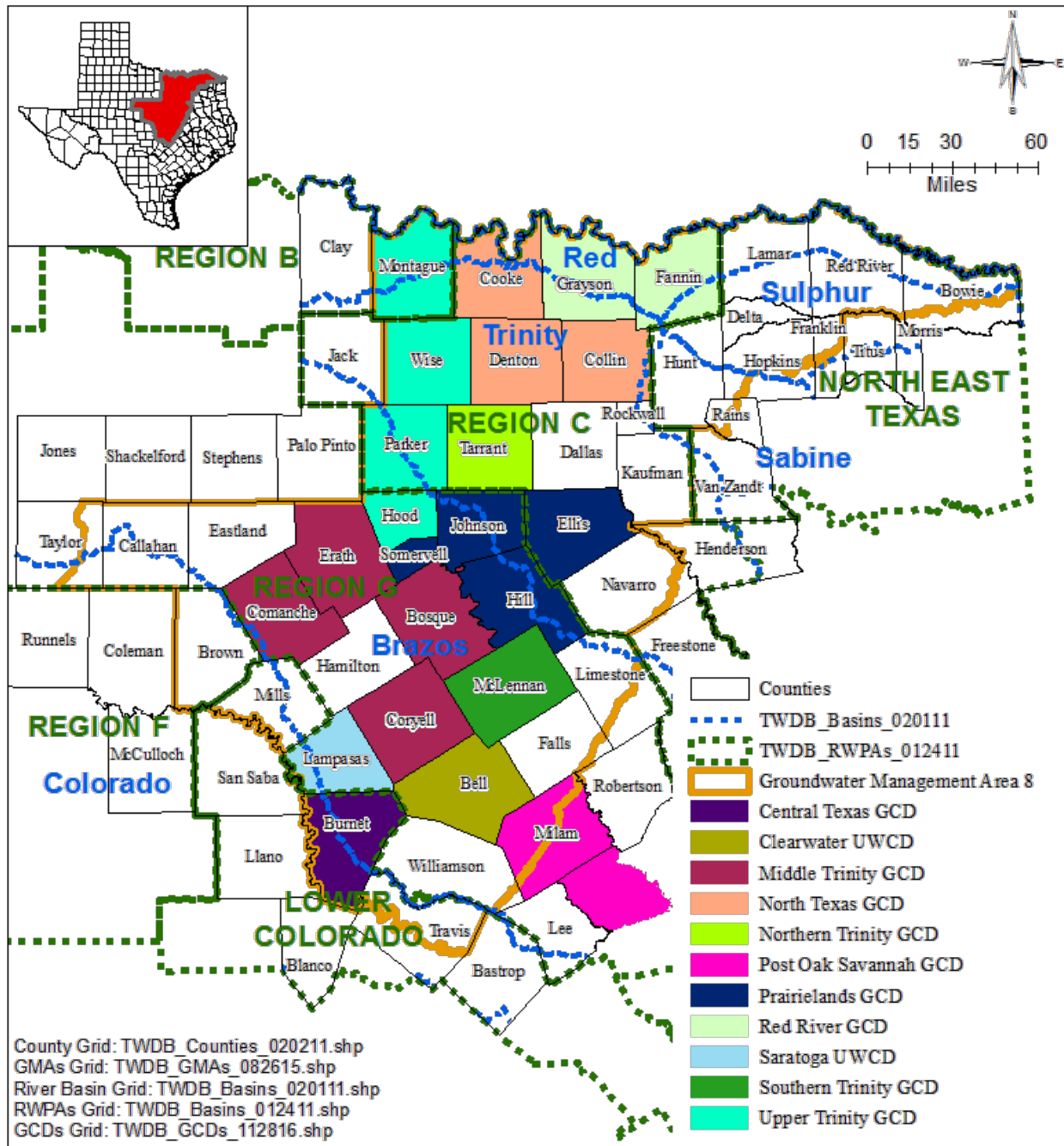
**FIGURE 11. MAP SHOWING THE ELLENBURGER-SAN SABA AQUIFER WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE MINOR AQUIFERS IN LLANO UPLIFT REGION.**



**FIGURE 12. MAP SHOWING THE HICKORY AQUIFER WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE MINOR AQUIFERS IN LLANO UPLIFT REGION.**

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**FIGURE 13. MAP SHOWING REGIONAL WATER PLANNING AREAS (RWPAs), GROUNDWATER CONSERVATION DISTRICTS (GCDs), AND RIVER BASINS ASSOCIATED WITH GROUNDWATER MANAGEMENT AREA 8.**



**TABLE 1. MODELED AVAILABLE GROUNDWATER FOR THE TRINITY AQUIFER (PALUXY) IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.**

<b>GCD</b>	<b>County</b>	<b>2009</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
<b>Clearwater UWCD</b>	Bell	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Middle Trinity GCD	Bosque	204	356	358	356	358	356	358	356
Middle Trinity GCD	Coryell	0	0	0	0	0	0	0	0
Middle Trinity GCD	Erath	38	61	61	61	61	61	61	61
<b>Middle Trinity GCD Total</b>		<b>242</b>	<b>417</b>	<b>419</b>	<b>417</b>	<b>419</b>	<b>417</b>	<b>419</b>	<b>417</b>
North Texas GCD	Collin	616	1,547	1,551	1,547	1,551	1,547	1,551	1,547
North Texas GCD	Denton	1,532	4,819	4,832	4,819	4,832	4,819	4,832	4,819
<b>North Texas GCD Total</b>		<b>2,148</b>	<b>6,366</b>	<b>6,383</b>	<b>6,366</b>	<b>6,383</b>	<b>6,366</b>	<b>6,383</b>	<b>6,366</b>
<b>Northern Trinity GCD</b>	Tarrant	<b>11,285</b>	<b>8,957</b>	<b>8,982</b>	<b>8,957</b>	<b>8,982</b>	<b>8,957</b>	<b>8,982</b>	<b>8,957</b>
Prairielands GCD	Ellis	510	442	443	442	443	442	443	442
Prairielands GCD	Hill	400	352	353	352	353	352	353	352
Prairielands GCD	Johnson	4,851	2,440	2,447	2,440	2,447	2,440	2,447	2,440
Prairielands GCD	Somervell	3	14	14	14	14	14	14	14
<b>Prairielands GCD Total</b>		<b>5,764</b>	<b>3,248</b>	<b>3,257</b>	<b>3,248</b>	<b>3,257</b>	<b>3,248</b>	<b>3,257</b>	<b>3,248</b>
Red River GCD	Fannin	389	2,087	2,092	2,087	2,092	2,087	2,092	2,087
Red River GCD	Grayson	0	0	0	0	0	0	0	0
<b>Red River GCD Total</b>		<b>389</b>	<b>2,087</b>	<b>2,092</b>	<b>2,087</b>	<b>2,092</b>	<b>2,087</b>	<b>2,092</b>	<b>2,087</b>
<b>Southern Trinity GCD</b>	McLennan	<b>319</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Upper Trinity GCD	Hood (outcrop)	106	159	159	159	159	159	159	159
Upper Trinity GCD	Parker (outcrop)	2,100	2,607	2,614	2,607	2,614	2,607	2,614	2,607
Upper Trinity GCD	Parker (downdip)	221	50	50	50	50	50	50	50
<b>Upper Trinity GCD Total</b>		<b>2,427</b>	<b>2,816</b>	<b>2,823</b>	<b>2,816</b>	<b>2,823</b>	<b>2,816</b>	<b>2,823</b>	<b>2,816</b>
No District	Dallas	231	358	359	358	359	358	359	358
No District	Delta	56	56	56	56	56	56	56	56
No District	Falls	0	0	0	0	0	0	0	0
No District	Hamilton	0	0	0	0	0	0	0	0
No District	Hunt	3	3	3	3	3	3	3	3
No District	Kaufman	0	0	0	0	0	0	0	0
No District	Lamar	16	8	8	8	8	8	8	8

GAM Run 17-029 MAG: Modeled Available Groundwater for the Trinity, Woodbine, Edwards (Balcones Fault Zone), Marble Falls, Ellenburger-San Saba, and Hickory Aquifers in Groundwater Management Area 8

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<b>GCD</b>	<b>County</b>	<b>2009</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
No District	Limestone	0	0	0	0	0	0	0	0
No District	Mills	3	6	6	6	6	6	6	6
No District	Navarro	0	0	0	0	0	0	0	0
No District	Red River	190	177	177	177	177	177	177	177
No District	Rockwall	0	0	0	0	0	0	0	0
<b>No District Total</b>		<b>499</b>	<b>608</b>	<b>609</b>	<b>608</b>	<b>609</b>	<b>608</b>	<b>609</b>	<b>608</b>
<b>Groundwater Management Area 8</b>		<b>23,073</b>	<b>24,499</b>	<b>24,565</b>	<b>24,499</b>	<b>24,565</b>	<b>24,499</b>	<b>24,565</b>	<b>24,499</b>

UWCD: Underground Water Conservation District.

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**TABLE 2. MODELED AVAILABLE GROUNDWATER FOR THE TRINITY AQUIFER (GLEN ROSE) IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.**

<b>GCD</b>	<b>County</b>	<b>2009</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
<b>Central Texas GCD</b>	Burnet	<b>35</b>	<b>423</b>	<b>425</b>	<b>423</b>	<b>425</b>	<b>423</b>	<b>425</b>	<b>423</b>
<b>Clearwater UWCD</b>	Bell	<b>775</b>	<b>971</b>	<b>974</b>	<b>971</b>	<b>974</b>	<b>971</b>	<b>974</b>	<b>971</b>
Middle Trinity GCD	Bosque	576	728	731	728	731	728	731	728
Middle Trinity GCD	Comanche	3	41	41	41	41	41	41	41
Middle Trinity GCD	Coryell	0	120	120	120	120	120	120	120
Middle Trinity GCD	Erath	263	1,078	1,081	1,078	1,081	1,078	1,081	1,078
<b>Middle Trinity GCD Total</b>		<b>842</b>	<b>1,967</b>	<b>1,973</b>	<b>1,967</b>	<b>1,973</b>	<b>1,967</b>	<b>1,973</b>	<b>1,967</b>
North Texas GCD	Collin	84	83	83	83	83	83	83	83
North Texas GCD	Denton	121	338	339	338	339	338	339	338
<b>North Texas GCD Total</b>		<b>205</b>	<b>421</b>	<b>422</b>	<b>421</b>	<b>422</b>	<b>421</b>	<b>422</b>	<b>421</b>
<b>Northern Trinity GCD</b>	Tarrant	<b>1,070</b>	<b>793</b>	<b>795</b>	<b>793</b>	<b>795</b>	<b>793</b>	<b>795</b>	<b>793</b>
<b>Post Oak Savannah GCD</b>	Milam	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Prairielands GCD	Ellis	58	50	50	50	50	50	50	50
Prairielands GCD	Hill	116	115	115	115	115	115	115	115
Prairielands GCD	Johnson	1,780	1,632	1,636	1,632	1,636	1,632	1,636	1,632
Prairielands GCD	Somervell	81	146	146	146	146	146	146	146
<b>Prairielands GCD Total</b>		<b>2,035</b>	<b>1,943</b>	<b>1,947</b>	<b>1,943</b>	<b>1,947</b>	<b>1,943</b>	<b>1,947</b>	<b>1,943</b>
Red River GCD	Fannin	0	0	0	0	0	0	0	0
Red River GCD	Grayson	0	0	0	0	0	0	0	0
<b>Red River GCD Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Saratoga UWCD</b>	Lampasas	<b>65</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>
<b>Southern Trinity GCD</b>	McLennan	<b>845</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Upper Trinity GCD	Hood (outcrop)	483	653	655	653	655	653	655	653
Upper Trinity GCD	Hood (downdip)	81	103	103	103	103	103	103	103
Upper Trinity GCD	Parker (outcrop)	2,593	2,289	2,295	2,289	2,295	2,289	2,295	2,289
Upper Trinity GCD	Parker (downdip)	1,063	873	876	873	876	873	876	873
<b>Upper Trinity GCD Total</b>		<b>4,220</b>	<b>3,918</b>	<b>3,929</b>	<b>3,918</b>	<b>3,929</b>	<b>3,918</b>	<b>3,929</b>	<b>3,918</b>

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<b>GCD</b>	<b>County</b>	<b>2009</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
No District	Brown	0	0	0	0	0	0	0	0
No District	Dallas	135	131	132	131	132	131	132	131
No District	Delta	0	0	0	0	0	0	0	0
No District	Falls	0	0	0	0	0	0	0	0
No District	Hamilton	168	218	218	218	218	218	218	218
No District	Hunt	0	0	0	0	0	0	0	0
No District	Kaufman	0	0	0	0	0	0	0	0
No District	Lamar	0	0	0	0	0	0	0	0
No District	Limestone	0	0	0	0	0	0	0	0
No District	Mills	12	189	189	189	189	189	189	189
No District	Navarro	0	0	0	0	0	0	0	0
No District	Red River	0	0	0	0	0	0	0	0
No District	Rockwall	0	0	0	0	0	0	0	0
No District	Travis	898	971	974	971	974	971	974	971
No District	Williamson	695	688	690	688	690	688	690	688
<b>No District Total</b>		<b>1,908</b>	<b>2,197</b>	<b>2,203</b>	<b>2,197</b>	<b>2,203</b>	<b>2,197</b>	<b>2,203</b>	<b>2,197</b>
<b>Groundwater Management Area 8</b>		<b>12,000</b>	<b>12,701</b>	<b>12,736</b>	<b>12,701</b>	<b>12,736</b>	<b>12,701</b>	<b>12,736</b>	<b>12,701</b>

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**TABLE 3. MODELED AVAILABLE GROUNDWATER FOR THE TRINITY AQUIFER (TWIN MOUNTAINS) IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.**

<b>GCD</b>	<b>County</b>	<b>2009</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
<b>Middle Trinity GCD</b>	Erath	<b>3,443</b>	<b>5,017</b>	<b>5,031</b>	<b>5,017</b>	<b>5,031</b>	<b>5,017</b>	<b>5,031</b>	<b>5,017</b>
North Texas GCD	Collin	163	2,201	2,207	2,201	2,207	2,201	2,207	2,201
North Texas GCD	Denton	997	8,366	8,389	8,366	8,389	8,366	8,389	8,366
<b>North Texas GCD Total</b>		<b>1,160</b>	<b>10,567</b>	<b>10,596</b>	<b>10,567</b>	<b>10,596</b>	<b>10,567</b>	<b>10,596</b>	<b>10,567</b>
<b>Northern Trinity GCD</b>	Tarrant	<b>7,329</b>	<b>6,917</b>	<b>6,936</b>	<b>6,917</b>	<b>6,936</b>	<b>6,917</b>	<b>6,936</b>	<b>6,917</b>
Prairielands GCD	Ellis	0	0	0	0	0	0	0	0
Prairielands GCD	Johnson	539	384	385	384	385	384	385	384
Prairielands GCD	Somervell	150	174	174	174	174	174	174	174
<b>Prairielands GCD Total</b>		<b>689</b>	<b>558</b>	<b>559</b>	<b>558</b>	<b>559</b>	<b>558</b>	<b>559</b>	<b>558</b>
Red River GCD	Fannin	0	0	0	0	0	0	0	0
Red River GCD	Grayson	0	0	0	0	0	0	0	0
<b>Red River GCD Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Upper Trinity GCD	Hood (outcrop)	3,379	3,662	3,672	3,662	3,672	3,662	3,672	3,662
Upper Trinity GCD	Hood (downdip)	7,143	7,759	7,780	7,759	7,780	7,759	7,780	7,759
Upper Trinity GCD	Parker (outcrop)	1,600	1,066	1,069	1,066	1,069	1,066	1,069	1,066
Upper Trinity GCD	Parker (downdip)	3,459	2,082	2,088	2,082	2,088	2,082	2,088	2,082
<b>Upper Trinity GCD Total</b>		<b>15,581</b>	<b>14,569</b>	<b>14,609</b>	<b>14,569</b>	<b>14,609</b>	<b>14,569</b>	<b>14,609</b>	<b>14,569</b>
No District	Dallas	2,282	3,199	3,208	3,199	3,208	3,199	3,208	3,199
No District	Hunt	0	0	0	0	0	0	0	0
No District	Kaufman	0	0	0	0	0	0	0	0
No District	Rockwall	0	0	0	0	0	0	0	0
<b>No District Total</b>		<b>2,282</b>	<b>3,199</b>	<b>3,208</b>	<b>3,199</b>	<b>3,208</b>	<b>3,199</b>	<b>3,208</b>	<b>3,199</b>
<b>Groundwater Management Area 8</b>		<b>30,484</b>	<b>40,827</b>	<b>40,939</b>	<b>40,827</b>	<b>40,939</b>	<b>40,827</b>	<b>40,939</b>	<b>40,827</b>

**TABLE 4. MODELED AVAILABLE GROUNDWATER FOR THE TRINITY AQUIFER (TRAVIS PEAK) IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.**

<b>GCD</b>	<b>County</b>	<b>2009</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
<b>Central Texas GCD</b>	Burnet	<b>1,906</b>	<b>3,464</b>	<b>3,474</b>	<b>3,464</b>	<b>3,474</b>	<b>3,464</b>	<b>3,474</b>	<b>3,464</b>
<b>Clearwater UWCD</b>	Bell	<b>1,957</b>	<b>8,270</b>	<b>8,293</b>	<b>8,270</b>	<b>8,293</b>	<b>8,270</b>	<b>8,293</b>	<b>8,270</b>
Middle Trinity GCD	Bosque	5,255	7,678	7,699	7,678	7,699	7,678	7,699	7,678
Middle Trinity GCD	Comanche	9,793	6,160	6,177	6,160	6,177	6,160	6,177	6,160
Middle Trinity GCD	Coryell	3,350	4,371	4,383	4,371	4,383	4,371	4,383	4,371
Middle Trinity GCD	Erath	8,263	11,815	11,849	11,815	11,849	11,815	11,849	11,815
<b>Middle Trinity GCD Total</b>		<b>26,661</b>	<b>30,024</b>	<b>30,108</b>	<b>30,024</b>	<b>30,108</b>	<b>30,024</b>	<b>30,108</b>	<b>30,024</b>
<b>Post Oak Savannah GCD</b>	Milam	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Prairielands GCD	Ellis	5,583	5,032	5,046	5,032	5,046	5,032	5,046	5,032
Prairielands GCD	Hill	3,700	3,550	3,559	3,550	3,559	3,550	3,559	3,550
Prairielands GCD	Johnson	5,602	4,941	4,955	4,941	4,955	4,941	4,955	4,941
Prairielands GCD	Somervell	2,560	2,847	2,854	2,847	2,854	2,847	2,854	2,847
<b>Prairielands GCD Total</b>		<b>17,445</b>	<b>16,370</b>	<b>16,414</b>	<b>16,370</b>	<b>16,414</b>	<b>16,370</b>	<b>16,414</b>	<b>16,370</b>
<b>Red River GCD</b>	Fannin	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Saratoga UWCD</b>	Lampasas	<b>1,669</b>	<b>1,599</b>	<b>1,603</b>	<b>1,599</b>	<b>1,603</b>	<b>1,599</b>	<b>1,603</b>	<b>1,599</b>
<b>Southern Trinity GCD</b>	McLennan	<b>13,252</b>	<b>20,635</b>	<b>20,691</b>	<b>20,635</b>	<b>20,691</b>	<b>20,635</b>	<b>20,691</b>	<b>20,635</b>
<b>Upper Trinity GCD</b>	Hood (downdip)	<b>70</b>	<b>89</b>	<b>89</b>	<b>89</b>	<b>89</b>	<b>89</b>	<b>89</b>	<b>89</b>
No District	Brown	680	394	395	394	395	394	395	394
No District	Dallas	0	0	0	0	0	0	0	0
No District	Delta	0	0	0	0	0	0	0	0
No District	Falls	1,158	1,434	1,438	1,434	1,438	1,434	1,438	1,434
No District	Hamilton	1,685	2,207	2,213	2,207	2,213	2,207	2,213	2,207
No District	Hunt	0	0	0	0	0	0	0	0
No District	Kaufman	0	0	0	0	0	0	0	0
No District	Lamar	0	0	0	0	0	0	0	0
No District	Limestone	0	0	0	0	0	0	0	0
No District	Mills	1,011	2,275	2,282	2,275	2,282	2,275	2,282	2,275
No District	Navarro	0	0	0	0	0	0	0	0
No District	Red River	0	0	0	0	0	0	0	0
No District	Travis	3,442	4,113	4,125	4,113	4,125	4,113	4,125	4,113
No District	Williamson	3,026	2,883	2,891	2,883	2,891	2,883	2,891	2,883

GAM Run 17-029 MAG: Modeled Available Groundwater for the Trinity, Woodbine, Edwards (Balcones Fault Zone), Marble Falls, Ellenburger-San Saba, and Hickory Aquifers in Groundwater Management Area 8

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<b>GCD</b>	<b>County</b>	<b>2009</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
<b>No District Total</b>		<b>11,002</b>	<b>13,306</b>	<b>13,344</b>	<b>13,306</b>	<b>13,344</b>	<b>13,306</b>	<b>13,344</b>	<b>13,306</b>
<b>Groundwater Management Area 8</b>		<b>73,962</b>	<b>93,757</b>	<b>94,016</b>	<b>93,757</b>	<b>94,016</b>	<b>93,757</b>	<b>94,016</b>	<b>93,757</b>

UWCD: Underground Water Conservation District.

**TABLE 5. MODELED AVAILABLE GROUNDWATER FOR THE TRINITY AQUIFER (HENSELL) IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.**

<b>GCD</b>	<b>County</b>	<b>2009</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
<b>Central Texas GCD</b>	Burnet	<b>51</b>	<b>1,888</b>	<b>1,894</b>	<b>1,888</b>	<b>1,894</b>	<b>1,888</b>	<b>1,894</b>	<b>1,888</b>
<b>Clearwater UWCD</b>	Bell	<b>355</b>	<b>1,096</b>	<b>1,099</b>	<b>1,096</b>	<b>1,099</b>	<b>1,096</b>	<b>1,099</b>	<b>1,096</b>
Middle Trinity GCD	Bosque	2,909	3,835	3,845	3,835	3,845	3,835	3,845	3,835
Middle Trinity GCD	Comanche	188	204	204	204	204	204	204	204
Middle Trinity GCD	Coryell	1,679	2,196	2,202	2,196	2,202	2,196	2,202	2,196
Middle Trinity GCD	Erath	3,446	5,137	5,151	5,137	5,151	5,137	5,151	5,137
<b>Middle Trinity GCD Total</b>		<b>8,222</b>	<b>11,372</b>	<b>11,402</b>	<b>11,372</b>	<b>11,402</b>	<b>11,372</b>	<b>11,402</b>	<b>11,372</b>
<b>Post Oak Savannah GCD</b>	Milam	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Prairielands GCD	Ellis	0	0	0	0	0	0	0	0
Prairielands GCD	Hill	237	225	226	225	226	225	226	225
Prairielands GCD	Johnson	1,530	1,083	1,086	1,083	1,086	1,083	1,086	1,083
Prairielands GCD	Somervell	1,822	1,973	1,978	1,973	1,978	1,973	1,978	1,973
<b>Prairielands GCD Total</b>		<b>3,589</b>	<b>3,281</b>	<b>3,290</b>	<b>3,281</b>	<b>3,290</b>	<b>3,281</b>	<b>3,290</b>	<b>3,281</b>
<b>Saratoga UWCD</b>	Lampasas	<b>730</b>	<b>712</b>	<b>715</b>	<b>712</b>	<b>715</b>	<b>712</b>	<b>715</b>	<b>712</b>
<b>Southern Trinity GCD</b>	McLennan	<b>3,018</b>	<b>4,698</b>	<b>4,711</b>	<b>4,698</b>	<b>4,711</b>	<b>4,698</b>	<b>4,711</b>	<b>4,698</b>
<b>Upper Trinity GCD</b>	Hood (downdip)	<b>45</b>	<b>36</b>	<b>36</b>	<b>36</b>	<b>36</b>	<b>36</b>	<b>36</b>	<b>36</b>
No District	Brown	6	4	4	4	4	4	4	4
No District	Dallas	0	0	0	0	0	0	0	0
No District	Falls	0	0	0	0	0	0	0	0
No District	Hamilton	1,221	1,671	1,675	1,671	1,675	1,671	1,675	1,671
No District	Kaufman	0	0	0	0	0	0	0	0
No District	Limestone	0	0	0	0	0	0	0	0
No District	Mills	224	607	608	607	608	607	608	607
No District	Navarro	0	0	0	0	0	0	0	0
No District	Travis	919	1,141	1,144	1,141	1,144	1,141	1,144	1,141
No District	Williamson	772	751	753	751	753	751	753	751
<b>No District Total</b>		<b>3,142</b>	<b>4,174</b>	<b>4,184</b>	<b>4,174</b>	<b>4,184</b>	<b>4,174</b>	<b>4,184</b>	<b>4,174</b>
<b>Groundwater Management Area 8</b>		<b>19,152</b>	<b>27,257</b>	<b>27,331</b>	<b>27,257</b>	<b>27,331</b>	<b>27,257</b>	<b>27,331</b>	<b>27,257</b>

UWCD: Underground Water Conservation District.



**TABLE 6. MODELED AVAILABLE GROUNDWATER FOR THE TRINITY AQUIFER (HOSSTON) IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.**

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
<b>Central Texas GCD</b>	Burnet	<b>1,799</b>	<b>1,379</b>	<b>1,382</b>	<b>1,379</b>	<b>1,382</b>	<b>1,379</b>	<b>1,382</b>	<b>1,379</b>
<b>Clearwater UWCD</b>	Bell	<b>1,375</b>	<b>7,174</b>	<b>7,193</b>	<b>7,174</b>	<b>7,193</b>	<b>7,174</b>	<b>7,193</b>	<b>7,174</b>
Middle Trinity GCD	Bosque	2,289	3,762	3,772	3,762	3,772	3,762	3,772	3,762
Middle Trinity GCD	Comanche	9,504	5,864	5,881	5,864	5,881	5,864	5,881	5,864
Middle Trinity GCD	Coryell	1,661	2,161	2,167	2,161	2,167	2,161	2,167	2,161
Middle Trinity GCD	Erath	4,637	6,383	6,400	6,383	6,400	6,383	6,400	6,383
<b>Middle Trinity GCD Total</b>		<b>18,091</b>	<b>18,170</b>	<b>18,220</b>	<b>18,170</b>	<b>18,220</b>	<b>18,170</b>	<b>18,220</b>	<b>18,170</b>
<b>Post Oak Savannah GCD</b>	Milam	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Prairielands GCD	Ellis	5,575	5,026	5,040	5,026	5,040	5,026	5,040	5,026
Prairielands GCD	Hill	3,413	3,272	3,281	3,272	3,281	3,272	3,281	3,272
Prairielands GCD	Johnson	4,061	3,853	3,863	3,853	3,863	3,853	3,863	3,853
Prairielands GCD	Somervell	736	843	845	843	845	843	845	843
<b>Prairielands GCD Total</b>		<b>13,785</b>	<b>12,994</b>	<b>13,029</b>	<b>12,994</b>	<b>13,029</b>	<b>12,994</b>	<b>13,029</b>	<b>12,994</b>
<b>Saratoga UWCD</b>	Lampasas	<b>907</b>	<b>857</b>	<b>859</b>	<b>857</b>	<b>859</b>	<b>857</b>	<b>859</b>	<b>857</b>
<b>Southern Trinity GCD</b>	McLennan	<b>10,212</b>	<b>15,937</b>	<b>15,980</b>	<b>15,937</b>	<b>15,980</b>	<b>15,937</b>	<b>15,980</b>	<b>15,937</b>
<b>Upper Trinity GCD</b>	Hood (downdip)	<b>25</b>	<b>53</b>	<b>53</b>	<b>53</b>	<b>53</b>	<b>53</b>	<b>53</b>	<b>53</b>
No District	Brown	624	356	358	356	358	356	358	356
No District	Dallas	0	0	0	0	0	0	0	0
No District	Falls	1,157	1,434	1,438	1,434	1,438	1,434	1,438	1,434
No District	Hamilton	325	385	386	385	386	385	386	385
No District	Kaufman	0	0	0	0	0	0	0	0
No District	Limestone	0	0	0	0	0	0	0	0
No District	Mills	650	1,467	1,471	1,467	1,471	1,467	1,471	1,467
No District	Navarro	0	0	0	0	0	0	0	0
No District	Travis	2,357	2,783	2,791	2,783	2,791	2,783	2,791	2,783
No District	Williamson	2,050	1,933	1,938	1,933	1,938	1,933	1,938	1,933
<b>No District Total</b>		<b>7,163</b>	<b>8,358</b>	<b>8,382</b>	<b>8,358</b>	<b>8,382</b>	<b>8,358</b>	<b>8,382</b>	<b>8,358</b>
<b>Groundwater Management Area 8</b>		<b>53,357</b>	<b>64,922</b>	<b>65,098</b>	<b>64,922</b>	<b>65,098</b>	<b>64,922</b>	<b>65,098</b>	<b>64,922</b>

UWCD: Underground Water Conservation District.

**TABLE 7. MODELED AVAILABLE GROUNDWATER FOR THE TRINITY AQUIFER (ANTLERS) IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.**

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
Middle Trinity GCD	Comanche	9,320	5,839	5,855	5,839	5,855	5,839	5,855	5,839
Middle Trinity GCD	Erath	1,663	2,628	2,636	2,628	2,636	2,628	2,636	2,628
<b>Middle Trinity GCD Total</b>		<b>10,983</b>	<b>8,467</b>	<b>8,491</b>	<b>8,467</b>	<b>8,491</b>	<b>8,467</b>	<b>8,491</b>	<b>8,467</b>
North Texas GCD	Collin	629	1,961	1,966	1,961	1,966	1,961	1,966	1,961
North Texas GCD	Cooke	4,117	10,514	10,544	10,514	10,544	10,514	10,544	10,514
North Texas GCD	Denton	11,427	16,545	16,591	16,545	16,591	16,545	16,591	16,545
<b>North Texas GCD Total</b>		<b>16,173</b>	<b>29,020</b>	<b>29,101</b>	<b>29,020</b>	<b>29,101</b>	<b>29,020</b>	<b>29,101</b>	<b>29,020</b>
<b>Northern Trinity GCD</b>	Tarrant	<b>1,908</b>	<b>1,248</b>	<b>1,251</b>	<b>1,248</b>	<b>1,251</b>	<b>1,248</b>	<b>1,251</b>	<b>1,248</b>
Red River GCD	Fannin	0	0	0	0	0	0	0	0
Red River GCD	Grayson	6,872	10,708	10,738	10,708	10,738	10,708	10,738	10,708
<b>Red River GCD Total</b>		<b>6,872</b>	<b>10,708</b>	<b>10,738</b>	<b>10,708</b>	<b>10,738</b>	<b>10,708</b>	<b>10,738</b>	<b>10,708</b>
Upper Trinity GCD	Montague (outcrop)	1,421	3,875	3,886	3,875	3,886	3,875	3,886	3,875
Upper Trinity GCD	Parker (outcrop)	3,321	2,897	2,905	2,897	2,905	2,897	2,905	2,897
Upper Trinity GCD	Wise (outcrop)	9,080	7,677	7,698	7,677	7,698	7,677	7,698	7,677
Upper Trinity GCD	Wise (downdip)	3,699	2,057	2,062	2,057	2,062	2,057	2,062	2,057
<b>Upper Trinity GCD Total</b>		<b>17,521</b>	<b>16,506</b>	<b>16,551</b>	<b>16,506</b>	<b>16,551</b>	<b>16,506</b>	<b>16,551</b>	<b>16,506</b>
No District	Brown	1,743	1,052	1,055	1,052	1,055	1,052	1,055	1,052
No District	Callahan	1,804	1,725	1,730	1,725	1,730	1,725	1,730	1,725
No District	Eastland	5,613	5,732	5,747	5,732	5,747	5,732	5,747	5,732
No District	Lamar	0	0	0	0	0	0	0	0
No District	Red River	0	0	0	0	0	0	0	0
No District	Taylor	17	13	13	13	13	13	13	13
<b>No District Total</b>		<b>9,177</b>	<b>8,522</b>	<b>8,545</b>	<b>8,522</b>	<b>8,545</b>	<b>8,522</b>	<b>8,545</b>	<b>8,522</b>
<b>Groundwater Management Area 8</b>		<b>62,634</b>	<b>74,471</b>	<b>74,677</b>	<b>74,471</b>	<b>74,677</b>	<b>74,471</b>	<b>74,677</b>	<b>74,471</b>

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**TABLE 8. MODELED AVAILABLE GROUNDWATER FOR THE WOODBINE AQUIFER IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.**

<b>GCD</b>	<b>County</b>	<b>2009</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
North Texas GCD	Collin	2,427	4,251	4,263	4,251	4,263	4,251	4,263	4,251
North Texas GCD	Cooke	1,646	800	802	800	802	800	802	800
North Texas GCD	Denton	3,797	3,607	3,616	3,607	3,616	3,607	3,616	3,607
<b>North Texas GCD Total</b>		<b>7,870</b>	<b>8,658</b>	<b>8,681</b>	<b>8,658</b>	<b>8,681</b>	<b>8,658</b>	<b>8,681</b>	<b>8,658</b>
<b>Northern Trinity GCD</b>	Tarrant	<b>2,646</b>	<b>1,138</b>	<b>1,141</b>	<b>1,138</b>	<b>1,141</b>	<b>1,138</b>	<b>1,141</b>	<b>1,138</b>
Prairielands GCD	Ellis	2,471	2,073	2,078	2,073	2,078	2,073	2,078	2,073
Prairielands GCD	Hill	752	586	588	586	588	586	588	586
Prairielands GCD	Johnson	3,880	1,980	1,985	1,980	1,985	1,980	1,985	1,980
<b>Prairielands GCD Total</b>		<b>7,103</b>	<b>4,639</b>	<b>4,651</b>	<b>4,639</b>	<b>4,651</b>	<b>4,639</b>	<b>4,651</b>	<b>4,639</b>
Red River GCD	Fannin	5,495	4,920	4,934	4,920	4,934	4,920	4,934	4,920
Red River GCD	Grayson	5,056	7,521	7,541	7,521	7,541	7,521	7,541	7,521
<b>Red River GCD Total</b>		<b>10,551</b>	<b>12,441</b>	<b>12,475</b>	<b>12,441</b>	<b>12,475</b>	<b>12,441</b>	<b>12,475</b>	<b>12,441</b>
<b>Southern Trinity GCD</b>	McLennan	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
No District	Dallas	1,957	2,796	2,804	2,796	2,804	2,796	2,804	2,796
No District	Hunt	463	763	765	763	765	763	765	763
No District	Kaufman	0	0	0	0	0	0	0	0
No District	Lamar	61	49	49	49	49	49	49	49
No District	Navarro	65	68	68	68	68	68	68	68
No District	Red River	3	2	2	2	2	2	2	2
No District	Rockwall	0	0	0	0	0	0	0	0
<b>No District Total</b>		<b>2,549</b>	<b>3,678</b>	<b>3,688</b>	<b>3,678</b>	<b>3,688</b>	<b>3,678</b>	<b>3,688</b>	<b>3,678</b>
<b>Groundwater Management Area 8</b>		<b>30,719</b>	<b>30,554</b>	<b>30,636</b>	<b>30,554</b>	<b>30,636</b>	<b>30,554</b>	<b>30,636</b>	<b>30,554</b>

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**TABLE 9. MODELED AVAILABLE GROUNDWATER FOR THE EDWARDS (BALCONES FAULT ZONE) AQUIFER IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.**

GCD	County	2000	2010	2020	2030	2040	2050	2060	2070
Clearwater UWCD	Bell	949	6,469	6,469	6,469	6,469	6,469	6,469	6,469
No District	Travis	1,201	5,237	5,237	5,237	5,237	5,237	5,237	5,237
No District	Williamson	13,813	3,462	3,462	3,462	3,462	3,462	3,462	3,462
<b>Groundwater Management Area 8</b>		<b>15,981</b>	<b>15,168</b>	<b>15,168</b>	<b>15,168</b>	<b>15,168</b>	<b>15,168</b>	<b>15,168</b>	<b>15,168</b>

UWCD: Underground Water Conservation District.

**TABLE 10. MODELED AVAILABLE GROUNDWATER FOR THE MARBLE FALLS AQUIFER IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.**

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
Central Texas GCD	Burnet	2,220	2,736	2,744	2,736	2,744	2,736	2,744	2,736
Saratoga UWCD	Lampasas	363	2,837	2,845	2,837	2,845	2,837	2,845	2,837
No District	Brown	0	25	25	25	25	25	25	25
No District	Mills	20	25	25	25	25	25	25	25
<b>No District Total</b>		<b>20</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>
<b>Groundwater Management Area 8</b>		<b>2,603</b>	<b>5,623</b>	<b>5,639</b>	<b>5,623</b>	<b>5,639</b>	<b>5,623</b>	<b>5,639</b>	<b>5,623</b>

UWCD: Underground Water Conservation District.

**TABLE 11. MODELED AVAILABLE GROUNDWATER FOR THE ELLENBURGER-SAN SABA AQUIFER IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.**

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
<b>Central Texas GCD</b>	Burnet	5,256	10,827	10,857	10,827	10,857	10,827	10,857	10,827
<b>Saratoga UWCD</b>	Lampasas	351	2,593	2,601	2,593	2,601	2,593	2,601	2,593
No District	Brown	1	131	131	131	131	131	131	131
No District	Mills	0	499	500	499	500	499	500	499
<b>No District Total</b>		<b>1</b>	<b>630</b>	<b>631</b>	<b>630</b>	<b>631</b>	<b>630</b>	<b>631</b>	<b>630</b>
<b>Groundwater Management Area 8</b>		<b>5,608</b>	<b>14,050</b>	<b>14,089</b>	<b>14,050</b>	<b>14,089</b>	<b>14,050</b>	<b>14,089</b>	<b>14,050</b>

UWCD: Underground Water Conservation District.

**TABLE 12. MODELED AVAILABLE GROUNDWATER FOR THE HICKORY AQUIFER IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.**

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
<b>Central Texas GCD</b>	Burnet	1,088	3,413	3,423	3,413	3,423	3,413	3,423	3,413
<b>Saratoga UWCD</b>	Lampasas	0	113	114	113	114	113	114	113
No District	Brown	0	12	12	12	12	12	12	12
No District	Mills	0	36	36	36	36	36	36	36
<b>No District Total</b>		<b>0</b>	<b>48</b>	<b>48</b>	<b>48</b>	<b>48</b>	<b>48</b>	<b>48</b>	<b>48</b>
<b>Groundwater Management Area 8</b>		<b>1,088</b>	<b>3,574</b>	<b>3,585</b>	<b>3,574</b>	<b>3,585</b>	<b>3,574</b>	<b>3,585</b>	<b>3,574</b>

UWCD: Underground Water Conservation District.

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**TABLE 13. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE TRINITY AQUIFER (PALUXY) IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.**

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
<b>Counties Not in Upper Trinity GCD</b>								
Bell	Region G	Brazos	0	0	0	0	0	0
Bosque	Region G	Brazos	358	356	358	356	358	356
Collin	Region C	Sabine	0	0	0	0	0	0
Collin	Region C	Trinity	1,551	1,547	1,551	1,547	1,551	1,547
Coryell	Region G	Brazos	0	0	0	0	0	0
Dallas	Region C	Trinity	359	358	359	358	359	358
Delta	Northeast Texas	Sulphur	56	56	56	56	56	56
Denton	Region C	Trinity	4,832	4,819	4,832	4,819	4,832	4,819
Ellis	Region C	Trinity	443	442	443	442	443	442
Erath	Region G	Brazos	61	61	61	61	61	61
Falls	Region G	Brazos	0	0	0	0	0	0
Fannin	Region C	Sulphur	2,092	2,087	2,092	2,087	2,092	2,087
Fannin	Region C	Trinity	0	0	0	0	0	0
Grayson	Region C	Trinity	0	0	0	0	0	0
Hamilton	Region G	Brazos	0	0	0	0	0	0
Hill	Region G	Brazos	348	347	348	347	348	347
Hill	Region G	Trinity	5	5	5	5	5	5
Hunt	Northeast Texas	Sabine	0	0	0	0	0	0
Hunt	Northeast Texas	Sulphur	3	3	3	3	3	3
Hunt	Northeast Texas	Trinity	0	0	0	0	0	0
Johnson	Region G	Brazos	880	878	880	878	880	878
Johnson	Region G	Trinity	1,567	1,562	1,567	1,562	1,567	1,562
Kaufman	Region C	Trinity	0	0	0	0	0	0
Lamar	Northeast Texas	Red	0	0	0	0	0	0
Lamar	Northeast Texas	Sulphur	8	8	8	8	8	8
Limestone	Region G	Brazos	0	0	0	0	0	0
Limestone	Region G	Trinity	0	0	0	0	0	0
McLennan	Region G	Brazos	0	0	0	0	0	0
Mills	Lower Colorado	Brazos	6	6	6	6	6	6
Mills	Lower Colorado	Colorado	0	0	0	0	0	0
Navarro	Region C	Trinity	0	0	0	0	0	0
Red River	Northeast Texas	Red	52	52	52	52	52	52
Red River	Northeast Texas	Sulphur	125	125	125	125	125	125

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County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Rockwall	Region C	Trinity	0	0	0	0	0	0
Somervell	Region G	Brazos	14	14	14	14	14	14
Tarrant	Region C	Trinity	8,982	8,957	8,982	8,957	8,982	8,957
<b>Subtotal</b>			<b>21,742</b>	<b>21,683</b>	<b>21,742</b>	<b>21,683</b>	<b>21,742</b>	<b>21,683</b>
<b>Counties in Upper Trinity GCD</b>								
Hood (outcrop)	Region G	Brazos	159	158	159	158	159	158
Hood (outcrop)	Region G	Trinity	0	0	0	0	0	0
Parker (outcrop)	Region C	Brazos	34	34	34	34	34	34
Parker (outcrop)	Region C	Trinity	2,580	2,573	2,580	2,573	2,580	2,573
Parker (downdip)	Region C	Trinity	50	50	50	50	50	50
<b>Subtotal</b>			<b>2,823</b>	<b>2,815</b>	<b>2,823</b>	<b>2,815</b>	<b>2,823</b>	<b>2,815</b>
<b>Groundwater Management Area 8</b>			<b>24,565</b>	<b>24,498</b>	<b>24,565</b>	<b>24,498</b>	<b>24,565</b>	<b>24,498</b>

**TABLE 14. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE TRINITY AQUIFER (GLEN ROSE) IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.**

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
<b>Counties Not in Upper Trinity GCD</b>								
Bell	Region G	Brazos	974	971	974	971	974	971
Bosque	Region G	Brazos	731	728	731	728	731	728
Brown	Region F	Colorado	0	0	0	0	0	0
Burnet	Lower Colorado	Brazos	188	188	188	188	188	188
Burnet	Lower Colorado	Colorado	236	235	236	235	236	235
Collin	Region C	Sabine	0	0	0	0	0	0
Collin	Region C	Trinity	83	83	83	83	83	83
Comanche	Region G	Brazos	22	22	22	22	22	22
Comanche	Region G	Colorado	18	18	18	18	18	18
Coryell	Region G	Brazos	120	120	120	120	120	120
Dallas	Region C	Trinity	132	131	132	131	132	131
Delta	Northeast Texas	Sulphur	0	0	0	0	0	0
Denton	Region C	Trinity	339	338	339	338	339	338
Ellis	Region C	Trinity	50	50	50	50	50	50
Erath	Region G	Brazos	1,081	1,078	1,081	1,078	1,081	1,078
Falls	Region G	Brazos	0	0	0	0	0	0
Fannin	Region C	Sulphur	0	0	0	0	0	0
Fannin	Region C	Trinity	0	0	0	0	0	0
Grayson	Region C	Trinity	0	0	0	0	0	0
Hamilton	Region G	Brazos	218	218	218	218	218	218
Hill	Region G	Brazos	115	114	115	114	115	114
Hill	Region G	Trinity	1	1	1	1	1	1
Hunt	Northeast Texas	Sabine	0	0	0	0	0	0
Hunt	Northeast Texas	Sulphur	0	0	0	0	0	0
Hunt	Northeast Texas	Trinity	0	0	0	0	0	0
Johnson	Region G	Brazos	953	950	953	950	953	950
Johnson	Region G	Trinity	683	681	683	681	683	681
Kaufman	Region C	Trinity	0	0	0	0	0	0
Lamar	Northeast Texas	Red	0	0	0	0	0	0
Lamar	Northeast Texas	Sulphur	0	0	0	0	0	0
Lampasas	Region G	Brazos	68	68	68	68	68	68
Limestone	Region G	Brazos	0	0	0	0	0	0
Limestone	Region G	Trinity	0	0	0	0	0	0



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County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
McLennan	Region G	Brazos	0	0	0	0	0	0
Milam	Region G	Brazos	0	0	0	0	0	0
Mills	Lower Colorado	Brazos	96	96	96	96	96	96
Mills	Lower Colorado	Colorado	93	93	93	93	93	93
Navarro	Region C	Trinity	0	0	0	0	0	0
Red River	Northeast Texas	Red	0	0	0	0	0	0
Red River	Northeast Texas	Sulphur	0	0	0	0	0	0
Rockwall	Region C	Trinity	0	0	0	0	0	0
Somervell	Region G	Brazos	146	146	146	146	146	146
Tarrant	Region C	Trinity	795	793	795	793	795	793
Travis	Lower Colorado	Brazos	0	0	0	0	0	0
Travis	Lower Colorado	Colorado	974	971	974	971	974	971
Williamson	Region G	Brazos	623	621	623	621	623	621
Williamson	Region G	Colorado	0	0	0	0	0	0
Williamson	Lower Colorado	Brazos	0	0	0	0	0	0
Williamson	Lower Colorado	Colorado	67	67	67	67	67	67
<b>Subtotal</b>			<b>8,806</b>	<b>8,781</b>	<b>8,806</b>	<b>8,781</b>	<b>8,806</b>	<b>8,781</b>
<b>Counties in Upper Trinity GCD</b>								
Hood (outcrop)	Region G	Brazos	655	653	655	653	655	653
Hood (downdip)	Region G	Brazos	83	83	83	83	83	83
Hood (downdip)	Region G	Trinity	20	20	20	20	20	20
Parker (outcrop)	Region C	Brazos	87	87	87	87	87	87
Parker (downdip)	Region C	Brazos	7	7	7	7	7	7
Parker (outcrop)	Region C	Trinity	2,208	2,202	2,208	2,202	2,208	2,202
Parker (downdip)	Region C	Trinity	869	866	869	866	869	866
<b>Subtotal</b>			<b>3,929</b>	<b>3,918</b>	<b>3,929</b>	<b>3,918</b>	<b>3,929</b>	<b>3,918</b>
<b>Groundwater Management Area 8</b>			<b>12,735</b>	<b>12,699</b>	<b>12,735</b>	<b>12,699</b>	<b>12,735</b>	<b>12,699</b>

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**TABLE 15. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE TRINITY AQUIFER (TWIN MOUNTAINS) IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.**

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
<b>Counties Not in Upper Trinity GCD</b>								
Collin	Region C	Sabine	0	0	0	0	0	0
Collin	Region C	Trinity	2,207	2,201	2,207	2,201	2,207	2,201
Dallas	Region C	Trinity	3,208	3,199	3,208	3,199	3,208	3,199
Denton	Region C	Trinity	8,389	8,366	8,389	8,366	8,389	8,366
Ellis	Region C	Trinity	0	0	0	0	0	0
Erath	Region G	Brazos	5,031	5,017	5,031	5,017	5,031	5,017
Fannin	Region C	Sulphur	0	0	0	0	0	0
Fannin	Region C	Trinity	0	0	0	0	0	0
Grayson	Region C	Trinity	0	0	0	0	0	0
Hunt	Northeast Texas	Sabine	0	0	0	0	0	0
Hunt	Northeast Texas	Trinity	0	0	0	0	0	0
Johnson	Region G	Brazos	133	133	133	133	133	133
Johnson	Region G	Trinity	252	251	252	251	252	251
Kaufman	Region C	Trinity	0	0	0	0	0	0
Rockwall	Region C	Trinity	0	0	0	0	0	0
Somervell	Region G	Brazos	174	174	174	174	174	174
Tarrant	Region C	Trinity	6,936	6,917	6,936	6,917	6,936	6,917
<b>Subtotal</b>			<b>26,330</b>	<b>26,258</b>	<b>26,330</b>	<b>26,258</b>	<b>26,330</b>	<b>26,258</b>
<b>Counties in Upper Trinity GCD</b>								
Hood (outcrop)	Region G	Brazos	3,672	3,662	3,672	3,662	3,672	3,662
Hood (downdip)	Region G	Brazos	7,761	7,740	7,761	7,740	7,761	7,740
Hood (downdip)	Region G	Trinity	19	19	19	19	19	19
Parker (outcrop)	Region C	Brazos	1,069	1,066	1,069	1,066	1,069	1,066
Parker (downdip)	Region C	Brazos	778	776	778	776	778	776
Parker (downdip)	Region C	Trinity	1,310	1,306	1,310	1,306	1,310	1,306
<b>Subtotal</b>			<b>14,609</b>	<b>14,569</b>	<b>14,609</b>	<b>14,569</b>	<b>14,609</b>	<b>14,569</b>
<b>Groundwater Management Area 8</b>			<b>40,939</b>	<b>40,827</b>	<b>40,939</b>	<b>40,827</b>	<b>40,939</b>	<b>40,827</b>

**TABLE 16. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE TRINITY AQUIFER (TRAVIS PEAK) IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.**

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
<b>Counties Not in Upper Trinity GCD</b>								
Bell	Region G	Brazos	8,293	8,270	8,293	8,270	8,293	8,270
Bosque	Region G	Brazos	7,699	7,678	7,699	7,678	7,699	7,678
Brown	Region F	Brazos	3	3	3	3	3	3
Brown	Region F	Colorado	392	391	392	391	392	391
Burnet	Lower Colorado	Brazos	2,950	2,943	2,950	2,943	2,950	2,943
Burnet	Lower Colorado	Colorado	523	521	523	521	523	521
Comanche	Region G	Brazos	6,128	6,111	6,128	6,111	6,128	6,111
Comanche	Region G	Colorado	49	49	49	49	49	49
Coryell	Region G	Brazos	4,383	4,371	4,383	4,371	4,383	4,371
Dallas	Region C	Trinity	0	0	0	0	0	0
Delta	Northeast Texas	Sulphur	0	0	0	0	0	0
Ellis	Region C	Trinity	5,046	5,032	5,046	5,032	5,046	5,032
Erath	Region G	Brazos	11,849	11,815	11,849	11,815	11,849	11,815
Falls	Region G	Brazos	1,438	1,434	1,438	1,434	1,438	1,434
Fannin	Region C	Sulphur	0	0	0	0	0	0
Fannin	Region C	Trinity	0	0	0	0	0	0
Hamilton	Region G	Brazos	2,213	2,207	2,213	2,207	2,213	2,207
Hill	Region G	Brazos	3,304	3,295	3,304	3,295	3,304	3,295
Hill	Region G	Trinity	256	255	256	255	256	255
Hunt	Northeast Texas	Sabine	0	0	0	0	0	0
Hunt	Northeast Texas	Sulphur	0	0	0	0	0	0
Hunt	Northeast Texas	Trinity	0	0	0	0	0	0
Johnson	Region G	Brazos	1,932	1,927	1,932	1,927	1,932	1,927
Johnson	Region G	Trinity	3,022	3,014	3,022	3,014	3,022	3,014
Kaufman	Region C	Trinity	0	0	0	0	0	0
Lamar	Northeast Texas	Red	0	0	0	0	0	0
Lamar	Northeast Texas	Sulphur	0	0	0	0	0	0
Lampasas	Region G	Brazos	1,528	1,523	1,528	1,523	1,528	1,523
Lampasas	Region G	Colorado	76	75	76	75	76	75
Limestone	Region G	Brazos	0	0	0	0	0	0
Limestone	Region G	Trinity	0	0	0	0	0	0
McLennan	Region G	Brazos	20,691	20,635	20,691	20,635	20,691	20,635
Milam	Region G	Brazos	0	0	0	0	0	0

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County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Mills	Lower Colorado	Brazos	706	703	706	703	706	703
Mills	Lower Colorado	Colorado	1,576	1,572	1,576	1,572	1,576	1,572
Navarro	Region C	Trinity	0	0	0	0	0	0
Red River	Northeast Texas	Red	0	0	0	0	0	0
Red River	Northeast Texas	Sulphur	0	0	0	0	0	0
Somervell	Region G	Brazos	2,854	2,847	2,854	2,847	2,854	2,847
Travis	Lower Colorado	Brazos	1	1	1	1	1	1
Travis	Lower Colorado	Colorado	4,124	4,112	4,124	4,112	4,124	4,112
Williamson	Region G	Brazos	2,885	2,877	2,885	2,877	2,885	2,877
Williamson	Region G	Colorado	5	5	5	5	5	5
Williamson	Lower Colorado	Brazos	0	0	0	0	0	0
Williamson	Lower Colorado	Colorado	0	0	0	0	0	0
<b>Subtotal</b>			<b>93,926</b>	<b>93,666</b>	<b>93,926</b>	<b>93,666</b>	<b>93,926</b>	<b>93,666</b>
<b>Counties in Upper Trinity GCD</b>								
Hood (downdip)	Region G	Brazos	89	89	89	89	89	89
<b>Subtotal</b>			<b>89</b>	<b>89</b>	<b>89</b>	<b>89</b>	<b>89</b>	<b>89</b>
<b>Groundwater Management Area 8</b>			<b>94,015</b>	<b>93,755</b>	<b>94,015</b>	<b>93,755</b>	<b>94,015</b>	<b>93,755</b>

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**TABLE 17. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE TRINITY AQUIFER (HENSELL) IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.**

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
<b>Counties Not in Upper Trinity GCD</b>								
Bell	Region G	Brazos	1,099	1,096	1,099	1,096	1,099	1,096
Bosque	Region G	Brazos	3,845	3,835	3,845	3,835	3,845	3,835
Brown	Region F	Colorado	4	4	4	4	4	4
Burnet	Lower Colorado	Brazos	1,761	1,757	1,761	1,757	1,761	1,757
Burnet	Lower Colorado	Colorado	133	132	133	132	133	132
Comanche	Region G	Brazos	181	180	181	180	181	180
Comanche	Region G	Colorado	24	24	24	24	24	24
Coryell	Region G	Brazos	2,202	2,196	2,202	2,196	2,202	2,196
Dallas	Region C	Trinity	0	0	0	0	0	0
Ellis	Region C	Trinity	0	0	0	0	0	0
Erath	Region G	Brazos	5,151	5,137	5,151	5,137	5,151	5,137
Falls	Region G	Brazos	0	0	0	0	0	0
Hamilton	Region G	Brazos	1,675	1,671	1,675	1,671	1,675	1,671
Hill	Region G	Brazos	225	224	225	224	225	224
Hill	Region G	Trinity	1	1	1	1	1	1
Johnson	Region G	Brazos	618	616	618	616	618	616
Johnson	Region G	Trinity	468	467	468	467	468	467
Kaufman	Region C	Trinity	0	0	0	0	0	0
Lampasas	Region G	Brazos	713	711	713	711	713	711
Lampasas	Region G	Colorado	1	1	1	1	1	1
Limestone	Region G	Brazos	0	0	0	0	0	0
Limestone	Region G	Trinity	0	0	0	0	0	0
McLennan	Region G	Brazos	4,711	4,698	4,711	4,698	4,711	4,698
Milam	Region G	Brazos	0	0	0	0	0	0
Mills	Lower Colorado	Brazos	172	172	172	172	172	172
Mills	Lower Colorado	Colorado	436	435	436	435	436	435
Navarro	Region C	Trinity	0	0	0	0	0	0
Somervell	Region G	Brazos	1,978	1,973	1,978	1,973	1,978	1,973
Travis	Lower Colorado	Brazos	1	1	1	1	1	1
Travis	Lower Colorado	Colorado	1,144	1,141	1,144	1,141	1,144	1,141
Williamson	Region G	Brazos	753	751	753	751	753	751
Williamson	Region G	Colorado	0	0	0	0	0	0
Williamson	Lower Colorado	Brazos	0	0	0	0	0	0

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<b>County</b>	<b>RWPA</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
Williamson	Lower Colorado	Colorado	0	0	0	0	0	0
<b>Subtotal</b>			<b>27,296</b>	<b>27,223</b>	<b>27,296</b>	<b>27,223</b>	<b>27,296</b>	<b>27,223</b>
<b>Counties in Upper Trinity GCD</b>								
Hood (downdip)	Region G	Brazos	36	36	36	36	36	36
<b>Subtotal</b>			<b>36</b>	<b>36</b>	<b>36</b>	<b>36</b>	<b>36</b>	<b>36</b>
<b>Groundwater Management Area 8</b>			<b>27,332</b>	<b>27,259</b>	<b>27,332</b>	<b>27,259</b>	<b>27,332</b>	<b>27,259</b>

**TABLE 18. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE TRINITY AQUIFER (HOSSTON) IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.**

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
<b>Counties Not in Upper Trinity GCD</b>								
Bell	Region G	Brazos	7,193	7,174	7,193	7,174	7,193	7,174
Bosque	Region G	Brazos	3,772	3,762	3,772	3,762	3,772	3,762
Brown	Region F	Brazos	3	3	3	3	3	3
Brown	Region F	Colorado	355	353	355	353	355	353
Burnet	Lower Colorado	Brazos	1,027	1,025	1,027	1,025	1,027	1,025
Burnet	Lower Colorado	Colorado	355	354	355	354	355	354
Comanche	Region G	Brazos	5,875	5,858	5,875	5,858	5,875	5,858
Comanche	Region G	Colorado	6	6	6	6	6	6
Coryell	Region G	Brazos	2,167	2,161	2,167	2,161	2,167	2,161
Dallas	Region C	Trinity	0	0	0	0	0	0
Ellis	Region C	Trinity	5,040	5,026	5,040	5,026	5,040	5,026
Erath	Region G	Brazos	6,400	6,383	6,400	6,383	6,400	6,383
Falls	Region G	Brazos	1,438	1,434	1,438	1,434	1,438	1,434
Hamilton	Region G	Brazos	386	385	386	385	386	385
Hill	Region G	Brazos	3,026	3,018	3,026	3,018	3,026	3,018
Hill	Region G	Trinity	255	254	255	254	255	254
Johnson	Region G	Brazos	1,311	1,307	1,311	1,307	1,311	1,307
Johnson	Region G	Trinity	2,553	2,546	2,553	2,546	2,553	2,546
Kaufman	Region C	Trinity	0	0	0	0	0	0
Lampasas	Region G	Brazos	786	783	786	783	786	783
Lampasas	Region G	Colorado	72	72	72	72	72	72
Limestone	Region G	Brazos	0	0	0	0	0	0
Limestone	Region G	Trinity	0	0	0	0	0	0
McLennan	Region G	Brazos	15,980	15,937	15,980	15,937	15,980	15,937
Milam	Region G	Brazos	0	0	0	0	0	0
Mills	Lower Colorado	Brazos	376	375	376	375	376	375
Mills	Lower Colorado	Colorado	1,096	1,093	1,096	1,093	1,096	1,093
Navarro	Region C	Trinity	0	0	0	0	0	0
Somervell	Region G	Brazos	845	843	845	843	845	843
Travis	Lower Colorado	Brazos	0	0	0	0	0	0
Travis	Lower Colorado	Colorado	2,791	2,783	2,791	2,783	2,791	2,783
Williamson	Region G	Brazos	1,933	1,928	1,933	1,928	1,933	1,928
Williamson	Region G	Colorado	5	5	5	5	5	5

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<b>County</b>	<b>RWPA</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
Williamson	Lower Colorado	Brazos	0	0	0	0	0	0
Williamson	Lower Colorado	Colorado	0	0	0	0	0	0
<b>Subtotal</b>			<b>65,046</b>	<b>64,868</b>	<b>65,046</b>	<b>64,868</b>	<b>65,046</b>	<b>64,868</b>
<b>Counties in Upper Trinity GCD</b>								
Hood (downdip)	Region G	Brazos	53	53	53	53	53	53
<b>Subtotal</b>			<b>53</b>	<b>53</b>	<b>53</b>	<b>53</b>	<b>53</b>	<b>53</b>
<b>Groundwater Management Area 8</b>			<b>65,099</b>	<b>64,921</b>	<b>65,099</b>	<b>64,921</b>	<b>65,099</b>	<b>64,921</b>



**TABLE 19. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE TRINITY AQUIFER (ANTLERS) IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.**

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
<b>Counties Not in Upper Trinity GCD</b>								
Brown	Region F	Brazos	48	48	48	48	48	48
Brown	Region F	Colorado	1,007	1,004	1,007	1,004	1,007	1,004
Callahan	Region G	Brazos	444	443	444	443	444	443
Callahan	Region G	Colorado	1,285	1,282	1,285	1,282	1,285	1,282
Collin	Region C	Trinity	1,966	1,961	1,966	1,961	1,966	1,961
Comanche	Region G	Brazos	5,855	5,839	5,855	5,839	5,855	5,839
Cooke	Region C	Red	2,191	2,184	2,191	2,184	2,191	2,184
Cooke	Region C	Trinity	8,353	8,330	8,353	8,330	8,353	8,330
Denton	Region C	Trinity	16,591	16,545	16,591	16,545	16,591	16,545
Eastland	Region G	Brazos	5,194	5,180	5,194	5,180	5,194	5,180
Eastland	Region G	Colorado	553	552	553	552	553	552
Erath	Region G	Brazos	2,636	2,628	2,636	2,628	2,636	2,628
Fannin	Region C	Red	0	0	0	0	0	0
Fannin	Region C	Sulphur	0	0	0	0	0	0
Fannin	Region C	Trinity	0	0	0	0	0	0
Grayson	Region C	Red	6,678	6,660	6,678	6,660	6,678	6,660
Grayson	Region C	Trinity	4,059	4,048	4,059	4,048	4,059	4,048
Lamar	Northeast Texas	Red	0	0	0	0	0	0
Lamar	Northeast Texas	Sulphur	0	0	0	0	0	0
Red River	Northeast Texas	Red	0	0	0	0	0	0
Tarrant	Region C	Trinity	1,251	1,248	1,251	1,248	1,251	1,248
Taylor	Region G	Brazos	5	5	5	5	5	5
Taylor	Region G	Colorado	9	9	9	9	9	9
<b>Subtotal</b>			<b>58,125</b>	<b>57,966</b>	<b>58,125</b>	<b>57,966</b>	<b>58,125</b>	<b>57,966</b>
<b>Counties in Upper Trinity GCD</b>								
Montague (outcrop)	Region B	Red	154	154	154	154	154	154
Montague (outcrop)	Region B	Trinity	3,732	3,721	3,732	3,721	3,732	3,721
Parker (outcrop)	Region C	Brazos	257	256	257	256	257	256
Parker (outcrop)	Region C	Trinity	2,648	2,640	2,648	2,640	2,648	2,640
Wise (outcrop)	Region C	Trinity	7,698	7,677	7,698	7,677	7,698	7,677

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<b>County</b>	<b>RWPA</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
Wise (downdip)	Region C	Trinity	2,062	2,057	2,062	2,057	2,062	2,057
<b>Subtotal</b>			<b>16,551</b>	<b>16,505</b>	<b>16,551</b>	<b>16,505</b>	<b>16,551</b>	<b>16,505</b>
<b>Groundwater Management Area 8</b>			<b>74,676</b>	<b>74,471</b>	<b>74,676</b>	<b>74,471</b>	<b>74,676</b>	<b>74,471</b>

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**TABLE 20. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE WOODBINE AQUIFER IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.**

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Collin	Region C	Sabine	0	0	0	0	0	0
Collin	Region C	Trinity	4,263	4,251	4,263	4,251	4,263	4,251
Cooke	Region C	Red	262	261	262	261	262	261
Cooke	Region C	Trinity	540	538	540	538	540	538
Dallas	Region C	Trinity	2,804	2,796	2,804	2,796	2,804	2,796
Denton	Region C	Trinity	3,616	3,607	3,616	3,607	3,616	3,607
Ellis	Region C	Trinity	2,078	2,073	2,078	2,073	2,078	2,073
Fannin	Region C	Red	3,553	3,544	3,553	3,544	3,553	3,544
Fannin	Region C	Sulphur	551	550	551	550	551	550
Fannin	Region C	Trinity	829	827	829	827	829	827
Grayson	Region C	Red	5,615	5,599	5,615	5,599	5,615	5,599
Grayson	Region C	Trinity	1,926	1,922	1,926	1,922	1,926	1,922
Hill	Region G	Brazos	285	284	285	284	285	284
Hill	Region G	Trinity	303	302	303	302	303	302
Hunt	Northeast Texas	Sabine	269	268	269	268	269	268
Hunt	Northeast Texas	Sulphur	165	165	165	165	165	165
Hunt	Northeast Texas	Trinity	330	329	330	329	330	329
Johnson	Region G	Brazos	24	24	24	24	24	24
Johnson	Region G	Trinity	1,961	1,956	1,961	1,956	1,961	1,956
Kaufman	Region C	Trinity	0	0	0	0	0	0
Lamar	Northeast Texas	Red	0	0	0	0	0	0
Lamar	Northeast Texas	Sulphur	49	49	49	49	49	49
McLennan	Region G	Brazos	0	0	0	0	0	0
Navarro	Region C	Trinity	68	68	68	68	68	68
Red River	Northeast Texas	Red	2	2	2	2	2	2
Rockwall	Region C	Trinity	0	0	0	0	0	0
Tarrant	Region C	Trinity	1,141	1,138	1,141	1,138	1,141	1,138
<b>Groundwater Management Area 8</b>			<b>30,634</b>	<b>30,553</b>	<b>30,634</b>	<b>30,553</b>	<b>30,634</b>	<b>30,553</b>

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**TABLE 21. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE EDWARDS (BALCONES FAULT ZONE) AQUIFER IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN. MODELED AVAILABLE GROUNDWATER VALUES ARE FROM GAM RUN 08-010MAG BY ANAYA (2008).**

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Bell	Region G	Brazos	6,469	6,469	6,469	6,469	6,469	6,469
Travis	Lower Colorado	Brazos	275	275	275	275	275	275
Travis	Lower Colorado	Colorado	4,962	4,962	4,962	4,962	4,962	4,962
Williamson	Region G	Brazos	3,351	3,351	3,351	3,351	3,351	3,351
Williamson	Region G	Colorado	101	101	101	101	101	101
Williamson	Lower Colorado	Brazos	6	6	6	6	6	6
Williamson	Lower Colorado	Colorado	4	4	4	4	4	4
<b>Groundwater Management Area 8</b>			<b>15,168</b>	<b>15,168</b>	<b>15,168</b>	<b>15,168</b>	<b>15,168</b>	<b>15,168</b>

**TABLE 22. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE MARBLE FALLS AQUIFER IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.**

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Brown	Region F	Colorado	25	25	25	25	25	25
Burnet	Lower Colorado	Brazos	1,387	1,383	1,387	1,383	1,387	1,383
Burnet	Lower Colorado	Colorado	1,357	1,353	1,357	1,353	1,357	1,353
Lampasas	Region G	Brazos	1,958	1,952	1,958	1,952	1,958	1,952
Lampasas	Region G	Colorado	887	885	887	885	887	885
Mills	Lower Colorado	Brazos	1	1	1	1	1	1
Mills	Lower Colorado	Colorado	24	24	24	24	24	24
<b>Groundwater Management Area 8</b>			<b>5,639</b>	<b>5,623</b>	<b>5,639</b>	<b>5,623</b>	<b>5,639</b>	<b>5,623</b>

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**TABLE 23. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE ELLENBURGER-SAN SABA AQUIFER IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.**

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Brown	Region F	Colorado	131	131	131	131	131	131
Burnet	Lower Colorado	Brazos	3,833	3,822	3,833	3,822	3,833	3,822
Burnet	Lower Colorado	Colorado	7,024	7,005	7,024	7,005	7,024	7,005
Lampasas	Region G	Brazos	1,685	1,680	1,685	1,680	1,685	1,680
Lampasas	Region G	Colorado	916	913	916	913	916	913
Mills	Lower Colorado	Brazos	93	93	93	93	93	93
Mills	Lower Colorado	Colorado	407	406	407	406	407	406
<b>Groundwater Management Area 8</b>			<b>14,089</b>	<b>14,050</b>	<b>14,089</b>	<b>14,050</b>	<b>14,089</b>	<b>14,050</b>

**TABLE 24. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE HICKORY AQUIFER IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.**

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Brown	Region F	Colorado	12	12	12	12	12	12
Burnet	Lower Colorado	Brazos	1,240	1,236	1,240	1,236	1,240	1,236
Burnet	Lower Colorado	Colorado	2,183	2,177	2,183	2,177	2,183	2,177
Lampasas	Region G	Brazos	80	79	80	79	80	79
Lampasas	Region G	Colorado	34	34	34	34	34	34
Mills	Lower Colorado	Brazos	7	7	7	7	7	7
Mills	Lower Colorado	Colorado	29	29	29	29	29	29
<b>Groundwater Management Area 8</b>			<b>3,585</b>	<b>3,574</b>	<b>3,585</b>	<b>3,574</b>	<b>3,585</b>	<b>3,574</b>

### ***LIMITATIONS:***

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

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

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

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

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

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## **Appendix A**

### **Comparison between Desired Future Conditions and Simulated Drawdowns for the Trinity and Woodbine Aquifers**

Drawdown values for the Trinity and Woodbine aquifers between 2009 and 2070 were based on the simulated head values at individual model cells extracted from predictive simulation head file submitted by Groundwater Management Area 8.

The Paluxy, Glen Rose, Twin Mountains, Travis Peak, Hensell, Hosston, and Antlers are subunits of the Trinity Aquifer. These subunits and Woodbine Aquifer exist in both outcrop and downdip areas ([Figures 1 through 8](#)). Kelley and others (2014) further divided these aquifers into five (5) regions, each with unique aquifer combinations and properties (table below and [Figures 1 through 8](#)).

Model Layer	Region 1	Region 2	Region 3	Region 4	Region 5	
2	Woodbine			Woodbine (no sand)		
3	Washita/Fredericksburg					
4	Antlers	Paluxy			Paluxy (no sand)	
5		Glen Rose				
6		Twin Mountains	Travis Peak	Hensell		Hensell
7				Pearsall/Sligo		Travis Peak
8	Hosston			Hosston		

Vertically, the Trinity and Woodbine aquifers could contain multiple model layers and some of the model cells are pass-through cells with a thickness of one foot. To account for variable model cells from multiple model layers for the same aquifer, Beach and others (2016) adopted a method presented by Van Kelley of INTERA, Inc., which calculated a single composite head from multiple model cells with each adjusted by transmissivity. This composite head took both the head and hydraulic transmissivity at each cell into calculation, as shown in the following equation:

$$H_c = \frac{\sum_{i=UL}^{LL} T_i H_i}{\sum_{i=UL}^{LL} T_i}$$

Where:

$H_c$  = Composite Head (feet above mean sea level)

$T_i$  = Transmissivity of model layer  $i$  (square feet per day)

$H_i$  = Head of model layer  $i$  (feet above mean sea level)

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*LL* = Lowest model layer representing the regional aquifer

*UL* = Uppermost model layer representing the regional aquifer.

The average head for the same aquifer in a county (*Hc\_County*) was then calculated using the following equation:

$$Hc\_County = \frac{\sum_{i=1}^n Hc_i}{n}$$

Where:

*Hc\_County* = Average composite head for a county  
(feet above mean sea level)

*Hc<sub>i</sub>* = Composite Head at a lateral location as defined in last step  
(feet above mean sea level)

*n* = Total lateral (row, column) locations of an aquifer in a county.

Drawdown of the aquifer in a county (*DD\_County*) was calculated using the following equation:

$$DD\_County = Hc\_County_{2009} - Hc\_County_{2070}$$

Where:

*Hc\_County<sub>2009</sub>* = Average head of an aquifer in a county in 2009  
as defined above (feet above mean sea level)

*Hc\_County<sub>2070</sub>* = Average head of an aquifer in a county in 2070  
as defined above (feet above mean sea level).

Model cells with head values below the cell bottom in 2009 were excluded from the calculation. Also, head was set at the cell bottom if it fell below the cell bottom at 2070.

In comparison with a simple average calculation based on total model cell count, use of composite head gives less weight to cells with lower transmissivity values (such as pass-through cells, cells with low saturation in outcrop area, or cells with lower hydraulic conductivity) in head and drawdown calculation.

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Per Groundwater Management Area 8, a desired future condition was met if the simulated drawdown from the desired future condition was within five percent or five feet. Using the head output file submitted by Groundwater Management Area 8 and the method described above, the TWDB calculated the drawdowns (Tables [A1](#) and [A2](#)) and performed the comparison against the corresponding desired future conditions by county (Tables [A3](#), [A4](#), [A5](#), and [A6](#)). The review by the TWDB indicates that the predictive simulation meets the desired future conditions (Tables [A7](#) and [A8](#)).

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**TABLE A1. SIMULATED DRAWDOWN VALUES OF THE TRINITY AND WOODBINE AQUIFERS FOR COUNTIES NOT IN THE UPPER TRINITY GROUNDWATER CONSERVATION DISTRICT. DRAWDOWNS ARE IN FEET.**

County	Woodbine	Paluxy	Glen Rose	Twin Mountains	Travis Peak	Hensell	Hosston	Antlers
Bell	—	19	83	—	294	137	330	—
Bosque	—	6	49	—	167	129	201	—
Brown	—	—	2	—	1	1	1	2
Burnet	—	—	2	—	16	7	20	—
Callahan	—	—	—	—	—	—	—	1
Collin	459	705	339	526	—	—	—	570
Comanche	—	—	1	—	2	2	3	9
Cooke	2	—	—	—	—	—	—	179
Coryell	—	7	14	—	100	66	130	—
Dallas	123	324	263	463	350	332	351	—
Delta	—	264	181	—	186	—	—	—
Denton	19	552	349	716	—	—	—	398
Eastland	—	—	—	—	—	—	—	3
Ellis	61	107	194	333	305	263	310	—
Erath	—	1	5	6	19	11	31	11
Falls	—	144	215	—	460	271	465	—
Fannin	247	688	280	372	269	—	—	251
Grayson	157	922	337	417	—	—	—	348
Hamilton	—	2	4	—	24	13	35	—
Hill	16	38	133	—	299	186	337	—
Hunt	598	586	299	370	324	—	—	—
Johnson	3	-61	58	156	184	126	235	—
Kaufman	208	276	269	381	323	309	295	—
Lamar	38	93	97	—	114	—	—	122
Lampasas	—	—	1	—	6	1	11	—
Limestone	—	178	271	—	393	183	404	—
McLennan	6	35	133	—	468	220	542	—
Milam	—	—	212	—	344	229	345	—
Mills	—	1	1	—	7	2	13	—
Navarro	92	119	232	—	291	254	291	—
Red River	2	21	36	—	51	—	—	13
Rockwall	243	401	311	426	—	—	—	—
Somervell	—	1	4	31	52	26	83	—
Tarrant	6	101	148	315	—	—	—	149

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<b>County</b>	<b>Woodbine</b>	<b>Paluxy</b>	<b>Glen Rose</b>	<b>Twin Mountains</b>	<b>Travis Peak</b>	<b>Hensell</b>	<b>Hosston</b>	<b>Antlers</b>
Taylor	—	—	—	—	—	—	—	0
Travis	—	—	85	—	142	51	148	—
Williamson	—	—	76	—	172	73	176	—

—: Not available.

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**TABLE A2. SIMULATED DRAWDOWN VALUES OF THE TRINITY AQUIFER FOR COUNTIES IN THE UPPER TRINITY GROUNDWATER CONSERVATION DISTRICT. DRAWDOWNS ARE IN FEET.**

<b>County</b>	<b>Paluxy</b>	<b>Glen Rose</b>	<b>Twin Mountains</b>	<b>Antlers</b>
Hood (outcrop)	5	7	4	—
Hood (downdip)	—	27	46	—
Montague (outcrop)	—	—	—	18
Montague (downdip)	—	—	—	—
Parker (outcrop)	5	10	1	11
Parker (downdip)	1	28	46	—
Wise (outcrop)	—	—	—	35
Wise (downdip)	—	—	—	142

—: Not available.

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**TABLE A3. RELATIVE DIFFERENCE BETWEEN SIMULATED DRAWDOWNS AND DESIRED FUTURE CONDITIONS OF THE TRINITY AND WOODBINE AQUIFERS FOR COUNTIES NOT IN THE UPPER TRINITY GROUNDWATER CONSERVATION DISTRICT. VALUES GREATER THAN THE ERROR TOLERANCE OF FIVE PERCENT ARE HIGHLIGHTED.**

County	Woodbine	Paluxy	Glen Rose	Twin Mountains	Travis Peak	Hensell	Hosston	Antlers
Bell	—	0%	0%	—	-2%	0%	0%	—
Bosque	—	0%	0%	—	0%	0%	0%	—
Brown	—	—	0%	—	0%	0%	0%	0%
Burnet	—	—	0%	—	0%	0%	0%	—
Callahan	—	—	—	—	—	—	—	0%
Collin	0%	0%	0%	0%	—	—	—	0%
Comanche	—	—	0%	—	0%	0%	0%	0%
Cooke	0%	—	—	—	—	—	—	2%
Coryell	—	0%	0%	—	1%	0%	0%	—
Dallas	0%	0%	0%	0%	1%	0%	0%	—
Delta	—	0%	0%	—	0%	—	—	—
Denton	-16%	0%	0%	0%	—	—	—	1%
Eastland	—	—	—	—	—	—	—	0%
Ellis	0%	0%	0%	0%	1%	0%	0%	—
Erath	—	0%	0%	0%	0%	0%	0%	-9%
Falls	—	0%	0%	—	0%	0%	0%	—
Fannin	0%	0%	0%	0%	0%	—	—	0%
Grayson	-2%	0%	0%	0%	—	—	—	0%
Hamilton	—	0%	0%	—	0%	0%	0%	—
Hill	-25%	0%	0%	—	0%	0%	0%	—
Hunt	0%	0%	0%	0%	0%	—	—	—
Johnson	33%	0%	0%	0%	3%	0%	0%	—
Kaufman	0%	0%	0%	0%	0%	0%	0%	—
Lamar	0%	0%	0%	—	0%	—	—	0%
Lampasas	—	—	0%	—	0%	0%	0%	—
Limestone	—	0%	0%	—	0%	0%	0%	—
McLennan	0%	0%	0%	—	-1%	0%	0%	—
Milam	—	—	0%	—	0%	0%	0%	—
Mills	—	0%	0%	—	0%	0%	0%	—
—varro	0%	0%	0%	—	0%	0%	0%	—
Red River	0%	0%	0%	—	0%	—	—	0%
Rockwall	0%	0%	0%	0%	—	—	—	—

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<b>County</b>	<b>Woodbine</b>	<b>Paluxy</b>	<b>Glen Rose</b>	<b>Twin Mountains</b>	<b>Travis Peak</b>	<b>Hensell</b>	<b>Hosston</b>	<b>Antlers</b>
Somervell	—	0%	0%	0%	2%	0%	0%	—
Tarrant	-17%	0%	0%	0%	—	—	—	1%
Taylor	—	—	—	—	—	—	—	0%
Travis	—	—	0%	—	1%	2%	1%	—
Williamson	—	—	-1%	—	-1%	-1%	-1%	—

—: Not available.



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**TABLE A4. RELATIVE DIFFERENCE BETWEEN SIMULATED DRAWDOWNS AND DESIRED FUTURE CONDITIONS OF THE TRINITY AQUIFER FOR COUNTIES IN THE UPPER TRINITY GROUNDWATER CONSERVATION DISTRICT. VALUES GREATER THAN THE ERROR TOLERANCE OF FIVE PERCENT ARE HIGHLIGHTED.**

County	Paluxy	Glen Rose	Twin Mountains	Antlers
Hood (outcrop)	0%	0%	0%	—
Hood (downdip)	—	-4%	0%	—
Montague (outcrop)	—	—	—	0%
Montague (downdip)	—	—	—	—
Parker (outcrop)	0%	0%	0%	0%
Parker (downdip)	0%	0%	0%	—
Wise (outcrop)	—	—	—	3%
Wise (downdip)	—	—	—	0%

—: Not available.

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**TABLE A5. DIFFERENCE BETWEEN SIMULATED DRAWDOWNS AND DESIRED FUTURE CONDITIONS OF THE TRINITY AND WOODBINE AQUIFERS FOR COUNTIES NOT IN THE UPPER TRINITY GROUNDWATER CONSERVATION DISTRICT. VALUES GREATER THAN THE ERROR TOLERANCE OF FIVE FEET ARE HIGHLIGHTED.**

County	Woodbine	Paluxy	Glen Rose	Twin Mountains	Travis Peak	Hensell	Hosston	Antlers
Bell	—	0	0	—	-6	0	0	—
Bosque	—	0	0	—	0	0	0	—
Brown	—	—	0	—	0	0	0	0
Burnet	—	—	0	—	0	0	0	—
Callahan	—	—	—	—	—	—	—	0
Collin	0	0	0	0	—	—	—	0
Comanche	—	—	0	—	0	0	0	0
Cooke	0	—	—	—	—	—	—	3
Coryell	—	0	0	—	1	0	0	—
Dallas	0	0	0	0	2	0	0	—
Delta	—	0	0	—	0	—	—	—
Denton	-3	0	0	0	—	—	—	3
Eastland	—	—	—	—	—	—	—	0
Ellis	0	0	0	0	4	0	0	—
Erath	—	0	0	0	0	0	0	-1
Falls	—	0	0	—	-2	0	0	—
Fannin	0	0	0	0	0	—	—	0
Grayson	-3	0	0	0	—	—	—	0
Hamilton	—	0	0	—	0	0	0	—
Hill	-4	0	0	—	1	0	0	—
Hunt	0	0	0	0	0	—	—	—
Johnson	1	0	0	0	5	0	0	—
Kaufman	0	0	0	0	0	0	0	—
Lamar	0	0	0	—	0	—	—	0
Lampasas	—	—	0	—	0	0	0	—
Limestone	—	0	0	—	1	0	0	—
McLennan	0	0	0	—	-3	0	0	—
Milam	—	—	0	—	-1	0	0	—
Mills	—	0	0	—	0	0	0	—
Navarro	0	0	0	—	1	0	0	—
Red River	0	0	0	—	0	—	—	0
Rockwall	0	0	0	0	—	—	—	—

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<b>County</b>	<b>Woodbine</b>	<b>Paluxy</b>	<b>Glen Rose</b>	<b>Twin Mountains</b>	<b>Travis Peak</b>	<b>Hensell</b>	<b>Hosston</b>	<b>Antlers</b>
Somervell	—	0	0	0	1	0	0	—
Tarrant	-1	0	0	0	—	—	—	1
Taylor	—	—	—	—	—	—	—	0
Travis	—	—	0	—	1	1	2	—
Williamson	—	—	-1	—	-1	-1	-1	—

—: Not available.

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**TABLE A6. DIFFERENCE BETWEEN SIMULATED DRAWDOWNS AND DESIRED FUTURE CONDITIONS OF THE TRINITY AQUIFER FOR COUNTIES IN THE UPPER TRINITY GROUNDWATER CONSERVATION DISTRICT. NO VALUES ARE GREATER THAN THE ERROR TOLERANCE OF FIVE FEET.**

County	Paluxy	Glen Rose	Twin Mountains	Antlers
Hood (outcrop)	0	0	0	—
Hood (downdip)	—	-1	0	—
Montague (outcrop)	—	—	—	0
Montague (downdip)	—	—	—	—
Parker (outcrop)	0	0	0	0
Parker (downdip)	0	0	0	—
Wise (outcrop)	—	—	—	1
Wise (downdip)	—	—	—	0

—: Not available.

**TABLE A7. COMPARISON OF SIMULATED DRAWDOWNS WITH THE DESIRED FUTURE CONDITIONS OF THE TRINITY AND WOODBINE AQUIFERS FOR COUNTIES NOT IN THE UPPER TRINITY GROUNDWATER CONSERVATION DISTRICT. NO VALUES ARE GREATER THAN BOTH ERROR TOLERANCES OF FIVE PERCENT AND FIVE FEET AT THE SAME TIME. THUS, PREDICTIVE SIMULATION MEETS ALL DESIRED FUTURE CONDITIONS.**

County	Woodbine	Paluxy	Glen Rose	Twin Mountains	Travis Peak	Hensell	Hosston	Antlers
Bell	—	MEET	MEET	—	MEET	MEET	MEET	—
Bosque	—	MEET	MEET	—	MEET	MEET	MEET	—
Brown	—	—	MEET	—	MEET	MEET	MEET	MEET
Burnet	—	—	MEET	—	MEET	MEET	MEET	—
Callahan	—	—	—	—	—	—	—	MEET
Collin	MEET	MEET	MEET	MEET	—	—	—	MEET
Comanche	—	—	MEET	—	MEET	MEET	MEET	MEET
Cooke	MEET	—	—	—	—	—	—	MEET
Coryell	—	MEET	MEET	—	MEET	MEET	MEET	—
Dallas	MEET	MEET	MEET	MEET	MEET	MEET	MEET	—
Delta	—	MEET	MEET	—	MEET	—	—	—
Denton	MEET	MEET	MEET	MEET	—	—	—	MEET
Eastland	—	—	—	—	—	—	—	MEET
Ellis	MEET	MEET	MEET	MEET	MEET	MEET	MEET	—
Erath	—	MEET	MEET	MEET	MEET	MEET	MEET	MEET
Falls	—	MEET	MEET	—	MEET	MEET	MEET	—
Fannin	MEET	MEET	MEET	MEET	MEET	—	—	MEET
Grayson	MEET	MEET	MEET	MEET	—	—	—	MEET
Hamilton	—	MEET	MEET	—	MEET	MEET	MEET	—
Hill	MEET	MEET	MEET	—	MEET	MEET	MEET	—
Hunt	MEET	MEET	MEET	MEET	MEET	—	—	—
Johnson	MEET	MEET	MEET	MEET	MEET	MEET	MEET	—
Kaufman	MEET	MEET	MEET	MEET	MEET	MEET	MEET	—
Lamar	MEET	MEET	MEET	—	MEET	—	—	MEET
Lampasas	—	—	MEET	—	MEET	MEET	MEET	—
Limestone	—	MEET	MEET	—	MEET	MEET	MEET	—
McLennan	MEET	MEET	MEET	—	MEET	MEET	MEET	—
Milam	—	—	MEET	—	MEET	MEET	MEET	—
Mills	—	MEET	MEET	—	MEET	MEET	MEET	—
Navarro	MEET	MEET	MEET	—	MEET	MEET	MEET	—

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<b>County</b>	<b>Woodbine</b>	<b>Paluxy</b>	<b>Glen Rose</b>	<b>Twin Mountains</b>	<b>Travis Peak</b>	<b>Hensell</b>	<b>Hosston</b>	<b>Antlers</b>
Red River	MEET	MEET	MEET	—	MEET	—	—	MEET
Rockwall	MEET	MEET	MEET	MEET	—	—	—	—
Somervell	—	MEET	MEET	MEET	MEET	MEET	MEET	—
Tarrant	MEET	MEET	MEET	MEET	—	—	—	MEET
Taylor	—	—	—	—	—	—	—	MEET
Travis	—	—	MEET	—	MEET	MEET	MEET	—
Williamson	—	—	MEET	—	MEET	MEET	MEET	—

—: Not available.

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**TABLE A8. COMPARISON OF SIMULATED DRAWDOWNS WITH THE DESIRED FUTURE CONDITIONS OF THE TRINITY AQUIFER FOR COUNTIES IN THE UPPER TRINITY GROUNDWATER CONSERVATION DISTRICT. NO VALUES ARE GREATER THAN BOTH ERROR TOLERANCES OF FIVE PERCENT AND FIVE FEET AT THE SAME TIME. THUS, PREDICTIVE SIMULATION MEETS ALL DESIRED FUTURE CONDITIONS.**

<b>County</b>	<b>Paluxy</b>	<b>Glen Rose</b>	<b>Twin Mountains</b>	<b>Antlers</b>
Hood (outcrop)	MEET	MEET	MEET	—
Hood (downdip)	—	MEET	MEET	—
Montague (outcrop)	—	—	—	MEET
Montague (downdip)	—	—	—	—
Parker (outcrop)	MEET	MEET	MEET	MEET
Parker (downdip)	MEET	MEET	MEET	—
Wise (outcrop)	—	—	—	MEET
Wise (downdip)	—	—	—	MEET

—: Not available.

## ***Appendix B***

### **Comparison between Desired Future Conditions and Simulated Saturated Thickness for the Marble Falls, Ellenburger-San Saba, and Hickory Aquifers in Brown, Burnet, Lampasas, and Mills Counties**

The predictive simulation used to evaluate the desired future conditions and the modeled available groundwater values for the Marble Falls, Ellenburger-San Saba, and Hickory aquifers in Brown, Burnet, Lampasas, and Mills counties within Groundwater Management Area 8 involves rewriting all relevant MODFLOW-USG packages to reflect the predictive simulation. The initial pumping for the predictive simulation was based on the last stress period of the groundwater availability model. In its clarification, Groundwater Management Area 8 also provided estimated pumping to use for the predictive simulation by TWDB ([Table B1](#)).

These pumping values from Groundwater Management Area 8 are more than the pumpage from the last stress period of the groundwater availability model. This surplus pumping for each aquifer was redistributed uniformly in each county according to its modeled extent.

The head file from the model output was used to calculate the remaining saturated thickness ( $ST$ ) within the modeled extent for each aquifer between 2009 and 2070 using the following equation:

$$ST = \frac{\sum_{i=1}^n (h_{2070_i} - e_i)}{\sum_{i=1}^n (h_{2009_i} - e_i)}$$

Where:

$n$  = Total model cells in a county

$h_{2009_i}$  = Head of 2009 at model cell  $i$  (feet)

$h_{2070_i}$  = Head of 2070 at model cell  $i$  (feet)

$e_i$  = Bottom elevation of model cell  $i$  (feet).

Model cells with head values below the cell bottom in 2009 were excluded from the calculation. Also, head was set at the cell bottom if it fell below the cell bottom at 2070.



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The comparison between the simulated remaining saturated thickness and the desired future conditions is presented in [Table B2](#). [Table B2](#) indicates that the predictive simulation meets the desired future conditions of the Marble Falls, Ellenburger-San Saba, and Hickory aquifers in Brown, Burnet, Lampasas, and Mills counties.

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**TABLE B1. GROUNDWATER PUMPING RATES FOR THE MARBLE FALLS, ELLENBURGER-SAN SABA, AND HICKORY AQUIFERS IN BROWN, BURNET, LAMPASAS, AND MILLS COUNTIES PROVIDED BY GROUNDWATER MNAAGMENT AREA 8.**

<b>County</b>	<b>Aquifer</b>	<b>2010 to 2070 (acre-feet per year)</b>
Burnet	Marble Falls	2,736
Lampasas	Marble Falls	2,837
Brown	Marble Falls	25
Mills	Marble Falls	25
Burnet	Ellenburger-San Saba	10,827
Lampasas	Ellenburger-San Saba	2,593
Brown	Ellenburger-San Saba	131
Mills	Ellenburger-San Saba	499
Burnet	Hickory	3,413
Lampasas	Hickory	113
Brown	Hickory	12
Mills	Hickory	36

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**TABLE B2. COMPARISON BETWEEN SIMULATED REMAINING AQUIFER SATURATED THICKNESS AND DESIRED FUTURE CONDITIONS OF MARBLE FALLS, ELLENBURGER-SAN SABA, AND HICKORY AQUIFERS IN BROWN, BURNET, LAMPASAS, AND MILLS COUNTIES.**

<b>County</b>	<b>Aquifer</b>	<b>Remaining Aquifer Saturated Thickness Defined by Desired Future Condition</b>	<b>Simulated Remaining Aquifer Saturated Thickness</b>	<b>Is Desired Future Condition Met?</b>
Brown	Marble Falls	at least 90%	99.8%	Yes
Brown	Ellenburger-San Saba	at least 90%	99.9%	Yes
Brown	Hickory	at least 90%	99.9%	Yes
Burnet	Marble Falls	at least 90%	98.8%	Yes
Burnet	Ellenburger-San Saba	at least 90%	99.3%	Yes
Burnet	Hickory	at least 90%	99.5%	Yes
Lampasas	Marble Falls	at least 90%	98.2%	Yes
Lampasas	Ellenburger-San Saba	at least 90%	99.0%	Yes
Lampasas	Hickory	at least 90%	99.5%	Yes
Mills	Marble Falls	at least 90%	99.5%	Yes
Mills	Ellenburger-San Saba	at least 90%	99.7%	Yes
Mills	Hickory	at least 90%	99.8%	Yes

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## ***Appendix C***

### **Summary of Dry Model Cell Count for the Trinity and Woodbine Aquifers**

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**TABLE C1. SUMMARY OF DRY MODEL CELLS FOR THE TRINITY AQUIFER (PALUXY) FROM THE REVISED PREDICTIVE SIMULATION.**

<b>Year</b>	<b>Collin</b>	<b>Dallas</b>	<b>Denton</b>	<b>Johnson</b>	<b>Tarrant</b>
Total Active Official Aquifer Model Cells	12,062	14,532	3,520	11,627	15,389
2009 (baseline)	0	0	0	17	3
2010	0	0	9	0	3
2011	1	0	49	0	3
2012	4	0	83	0	17
2013	8	0	140	0	47
2014	35	0	196	0	91
2015	49	0	264	0	146
2016	64	0	306	0	209
2017	72	0	349	0	291
2018	83	0	385	0	373
2019	93	0	428	0	460
2020	99	0	482	0	555
2021	109	0	550	0	620
2022	115	0	622	0	684
2023	125	0	695	0	746
2024	129	0	780	0	802
2025	138	0	879	0	862
2026	147	0	957	0	919
2027	151	0	1,018	0	964
2028	159	0	1,087	0	995
2029	166	0	1,171	0	1,038
2030	173	0	1,262	0	1,072
2031	176	0	1,326	0	1,101
2032	180	0	1,379	0	1,137
2033	187	0	1,420	0	1,156
2034	193	0	1,461	0	1,194
2035	201	0	1,492	0	1,224
2036	204	0	1,520	0	1,240
2037	209	0	1,554	0	1,274
2038	212	0	1,584	0	1,292
2039	215	0	1,607	0	1,317
2040	217	0	1,627	0	1,347
2041	224	0	1,659	0	1,362
2042	228	0	1,682	0	1,377

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<b>Year</b>	<b>Collin</b>	<b>Dallas</b>	<b>Denton</b>	<b>Johnson</b>	<b>Tarrant</b>
2043	235	0	1,710	0	1,409
2044	239	0	1,735	0	1,425
2045	242	0	1,755	0	1,438
2046	247	0	1,777	0	1,455
2047	250	0	1,790	0	1,477
2048	251	0	1,807	0	1,497
2049	253	0	1,823	0	1,517
2050	254	0	1,834	0	1,530
2051	258	2	1,847	0	1,539
2052	264	2	1,860	0	1,562
2053	266	2	1,874	0	1,585
2054	270	3	1,883	0	1,594
2055	272	3	1,893	0	1,606
2056	275	3	1,902	0	1,621
2057	276	3	1,923	0	1,634
2058	280	4	1,929	0	1,650
2059	282	4	1,934	0	1,666
2060	286	4	1,943	0	1,679
2061	288	4	1,947	0	1,693
2062	288	4	1,961	0	1,701
2063	290	5	1,973	0	1,712
2064	291	5	1,977	0	1,726
2065	292	5	1,988	0	1,739
2066	295	5	1,996	0	1,752
2067	297	6	2,002	0	1,760
2068	300	7	2,009	0	1,769
2069	304	7	2,017	0	1,778
2070	305	7	2,024	0	1,784

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**TABLE C2. SUMMARY OF DRY MODEL CELLS FOR THE TRINITY AQUIFER (GLEN ROSE) FROM THE REVISED PREDICTIVE SIMULATION.**

Year	Bell	Burnet	Coryell	Erath	Hamilton	Hood	Johnson	Mills	Parker	Travis
Total Active Official Aquifer Model Cells	23,737	22,534	41,647	20,905	36,944	14,461	12,342	10,615	11,389	14,552
2009 (baseline)	0	0	11	0	0	0	15	0	8	25
2010	0	0	11	0	0	0	15	0	9	29
2011	0	0	11	0	0	0	15	0	12	29
2012	0	0	11	0	0	0	15	0	15	29
2013	0	0	11	1	0	0	15	1	19	29
2014	0	1	11	1	0	1	15	1	22	31
2015	0	1	11	1	0	1	15	1	23	32
2016	0	1	12	1	0	1	15	1	30	33
2017	0	1	12	2	0	2	15	1	37	34
2018	0	1	12	3	0	2	15	1	38	34
2019	0	1	14	3	0	2	16	1	44	34
2020	0	1	14	3	0	2	16	1	46	34
2021	0	1	14	3	0	3	16	1	48	35
2022	0	1	14	3	0	3	16	1	49	38
2023	0	1	14	3	0	3	17	1	54	41
2024	0	1	15	3	0	3	17	1	58	45
2025	0	1	15	3	0	3	17	1	65	47
2026	0	1	15	3	0	5	19	1	72	48
2027	0	1	15	4	0	5	21	1	78	50
2028	0	1	15	4	0	5	21	1	82	51
2029	0	1	15	4	0	6	22	1	84	51
2030	0	1	15	4	0	6	22	1	90	54
2031	0	1	15	8	0	6	22	1	99	54
2032	0	1	15	8	0	8	23	1	103	55
2033	0	1	15	8	0	8	23	1	105	56
2034	0	1	15	9	0	9	23	1	108	56
2035	0	1	15	9	0	10	23	1	109	57
2036	0	1	15	9	0	12	23	1	110	58
2037	0	1	15	9	0	13	23	1	110	58
2038	0	1	15	9	0	14	23	1	113	59

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Year	Bell	Burnet	Coryell	Erath	Hamilton	Hood	Johnson	Mills	Parker	Travis
2039	0	2	15	9	0	14	23	1	113	59
2040	0	2	15	9	0	14	23	1	116	60
2041	0	2	15	9	0	16	23	1	119	60
2042	0	2	15	10	1	16	23	1	122	61
2043	0	2	15	10	2	16	23	1	124	61
2044	0	2	15	10	2	18	24	1	125	62
2045	0	2	15	10	2	18	25	1	131	63
2046	0	2	15	10	2	18	25	1	131	63
2047	0	2	16	10	3	18	25	1	134	64
2048	0	2	16	10	4	18	26	1	137	64
2049	0	2	16	11	4	20	26	1	139	65
2050	0	2	16	11	4	22	26	1	143	65
2051	0	2	16	12	5	22	29	1	144	66
2052	1	2	16	12	5	22	31	1	147	66
2053	3	2	16	12	7	24	32	1	149	67
2054	4	2	17	12	7	27	32	1	151	67
2055	4	2	17	12	7	27	34	1	152	67
2056	4	2	17	12	7	30	34	1	152	68
2057	6	2	17	13	7	31	34	1	156	69
2058	7	2	17	13	7	31	34	1	159	69
2059	7	2	17	13	7	31	34	1	164	69
2060	7	2	17	13	8	34	34	1	166	69
2061	7	2	17	13	8	34	34	1	165	69
2062	7	2	17	13	9	35	34	1	168	69
2063	7	2	17	14	9	36	34	1	168	69
2064	7	2	17	16	9	36	34	1	172	69
2065	8	2	17	16	9	36	34	2	176	69
2066	8	2	17	16	10	36	34	2	180	69
2067	8	3	17	19	10	36	34	2	184	69
2068	8	3	17	19	11	38	34	2	188	69
2069	8	3	17	20	11	38	34	2	191	69
2070	8	4	17	20	11	41	34	2	194	69



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**TABLE C3. SUMMARY OF DRY MODEL CELLS FOR THE TRINITY AQUIFER (TWIN MOUNTAINS) FROM THE REVISED PREDICTIVE SIMULATION.**

Year	Denton	Erath	Hood	Johnson	Parker	Tarrant
Total Active Official Aquifer Model Cells	10,560	46,642	37,444	6,816	30,830	40,713
2009 (baseline)	0	20	0	0	0	0
2010	0	27	0	0	0	0
2011	0	33	0	0	0	0
2012	0	40	0	0	0	0
2013	0	44	0	0	0	0
2014	0	48	0	0	0	0
2015	0	53	0	0	0	0
2016	0	56	0	0	0	0
2017	0	61	0	0	0	0
2018	0	65	0	0	0	0
2019	0	68	1	0	0	0
2020	0	71	1	0	0	0
2021	0	76	1	0	1	0
2022	0	80	1	0	4	0
2023	0	81	1	0	8	2
2024	0	85	4	0	13	6
2025	0	88	7	0	16	10
2026	0	91	15	0	17	16
2027	0	94	18	0	18	25
2028	0	97	23	0	18	32
2029	0	101	28	0	23	36
2030	0	107	33	0	24	41
2031	1	108	41	0	25	48
2032	1	111	46	0	25	53
2033	1	119	56	0	26	56
2034	1	122	64	0	27	66
2035	1	123	68	0	27	74
2036	2	126	75	0	29	93
2037	2	131	82	0	29	127
2038	2	134	95	0	30	170
2039	2	136	100	0	31	231
2040	2	137	114	0	32	289
2041	2	143	129	0	32	354

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<b>Year</b>	<b>Denton</b>	<b>Erath</b>	<b>Hood</b>	<b>Johnson</b>	<b>Parker</b>	<b>Tarrant</b>
2042	2	146	137	0	32	426
2043	2	150	150	0	32	500
2044	2	154	165	0	32	587
2045	3	157	178	0	34	648
2046	4	161	194	0	35	711
2047	4	167	212	0	36	767
2048	4	171	228	0	38	832
2049	5	174	242	0	38	889
2050	7	176	251	0	38	930
2051	8	178	262	0	38	996
2052	8	181	272	2	38	1,057
2053	9	184	282	7	38	1,114
2054	9	186	297	13	39	1,169
2055	9	189	313	19	40	1,234
2056	10	194	320	26	40	1,303
2057	11	196	330	33	41	1,366
2058	14	207	336	41	42	1,435
2059	14	211	341	49	42	1,508
2060	15	221	351	57	42	1,595
2061	16	221	363	67	43	1,681
2062	17	223	368	75	43	1,783
2063	18	224	375	83	43	1,899
2064	20	228	385	94	45	1,988
2065	22	229	393	105	46	2,104
2066	23	231	401	115	47	2,188
2067	24	233	408	130	47	2,285
2068	27	236	416	139	47	2,364
2069	31	240	424	155	47	2,468
2070	35	242	429	168	47	2,553

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**TABLE C4. SUMMARY OF DRY MODEL CELLS FOR THE TRINITY AQUIFER (TRAVIS PEAK) FROM THE REVISED PREDICTIVE SIMULATION.**

Year	Burnet	Comanche	Erath	Johnson	Lampasas	McLennan	Travis
Total Active Official Aquifer Model Cells	46,474	78,137	39,220	28,386	63,905	50,973	30,318
2009 (baseline)	217	0	0	0	1	0	57
2010	176	0	1	0	1	0	59
2011	186	0	1	0	1	0	60
2012	218	0	1	0	1	0	63
2013	249	0	1	0	1	0	65
2014	271	0	1	0	1	0	68
2015	291	0	1	0	1	0	68
2016	314	0	3	0	1	0	70
2017	331	0	4	0	1	0	70
2018	345	0	5	0	1	0	71
2019	363	0	6	0	1	0	72
2020	378	0	11	0	1	0	72
2021	394	0	17	0	1	0	74
2022	400	0	29	0	1	0	74
2023	414	0	59	0	1	0	76
2024	424	0	93	0	1	0	77
2025	438	1	114	0	1	0	77
2026	450	9	130	0	1	0	79
2027	463	14	160	0	1	0	80
2028	474	14	183	0	1	0	80
2029	483	18	205	0	1	0	82
2030	494	30	238	0	1	0	82
2031	505	34	266	0	1	0	83
2032	512	35	299	0	1	0	83
2033	520	41	328	0	1	0	84
2034	527	54	343	0	1	0	85
2035	533	67	351	0	1	0	85
2036	543	72	370	0	1	0	87
2037	545	77	398	0	1	0	88
2038	554	85	414	0	1	0	88
2039	564	94	421	0	1	0	90
2040	571	103	435	0	1	1	90
2041	579	111	453	0	1	1	91
2042	588	116	481	0	1	1	92

GAM Run 17-029 MAG: Modeled Available Groundwater for the Trinity, Woodbine, Edwards (Balcones Fault Zone), Marble Falls, Ellenburger-San Saba, and Hickory Aquifers in Groundwater Management Area 8

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<b>Year</b>	<b>Burnet</b>	<b>Comanche</b>	<b>Erath</b>	<b>Johnson</b>	<b>Lampasas</b>	<b>McLennan</b>	<b>Travis</b>
2043	599	116	497	0	1	1	93
2044	604	121	507	0	1	1	93
2045	609	128	520	0	1	1	94
2046	618	138	538	0	1	1	95
2047	623	146	557	0	1	2	97
2048	629	152	590	0	1	2	97
2049	634	160	606	0	1	2	98
2050	640	166	620	0	1	2	99
2051	644	172	638	1	1	2	100
2052	648	180	651	1	1	2	100
2053	654	186	665	1	1	2	101
2054	658	190	678	1	1	2	102
2055	670	194	690	1	1	2	103
2056	675	196	699	1	1	2	103
2057	678	199	711	1	1	2	104
2058	692	206	723	1	1	2	105
2059	702	216	746	1	1	2	106
2060	717	222	774	1	1	2	106
2061	714	225	776	1	1	2	106
2062	719	227	790	1	1	2	107
2063	723	231	799	1	1	3	107
2064	728	235	813	2	1	3	109
2065	730	238	822	3	1	3	109
2066	730	245	832	3	1	3	109
2067	734	252	841	3	1	3	110
2068	741	258	850	3	1	3	110
2069	745	264	861	6	1	3	111
2070	748	269	871	7	1	3	112

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**TABLE C5. SUMMARY OF DRY MODEL CELLS FOR THE TRINITY AQUIFER (HENSELL) FROM THE REVISED PREDICTIVE SIMULATION.**

<b>Year</b>	<b>Erath</b>	<b>Lampasas</b>
Total Active Official Aquifer Model Cells	21,880	25,364
2009 (baseline)	0	1
2010	0	1
2011	0	1
2012	0	1
2013	0	1
2014	0	1
2015	0	1
2016	0	1
2017	0	1
2018	0	1
2019	0	1
2020	0	1
2021	0	1
2022	0	1
2023	0	1
2024	0	1
2025	0	1
2026	0	1
2027	0	1
2028	0	1
2029	0	1
2030	0	1
2031	0	1
2032	0	1
2033	0	1
2034	0	1
2035	0	1
2036	0	1
2037	0	1
2038	0	1
2039	0	1
2040	1	1
2041	1	1
2042	3	1
2043	3	1

GAM Run 17-029 MAG: Modeled Available Groundwater for the Trinity, Woodbine, Edwards (Balcones Fault Zone), Marble Falls, Ellenburger-San Saba, and Hickory Aquifers in Groundwater Management Area 8

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<b>Year</b>	<b>Erath</b>	<b>Lampasas</b>
2044	3	1
2045	6	1
2046	7	1
2047	7	1
2048	12	1
2049	14	1
2050	14	1
2051	18	1
2052	20	1
2053	22	1
2054	24	1
2055	25	1
2056	25	1
2057	30	1
2058	31	1
2059	35	1
2060	37	1
2061	37	1
2062	40	1
2063	42	1
2064	42	1
2065	44	1
2066	46	1
2067	46	1
2068	48	1
2069	50	1
2070	52	1

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**TABLE C6. SUMMARY OF DRY MODEL CELLS FOR THE TRINITY AQUIFER (HOSSTON) FROM THE REVISED PREDICTIVE SIMULATION.**

<b>Year</b>	<b>Burnet</b>	<b>Comanche</b>	<b>Erath</b>	<b>Johnson</b>	<b>McLennan</b>	<b>Travis</b>
Total Active Official Aquifer Model Cells	24,354	41,062	8,464	9,462	16,991	9,480
2009 (baseline)	217	0	0	0	0	57
2010	176	0	1	0	0	59
2011	186	0	1	0	0	60
2012	218	0	1	0	0	63
2013	247	0	1	0	0	65
2014	269	0	1	0	0	68
2015	288	0	1	0	0	68
2016	310	0	1	0	0	70
2017	325	0	1	0	0	70
2018	338	0	1	0	0	71
2019	353	0	1	0	0	72
2020	368	0	1	0	0	72
2021	382	0	2	0	0	74
2022	387	0	9	0	0	74
2023	400	0	25	0	0	76
2024	409	0	51	0	0	77
2025	423	1	66	0	0	77
2026	433	9	75	0	0	79
2027	444	14	93	0	0	80
2028	455	14	99	0	0	80
2029	463	18	105	0	0	82
2030	473	30	111	0	0	82
2031	484	34	118	0	0	83
2032	491	35	127	0	0	83
2033	498	41	132	0	0	84
2034	505	54	138	0	0	85
2035	511	67	143	0	0	85
2036	520	72	151	0	0	87
2037	522	77	158	0	0	88
2038	531	85	162	0	0	88
2039	541	94	162	0	0	90
2040	547	103	166	0	1	90
2041	555	111	174	0	1	91
2042	563	116	183	0	1	92
2043	570	116	187	0	1	93

GAM Run 17-029 MAG: Modeled Available Groundwater for the Trinity, Woodbine, Edwards (Balcones Fault Zone), Marble Falls, Ellenburger-San Saba, and Hickory Aquifers in Groundwater Management Area 8

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<b>Year</b>	<b>Burnet</b>	<b>Comanche</b>	<b>Erath</b>	<b>Johnson</b>	<b>McLennan</b>	<b>Travis</b>
2044	575	121	192	0	1	93
2045	579	128	198	0	1	94
2046	588	138	206	0	1	95
2047	591	146	211	0	2	97
2048	597	152	219	0	2	97
2049	602	160	222	0	2	98
2050	607	166	227	0	2	99
2051	609	172	229	1	2	100
2052	613	180	232	1	2	100
2053	619	186	239	1	2	101
2054	623	190	246	1	2	102
2055	633	194	253	1	2	103
2056	637	196	259	1	2	103
2057	640	199	263	1	2	104
2058	651	206	269	1	2	105
2059	659	216	283	1	2	106
2060	673	222	294	1	2	106
2061	671	225	295	1	2	106
2062	675	227	297	1	2	107
2063	679	231	299	1	3	107
2064	684	235	305	2	3	109
2065	686	238	307	3	3	109
2066	686	245	310	3	3	109
2067	689	252	315	3	3	110
2068	696	258	317	3	3	110
2069	700	264	320	6	3	111
2070	703	269	323	7	3	112



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**TABLE C7. SUMMARY OF DRY MODEL CELLS FOR THE TRINITY AQUIFER (ANTLERS) FROM THE REVISED PREDICTIVE SIMULATION.**

Year	Collin	Comanche	Cooke	Denton	Eastland	Erath	Grayson	Montague	Parker	Tarrant	Wise
Total Active Official Aquifer Model Cells	7,055	23,711	77,143	59,107	44,009	9,287	77,954	56,141	42,539	5,009	92,333
2009 (baseline)	0	123	0	0	74	0	0	0	0	0	0
2010	1	80	0	0	91	6	0	0	0	0	1
2011	3	85	0	5	94	13	0	0	0	0	5
2012	7	92	0	29	99	29	0	0	0	0	6
2013	11	99	0	95	108	34	0	0	0	1	6
2014	16	103	1	201	110	36	0	0	0	6	6
2015	22	111	2	341	111	36	0	0	0	15	8
2016	30	120	3	500	113	36	0	0	0	28	67
2017	37	130	4	616	115	36	2	0	0	40	221
2018	44	141	7	721	117	39	6	0	1	58	372
2019	47	156	10	806	120	44	10	0	1	78	484
2020	53	167	17	901	125	48	22	0	2	94	574
2021	57	176	27	1,017	127	51	29	0	2	111	654
2022	62	186	37	1,199	130	52	36	0	2	124	741
2023	67	202	49	1,375	130	60	48	0	6	140	810
2024	71	230	64	1,543	133	74	57	0	9	151	879
2025	77	270	76	1,692	137	81	72	0	19	158	947
2026	79	294	95	1,803	139	90	90	0	54	162	995
2027	83	327	111	1,903	149	102	101	0	84	167	1,053
2028	86	373	123	1,983	156	110	106	0	112	171	1,109
2029	90	422	140	2,056	162	128	117	0	141	179	1,180
2030	94	448	152	2,121	179	171	122	0	166	183	1,236

GAM Run 17-029 MAG: Modeled Available Groundwater for the Trinity, Woodbine, Edwards (Balcones Fault Zone), Marble Falls, Ellenburger-San Saba, and Hickory Aquifers in Groundwater Management Area 8

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Year	Collin	Comanche	Cooke	Denton	Eastland	Erath	Grayson	Montague	Parker	Tarrant	Wise
2031	96	478	164	2,180	204	185	134	0	184	190	1,294
2032	100	517	175	2,244	221	197	140	0	206	195	1,368
2033	103	554	185	2,299	233	208	148	0	218	202	1,479
2034	105	617	199	2,364	236	222	152	0	234	208	1,551
2035	110	669	216	2,436	242	225	161	0	244	215	1,628
2036	111	710	222	2,517	249	232	168	0	254	222	1,713
2037	113	771	234	2,623	259	246	175	0	262	229	1,809
2038	116	836	245	2,708	282	262	184	0	270	236	1,879
2039	121	865	256	2,788	304	283	191	0	278	244	1,952
2040	122	913	264	2,879	321	303	195	0	285	256	2,029
2041	123	957	276	2,951	331	313	201	0	292	291	2,085
2042	126	998	292	3,038	344	326	205	0	295	349	2,130
2043	128	1,032	300	3,119	363	334	210	0	303	383	2,174
2044	130	1,074	307	3,189	380	351	215	0	305	414	2,214
2045	131	1,129	314	3,251	397	359	221	0	309	446	2,253
2046	131	1,171	323	3,336	412	372	230	0	312	472	2,291
2047	136	1,221	333	3,405	442	390	233	0	318	501	2,349
2048	137	1,266	340	3,465	453	415	239	0	319	533	2,382
2049	139	1,320	353	3,524	474	440	240	0	325	558	2,413
2050	141	1,351	361	3,589	502	455	244	0	326	583	2,442
2051	141	1,389	367	3,633	525	468	247	0	327	608	2,458
2052	143	1,435	376	3,688	548	482	254	0	331	632	2,480
2053	146	1,469	379	3,745	590	493	257	0	332	652	2,496
2054	147	1,510	384	3,788	619	506	258	0	334	671	2,518
2055	148	1,548	392	3,849	645	526	264	0	335	697	2,533
2056	149	1,585	399	3,897	668	548	267	0	337	719	2,545

GAM Run 17-029 MAG: Modeled Available Groundwater for the Trinity, Woodbine, Edwards (Balcones Fault Zone), Marble Falls, Ellenburger-San Saba, and Hickory Aquifers in Groundwater Management Area 8

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<b>Year</b>	<b>Collin</b>	<b>Comanche</b>	<b>Cooke</b>	<b>Denton</b>	<b>Eastland</b>	<b>Erath</b>	<b>Grayson</b>	<b>Montague</b>	<b>Parker</b>	<b>Tarrant</b>	<b>Wise</b>
2057	150	1,626	402	3,948	681	564	270	0	340	754	2,558
2058	150	1,703	407	3,981	715	578	274	0	340	788	2,574
2059	152	1,750	411	4,028	733	606	280	1	346	817	2,586
2060	154	1,813	416	4,067	751	627	283	1	346	845	2,594
2061	155	1,846	424	4,115	756	637	283	1	350	872	2,607
2062	156	1,909	428	4,152	777	646	287	1	350	898	2,616
2063	158	1,944	434	4,193	793	673	288	1	350	930	2,629
2064	158	1,968	441	4,232	807	711	292	1	350	953	2,635
2065	158	2,001	448	4,260	821	744	294	1	350	966	2,642
2066	158	2,065	450	4,295	842	770	298	1	352	984	2,653
2067	160	2,117	454	4,335	854	792	301	1	354	1,005	2,665
2068	162	2,154	455	4,360	863	802	303	1	355	1,016	2,676
2069	162	2,198	459	4,395	876	825	303	1	359	1,017	2,684
2070	164	2,268	462	4,438	881	846	307	1	360	1,019	2,691

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**TABLE C8. SUMMARY OF DRY MODEL CELLS FOR THE WOODBINE AQUIFER FROM THE REVISED PREDICTIVE SIMULATION.**

Year	Collin	Cooke	Denton	Fannin	Grayson	Johnson	Tarrant
Total Active Model Cells in Official Aquifer Boundary	11,762	5,700	11,991	15,443	17,911	8,407	8,901
2009 (baseline)	0	0	3	3	2	14	2
2010	0	4	3	3	3	16	2
2011	0	4	3	4	3	16	2
2012	0	4	3	4	5	16	2
2013	0	4	3	4	5	19	2
2014	0	4	3	5	6	23	2
2015	0	4	3	6	7	23	2
2016	0	5	3	6	8	23	2
2017	0	5	3	8	9	24	2
2018	0	5	3	9	10	26	2
2019	0	5	3	10	11	26	2
2020	0	5	3	11	11	26	2
2021	0	5	3	12	13	27	2
2022	0	5	3	12	14	28	2
2023	0	5	3	12	14	28	2
2024	0	5	4	13	14	29	2
2025	0	5	5	14	15	29	2
2026	0	5	5	15	15	30	2
2027	0	5	5	15	15	31	2
2028	0	6	5	15	15	33	2
2029	0	6	5	15	15	34	2
2030	0	6	5	15	15	36	2
2031	0	6	5	16	15	37	2
2032	0	6	5	17	16	37	2
2033	0	6	5	18	17	38	2
2034	0	6	5	20	18	40	2
2035	0	6	5	21	19	40	2
2036	0	6	5	22	19	41	2
2037	0	6	5	24	19	41	2
2038	0	6	5	25	23	42	2
2039	0	6	5	26	25	42	2
2040	0	6	5	27	25	42	2
2041	0	6	5	27	25	42	2

GAM Run 17-029 MAG: Modeled Available Groundwater for the Trinity, Woodbine, Edwards (Balcones Fault Zone), Marble Falls, Ellenburger-San Saba, and Hickory Aquifers in Groundwater Management Area 8

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<b>Year</b>	<b>Collin</b>	<b>Cooke</b>	<b>Denton</b>	<b>Fannin</b>	<b>Grayson</b>	<b>Johnson</b>	<b>Tarrant</b>
2042	0	6	5	27	27	42	2
2043	0	6	5	27	27	42	2
2044	0	6	5	28	30	42	2
2045	0	6	5	29	31	43	2
2046	0	6	6	30	31	43	2
2047	0	6	6	30	31	43	2
2048	0	6	7	32	34	43	2
2049	0	6	8	35	34	43	2
2050	0	7	8	35	35	43	2
2051	0	8	8	35	35	43	2
2052	0	8	8	37	35	43	2
2053	0	8	8	38	35	44	2
2054	0	8	8	38	37	45	2
2055	0	9	8	38	38	45	2
2056	0	10	8	38	38	46	2
2057	0	10	9	39	38	46	2
2058	0	10	9	42	39	50	3
2059	0	10	9	44	40	52	3
2060	0	13	9	47	41	54	3
2061	0	14	9	47	41	53	3
2062	0	14	9	47	41	53	3
2063	0	17	9	47	42	55	3
2064	0	20	9	47	42	55	3
2065	0	21	9	47	42	56	3
2066	1	23	9	47	42	57	3
2067	1	23	9	48	45	58	3
2068	2	24	9	49	45	59	3
2069	2	24	9	50	45	59	3
2070	2	24	9	50	45	60	3

## ***Appendix D***

### **Summary of Dry Model Cell Count for the Marble Falls, Ellenburger-San Saba, and Hickory Aquifers in Brown, Burnet, Lampasas, and Mills Counties**

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**TABLE D1. SUMMARY OF DRY MODEL CELLS FOR THE MARBLE FALLS, ELLENBURGER-SAN SABA, AND HICKORY AQUIFERS IN BROWN, BURNET, LAMPASAS, AND MILLS COUNTIES FROM THE PREDICTIVE SIMULATION.**

Year	Burnet	Lampasas	Burnet	Burnet
	Marble Falls		Ellenburger-San Saba	Hickory
Total Active Cells in modeled extent	10,810	7,614	13,618	14,334
2009 (baseline)	2298	611	709	111
2010	2353	631	724	112
2011	2363	638	735	112
2012	2376	641	744	113
2013	2386	642	758	113
2014	2391	646	769	113
2015	2395	650	776	113
2016	2397	653	781	115
2017	2405	654	787	117
2018	2406	657	795	117
2019	2409	659	801	118
2020	2413	661	804	118
2021	2419	661	809	118
2022	2419	661	810	118
2023	2421	661	811	118
2024	2422	662	813	119
2025	2423	662	817	120
2026	2425	664	821	120
2027	2426	665	821	120
2028	2428	666	823	120
2029	2433	667	824	122
2030	2433	669	824	123
2031	2435	670	825	123
2032	2436	671	828	123
2033	2438	671	830	123
2034	2440	672	832	124
2035	2441	673	832	124
2036	2441	675	833	124
2037	2442	676	833	124
2038	2442	677	834	125
2039	2443	678	837	126
2040	2443	678	837	126

GAM Run 17-029 MAG: Modeled Available Groundwater for the Trinity, Woodbine, Edwards (Balcones Fault Zone), Marble Falls, Ellenburger-San Saba, and Hickory Aquifers in Groundwater Management Area 8

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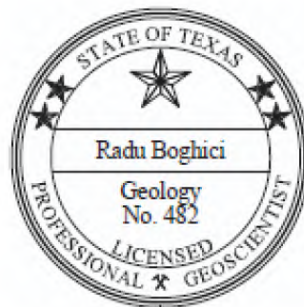
Year	Burnet	Lampasas	Burnet	Burnet
	Marble Falls		Ellenburger-San Saba	Hickory
2041	2443	680	839	126
2042	2443	680	840	126
2043	2443	680	842	127
2044	2444	680	842	127
2045	2445	680	842	128
2046	2446	680	843	128
2047	2446	680	843	128
2048	2446	680	843	128
2049	2446	680	844	128
2050	2446	680	845	128
2051	2446	681	846	128
2052	2446	681	846	128
2053	2446	681	846	130
2054	2446	681	846	130
2055	2447	681	846	130
2056	2447	681	847	130
2057	2447	681	848	130
2058	2447	682	848	130
2059	2448	682	849	130
2060	2448	682	849	130
2061	2448	682	849	130
2062	2448	682	849	130
2063	2448	682	849	130
2064	2449	682	849	130
2065	2449	683	849	130
2066	2449	683	849	130
2067	2449	683	850	130
2068	2449	683	850	130
2069	2450	683	850	130
2070	2450	683	850	130



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# GAM RUN 21-001: NORTH TEXAS GROUNDWATER CONSERVATION DISTRICT GROUNDWATER MANAGEMENT PLAN

Grayson Dowlearn and Radu Boghici, P.G.  
Texas Water Development Board  
Groundwater Division  
Groundwater Availability Modeling Department  
512-463-5808  
January 13, 2022



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# **GAM RUN 21-001: NORTH TEXAS GROUNDWATER CONSERVATION DISTRICT GROUNDWATER MANAGEMENT PLAN**

Grayson Dowlearn and Radu Boghici, P.G.  
Texas Water Development Board  
Groundwater Division  
Groundwater Modeling Department  
512-463-5808  
January 13, 2022

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

1. the annual amount of recharge from precipitation, if any, to the groundwater resources within the district;
2. for each aquifer within the district, the annual volume of water that discharges from the aquifer to 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 North Texas Groundwater Conservation District should be adopted by the district on or before February 11, 2022 and submitted to the Executive Administrator of the TWDB on or before March 13, 2022. The current management plan for the North Texas Groundwater Conservation District expires on May 12, 2022.

We used the groundwater availability model for the northern portion of the Trinity Aquifer and Woodbine Aquifers (Kelley and others, 2014) to estimate the management plan information for the Trinity and Woodbine aquifers within the North Texas Groundwater Conservation District.

This report replaces the results of GAM Run 16-004 (Boghici, 2016), as the approach used for analyzing model results has been since refined to more accurately delineate groundwater flows. Additionally, we routinely update the spatial grid file used to define county, groundwater conservation district, and aquifer boundaries, which can also impact the water budget. Tables 1 and 2 summarize the groundwater availability model data required by statute. Figures 1 and 3 show the area of the models from which the values in the tables were extracted. Figures 2 and 4 provide generalized diagrams of the groundwater flow components provided in Tables 1 and 2. If, after review of the figures, the North Texas 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 groundwater availability model for the northern portion of the Trinity Aquifer and Woodbine Aquifers was used to estimate information for the North Texas Groundwater Conservation District management plan. Water budgets were extracted for the historical model period for the Trinity and Woodbine aquifers (1980-2012). We used ZONEBUDGET Version 3.01 (Harbaugh, 2009) to extract water budgets from the model results. The average annual water budget values for recharge, surface-water outflow, inflow to the district, outflow from the district, and the flow between aquifers within the district are summarized in this report.

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

### ***Trinity and Woodbine Aquifers***

- We used version 2.01 of the groundwater availability model for the northern portion of the Trinity Aquifer and Woodbine Aquifer. See Kelley and others (2014) for assumptions and limitations of the model.
- The groundwater availability model for the northern portion of the Trinity Aquifer and Woodbine Aquifer contains eight layers that generally represent the following: Layer 1 (the surficial outcrop area of the units in layers 2 through 8 and units younger than the Woodbine Aquifer), Layer 2 (Woodbine Aquifer), Layer 3 (Washita and Fredericksburg Groups, and the Edwards [Balcones Fault Zone] Aquifer), and Layers 4 through 8 (Trinity Aquifer). Layers 2 through 7 also include pass-through cells.
- Perennial rivers and reservoirs were simulated using the MODFLOW River package. Ephemeral streams, flowing wells, springs, and evapotranspiration in riparian zones along perennial rivers were simulated using the MODFLOW Drain package.
- The model was run using MODFLOW-NWT (Niswonger and others, 2011).

## ***RESULTS:***

A groundwater budget summarizes the amount of water entering and leaving the aquifers according to the groundwater availability model. Selected groundwater budget components listed below were extracted from the groundwater availability model results for the Trinity and Woodbine aquifers located within the North Texas Groundwater Conservation District and averaged over the historical calibration period, as shown in Tables 1 and 2.

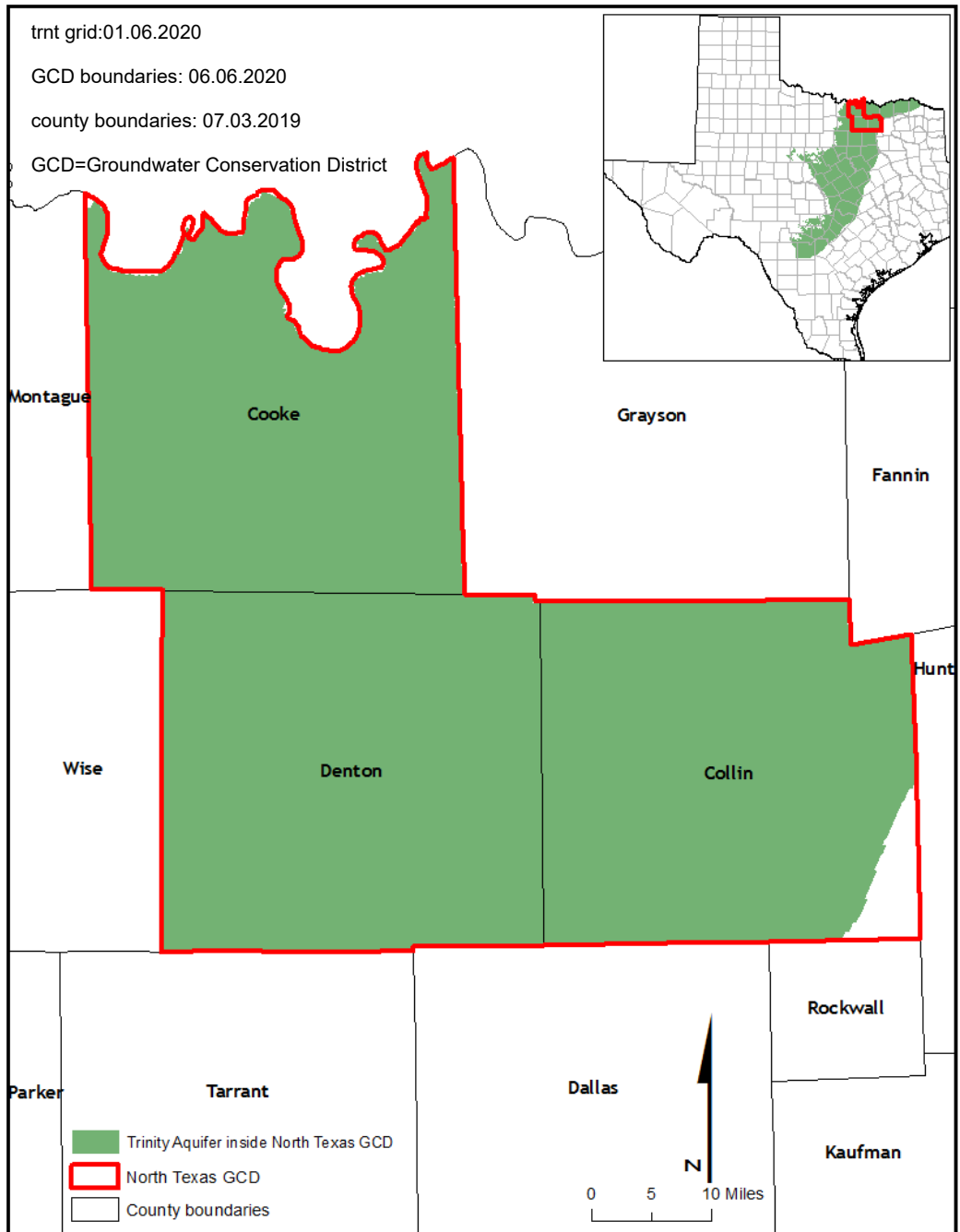
1. Precipitation recharge—the areally distributed recharge sourced from precipitation falling on the outcrop areas of the aquifers (where the aquifer is exposed at land surface) within the district.
2. Surface-water outflow—the total water discharging from the aquifer (outflow) to surface-water features 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 and 2. 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.

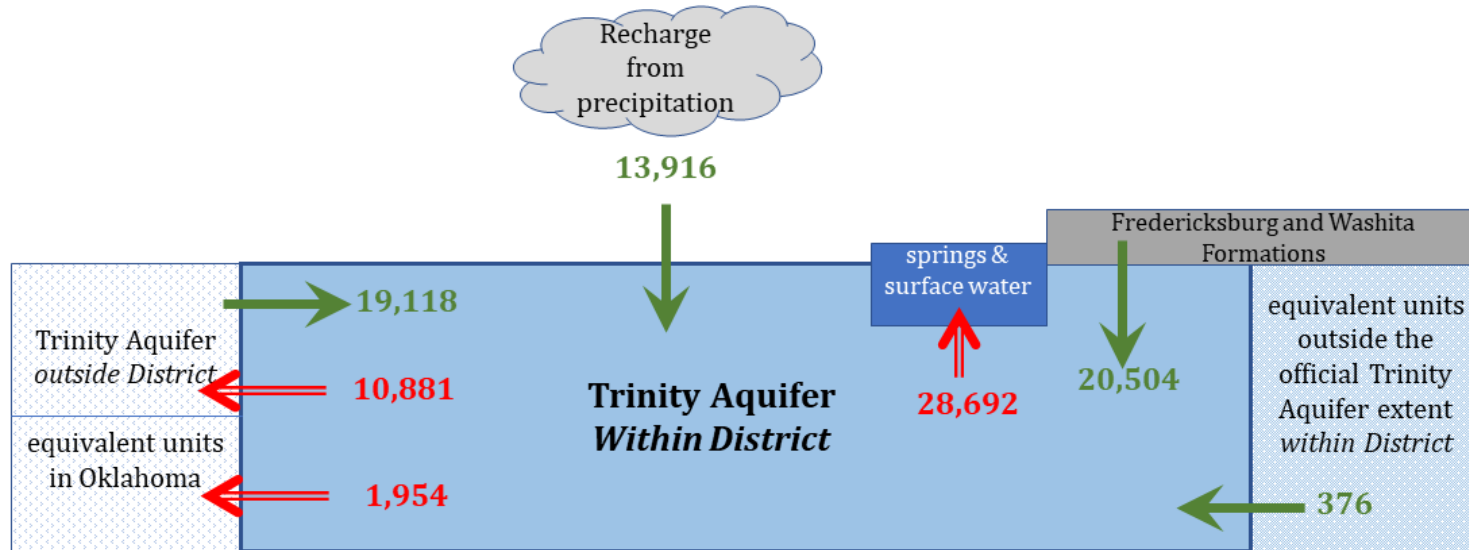
**TABLE 1: SUMMARIZED INFORMATION FOR THE TRINITY AQUIFER FOR NORTH TEXAS GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.**

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Trinity Aquifer	13,916
Estimated annual volume of water that discharges from the aquifer to springs and any surface-water body including lakes, streams, and rivers	Trinity Aquifer	28,692
Estimated annual volume of flow into the district within each aquifer in the district	Trinity Aquifer	19,118
Estimated annual volume of flow out of the district within each aquifer in the district	Trinity Aquifer	10,881
Estimated net annual volume of flow between each aquifer in the district	To the Trinity Aquifer from the overlying Fredericksburg and Washita groups	20,504
	From the Trinity Aquifer to equivalent hydrogeologic units in Oklahoma	1,954
	To the Trinity Aquifer from equivalent units outside of the official Trinity Aquifer extent	376



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



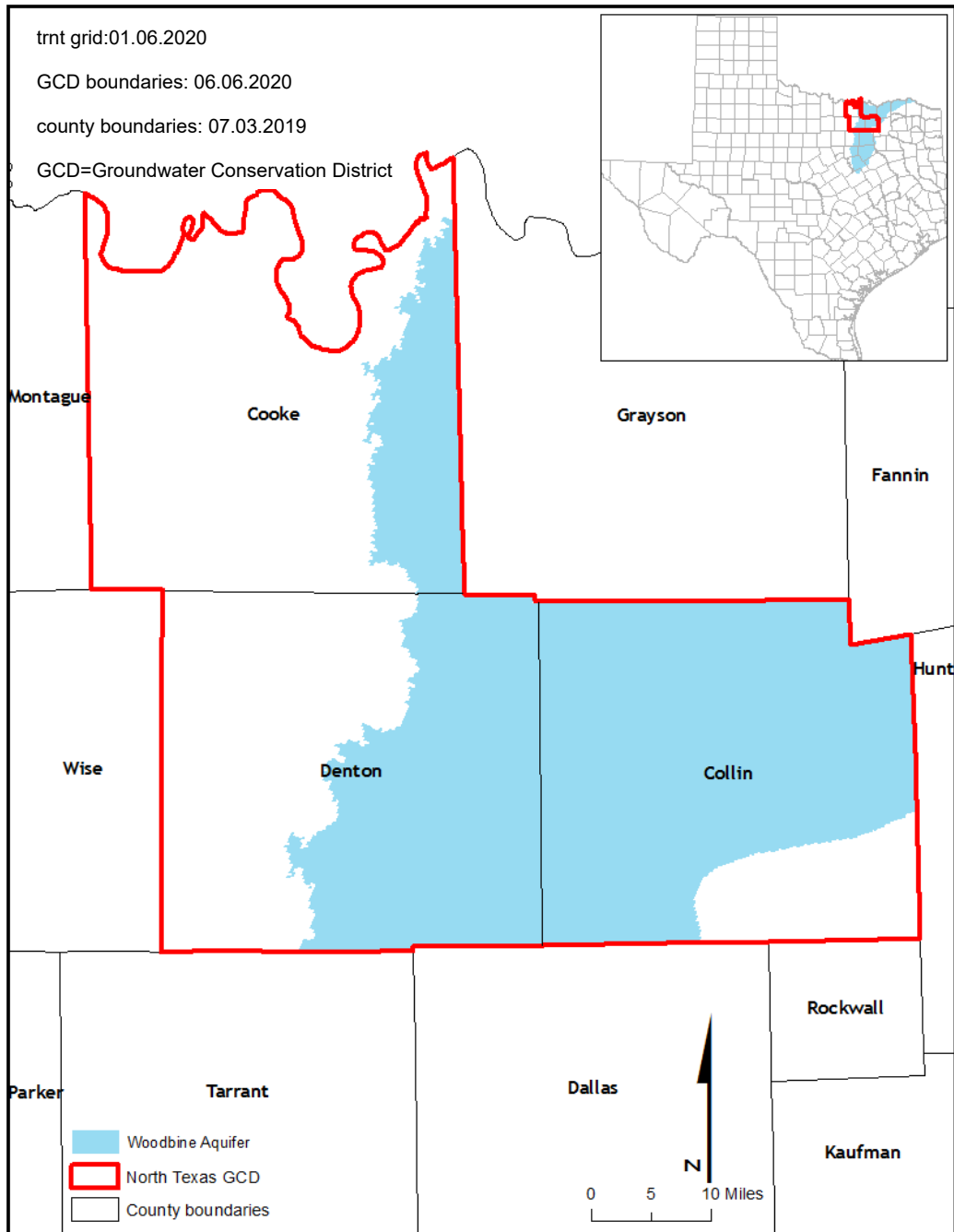


*Note: This diagram only includes the water budget items provided in Table 1. If the District requires values for additional water budget items, please contact TWDB.*

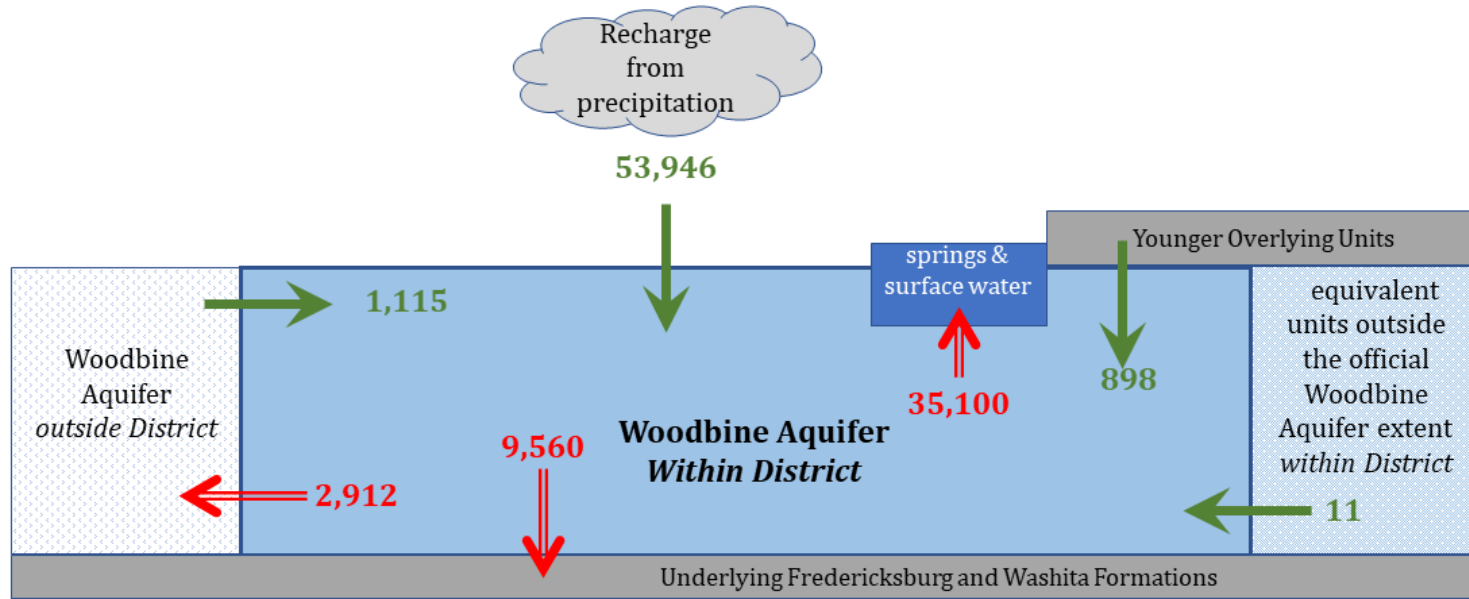
**FIGURE 2: GENERALIZED DIAGRAM OF THE SUMMARIZED BUDGET INFORMATION FROM TABLE 1, REPRESENTING DIRECTIONS OF FLOW FOR THE TRINITY AQUIFER WITHIN NORTH TEXAS GROUNDWATER CONSERVATION DISTRICT. FLOW VALUES EXPRESSED IN ACRE-FEET PER YEAR.**

**TABLE 2: SUMMARIZED INFORMATION FOR THE WOODBINE AQUIFER FOR NORTH TEXAS 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	Woodbine Aquifer	53,946
Estimated annual volume of water that discharges from the aquifer to springs and any surface-water body including lakes, streams, and rivers	Woodbine Aquifer	35,100
Estimated annual volume of flow into the district within each aquifer in the district	Woodbine Aquifer	1,115
Estimated annual volume of flow out of the district within each aquifer in the district	Woodbine Aquifer	2,912
Estimated net annual volume of flow between each aquifer in the district	To the Woodbine Aquifer from younger overlying units	898
	From the Woodbine Aquifer to underlying Fredericksburg and Washita groups	9,560
	To the Woodbine Aquifer from equivalent units outside the official Woodbine Aquifer extent	11



**FIGURE 3: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AQUIFER AND WOODBINE AQUIFER FROM WHICH THE INFORMATION IN TABLE 2 WAS EXTRACTED (THE WOODBINE AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).**



*Note: This diagram only includes the water budget items provided in Table 2. If the District requires values for additional water budget items, please contact TWDB.*

**FIGURE 4: GENERALIZED DIAGRAM OF THE SUMMARIZED BUDGET INFORMATION FROM TABLE 2, REPRESENTING DIRECTIONS OF FLOW FOR THE WOODBINE AQUIFER WITHIN NORTH TEXAS GROUNDWATER CONSERVATION DISTRICT. FLOW VALUES EXPRESSED IN ACRE-FEET PER YEAR.**

### ***LIMITATIONS:***

The groundwater model 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 historical groundwater flow conditions includes the assumptions about the location in the aquifer where historical pumping was placed. Understanding the amount and location of historical 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 historical 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. Historical precipitation patterns also need to be placed in context as future climatic conditions, such as dry and wet year precipitation patterns, may differ and affect groundwater flow conditions.

**REFERENCES:**

Boghici, R., 2016, GAM Run 16-004, North Texas Groundwater Conservation District Management Plan, 12 p.,  
<http://www.twdb.texas.gov/groundwater/docs/GAMruns/GR16-004.pdf>.

Harbaugh, A. W., 2009, Zonebudget Version 3.01, A computer program for computing subregional water budgets for MODFLOW ground-water flow models: U.S. Geological Survey Groundwater Software.

Kelley, V.A., Ewing, J., Jones, T.L., Young, S.C., Deeds, N., and Hamlin, S., 2014, Updated Groundwater Availability Model of the Northern Trinity and Woodbine Aquifers – Final Model Report, 984 p.,  
<http://www.twdb.texas.gov/groundwater/models/gam/trnt n/Final NTGAM Vol%20I%20Aug%202014 Report.pdf>.

National Research Council, 2007, Models in Environmental Regulatory Decision Making Committee on Models in the Regulatory Decision Process, National Academies Press, Washington D.C., 287 p., [http://www.nap.edu/catalog.php?record\\_id=11972](http://www.nap.edu/catalog.php?record_id=11972).

Niswonger, R.G., Panday, S., and Ibaraki, M., 2011, MODFLOW-NWT, a Newton formulation for MODFLOW-2005: USGS, Techniques and Methods 6-A37, 44 p.

Texas Water Code, 2015, <http://www.statutes.legis.state.tx.us/docs/WA/pdf/WA.36.pdf>.

## **APPENDIX E: ESTIMATED HISTORICAL WATER USE AND 2022 STATE WATER PLAN DATASETS**

# Estimated Historical Groundwater Use And 2022 State Water Plan Datasets: North Texas Groundwater Conservation District

Texas Water Development Board  
Groundwater Division  
Groundwater Technical Assistance Section  
stephen.allen@twdb.texas.gov  
(512) 463-7317  
January 20, 2022

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

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

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

The five reports included in this part are:

1. Estimated Historical Groundwater Use (checklist item 2)  
*from the TWDB Historical Water Use Survey (WUS)*
2. Projected Surface Water Supplies (checklist item 6)
3. Projected Water Demands (checklist item 7)
4. Projected Water Supply Needs (checklist item 8)
5. Projected Water Management Strategies (checklist item 9)  
*from the 2022 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 2022 SWP data available as of 1/20/2022. 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 2022 SWP. District personnel must review these datasets and correct any discrepancies 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 2022 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).

# Estimated Historical Water Use

## TWDB Historical Water Use Survey (WUS) Data

Groundwater and surface water historical use estimates are currently unavailable for calendar year 2020. TWDB staff anticipates the calculation and posting of these estimates at a later date.

### **COLLIN COUNTY**

All values are in acre-feet

<b>Year</b>	<b>Source</b>	<b>Municipal</b>	<b>Manufacturing</b>	<b>Mining</b>	<b>Steam Electric</b>	<b>Irrigation</b>	<b>Livestock</b>	<b>Total</b>
2019	GW	3,981	142	0	0	1,456	41	5,620
	SW	182,621	4,258	0	20	874	776	188,549
2018	GW	4,577	134	0	0	973	41	5,725
	SW	184,382	4,311	0	18	2,456	775	191,942
2017	GW	4,310	118	0	0	818	40	5,286
	SW	195,988	3,189	0	15	718	750	200,660
2016	GW	4,908	101	0	0	644	40	5,693
	SW	188,273	2,997	0	19	916	756	192,961
2015	GW	6,366	99	0	0	680	39	7,184
	SW	146,094	2,137	0	19	2,689	746	151,685
2014	GW	3,963	204	0	0	1,807	39	6,013
	SW	164,701	1,889	0	37	1,364	732	168,723
2013	GW	6,477	198	0	0	210	37	6,922
	SW	181,939	1,947	0	13	3,282	695	187,876
2012	GW	6,591	190	0	0	849	30	7,660
	SW	208,737	2,028	0	40	3,200	570	214,575
2011	GW	7,525	197	0	0	1,068	62	8,852
	SW	214,192	1,826	0	40	1,550	1,174	218,782
2010	GW	4,767	181	0	0	112	61	5,121
	SW	163,914	653	0	28	612	1,158	166,365
2009	GW	4,145	197	0	0	220	33	4,595
	SW	143,738	578	0	32	430	625	145,403
2008	GW	4,298	361	0	0	0	36	4,695
	SW	153,953	611	59	150	552	688	156,013
2007	GW	4,280	376	0	0	245	52	4,953
	SW	140,650	714	59	332	455	987	143,197
2006	GW	5,320	326	0	0	938	45	6,629
	SW	155,399	1,674	99	525	0	863	158,560
2005	GW	4,928	256	0	0	750	49	5,983
	SW	151,813	896	99	528	0	923	154,259
2004	GW	3,964	244	0	0	824	75	5,107
	SW	126,203	1,141	99	736	676	730	129,585

**COOKE COUNTY**

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2019	GW	4,430	27	10	4	448	237	5,156
	SW	385	10	41	0	128	1,339	1,903
2018	GW	4,492	31	0	4	453	237	5,217
	SW	482	15	0	0	144	1,339	1,980
2017	GW	4,300	68	0	6	761	228	5,363
	SW	237	5	0	0	136	1,292	1,670
2016	GW	4,541	49	0	5	335	217	5,147
	SW	83	2	0	0	127	1,230	1,442
2015	GW	4,288	49	8	4	641	213	5,203
	SW	463	34	31	0	1	1,208	1,737
2014	GW	4,781	116	25	4	967	212	6,105
	SW	0	0	98	0	151	1,202	1,451
2013	GW	4,509	103	100	5	1,023	188	5,928
	SW	459	6	399	0	177	1,067	2,108
2012	GW	4,803	92	501	5	1,141	179	6,721
	SW	656	0	2,003	0	205	1,009	3,873
2011	GW	5,294	100	27	4	609	211	6,245
	SW	591	0	107	0	585	1,198	2,481
2010	GW	4,535	73	153	2	123	207	5,093
	SW	703	0	168	0	207	1,175	2,253
2009	GW	4,492	91	184	0	56	220	5,043
	SW	600	0	203	0	59	1,244	2,106
2008	GW	4,643	94	216	0	0	229	5,182
	SW	615	0	237	0	183	1,296	2,331
2007	GW	4,340	106	0	0	37	235	4,718
	SW	571	0	0	0	123	1,329	2,023
2006	GW	5,738	125	0	0	82	205	6,150
	SW	425	0	0	0	218	1,161	1,804
2005	GW	5,432	112	0	0	98	232	5,874
	SW	294	0	0	0	169	1,318	1,781
2004	GW	4,699	130	0	0	82	475	5,386
	SW	196	0	0	0	118	1,202	1,516

**DENTON COUNTY**

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2019	GW	11,585	23	44	0	3,506	265	15,423
	SW	128,178	378	184	13	521	618	129,892
2018	GW	13,214	16	26	0	972	265	14,493
	SW	126,784	414	104	6	943	617	128,868
2017	GW	12,520	16	23	0	955	257	13,771
	SW	115,023	321	91	6	751	601	116,793
2016	GW	11,712	17	44	0	952	238	12,963
	SW	111,953	338	176	7	2,126	555	115,155
2015	GW	13,810	22	191	0	655	236	14,914
	SW	93,428	330	764	5	1,586	550	96,663
2014	GW	11,864	16	238	0	1,816	243	14,177
	SW	106,235	323	953	5	1,162	568	109,246
2013	GW	12,897	13	292	0	2,167	225	15,594
	SW	109,813	321	1,169	55	782	524	112,664
2012	GW	15,070	14	517	0	2,817	206	18,624
	SW	119,747	314	2,099	86	611	479	123,336
2011	GW	17,278	12	145	0	2,534	239	20,208
	SW	124,316	326	580	23	750	559	126,554
2010	GW	12,327	1	1,209	0	967	240	14,744
	SW	100,984	397	2,070	80	1,124	560	105,215
2009	GW	10,478	1	1,366	0	1,445	275	13,565
	SW	96,094	403	2,340	129	1,055	643	100,664
2008	GW	10,288	13	1,523	0	0	265	12,089
	SW	99,989	442	2,609	122	1,475	618	105,255
2007	GW	7,537	13	0	0	696	357	8,603
	SW	87,322	365	0	200	762	833	89,482
2006	GW	9,512	30	0	0	1,337	348	11,227
	SW	104,655	410	0	639	1,413	812	107,929
2005	GW	9,923	59	0	0	1,136	322	11,440
	SW	103,027	355	0	384	1,364	751	105,881
2004	GW	8,442	78	0	0	1,080	500	10,100
	SW	87,944	352	0	415	920	500	90,131

# Projected Surface Water Supplies

## TWDB 2022 State Water Plan Data

### COLLIN COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
C	ALLEN	TRINITY	FORK LAKE/RESERVOIR	1,642	0	0	0	0	0
C	ALLEN	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	11,126	10,904	9,948	9,054	8,272	7,703
C	ALLEN	TRINITY	TAWAKONI LAKE/RESERVOIR	1,136	558	500	452	411	381
C	ANNA	TRINITY	FORK LAKE/RESERVOIR	92	0	0	0	0	0
C	ANNA	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	627	915	893	886	884	881
C	ANNA	TRINITY	TAWAKONI LAKE/RESERVOIR	64	47	45	44	44	44
C	B H P WSC	SABINE	FORK LAKE/RESERVOIR	3	0	0	0	0	0
C	B H P WSC	SABINE	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	19	26	29	26	24	21
C	B H P WSC	SABINE	TAWAKONI LAKE/RESERVOIR	2	1	1	1	1	1
C	BEAR CREEK SUD	TRINITY	FORK LAKE/RESERVOIR	46	0	0	0	0	0
C	BEAR CREEK SUD	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	310	440	561	701	790	911
C	BEAR CREEK SUD	TRINITY	TAWAKONI LAKE/RESERVOIR	32	23	29	34	39	45
C	CADDO BASIN SUD	SABINE	FORK LAKE/RESERVOIR	11	0	0	0	0	0
C	CADDO BASIN SUD	SABINE	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	79	87	104	124	143	163
C	CADDO BASIN SUD	SABINE	TAWAKONI LAKE/RESERVOIR	8	4	6	7	7	8
C	CADDO BASIN SUD	TRINITY	FORK LAKE/RESERVOIR	8	0	0	0	0	0
C	CADDO BASIN SUD	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	52	58	69	82	95	108
C	CADDO BASIN SUD	TRINITY	TAWAKONI LAKE/RESERVOIR	6	3	3	4	5	6
C	CARROLLTON	TRINITY	FORK LAKE/RESERVOIR	0	1	0	0	0	1
C	CARROLLTON	TRINITY	RAY HUBBARD LAKE/RESERVOIR	0	0	0	0	0	1
C	CARROLLTON	TRINITY	RAY ROBERTS-LEWISVILLE-GRAPEVINE	0	0	0	0	1	1

*Estimated Historical Water Use and 2022 State Water Plan Dataset:*

*North Texas Groundwater Conservation District*

*January 20, 2022*

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			LAKE/RESERVOIR SYSTEM						
C	CARROLLTON	TRINITY	TAWAKONI LAKE/RESERVOIR	1	1	0	1	1	1
C	CELINA	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	915	1,413	1,448	1,364	1,475	1,556
C	CELINA	TRINITY	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM	3,197	5,403	5,326	4,725	4,955	5,119
C	COPEVILLE SUD	TRINITY	FORK LAKE/RESERVOIR	25	0	0	0	0	0
C	COPEVILLE SUD	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	166	179	195	240	378	594
C	COPEVILLE SUD	TRINITY	TAWAKONI LAKE/RESERVOIR	17	9	9	12	19	29
C	COUNTY-OTHER, COLLIN	SABINE	FORK LAKE/RESERVOIR	0	0	0	0	0	0
C	COUNTY-OTHER, COLLIN	SABINE	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0
C	COUNTY-OTHER, COLLIN	SABINE	TAWAKONI LAKE/RESERVOIR	0	0	0	0	0	0
C	COUNTY-OTHER, COLLIN	TRINITY	FORK LAKE/RESERVOIR	10	0	0	0	0	0
C	COUNTY-OTHER, COLLIN	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	64	53	44	36	231	413
C	COUNTY-OTHER, COLLIN	TRINITY	TAWAKONI LAKE/RESERVOIR	7	3	2	2	11	20
C	CULLEOKA WSC	TRINITY	FORK LAKE/RESERVOIR	45	0	0	0	0	0
C	CULLEOKA WSC	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	303	276	376	410	418	477
C	CULLEOKA WSC	TRINITY	TAWAKONI LAKE/RESERVOIR	31	14	19	21	21	24
C	DALLAS	TRINITY	FORK LAKE/RESERVOIR	1,753	1,872	1,852	1,836	1,857	1,906
C	DALLAS	TRINITY	RAY HUBBARD LAKE/RESERVOIR	1,807	1,733	1,555	1,406	1,302	1,228
C	DALLAS	TRINITY	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM	4,004	3,485	3,011	2,626	2,307	2,046
C	DALLAS	TRINITY	TAWAKONI LAKE/RESERVOIR	6,087	5,749	5,064	4,496	4,093	3,798
C	EAST FORK SUD	TRINITY	FORK LAKE/RESERVOIR	99	0	0	0	0	0
C	EAST FORK SUD	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	664	652	661	593	553	524
C	EAST FORK SUD	TRINITY	TAWAKONI LAKE/RESERVOIR	68	34	33	30	28	26
C	FAIRVIEW	TRINITY	FORK LAKE/RESERVOIR	338	0	0	0	0	0

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C	FAIRVIEW	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	2,287	2,392	2,872	2,682	2,439	2,233
C	FAIRVIEW	TRINITY	TAWAKONI LAKE/RESERVOIR	233	122	144	134	121	111
C	FARMERSVILLE	SABINE	FORK LAKE/RESERVOIR	0	0	0	0	0	0
C	FARMERSVILLE	SABINE	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	1	1	3	4	5	7
C	FARMERSVILLE	SABINE	TAWAKONI LAKE/RESERVOIR	0	0	0	0	0	0
C	FARMERSVILLE	TRINITY	FORK LAKE/RESERVOIR	78	0	0	0	0	0
C	FARMERSVILLE	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	525	1,159	2,364	3,239	4,140	5,481
C	FARMERSVILLE	TRINITY	TAWAKONI LAKE/RESERVOIR	54	59	119	162	206	272
C	FRISCO	TRINITY	FORK LAKE/RESERVOIR	1,976	0	0	0	0	0
C	FRISCO	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	13,389	12,538	13,335	17,424	18,382	18,080
C	FRISCO	TRINITY	TAWAKONI LAKE/RESERVOIR	1,367	642	671	870	914	894
C	GARLAND	TRINITY	FORK LAKE/RESERVOIR	4	0	0	0	0	0
C	GARLAND	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	26	29	32	36	39	43
C	GARLAND	TRINITY	TAWAKONI LAKE/RESERVOIR	3	1	2	2	2	2
C	IRRIGATION, COLLIN	SABINE	RAY HUBBARD LAKE/RESERVOIR	77	73	66	61	58	56
C	IRRIGATION, COLLIN	SABINE	TRINITY RUN-OF- RIVER	12	12	12	12	12	12
C	IRRIGATION, COLLIN	TRINITY	RAY HUBBARD LAKE/RESERVOIR	2,653	2,525	2,288	2,110	2,009	1,932
C	IRRIGATION, COLLIN	TRINITY	TRINITY RUN-OF- RIVER	396	396	396	396	396	396
C	JOSEPHINE	SABINE	FORK LAKE/RESERVOIR	23	0	0	0	0	0
C	JOSEPHINE	SABINE	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	156	225	283	328	308	281
C	JOSEPHINE	SABINE	TAWAKONI LAKE/RESERVOIR	16	11	14	16	15	14
C	LIVESTOCK, COLLIN	SABINE	SABINE LIVESTOCK LOCAL SUPPLY	3	3	3	3	3	3
C	LIVESTOCK, COLLIN	SABINE	TRINITY LIVESTOCK LOCAL SUPPLY	97	97	97	97	97	97
C	LIVESTOCK, COLLIN	TRINITY	SABINE LIVESTOCK LOCAL SUPPLY	28	28	28	28	28	28
C	LIVESTOCK, COLLIN	TRINITY	TRINITY LIVESTOCK LOCAL SUPPLY	874	874	874	874	874	874
C	LUCAS	TRINITY	FORK LAKE/RESERVOIR	174	0	0	0	0	0
C	LUCAS	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR	1,177	1,211	1,436	1,497	1,504	1,378

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SYSTEM									
C	LUCAS	TRINITY	TAWAKONI LAKE/RESERVOIR	120	62	72	75	75	68
C	MANUFACTURING, COLLIN	TRINITY	FORK LAKE/RESERVOIR	161	0	0	0	0	0
C	MANUFACTURING, COLLIN	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	1,083	1,144	1,030	928	839	766
C	MANUFACTURING, COLLIN	TRINITY	TAWAKONI LAKE/RESERVOIR	110	59	53	45	39	37
C	MARILEE SUD	TRINITY	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION	116	124	137	134	109	66
C	MCKINNEY	TRINITY	FORK LAKE/RESERVOIR	3,066	0	0	0	0	0
C	MCKINNEY	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	20,769	20,583	20,466	22,226	23,932	23,758
C	MCKINNEY	TRINITY	TAWAKONI LAKE/RESERVOIR	2,120	1,054	1,030	1,109	1,191	1,175
C	MELISSA	TRINITY	FORK LAKE/RESERVOIR	257	0	0	0	0	0
C	MELISSA	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	1,742	1,825	1,759	1,724	1,701	1,681
C	MELISSA	TRINITY	TAWAKONI LAKE/RESERVOIR	178	93	89	86	84	84
C	MILLIGAN WSC	TRINITY	FORK LAKE/RESERVOIR	34	0	0	0	0	0
C	MILLIGAN WSC	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	229	236	256	288	293	297
C	MILLIGAN WSC	TRINITY	TAWAKONI LAKE/RESERVOIR	23	12	13	14	15	15
C	MURPHY	TRINITY	FORK LAKE/RESERVOIR	333	0	0	0	0	0
C	MURPHY	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	2,259	2,045	1,839	1,649	1,481	1,357
C	MURPHY	TRINITY	TAWAKONI LAKE/RESERVOIR	230	105	93	82	74	67
C	NEVADA SUD	SABINE	FORK LAKE/RESERVOIR	6	0	0	0	0	0
C	NEVADA SUD	SABINE	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	41	45	47	136	288	474
C	NEVADA SUD	SABINE	TAWAKONI LAKE/RESERVOIR	4	2	2	7	14	24
C	NEVADA SUD	TRINITY	FORK LAKE/RESERVOIR	12	0	0	0	0	0
C	NEVADA SUD	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	82	89	93	268	569	937
C	NEVADA SUD	TRINITY	TAWAKONI LAKE/RESERVOIR	8	5	5	13	28	47
C	NORTH COLLIN SUD	TRINITY	FORK LAKE/RESERVOIR	61	0	0	0	0	0



C	NORTH COLLIN SUD	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	417	427	441	470	494	521
C	NORTH COLLIN SUD	TRINITY	TAWAKONI LAKE/RESERVOIR	42	22	22	24	25	26
C	NORTH FARMERSVILLE WSC	TRINITY	FORK LAKE/RESERVOIR	7	0	0	0	0	0
C	NORTH FARMERSVILLE WSC	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	46	48	53	59	61	61
C	NORTH FARMERSVILLE WSC	TRINITY	TAWAKONI LAKE/RESERVOIR	5	2	3	3	3	3
C	PARKER	TRINITY	FORK LAKE/RESERVOIR	211	0	0	0	0	0
C	PARKER	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	1,433	1,404	1,330	1,378	1,357	1,410
C	PARKER	TRINITY	TAWAKONI LAKE/RESERVOIR	146	72	67	69	68	70
C	PLANO	TRINITY	FORK LAKE/RESERVOIR	5,394	0	0	0	0	0
C	PLANO	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	36,544	33,349	30,215	27,073	24,365	22,551
C	PLANO	TRINITY	TAWAKONI LAKE/RESERVOIR	3,731	1,707	1,520	1,352	1,212	1,116
C	PRINCETON	TRINITY	FORK LAKE/RESERVOIR	89	0	0	0	0	0
C	PRINCETON	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	602	1,837	3,322	3,497	3,141	2,876
C	PRINCETON	TRINITY	TAWAKONI LAKE/RESERVOIR	61	94	167	175	156	142
C	PROSPER	TRINITY	FORK LAKE/RESERVOIR	365	0	0	0	0	0
C	PROSPER	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	2,471	2,450	2,139	1,936	2,041	2,038
C	PROSPER	TRINITY	TAWAKONI LAKE/RESERVOIR	253	125	108	97	102	101
C	RICHARDSON	TRINITY	FORK LAKE/RESERVOIR	672	0	0	0	0	0
C	RICHARDSON	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	4,550	4,078	3,628	3,312	3,111	3,110
C	RICHARDSON	TRINITY	TAWAKONI LAKE/RESERVOIR	465	209	183	165	155	154
C	ROYSE CITY	SABINE	FORK LAKE/RESERVOIR	20	0	0	0	0	0
C	ROYSE CITY	SABINE	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	131	554	893	1,249	1,498	1,806
C	ROYSE CITY	SABINE	TAWAKONI LAKE/RESERVOIR	14	29	45	62	74	90
C	SACHSE	TRINITY	FORK LAKE/RESERVOIR	110	0	0	0	0	0
C	SACHSE	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	748	670	602	564	512	469
C	SACHSE	TRINITY	TAWAKONI LAKE/RESERVOIR	76	34	30	28	25	23

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C	SEIS LAGOS UD	TRINITY	FORK LAKE/RESERVOIR	43	0	0	0	0	0
C	SEIS LAGOS UD	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	293	265	238	222	201	185
C	SEIS LAGOS UD	TRINITY	TAWAKONI LAKE/RESERVOIR	30	14	12	11	10	9
C	STEAM ELECTRIC POWER, COLLIN	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	40	40	40	40	40	40
C	WYLIE	TRINITY	FORK LAKE/RESERVOIR	468	0	0	0	0	0
C	WYLIE	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	3,170	3,064	2,894	2,785	2,603	2,626
C	WYLIE	TRINITY	TAWAKONI LAKE/RESERVOIR	324	157	145	139	129	130
C	WYLIE NORTHEAST SUD	TRINITY	FORK LAKE/RESERVOIR	51	0	0	0	0	0
C	WYLIE NORTHEAST SUD	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	342	368	386	562	755	1,019
C	WYLIE NORTHEAST SUD	TRINITY	TAWAKONI LAKE/RESERVOIR	35	19	19	28	38	50
<b>Sum of Projected Surface Water Supplies (acre-feet)</b>				<b>156,936</b>	<b>134,862</b>	<b>132,308</b>	<b>133,272</b>	<b>132,825</b>	<b>131,709</b>

## COOKE COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
C	COUNTY-OTHER, COOKE	RED	HUBERT H MOSS LAKE/RESERVOIR	11	11	11	84	107	200
C	COUNTY-OTHER, COOKE	TRINITY	HUBERT H MOSS LAKE/RESERVOIR	39	39	39	306	393	732
C	GAINESVILLE	RED	HUBERT H MOSS LAKE/RESERVOIR	2	1	1	1	1	2
C	GAINESVILLE	TRINITY	HUBERT H MOSS LAKE/RESERVOIR	1,034	736	805	855	1,033	970
C	IRRIGATION, COOKE	RED	HUBERT H MOSS LAKE/RESERVOIR	263	263	263	263	187	89
C	IRRIGATION, COOKE	TRINITY	HUBERT H MOSS LAKE/RESERVOIR	609	609	609	609	433	207
C	LIVESTOCK, COOKE	RED	RED LIVESTOCK LOCAL SUPPLY	180	180	180	180	180	180
C	LIVESTOCK, COOKE	RED	TRINITY LIVESTOCK LOCAL SUPPLY	382	382	382	382	382	382
C	LIVESTOCK, COOKE	TRINITY	RED LIVESTOCK LOCAL SUPPLY	200	200	200	200	200	200
C	LIVESTOCK, COOKE	TRINITY	TRINITY LIVESTOCK LOCAL SUPPLY	425	425	425	425	425	425
C	MANUFACTURING, COOKE	TRINITY	HUBERT H MOSS LAKE/RESERVOIR	112	124	124	124	88	42
<b>Sum of Projected Surface Water Supplies (acre-feet)</b>				<b>3,257</b>	<b>2,970</b>	<b>3,039</b>	<b>3,429</b>	<b>3,429</b>	<b>3,429</b>

## DENTON COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
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C	ARGYLE WSC	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	409	370	427	393	358	318
C	ARGYLE WSC	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	1,429	1,415	1,571	1,360	1,202	1,046
C	CARROLLTON	TRINITY	FORK LAKE/RESERVOIR	1,633	1,751	1,710	1,692	1,711	1,756
C	CARROLLTON	TRINITY	RAY HUBBARD LAKE/RESERVOIR	1,684	1,621	1,436	1,296	1,200	1,131
C	CARROLLTON	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	3,729	3,261	2,779	2,422	2,125	1,885
C	CARROLLTON	TRINITY	TAWAKONI LAKE/RESERVOIR	5,670	5,378	4,675	4,144	3,771	3,499
C	CELINA	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	32	145	327	481	411	358
C	CELINA	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	111	556	1,200	1,668	1,381	1,178
C	COPPELL	TRINITY	FORK LAKE/RESERVOIR	33	35	34	34	35	36
C	COPPELL	TRINITY	RAY HUBBARD LAKE/RESERVOIR	34	32	29	26	24	23
C	COPPELL	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	76	65	56	49	43	38
C	COPPELL	TRINITY	TAWAKONI LAKE/RESERVOIR	116	108	94	84	76	71
C	CORINTH	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	884	671	561	505	451	402
C	CORINTH	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	3,087	2,565	2,064	1,749	1,518	1,322
C	COUNTY-OTHER, DENTON	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	186	155	180	357	563	991
C	COUNTY-OTHER, DENTON	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	650	594	664	1,236	1,892	3,260
C	CROSS TIMBERS WSC	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	206	198	173	167	159	145
C	CROSS TIMBERS WSC	TRINITY	RAY ROBERTS- LEWISVILLE-	718	759	635	577	535	476

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			GRAPEVINE LAKE/RESERVOIR SYSTEM						
C	DALLAS	TRINITY	FORK LAKE/RESERVOIR	729	824	914	1,010	1,101	1,170
C	DALLAS	TRINITY	RAY HUBBARD LAKE/RESERVOIR	752	762	768	774	772	754
C	DALLAS	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	1,666	1,533	1,486	1,444	1,368	1,256
C	DALLAS	TRINITY	TAWAKONI LAKE/RESERVOIR	2,534	2,529	2,499	2,473	2,428	2,332
C	DENTON	TRINITY	LEWISVILLE LAKE/RESERVOIR NON-SYSTEM PORTION	6,412	6,132	5,870	5,386	5,311	5,275
C	DENTON	TRINITY	RAY ROBERTS LAKE/RESERVOIR NON-SYSTEM PORTION	15,506	14,789	14,024	12,746	12,644	12,681
C	DENTON COUNTY FWSD 1-A	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	508	586	590	532	477	424
C	DENTON COUNTY FWSD 1-A	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	2,931	4,114	4,147	3,609	3,199	2,992
C	DENTON COUNTY FWSD 10	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	307	421	418	377	338	301
C	DENTON COUNTY FWSD 10	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	1,074	1,609	1,536	1,306	1,134	988
C	DENTON COUNTY FWSD 7	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	708	458	385	348	311	277
C	DENTON COUNTY FWSD 7	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	2,472	1,752	1,416	1,203	1,045	910
C	FLOWER MOUND	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	2,547	1,918	1,651	1,533	1,417	1,315
C	FLOWER MOUND	TRINITY	FORK LAKE/RESERVOIR	682	724	718	716	724	745
C	FLOWER MOUND	TRINITY	RAY HUBBARD LAKE/RESERVOIR	703	669	602	548	507	480
C	FLOWER MOUND	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	10,452	8,678	7,235	6,339	5,661	5,128
C	FLOWER MOUND	TRINITY	TAWAKONI LAKE/RESERVOIR	2,367	2,221	1,961	1,754	1,597	1,485

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C	FORT WORTH	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	5,590	6,674	7,824	9,545	10,880	11,712
C	FRISCO	TRINITY	FORK LAKE/RESERVOIR	1,325	0	0	0	0	0
C	FRISCO	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	8,977	10,224	11,614	10,594	9,646	8,885
C	FRISCO	TRINITY	TAWAKONI LAKE/RESERVOIR	917	524	584	529	480	440
C	HACKBERRY	TRINITY	FORK LAKE/RESERVOIR	34	0	0	0	0	0
C	HACKBERRY	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	230	268	306	338	372	412
C	HACKBERRY	TRINITY	TAWAKONI LAKE/RESERVOIR	23	14	15	17	19	20
C	HIGHLAND VILLAGE	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	502	364	313	298	280	249
C	HIGHLAND VILLAGE	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	1,753	1,389	1,149	1,033	938	817
C	IRRIGATION, DENTON	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	1,516	1,443	1,307	1,205	1,148	1,103
C	JUSTIN	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	47	108	157	146	136	120
C	JUSTIN	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	163	414	576	507	454	397
C	KRUM	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	100	108	127	145	167	182
C	KRUM	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	351	414	469	505	562	598
C	LAKE CITIES MUNICIPAL UTILITY AUTHORITY	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	446	327	312	302	271	241
C	LAKE CITIES MUNICIPAL UTILITY AUTHORITY	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	1,557	1,253	1,148	1,048	909	792
C	LEWISVILLE	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	19,181	19,511	19,425	19,652	19,830	19,830
C	LITTLE ELM	TRINITY	FORK	305	0	0	0	0	0

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			LAKE/RESERVOIR						
C	LITTLE ELM	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	2,069	2,088	1,874	1,690	1,530	1,400
C	LITTLE ELM	TRINITY	TAWAKONI LAKE/RESERVOIR	211	107	94	84	76	69
C	LIVESTOCK, DENTON	TRINITY	TRINITY LIVESTOCK LOCAL SUPPLY	622	622	622	622	622	622
C	MANUFACTURING, DENTON	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	4	5	6	5	4	4
C	MANUFACTURING, DENTON	TRINITY	FORK LAKE/RESERVOIR	5	3	3	3	3	3
C	MANUFACTURING, DENTON	TRINITY	LEWISVILLE LAKE/RESERVOIR NON-SYSTEM PORTION	67	61	45	30	21	17
C	MANUFACTURING, DENTON	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	14	12	10	10	10	8
C	MANUFACTURING, DENTON	TRINITY	RAY HUBBARD LAKE/RESERVOIR	3	3	2	2	2	2
C	MANUFACTURING, DENTON	TRINITY	RAY ROBERTS LAKE/RESERVOIR NON-SYSTEM PORTION	161	146	107	71	49	40
C	MANUFACTURING, DENTON	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	20	23	25	23	20	17
C	MANUFACTURING, DENTON	TRINITY	TAWAKONI LAKE/RESERVOIR	11	11	9	7	7	6
C	MANUFACTURING, DENTON	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	26	23	20	18	17	15
C	MINING, DENTON	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	287	31	129	244	328	393
C	MINING, DENTON	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	1,004	119	475	848	1,103	1,292
C	MINING, DENTON	TRINITY	TRINITY OTHER LOCAL SUPPLY	1,366	1,366	1,366	1,366	1,366	1,366
C	MUSTANG SUD	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	598	924	1,229	1,520	1,730	1,855
C	MUSTANG SUD	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	2,089	3,530	4,520	5,268	5,812	6,098
C	NORTHLAKE	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	252	386	460	578	664	591
C	NORTHLAKE	TRINITY	RAY ROBERTS- LEWISVILLE-	882	1,477	1,693	2,005	2,233	1,946

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			GRAPEVINE LAKE/RESERVOIR SYSTEM						
C	NORTHLAKE	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	609	1,265	1,590	1,997	2,357	2,181
C	PALOMA CREEK NORTH	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	353	310	260	235	211	187
C	PALOMA CREEK NORTH	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	1,229	1,185	958	814	707	616
C	PALOMA CREEK SOUTH	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	176	157	131	119	107	95
C	PALOMA CREEK SOUTH	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	618	599	485	412	358	312
C	PLANO	TRINITY	FORK LAKE/RESERVOIR	144	0	0	0	0	0
C	PLANO	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	975	912	834	745	670	614
C	PLANO	TRINITY	TAWAKONI LAKE/RESERVOIR	100	47	42	37	33	30
C	PROSPER	TRINITY	FORK LAKE/RESERVOIR	22	0	0	0	0	0
C	PROSPER	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	151	625	860	1,039	928	927
C	PROSPER	TRINITY	TAWAKONI LAKE/RESERVOIR	15	32	43	52	46	46
C	PROVIDENCE VILLAGE WCID	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	195	125	106	95	84	75
C	PROVIDENCE VILLAGE WCID	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	678	478	386	328	285	248
C	ROANOKE	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	2,255	2,424	2,539	2,354	2,167	2,004
C	SANGER	TRINITY	CHAPMAN/COOPER LAKE/RESERVOIR NON-SYSTEM PORTION	65	85	109	130	154	169
C	SANGER	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	228	326	401	452	518	558
C	SOUTHLAKE	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	419	474	531	592	667	746

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C	THE COLONY	TRINITY	FORK LAKE/RESERVOIR	739	661	688	775	783	805
C	THE COLONY	TRINITY	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	610	927	920	827	742	680
C	THE COLONY	TRINITY	RAY HUBBARD LAKE/RESERVOIR	670	612	578	594	549	518
C	THE COLONY	TRINITY	RAY ROBERTS- LEWISVILLE- GRAPEVINE LAKE/RESERVOIR SYSTEM	1,483	1,232	1,120	1,109	974	864
C	THE COLONY	TRINITY	TAWAKONI LAKE/RESERVOIR	2,318	2,078	1,928	1,939	1,764	1,637
C	TROPHY CLUB MUD 1	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	4,308	3,766	3,326	2,995	2,754	2,549
C	WESTLAKE	TRINITY	TRWD LAKE/RESERVOIR SYSTEM	30	34	39	44	50	59
<b>Sum of Projected Surface Water Supplies (acre-feet)</b>				<b>144,135</b>	<b>141,724</b>	<b>140,724</b>	<b>138,280</b>	<b>136,086</b>	<b>133,910</b>



# Projected Water Demands

## TWDB 2022 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.

### COLLIN COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
C	ALLEN	TRINITY	21,887	23,536	23,806	24,125	24,496	24,902
C	ANNA	TRINITY	2,389	4,047	6,429	8,336	10,816	14,053
C	B H P WSC	SABINE	38	55	68	68	69	69
C	BEAR CREEK SUD	TRINITY	610	948	1,342	1,866	2,336	2,947
C	BLUE RIDGE	TRINITY	413	687	6,403	14,735	21,025	29,142
C	CADDO BASIN SUD	SABINE	155	188	251	331	425	527
C	CADDO BASIN SUD	TRINITY	103	124	166	220	282	349
C	CARROLLTON	TRINITY	1	1	2	2	3	3
C	CELINA	TRINITY	4,420	10,515	15,980	21,784	27,596	33,405
C	COPEVILLE SUD	TRINITY	327	387	465	638	1,123	1,921
C	COUNTY-OTHER, COLLIN	SABINE	0	0	0	0	1	1
C	COUNTY-OTHER, COLLIN	TRINITY	627	615	606	596	1,180	1,834
C	CULLEOKA WSC	TRINITY	597	596	901	1,094	1,237	1,546
C	DALLAS	TRINITY	15,807	15,886	15,830	15,706	15,681	15,679
C	DESERT WSC	TRINITY	51	56	64	81	110	144
C	EAST FORK SUD	TRINITY	1,308	1,407	1,580	1,581	1,638	1,693
C	FAIRVIEW	TRINITY	4,498	5,162	6,871	7,146	7,223	7,222
C	FARMERSVILLE	SABINE	1	3	7	11	16	23
C	FARMERSVILLE	TRINITY	1,035	2,501	5,658	8,629	12,260	17,721
C	FRISCO	TRINITY	27,373	28,159	33,122	47,994	56,265	60,316
C	FROGNOT WSC	TRINITY	171	193	232	289	329	366
C	GARLAND	TRINITY	51	62	76	94	115	137
C	HICKORY CREEK SUD	TRINITY	10	14	20	28	40	57
C	IRRIGATION, COLLIN	SABINE	94	94	94	94	94	94
C	IRRIGATION, COLLIN	TRINITY	3,246	3,246	3,246	3,246	3,246	3,246
C	JOSEPHINE	SABINE	307	485	676	874	910	910
C	LIVESTOCK, COLLIN	SABINE	91	91	91	91	91	91
C	LIVESTOCK, COLLIN	TRINITY	821	821	821	821	821	821
C	LUCAS	TRINITY	2,316	2,613	3,438	3,990	4,455	4,454
C	MANUFACTURING, COLLIN	TRINITY	2,246	2,602	2,602	2,602	2,602	2,602
C	MARILEE SUD	TRINITY	675	665	669	666	665	665
C	MCKINNEY	TRINITY	40,856	44,424	48,984	59,223	70,879	76,807
C	MELISSA	TRINITY	3,946	12,418	17,365	21,642	24,886	25,745
C	MILLIGAN WSC	TRINITY	450	511	614	766	870	963
C	MURPHY	TRINITY	4,441	4,414	4,402	4,393	4,388	4,387

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C	NEVADA SUD	SABINE	81	97	112	361	852	1,532
C	NEVADA SUD	TRINITY	161	192	222	713	1,685	3,031
C	NORTH COLLIN SUD	TRINITY	818	921	1,055	1,254	1,463	1,685
C	NORTH FARMERSVILLE WSC	TRINITY	91	104	126	158	180	199
C	PARKER	TRINITY	3,123	3,096	3,302	3,852	4,239	4,843
C	PLANO	TRINITY	71,890	71,978	72,314	72,139	72,158	72,907
C	PRINCETON	TRINITY	1,184	3,964	7,951	9,320	9,303	9,298
C	PROSPER	TRINITY	4,872	5,600	6,353	7,109	8,896	8,895
C	RICHARDSON	TRINITY	8,951	8,801	8,683	8,824	9,215	10,055
C	ROYSE CITY	SABINE	258	1,197	2,137	3,328	4,437	5,838
C	SACHSE	TRINITY	1,473	1,457	1,448	1,502	1,516	1,516
C	SEIS LAGOS UD	TRINITY	577	573	571	592	598	598
C	SOUTH GRAYSON SUD	TRINITY	151	184	242	293	341	388
C	STEAM ELECTRIC POWER, COLLIN	TRINITY	40	40	40	40	40	40
C	VERONA SUD	TRINITY	266	301	360	448	509	563
C	WEST LEONARD WSC	TRINITY	42	47	56	75	107	142
C	WESTMINSTER WSC	TRINITY	256	291	350	437	498	552
C	WYLIE	TRINITY	6,236	6,614	6,926	7,421	7,710	8,491
C	WYLIE NORTHEAST SUD	TRINITY	674	795	924	1,498	2,238	3,295
<b>Sum of Projected Water Demands (acre-feet)</b>			<b>242,505</b>	<b>273,778</b>	<b>316,053</b>	<b>373,126</b>	<b>424,158</b>	<b>468,710</b>

## COOKE COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
C	BOLIVAR WSC	TRINITY	104	107	109	113	117	121
C	CALLISBURG WSC	RED	54	53	52	52	52	53
C	CALLISBURG WSC	TRINITY	96	93	92	91	92	92
C	COUNTY-OTHER, COOKE	RED	160	167	179	259	326	766
C	COUNTY-OTHER, COOKE	TRINITY	583	607	655	945	1,191	2,795
C	GAINESVILLE	RED	4	4	4	4	5	8
C	GAINESVILLE	TRINITY	2,652	2,754	2,829	2,931	3,552	4,961
C	IRRIGATION, COOKE	RED	332	332	332	332	332	332
C	IRRIGATION, COOKE	TRINITY	768	768	768	768	768	768
C	LAKE KIOWA SUD	TRINITY	891	921	938	957	964	976
C	LINDSAY	RED	1	1	2	2	2	3
C	LINDSAY	TRINITY	172	179	186	204	243	365
C	LIVESTOCK, COOKE	RED	630	630	630	630	630	630
C	LIVESTOCK, COOKE	TRINITY	700	700	700	700	700	700
C	MANUFACTURING, COOKE	TRINITY	116	128	128	128	128	128
C	MINING, COOKE	TRINITY	1,583	900	378	446	511	586
C	MOUNTAIN SPRINGS WSC	TRINITY	445	468	486	506	801	1,279
C	MUENSTER	TRINITY	268	261	263	260	267	267
C	STEAM ELECTRIC POWER, COOKE	TRINITY	5	5	5	5	5	5
C	TWO WAY SUD	RED	11	12	12	12	13	13

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C	WOODBINE WSC	RED	51	56	61	66	72	78
C	WOODBINE WSC	TRINITY	600	651	706	769	839	911
<b>Sum of Projected Water Demands (acre-feet)</b>			<b>10,226</b>	<b>9,797</b>	<b>9,515</b>	<b>10,180</b>	<b>11,610</b>	<b>15,837</b>

## DENTON COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
C	ARGYLE WSC	TRINITY	2,659	3,365	4,322	4,319	4,317	4,314
C	AUBREY	TRINITY	547	711	823	972	1,164	1,412
C	BLACK ROCK WSC	TRINITY	296	368	433	505	590	668
C	BOLIVAR WSC	TRINITY	885	1,028	1,212	1,429	1,697	2,007
C	CARROLLTON	TRINITY	14,723	14,861	14,613	14,476	14,448	14,446
C	CELINA	TRINITY	154	1,081	3,602	7,692	7,691	7,690
C	COPPELL	TRINITY	301	297	294	293	292	292
C	CORINTH	TRINITY	4,269	4,986	4,959	4,942	4,935	4,934
C	COUNTY-OTHER, DENTON	TRINITY	1,199	1,537	1,878	4,108	7,241	13,671
C	CROSS TIMBERS WSC	TRINITY	1,642	2,060	2,073	2,096	2,128	2,166
C	DALLAS	TRINITY	6,578	6,987	7,811	8,638	9,301	9,625
C	DENTON	TRINITY	26,174	33,012	40,885	56,228	80,557	99,143
C	DENTON COUNTY FWSD 1-A	TRINITY	3,659	6,493	7,776	7,773	7,771	7,769
C	DENTON COUNTY FWSD 10	TRINITY	1,485	3,128	3,690	3,689	3,687	3,686
C	DENTON COUNTY FWSD 7	TRINITY	3,418	3,405	3,403	3,401	3,399	3,397
C	FLOWER MOUND	TRINITY	18,988	20,956	21,288	21,714	22,184	22,855
C	FORT WORTH	TRINITY	7,190	10,843	15,557	21,833	27,949	34,079
C	FRISCO	TRINITY	18,353	22,963	28,846	29,181	29,523	29,639
C	HACKBERRY	TRINITY	452	578	730	902	1,103	1,332
C	HIGHLAND VILLAGE	TRINITY	3,835	3,972	3,927	3,902	3,897	3,897
C	IRRIGATION, DENTON	TRINITY	3,003	3,003	3,003	3,003	3,003	3,003
C	JUSTIN	TRINITY	712	1,242	1,775	1,771	1,770	1,770
C	KRUM	TRINITY	1,135	1,391	1,703	2,055	2,471	2,947
C	LAKE CITIES MUNICIPAL UTILITY AUTHORITY	TRINITY	2,153	2,435	2,758	2,962	2,956	2,955
C	LEWISVILLE	TRINITY	19,984	22,285	25,176	28,536	31,821	31,817
C	LITTLE ELM	TRINITY	4,075	4,564	4,550	4,538	4,528	4,528
C	LIVESTOCK, DENTON	TRINITY	769	769	769	769	769	769
C	MANUFACTURING, DENTON	TRINITY	374	440	440	440	440	440
C	MINING, DENTON	TRINITY	4,326	2,729	3,345	4,306	5,204	6,291
C	MOUNTAIN SPRINGS WSC	TRINITY	9	10	11	12	13	15
C	MUSTANG SUD	TRINITY	4,548	8,361	12,201	16,049	19,904	23,762
C	NORTHLAKE	TRINITY	1,923	4,402	6,197	8,591	10,986	10,985
C	PALOMA CREEK NORTH	TRINITY	1,700	2,303	2,302	2,301	2,299	2,298
C	PALOMA CREEK SOUTH	TRINITY	854	1,165	1,165	1,165	1,165	1,165
C	PILOT POINT	TRINITY	891	1,069	1,449	1,964	2,614	3,527
C	PLANO	TRINITY	1,918	1,968	1,997	1,986	1,984	1,984
C	PONDER	TRINITY	388	524	690	878	1,099	1,352

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C	PROSPER	TRINITY	297	1,428	2,556	3,816	4,046	4,046
C	PROVIDENCE VILLAGE WCID	TRINITY	938	930	929	927	925	925
C	ROANOKE	TRINITY	2,255	2,797	3,345	3,339	3,337	3,336
C	SANGER	TRINITY	1,140	1,377	1,672	2,010	2,414	2,878
C	SOUTHLAKE	TRINITY	419	538	680	840	1,027	1,242
C	STEAM ELECTRIC POWER, DENTON	TRINITY	173	173	173	173	173	173
C	THE COLONY	TRINITY	8,071	8,631	9,105	9,857	9,844	9,841
C	TROPHY CLUB MUD 1	TRINITY	4,863	4,829	4,811	4,802	4,798	4,797
C	WESTLAKE	TRINITY	30	39	52	65	79	98
<b>Sum of Projected Water Demands (acre-feet)</b>			<b>183,755</b>	<b>222,033</b>	<b>260,976</b>	<b>305,248</b>	<b>353,543</b>	<b>393,966</b>

# Projected Water Supply Needs

## TWDB 2022 State Water Plan Data

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

### COLLIN COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
C	ALLEN	TRINITY	-118	-3,655	-5,212	-7,068	-8,886	-10,339
C	ANNA	TRINITY	-9	-1,225	-3,607	-5,514	-7,994	-11,231
C	B H P WSC	SABINE	0	-8	-15	-19	-25	-30
C	BEAR CREEK SUD	TRINITY	-3	-146	-293	-548	-848	-1,224
C	BLUE RIDGE	TRINITY	-13	-287	-6,003	-14,335	-20,625	-28,742
C	CADDO BASIN SUD	SABINE	-1	-30	-54	-97	-155	-219
C	CADDO BASIN SUD	TRINITY	-1	-18	-38	-65	-102	-144
C	CARROLLTON	TRINITY	1	2	-1	-1	-1	2
C	CELINA	TRINITY	0	-3,196	-8,662	-15,155	-20,583	-26,115
C	COPEVILLE SUD	TRINITY	-1	-60	-102	-187	-408	-798
C	COUNTY-OTHER, COLLIN	SABINE	0	0	0	0	-1	-1
C	COUNTY-OTHER, COLLIN	TRINITY	-1	-18	-24	-29	-246	-553
C	CULLEOKA WSC	TRINITY	-4	-93	-197	-320	-448	-643
C	DALLAS	TRINITY	-636	-1,375	-2,728	-3,718	-4,283	-4,724
C	DESERT WSC	TRINITY	42	38	36	27	2	-34
C	EAST FORK SUD	TRINITY	-6	-219	-346	-463	-594	-702
C	FAIRVIEW	TRINITY	-24	-802	-1,504	-2,094	-2,620	-2,999
C	FARMERSVILLE	SABINE	0	-1	-2	-4	-6	-11
C	FARMERSVILLE	TRINITY	-5	-388	-1,238	-2,527	-4,446	-7,356
C	FRISCO	TRINITY	-253	-4,452	-7,370	-14,211	-20,561	-25,100
C	FROGNOT WSC	TRINITY	195	173	134	77	37	0
C	GARLAND	TRINITY	0	-10	-15	-27	-41	-56
C	HICKORY CREEK SUD	TRINITY	-4	-9	-14	-22	-34	-52
C	IRRIGATION, COLLIN	SABINE	68	64	57	52	49	47
C	IRRIGATION, COLLIN	TRINITY	2,328	2,200	1,963	1,785	1,684	1,607
C	JOSEPHINE	SABINE	-2	-75	-148	-256	-329	-378
C	LIVESTOCK, COLLIN	SABINE	9	9	9	9	9	9
C	LIVESTOCK, COLLIN	TRINITY	81	81	81	81	81	81
C	LUCAS	TRINITY	-12	-405	-753	-1,169	-1,616	-1,849
C	MANUFACTURING, COLLIN	TRINITY	6	-385	-542	-727	-895	-1,026
C	MARILEE SUD	TRINITY	1	-1	0	-1	-25	-68
C	MCKINNEY	TRINITY	-220	-6,898	-10,726	-17,353	-25,710	-31,888
C	MELISSA	TRINITY	-361	-8,917	-13,900	-18,219	-21,501	-22,390
C	MILLIGAN WSC	TRINITY	-3	-80	-134	-224	-316	-400
C	MURPHY	TRINITY	-24	-685	-964	-1,288	-1,592	-1,822

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C	NEVADA SUD	SABINE	-1	-15	-24	-105	-309	-636
C	NEVADA SUD	TRINITY	-1	-29	-48	-209	-612	-1,258
C	NORTH COLLIN SUD	TRINITY	-4	-143	-231	-367	-530	-699
C	NORTH FARMERSVILLE WSC	TRINITY	0	-16	-28	-46	-65	-83
C	PARKER	TRINITY	-320	-537	-816	-1,256	-1,678	-2,176
C	PLANO	TRINITY	-388	-11,177	-15,833	-21,136	-26,174	-30,269
C	PRINCETON	TRINITY	-6	-615	-1,741	-2,731	-3,375	-3,861
C	PROSPER	TRINITY	-37	-1,134	-2,356	-3,462	-5,043	-5,042
C	RICHARDSON	TRINITY	-48	-1,366	-1,901	-2,586	-3,343	-4,175
C	ROYSE CITY	SABINE	1	-186	-467	-976	-1,610	-2,423
C	SACHSE	TRINITY	-11	-236	-323	-440	-550	-629
C	SEIS LAGOS UD	TRINITY	-4	-89	-125	-174	-217	-248
C	SOUTH GRAYSON SUD	TRINITY	0	-17	-57	-89	-125	-160
C	STEAM ELECTRIC POWER, COLLIN	TRINITY	0	0	0	0	0	0
C	VERONA SUD	TRINITY	0	-35	-94	-182	-243	-297
C	WEST LEONARD WSC	TRINITY	39	37	45	44	29	0
C	WESTMINSTER WSC	TRINITY	290	255	196	109	48	-6
C	WYLIE	TRINITY	-33	-1,027	-1,516	-2,174	-2,798	-3,525
C	WYLIE NORTHEAST SUD	TRINITY	-3	-123	-202	-439	-812	-1,368
<b>Sum of Projected Water Supply Needs (acre-feet)</b>			<b>-2,557</b>	<b>-50,183</b>	<b>-90,354</b>	<b>-142,013</b>	<b>-192,375</b>	<b>-237,749</b>

## COOKE COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
C	BOLIVAR WSC	TRINITY	20	4	-13	-26	-40	-53
C	CALLISBURG WSC	RED	0	2	2	3	2	2
C	CALLISBURG WSC	TRINITY	0	2	4	4	4	3
C	COUNTY-OTHER, COOKE	RED	27	20	7	1	-44	-390
C	COUNTY-OTHER, COOKE	TRINITY	94	70	23	-1	-159	-1,425
C	GAINESVILLE	RED	0	0	0	0	-1	-3
C	GAINESVILLE	TRINITY	0	0	0	-47	-502	-1,946
C	IRRIGATION, COOKE	RED	0	0	0	0	-76	-174
C	IRRIGATION, COOKE	TRINITY	0	0	0	0	-176	-402
C	LAKE KIOWA SUD	TRINITY	94	64	47	28	21	9
C	LINDSAY	RED	0	0	0	0	-1	-2
C	LINDSAY	TRINITY	0	-7	-15	-33	-71	-193
C	LIVESTOCK, COOKE	RED	45	45	45	45	45	45
C	LIVESTOCK, COOKE	TRINITY	52	52	52	52	52	52
C	MANUFACTURING, COOKE	TRINITY	0	0	0	0	-36	-82
C	MINING, COOKE	TRINITY	-583	-150	-148	-146	-161	-136
C	MOUNTAIN SPRINGS WSC	TRINITY	65	41	22	2	-289	-765
C	MUENSTER	TRINITY	0	7	5	8	1	1
C	STEAM ELECTRIC POWER, COOKE	TRINITY	0	0	0	0	0	0
C	TWO WAY SUD	RED	0	-2	-4	-5	-7	-8

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C	WOODBINE WSC	RED	0	-5	-9	-15	-21	-27
C	WOODBINE WSC	TRINITY	-5	-56	-112	-174	-244	-316
<b>Sum of Projected Water Supply Needs (acre-feet)</b>			<b>-588</b>	<b>-220</b>	<b>-301</b>	<b>-447</b>	<b>-1,828</b>	<b>-5,922</b>

## DENTON COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
C	ARGYLE WSC	TRINITY	0	-765	-1,480	-1,728	-1,933	-2,141
C	AUBREY	TRINITY	12	-152	-264	-413	-605	-853
C	BLACK ROCK WSC	TRINITY	172	100	35	-37	-122	-200
C	BOLIVAR WSC	TRINITY	162	35	-130	-334	-588	-886
C	CARROLLTON	TRINITY	-577	-1,272	-2,502	-3,409	-3,931	-4,339
C	CELINA	TRINITY	0	-328	-1,952	-5,353	-5,736	-6,012
C	COPPELL	TRINITY	-13	-26	-51	-70	-80	-87
C	CORINTH	TRINITY	0	-1,511	-2,123	-2,488	-2,787	-3,051
C	COUNTY-OTHER, DENTON	TRINITY	1,204	771	538	-870	-3,059	-7,524
C	CROSS TIMBERS WSC	TRINITY	0	-448	-680	-834	-982	-1,099
C	DALLAS	TRINITY	-265	-604	-1,344	-2,043	-2,541	-2,899
C	DENTON	TRINITY	453	-6,371	-14,185	-29,472	-53,757	-72,323
C	DENTON COUNTY FWSD 1-A	TRINITY	-49	-1,585	-2,818	-3,422	-3,907	-4,185
C	DENTON COUNTY FWSD 10	TRINITY	0	-948	-1,579	-1,857	-2,082	-2,279
C	DENTON COUNTY FWSD 7	TRINITY	0	-1,032	-1,457	-1,713	-1,920	-2,101
C	FLOWER MOUND	TRINITY	-789	-5,417	-7,873	-9,584	-11,000	-12,409
C	FORT WORTH	TRINITY	-234	-2,310	-5,317	-8,916	-12,710	-16,913
C	FRISCO	TRINITY	-170	-3,630	-6,420	-8,640	-10,788	-12,332
C	HACKBERRY	TRINITY	-3	-89	-159	-264	-400	-553
C	HIGHLAND VILLAGE	TRINITY	0	-679	-937	-1,042	-1,158	-1,322
C	IRRIGATION, DENTON	TRINITY	1,875	1,802	1,666	1,564	1,507	1,462
C	JUSTIN	TRINITY	-244	-439	-741	-818	-885	-963
C	KRUM	TRINITY	-202	-382	-611	-899	-1,228	-1,647
C	LAKE CITIES MUNICIPAL UTILITY AUTHORITY	TRINITY	0	-738	-1,181	-1,492	-1,669	-1,827
C	LEWISVILLE	TRINITY	-803	-2,774	-5,751	-8,884	-11,991	-11,987
C	LITTLE ELM	TRINITY	-28	-756	-1,048	-1,355	-1,642	-1,880
C	LIVESTOCK, DENTON	TRINITY	583	583	583	583	583	583
C	MANUFACTURING, DENTON	TRINITY	-1	-83	-147	-211	-261	-289
C	MINING, DENTON	TRINITY	0	370	246	-179	-705	-1,513
C	MOUNTAIN SPRINGS WSC	TRINITY	1	1	1	0	-5	-9
C	MUSTANG SUD	TRINITY	0	-1,911	-4,320	-6,988	-10,006	-13,404
C	NORTHLAKE	TRINITY	0	-1,041	-2,186	-3,687	-5,374	-5,938
C	PALOMA CREEK NORTH	TRINITY	0	-698	-986	-1,159	-1,298	-1,421
C	PALOMA CREEK SOUTH	TRINITY	0	-353	-499	-587	-658	-720
C	PILOT POINT	TRINITY	-320	-498	-878	-1,393	-2,043	-2,956
C	PLANO	TRINITY	-10	-305	-438	-583	-720	-824
C	PONDER	TRINITY	-3	-139	-305	-493	-714	-967

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C	PROSPER	TRINITY	-2	-289	-948	-1,858	-2,294	-2,294
C	PROVIDENCE VILLAGE WCID	TRINITY	0	-282	-398	-467	-522	-572
C	ROANOKE	TRINITY	0	-373	-806	-985	-1,170	-1,332
C	SANGER	TRINITY	0	-111	-296	-551	-856	-1,259
C	SOUTHLAKE	TRINITY	0	-64	-149	-248	-360	-496
C	STEAM ELECTRIC POWER, DENTON	TRINITY	0	0	0	0	0	0
C	THE COLONY	TRINITY	-241	-801	-1,501	-2,224	-2,618	-2,915
C	TROPHY CLUB MUD 1	TRINITY	0	-508	-930	-1,252	-1,489	-1,693
C	WESTLAKE	TRINITY	0	-5	-13	-21	-29	-39
<b>Sum of Projected Water Supply Needs (acre-feet)</b>			<b>-3,954</b>	<b>-39,717</b>	<b>-75,403</b>	<b>-118,823</b>	<b>-168,623</b>	<b>-210,453</b>



# Projected Water Management Strategies

## TWDB 2022 State Water Plan Data

### COLLIN COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
<b>ALLEN, TRINITY (C)</b>							
CONSERVATION - ALLEN	DEMAND REDUCTION [COLLIN]	670	768	769	850	955	1,066
CONSERVATION, IRRIGATION RESTRICTIONS – ALLEN	DEMAND REDUCTION [COLLIN]	657	706	714	724	735	747
CONSERVATION, WATER LOSS CONTROL - ALLEN	DEMAND REDUCTION [COLLIN]	109	118	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	2,140	2,684	2,415
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	151	419	559
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	193	243	146	168	137
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	1,737	2,354	1,522	1,898	1,695
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	125	208	179	253	243
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	8	149	135	247	297
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	721
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	775	1,221	1,527	1,642
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	817
		<b>1,436</b>	<b>3,655</b>	<b>5,212</b>	<b>7,068</b>	<b>8,886</b>	<b>10,339</b>
<b>ANNA, TRINITY (C)</b>							
ANNA - NEW WELL(S) IN WOODBINE AQUIFER	WOODBINE AQUIFER [COLLIN]	200	200	200	200	200	200
CONSERVATION - ANNA	DEMAND REDUCTION [COLLIN]	47	118	80	132	207	316
CONSERVATION – WASTE PROHIBITION, ANNA	DEMAND REDUCTION [COLLIN]	10	19	0	0	0	0
CONSERVATION, IRRIGATION RESTRICTIONS – ANNA	DEMAND REDUCTION [COLLIN]	65	121	0	0	0	0
CONSERVATION, WATER LOSS CONTROL - ANNA	DEMAND REDUCTION [COLLIN]	116	547	0	0	0	0
GTUA - CONNECTION FROM SHERMAN TO CGMA	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION	0	625	494	761	1,112	1,207

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	[RESERVOIR]							
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	2,096	2,905	3,091	
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	148	453	716	
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	39	230	143	182	175	
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	354	2,226	1,492	2,053	2,170	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	25	197	175	274	311	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	2	141	132	268	381	
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	923	
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	733	1,196	1,652	2,102	
SHERMAN - UNALLOCATED SUPPLY UTILIZATION	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	610	381	292	0	0	
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	1,046	
		<b>438</b>	<b>2,660</b>	<b>4,682</b>	<b>6,767</b>	<b>9,306</b>	<b>12,638</b>	

#### B H P WSC, SABINE (C)

CONSERVATION - B H P WSC	DEMAND REDUCTION [COLLIN]	0	1	1	1	1	2	
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	8	9	8	
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	1	1	2	
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	7	9	4	7	6	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	0	1	1	1	1	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	1	0	1	1	
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	2	
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	3	4	5	5	
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	3	
		<b>0</b>	<b>8</b>	<b>15</b>	<b>19</b>	<b>25</b>	<b>30</b>	

#### BEAR CREEK SUD, TRINITY (C)

CONSERVATION - BEAR CREEK SUD	DEMAND REDUCTION [COLLIN]	2	3	15	29	46	67	
CONSERVATION, IRRIGATION	DEMAND REDUCTION	19	29	40	56	70	89	

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RESTRICTIONS – BEAR CREEK SUD	[COLLIN]							
CONSERVATION, WATER LOSS CONTROL - BEAR CREEK SUD	DEMAND REDUCTION [COLLIN]	3	5	0	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	180	273	303	
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	12	43	70	
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	10	15	11	18	17	
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	92	150	129	193	213	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	7	13	14	25	30	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	10	11	25	37	
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	91	
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	50	106	155	205	
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	102	
		<b>24</b>	<b>146</b>	<b>293</b>	<b>548</b>	<b>848</b>	<b>1,224</b>	
<b>BLUE RIDGE, TRINITY (C)</b>								
CONSERVATION - BLUE RIDGE	DEMAND REDUCTION [COLLIN]	7	19	200	528	824	1,239	
CONSERVATION – WASTE PROHIBITION, BLUE RIDGE	DEMAND REDUCTION [COLLIN]	1	2	23	52	75	104	
CONSERVATION, IRRIGATION RESTRICTIONS – BLUE RIDGE	DEMAND REDUCTION [COLLIN]	11	22	198	457	652	903	
CONSERVATION, WATER LOSS CONTROL - BLUE RIDGE	DEMAND REDUCTION [COLLIN]	2	3	2	5	7	9	
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	567	5,930	13,663	19,437	26,857	
		<b>21</b>	<b>613</b>	<b>6,353</b>	<b>14,705</b>	<b>20,995</b>	<b>29,112</b>	
<b>CADDO BASIN SUD, SABINE (C)</b>								
CONSERVATION - CADDO BASIN SUD	DEMAND REDUCTION [COLLIN]	1	1	2	4	7	11	
CONSERVATION, WATER LOSS CONTROL - CADDO BASIN SUD	DEMAND REDUCTION [COLLIN]	1	1	0	0	0	0	
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	37	57	61	
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	3	9	14	
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	3	4	3	4	4	
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	24	33	27	41	43	
NTMWD - EXPANDED WETLAND	INDIRECT REUSE	0	2	3	3	5	6	

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REUSE	[COLLIN]						
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	2	2	5	8
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	18
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	11	21	32	42
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	21
		<b>2</b>	<b>31</b>	<b>55</b>	<b>100</b>	<b>160</b>	<b>228</b>

**CADDO BASIN SUD, TRINITY (C)**

CONSERVATION - CADDO BASIN SUD	DEMAND REDUCTION [COLLIN]	0	1	2	3	5	7
CONSERVATION, WATER LOSS CONTROL - CADDO BASIN SUD	DEMAND REDUCTION [COLLIN]	0	1	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	25	38	41
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	2	6	9
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	2	2	2	2	2
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	1	14	26	17	27	28
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	1	2	2	4	4
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	1	2	3	5
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	12
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	7	14	21	28
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	14
		<b>1</b>	<b>19</b>	<b>40</b>	<b>67</b>	<b>106</b>	<b>150</b>

**CARROLLTON, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0
CONSERVATION - CARROLLTON	DEMAND REDUCTION [COLLIN]	0	0	1	1	1	0
CONSERVATION, IRRIGATION RESTRICTIONS - CARROLLTON	DEMAND REDUCTION [COLLIN]	0	0	0	0	0	0
CONSERVATION, WATER LOSS CONTROL - CARROLLTON	DEMAND REDUCTION [COLLIN]	0	0	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	0	0	0	0	0
DWU - INDIRECT REUSE	INDIRECT REUSE	0	0	0	0	0	0

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IMPLEMENTATION	[DENTON]							
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	0	0	0	0
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0	1
		<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>CELINA, TRINITY (C)</b>								
ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0	762
CONSERVATION - CELINA	DEMAND REDUCTION [COLLIN]	87	306	520	781	1,081	1,420	
CONSERVATION, IRRIGATION RESTRICTIONS – CELINA	DEMAND REDUCTION [COLLIN]	119	316	479	653	828	1,002	
CONSERVATION, WATER LOSS CONTROL - CELINA	DEMAND REDUCTION [COLLIN]	22	53	0	0	0	0	
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	7	22	27	39	40	
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	40	259	380	585	622	
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	5	48	109	221	230	
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	756	1,228	1,304	
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	133	761	999	1,406	1,382	
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	2,573	2,573	2,994	4,383	4,556	
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	4,730	5,646	5,895	
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	101	228	267	
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	127	159	98	91	65	
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	1,145	1,546	1,025	1,031	808	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	83	137	120	138	116	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	5	98	91	135	141	
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	344	
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	508	821	830	783	
SHERMAN - UNALLOCATED SUPPLY UTILIZATION	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	2,509	2,001	1,148	0	0	
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER	0	0	0	0	646	643	

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	[ANDERSON]							
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	1,301	1,656	2,510	
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	612	1,794	1,941	2,464	2,792	
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	1,723	4,779	4,916	6,241	7,058	
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	1,994	
		<b>228</b>	<b>9,637</b>	<b>15,684</b>	<b>22,991</b>	<b>28,877</b>	<b>34,734</b>	

**COPEVILLE SUD, TRINITY (C)**

CONSERVATION - COPEVILLE SUD	DEMAND REDUCTION [COLLIN]	7	9	14	21	41	80	
CONSERVATION, WATER LOSS CONTROL - COPEVILLE SUD	DEMAND REDUCTION [COLLIN]	2	2	0	0	0	0	
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	65	137	204	
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	5	21	47	
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	5	6	5	8	12	
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	41	55	45	97	144	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	3	5	6	13	20	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	4	4	13	25	
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	61	
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	18	36	78	137	
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	68	
		<b>9</b>	<b>60</b>	<b>102</b>	<b>187</b>	<b>408</b>	<b>798</b>	

**COUNTY-OTHER, COLLIN, SABINE (C)**

CONSERVATION - COLLIN COUNTY OTHER	DEMAND REDUCTION [COLLIN]	0	0	0	0	0	0	
CONSERVATION, WATER LOSS CONTROL - COLLIN COUNTY OTHER	DEMAND REDUCTION [COLLIN]	0	0	0	0	0	0	
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	0	0	0	1	1	
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0	
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	0	0	0	
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0	

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	[RESERVOIR]						
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	0	0	0	0	0
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	0	0	0	0
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	0
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	0
SHERMAN - UNALLOCATED SUPPLY UTILIZATION	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	0	0	0	0	0
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0
		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>

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

CONSERVATION - COLLIN COUNTY OTHER	DEMAND REDUCTION [COLLIN]	2	4	6	8	20	37
CONSERVATION, WATER LOSS CONTROL - COLLIN COUNTY OTHER	DEMAND REDUCTION [COLLIN]	3	3	0	0	0	0
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	279	618	794	1,098	1,098
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	8	85	146
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	1	13	34
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	1	1	1	5	8
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	9	11	4	60	102
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	1	1	1	8	15
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	1	1	8	18
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	44
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	4	5	48	100
SHERMAN - UNALLOCATED SUPPLY UTILIZATION	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	271	481	305	0	0
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	50
		<b>5</b>	<b>568</b>	<b>1,123</b>	<b>1,128</b>	<b>1,345</b>	<b>1,652</b>

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**CULLEOKA WSC, TRINITY (C)**

CONSERVATION - CULLEOKA WSC	DEMAND REDUCTION [COLLIN]	2	4	9	16	24	35
CONSERVATION, WATER LOSS CONTROL - CULLEOKA WSC	DEMAND REDUCTION [COLLIN]	3	3	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	118	158	172
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	8	25	40
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	8	12	8	10	10
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	73	118	86	111	123
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	5	11	10	15	17
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	8	7	15	21
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	51
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	39	67	90	116
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	58
		<b>5</b>	<b>93</b>	<b>197</b>	<b>320</b>	<b>448</b>	<b>643</b>

**DALLAS, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	437
CONSERVATION - DALLAS	DEMAND REDUCTION [COLLIN]	382	703	1,338	1,428	1,397	1,395
CONSERVATION, IRRIGATION RESTRICTIONS – DALLAS	DEMAND REDUCTION [COLLIN]	474	477	475	471	470	470
CONSERVATION, WATER LOSS CONTROL - DALLAS	DEMAND REDUCTION [COLLIN]	158	159	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	1	18	22	23	23
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	8	217	305	343	357
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	1	40	88	130	132
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	605	718	748
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	26	640	799	823	793
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	379	369
		<b>1,014</b>	<b>1,375</b>	<b>2,728</b>	<b>3,718</b>	<b>4,283</b>	<b>4,724</b>

**DESERT WSC, TRINITY (C)**

CONSERVATION - DESERT WSC	DEMAND REDUCTION [COLLIN]	0	0	1	1	2	3
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CONSERVATION, WATER LOSS CONTROL - DESERT WSC	DEMAND REDUCTION [COLLIN]	0	0	0	0	0	0
DESERT WSC - NEW WELL(S) IN WOODBINE AQUIFER	WOODBINE AQUIFER [FANNIN]	0	0	0	0	0	31
		<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>34</b>

**EAST FORK SUD, TRINITY (C)**

CONSERVATION - EAST FORK SUD	DEMAND REDUCTION [COLLIN]	13	23	34	38	49	55
CONSERVATION, IRRIGATION RESTRICTIONS – EAST FORK SUD	DEMAND REDUCTION [COLLIN]	39	42	47	47	49	51
CONSERVATION, WATER LOSS CONTROL - EAST FORK SUD	DEMAND REDUCTION [COLLIN]	7	7	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	147	185	169
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	11	29	39
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	14	17	10	11	9
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	123	168	105	131	118
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	9	15	12	18	17
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	1	10	9	17	21
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	51
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	55	84	105	115
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	57
		<b>59</b>	<b>219</b>	<b>346</b>	<b>463</b>	<b>594</b>	<b>702</b>

**FAIRVIEW, TRINITY (C)**

CONSERVATION - FAIRVIEW	DEMAND REDUCTION [COLLIN]	43	78	125	154	179	203
CONSERVATION, IRRIGATION RESTRICTIONS – FAIRVIEW	DEMAND REDUCTION [COLLIN]	121	155	206	214	217	217
CONSERVATION, WATER LOSS CONTROL - FAIRVIEW	DEMAND REDUCTION [COLLIN]	22	26	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	672	830	730
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	47	129	169
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	51	76	46	52	41
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	457	740	480	587	514
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	33	66	56	78	74
NTMWD - EXPANDED WETLAND	INDIRECT REUSE	0	2	47	42	76	90

REUSE	[KAUFMAN]						
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	218
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	244	383	472	496
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	247
		<b>186</b>	<b>802</b>	<b>1,504</b>	<b>2,094</b>	<b>2,620</b>	<b>2,999</b>

**FARMERSVILLE, SABINE (C)**

CONSERVATION - FARMERSVILLE	DEMAND REDUCTION [COLLIN]	0	1	1	1	2	1
CONSERVATION, WATER LOSS CONTROL - FARMERSVILLE	DEMAND REDUCTION [COLLIN]	0	0	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	1	2	3
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	0	0	1
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	0
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	0	1	1	1	2
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	0	0	0	0	0
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	0	0	0	0
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	1
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	1	1	2
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	1
		<b>0</b>	<b>1</b>	<b>2</b>	<b>4</b>	<b>6</b>	<b>11</b>

**FARMERSVILLE, TRINITY (C)**

CONSERVATION - FARMERSVILLE	DEMAND REDUCTION [COLLIN]	3	19	70	136	234	398
CONSERVATION, WATER LOSS CONTROL - FARMERSVILLE	DEMAND REDUCTION [COLLIN]	5	13	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	931	1,571	1,970
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	66	245	456
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	33	76	64	98	112
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	301	737	662	1,111	1,382
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	21	65	78	148	199

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NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	1	47	59	145	243
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	588
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	243	531	894	1,341
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	667
		<b>8</b>	<b>388</b>	<b>1,238</b>	<b>2,527</b>	<b>4,446</b>	<b>7,356</b>
<b>FRISCO, TRINITY (C)</b>							
CONSERVATION - FRISCO	DEMAND REDUCTION [COLLIN]	498	740	983	1,507	1,919	2,243
CONSERVATION, IRRIGATION RESTRICTIONS – FRISCO	DEMAND REDUCTION [COLLIN]	821	845	994	1,440	1,688	1,810
CONSERVATION, WATER LOSS CONTROL - FRISCO	DEMAND REDUCTION [COLLIN]	137	141	0	0	0	0
FRISCO - ADDITIONAL DIRECT REUSE	DIRECT REUSE [COLLIN]	195	327	458	695	904	925
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	4,150	6,021	5,725
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	293	939	1,326
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	232	326	284	376	325
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	2,085	3,164	2,953	4,256	4,019
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	149	280	346	568	577
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	9	200	262	555	705
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	1,708
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	1,041	2,368	3,426	3,894
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	1,937
		<b>1,651</b>	<b>4,528</b>	<b>7,446</b>	<b>14,298</b>	<b>20,652</b>	<b>25,194</b>
<b>FROGNOT WSC, TRINITY (C)</b>							
CONSERVATION - FROGNOT	DEMAND REDUCTION [COLLIN]	1	1	2	4	5	7
CONSERVATION, WATER LOSS CONTROL - FROGNOT WSC	DEMAND REDUCTION [COLLIN]	1	1	0	0	0	0
		<b>2</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>7</b>
<b>GARLAND, TRINITY (C)</b>							
CONSERVATION - GARLAND	DEMAND REDUCTION [COLLIN]	2	2	0	1	4	5
CONSERVATION, IRRIGATION RESTRICTIONS – GARLAND	DEMAND REDUCTION [COLLIN]	2	2	2	3	3	4
CONSERVATION, WATER LOSS CONTROL - GARLAND	DEMAND REDUCTION [COLLIN]	0	0	0	0	0	0

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MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	8	13	13
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	1	2	3
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	1	1	1	1	1
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	5	8	6	9	9
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	0	1	1	1	1
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	0	1	1	2
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	4
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	3	5	7	9
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	5
		<b>4</b>	<b>10</b>	<b>15</b>	<b>27</b>	<b>41</b>	<b>56</b>

**IRRIGATION, COLLIN, SABINE (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	4
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	1	0	0	0	0	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	3	1	3	3	3	3
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	0	1	1	1	1
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	6	7	6
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	5	10	8	7	7
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	3	3
		<b>4</b>	<b>6</b>	<b>14</b>	<b>18</b>	<b>21</b>	<b>24</b>

**IRRIGATION, COLLIN, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	127
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	8
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	33	11	9	7	7	0

DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	74	51	114	110	107	103
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	3	7	21	32	41	39
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	218	224	218
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	171	332	288	258	230
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	119	107
		<b>110</b>	<b>240</b>	<b>476</b>	<b>655</b>	<b>756</b>	<b>832</b>

**JOSEPHINE, SABINE (C)**

CONSERVATION - JOSEPHINE	DEMAND REDUCTION [COLLIN]	3	4	8	13	17	20
CONSERVATION, IRRIGATION RESTRICTIONS – JOSEPHINE	DEMAND REDUCTION [COLLIN]	7	13	17	22	23	23
CONSERVATION, WATER LOSS CONTROL - JOSEPHINE	DEMAND REDUCTION [COLLIN]	2	2	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	86	108	95
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	6	17	22
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	52	85	67	82	73
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	4	7	8	10	9
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	5	5	10	12
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	28
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	26	49	62	64
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	32
		<b>12</b>	<b>75</b>	<b>148</b>	<b>256</b>	<b>329</b>	<b>378</b>

**LUCAS, TRINITY (C)**

CONSERVATION - LUCAS	DEMAND REDUCTION [COLLIN]	20	30	55	83	107	122
CONSERVATION – WASTE PROHIBITION, LUCAS	DEMAND REDUCTION [COLLIN]	18	23	32	38	43	43
CONSERVATION, IRRIGATION RESTRICTIONS – LUCAS	DEMAND REDUCTION [COLLIN]	68	84	112	131	146	146
CONSERVATION, WATER LOSS CONTROL - LUCAS	DEMAND REDUCTION [COLLIN]	55	159	191	222	248	248
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	271	400	365
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	19	62	85
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	10	24	18	25	21

NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	92	229	193	283	256
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	7	20	23	38	37
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	15	17	37	45
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	109
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	75	154	227	248
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	124
		<b>161</b>	<b>405</b>	<b>753</b>	<b>1,169</b>	<b>1,616</b>	<b>1,849</b>

**MANUFACTURING, COLLIN, TRINITY (C)**

MANUFACTURING, COLLIN - NEW WELL(S) IN WOODBINE AQUIFER	WOODBINE AQUIFER [COLLIN]	0	78	78	78	78	78
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	283	332	291
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	20	53	67
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	35	35	20	21	18
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	327	344	199	240	207
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	22	29	25	30	29
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	1	21	19	30	35
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	87
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	113	161	189	195
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	97
		<b>0</b>	<b>463</b>	<b>620</b>	<b>805</b>	<b>973</b>	<b>1,104</b>

**MARILEE SUD, TRINITY (C)**

CONSERVATION - MARILEE SUD	DEMAND REDUCTION [COLLIN]	2	5	7	9	11	13
CONSERVATION, WATER LOSS CONTROL - MARILEE SUD	DEMAND REDUCTION [COLLIN]	4	3	0	0	0	0
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	401	493	631	847	802
SHERMAN - TREATMENT OF LAKE TEXOMA	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	0	0	0	24	67
SHERMAN - UNALLOCATED SUPPLY UTILIZATION	TEXOMA LAKE/RESERVOIR NON-	0	391	383	242	0	0

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		SYSTEM PORTION [RESERVOIR]					
		6	800	883	882	882	882
<b>MCKINNEY, TRINITY (C)</b>							
CONSERVATION - MCKINNEY	DEMAND REDUCTION [COLLIN]	946	1,289	1,804	2,463	2,941	3,341
CONSERVATION, IRRIGATION RESTRICTIONS – MCKINNEY	DEMAND REDUCTION [COLLIN]	1,226	1,333	1,470	1,777	2,126	2,304
CONSERVATION, WATER LOSS CONTROL - MCKINNEY	DEMAND REDUCTION [COLLIN]	337	657	479	579	693	751
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	4,882	7,442	7,219
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	345	1,161	1,671
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	339	454	333	465	410
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	3,048	4,401	3,474	5,260	5,070
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	218	390	407	702	727
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	14	279	308	686	889
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF- RIVER [OKLAHOMA]	0	0	0	0	0	2,155
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	1,449	2,785	4,234	4,909
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	2,442
		<b>2,509</b>	<b>6,898</b>	<b>10,726</b>	<b>17,353</b>	<b>25,710</b>	<b>31,888</b>
<b>MELISSA, TRINITY (C)</b>							
CONSERVATION - MELISSA	DEMAND REDUCTION [COLLIN]	38	176	304	451	601	708
CONSERVATION, IRRIGATION RESTRICTIONS – MELISSA	DEMAND REDUCTION [COLLIN]	118	373	521	649	747	772
CONSERVATION, WATER LOSS CONTROL - MELISSA	DEMAND REDUCTION [COLLIN]	20	62	0	0	0	0
GTUA - CONNECTION FROM SHERMAN TO CGMA	TEXOMA LAKE/RESERVOIR NON- SYSTEM PORTION [RESERVOIR]	0	1,606	1,967	2,382	3,112	2,974
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	6,668	7,517	5,922
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	471	1,173	1,371
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	778	851	456	470	336
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	208	6,994	8,253	4,742	5,315	4,159
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	502	731	556	709	597

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NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	32	523	421	693	729
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	1,767
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	2,717	3,805	4,276	4,026
SHERMAN - UNALLOCATED SUPPLY UTILIZATION	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	1,566	1,530	914	0	0
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	2,003
		<b>384</b>	<b>12,089</b>	<b>17,397</b>	<b>21,515</b>	<b>24,613</b>	<b>25,364</b>

**MILLIGAN WSC, TRINITY (C)**

CONSERVATION - MILLIGAN WSC	DEMAND REDUCTION [COLLIN]	2	3	6	10	15	19
CONSERVATION, WATER LOSS CONTROL - MILLIGAN WSC	DEMAND REDUCTION [COLLIN]	2	3	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	83	112	108
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	6	18	25
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	7	8	6	7	6
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	63	81	59	80	76
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	4	7	7	11	11
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	5	5	10	13
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	32
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	27	48	63	73
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	37
		<b>4</b>	<b>80</b>	<b>134</b>	<b>224</b>	<b>316</b>	<b>400</b>

**MURPHY, TRINITY (C)**

CONSERVATION - MURPHY	DEMAND REDUCTION [COLLIN]	43	62	77	92	106	121
CONSERVATION - WASTE PROHIBITION, MURPHY	DEMAND REDUCTION [COLLIN]	29	32	32	32	32	32
CONSERVATION, IRRIGATION RESTRICTIONS - MURPHY	DEMAND REDUCTION [COLLIN]	120	132	132	132	132	132
CONSERVATION, WATER LOSS CONTROL - MURPHY	DEMAND REDUCTION [COLLIN]	22	22	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	402	493	435
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	28	77	101

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NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	41	47	27	31	25
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	368	457	287	349	305
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	26	40	34	47	44
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	2	29	25	45	54
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	130
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	150	229	280	296
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	147
		<b>214</b>	<b>685</b>	<b>964</b>	<b>1,288</b>	<b>1,592</b>	<b>1,822</b>

**NEVADA SUD, SABINE (C)**

CONSERVATION - NEVADA SUD	DEMAND REDUCTION [COLLIN]	0	1	0	3	16	33
CONSERVATION, IRRIGATION RESTRICTIONS – NEVADA SUD	DEMAND REDUCTION [COLLIN]	3	3	3	11	25	46
CONSERVATION, WATER LOSS CONTROL - NEVADA SUD	DEMAND REDUCTION [COLLIN]	0	0	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	35	100	158
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	3	15	37
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	1	1	3	6	9
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	9	13	24	70	110
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	1	1	3	10	16
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	1	3	10	20
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	47
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	5	20	57	107
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	53
		<b>3</b>	<b>15</b>	<b>24</b>	<b>105</b>	<b>309</b>	<b>636</b>

**NEVADA SUD, TRINITY (C)**

CONSERVATION - NEVADA SUD	DEMAND REDUCTION [COLLIN]	1	0	0	11	33	69
CONSERVATION, IRRIGATION RESTRICTIONS – NEVADA SUD	DEMAND REDUCTION [COLLIN]	5	6	7	21	51	91
CONSERVATION, WATER LOSS CONTROL - NEVADA SUD	DEMAND REDUCTION [COLLIN]	1	1	0	0	0	0

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MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	69	197	311
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	5	31	72
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	2	3	4	12	18
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	19	25	49	140	218
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	1	3	6	18	31
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	2	4	18	38
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	93
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	8	40	112	212
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	105
		<b>7</b>	<b>29</b>	<b>48</b>	<b>209</b>	<b>612</b>	<b>1,258</b>

#### NORTH COLLIN SUD, TRINITY (C)

CONSERVATION - NORTH COLLIN WSC	DEMAND REDUCTION [COLLIN]	3	6	11	17	26	38
CONSERVATION, WATER LOSS CONTROL - NORTH COLLIN WSC	DEMAND REDUCTION [COLLIN]	4	5	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	136	188	187
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	10	29	43
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	12	14	9	12	11
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	111	139	98	133	132
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	8	12	11	18	19
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	1	9	9	17	23
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	56
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	46	77	107	127
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	63
		<b>7</b>	<b>143</b>	<b>231</b>	<b>367</b>	<b>530</b>	<b>699</b>

#### NORTH FARMERSVILLE WSC, TRINITY (C)

CONSERVATION - NORTH FARMERSVILLE WSC	DEMAND REDUCTION [COLLIN]	1	3	4	5	7	8
CONSERVATION, IRRIGATION RESTRICTIONS – NORTH	DEMAND REDUCTION [COLLIN]	2	3	4	5	5	6

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FARMERSVILLE WSC							
CONSERVATION, WATER LOSS CONTROL - NORTH FARMERSVILLE	DEMAND REDUCTION [COLLIN]	0	1	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	14	20	20
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	1	3	5
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	1	1	1	1	1
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	7	13	10	13	12
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	1	1	1	2	2
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	1	1	2	2
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	6
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	4	8	12	14
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	7
		<b>3</b>	<b>16</b>	<b>28</b>	<b>46</b>	<b>65</b>	<b>83</b>

#### PARKER, TRINITY (C)

CONSERVATION - PARKER	DEMAND REDUCTION [COLLIN]	26	36	50	70	97	133
CONSERVATION – WASTE PROHIBITION, PARKER	DEMAND REDUCTION [COLLIN]	41	45	48	57	63	73
CONSERVATION, IRRIGATION RESTRICTIONS – PARKER	DEMAND REDUCTION [COLLIN]	95	106	113	132	145	166
CONSERVATION, WATER LOSS CONTROL - PARKER	DEMAND REDUCTION [COLLIN]	16	15	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	388	512	511
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	27	80	118
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	31	39	27	32	29
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	142	283	382	277	362	359
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	20	34	32	48	51
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	1	24	25	47	63
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	152
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	126	221	292	348
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR	0	0	0	0	0	173

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		[RESERVOIR]						
			320	537	816	1,256	1,678	2,176
<b>PLANO, TRINITY (C)</b>								
CONSERVATION - PLANO	DEMAND REDUCTION [COLLIN]	1,050	1,467	2,096	1,877	2,120	2,379	
CONSERVATION, IRRIGATION RESTRICTIONS – PLANO	DEMAND REDUCTION [COLLIN]	2,156	2,159	2,169	2,164	2,164	2,187	
CONSERVATION, WATER LOSS CONTROL - PLANO	DEMAND REDUCTION [COLLIN]	359	360	0	0	0	0	
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	6,659	8,166	7,279	
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	470	1,274	1,685	
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	673	753	454	511	413	
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	6,057	7,302	4,737	5,770	5,110	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	434	647	556	771	733	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	27	462	420	752	897	
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	2,173	
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	2,404	3,799	4,646	4,950	
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	2,463	
		<b>3,565</b>	<b>11,177</b>	<b>15,833</b>	<b>21,136</b>	<b>26,174</b>	<b>30,269</b>	
<b>PRINCETON, TRINITY (C)</b>								
CONSERVATION - PRINCETON	DEMAND REDUCTION [COLLIN]	5	36	100	147	178	209	
CONSERVATION, WATER LOSS CONTROL - PRINCETON	DEMAND REDUCTION [COLLIN]	6	20	0	0	0	0	
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	1,006	1,193	1,034	
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	71	186	239	
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	52	107	69	75	59	
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	471	1,035	716	841	726	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	34	92	84	113	104	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	2	66	64	110	127	
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	309	
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM	0	0	341	574	679	704	

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	[RESERVOIR]						
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	350
		<b>11</b>	<b>615</b>	<b>1,741</b>	<b>2,731</b>	<b>3,375</b>	<b>3,861</b>
<b>PROSPER, TRINITY (C)</b>							
CONSERVATION - PROSPER	DEMAND REDUCTION [COLLIN]	46	80	112	149	214	245
CONSERVATION, IRRIGATION RESTRICTIONS – PROSPER	DEMAND REDUCTION [COLLIN]	146	168	190	213	267	267
CONSERVATION, WATER LOSS CONTROL - PROSPER	DEMAND REDUCTION [COLLIN]	25	28	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	1,208	1,701	1,283
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	85	265	297
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	80	134	83	107	73
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	723	1,296	859	1,203	900
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	52	115	101	161	129
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	3	82	76	157	158
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	383
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	427	688	968	873
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	434
		<b>217</b>	<b>1,134</b>	<b>2,356</b>	<b>3,462</b>	<b>5,043</b>	<b>5,042</b>
<b>RICHARDSON, TRINITY (C)</b>							
CONSERVATION - RICHARDSON	DEMAND REDUCTION [COLLIN]	119	158	184	217	257	314
CONSERVATION, IRRIGATION RESTRICTIONS – RICHARDSON	DEMAND REDUCTION [COLLIN]	269	264	260	265	277	302
CONSERVATION, WATER LOSS CONTROL - RICHARDSON	DEMAND REDUCTION [COLLIN]	45	44	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	819	1,048	1,008
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	58	163	234
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	84	95	56	66	57
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	759	919	583	740	708
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	54	82	68	99	101
NTMWD - EXPANDED WETLAND	INDIRECT REUSE	0	3	58	52	97	124

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REUSE	[KAUFMAN]							
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	0	301
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	303	468	596		685
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0	341
		<b>433</b>	<b>1,366</b>	<b>1,901</b>	<b>2,586</b>	<b>3,343</b>		<b>4,175</b>
<b>ROYSE CITY, SABINE (C)</b>								
CONSERVATION - ROYSE CITY	DEMAND REDUCTION [COLLIN]	1	9	26	54	83		131
CONSERVATION, WATER LOSS CONTROL - ROYSE CITY	DEMAND REDUCTION [COLLIN]	1	6	0	0	0		0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	360	569		649
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	25	89		150
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	159	309	280	438		493
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	11	24	30	54		65
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	1	17	22	53		80
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0		194
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	91	205	324		442
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0	219
		<b>2</b>	<b>186</b>	<b>467</b>	<b>976</b>	<b>1,610</b>		<b>2,423</b>
<b>SACHSE, TRINITY (C)</b>								
CONSERVATION - SACHSE	DEMAND REDUCTION [COLLIN]	58	65	69	77	81		86
CONSERVATION, IRRIGATION RESTRICTIONS – SACHSE	DEMAND REDUCTION [COLLIN]	44	44	43	45	45		45
CONSERVATION, WATER LOSS CONTROL - SACHSE	DEMAND REDUCTION [COLLIN]	7	7	0	0	0		0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	124	158		141
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	9	25		33
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	11	14	8	10		8
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	101	133	88	111		99
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	7	12	10	15		14
NTMWD - EXPANDED WETLAND	INDIRECT REUSE	0	1	8	8	15		17

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REUSE	[KAUFMAN]						
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	42
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	44	71	90	96
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	48
		<b>109</b>	<b>236</b>	<b>323</b>	<b>440</b>	<b>550</b>	<b>629</b>

**SEIS LAGOS UD, TRINITY (C)**

CONSERVATION - SEIS LAGOS UD	DEMAND REDUCTION [COLLIN]	5	7	9	11	13	15
CONSERVATION, IRRIGATION RESTRICTIONS – SEIS LAGOS UD	DEMAND REDUCTION [COLLIN]	16	17	17	18	18	18
CONSERVATION, WATER LOSS CONTROL - SEIS LAGOS UD	DEMAND REDUCTION [COLLIN]	3	3	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	56	69	61
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	4	11	14
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	6	6	4	4	3
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	52	62	40	50	44
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	4	6	5	7	6
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	4	4	6	7
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	18
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	21	32	39	41
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	21
		<b>24</b>	<b>89</b>	<b>125</b>	<b>174</b>	<b>217</b>	<b>248</b>

**SOUTH GRAYSON SUD, TRINITY (C)**

CONSERVATION - SOUTH GRAYSON WSC	DEMAND REDUCTION [COLLIN]	1	2	2	3	6	8
CONSERVATION, WATER LOSS CONTROL - SOUTH GRAYSON SUD	DEMAND REDUCTION [COLLIN]	1	1	0	0	0	0
SHERMAN - TREATMENT OF LAKE TEXOMA	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	7	31	62	119	152
SHERMAN - UNALLOCATED SUPPLY UTILIZATION	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	7	24	24	0	0
		<b>2</b>	<b>17</b>	<b>57</b>	<b>89</b>	<b>125</b>	<b>160</b>

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

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NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	0
		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>VERONA SUD, TRINITY (C)</b>							
CONSERVATION - VERONA SUD	DEMAND REDUCTION [COLLIN]	1	2	4	6	8	11
CONSERVATION, WATER LOSS CONTROL - VERONA SUD	DEMAND REDUCTION [COLLIN]	1	2	0	0	0	0
VERONA SUD - NEW WELL(S) IN WOODBINE AQUIFER	WOODBINE AQUIFER [COLLIN]	0	31	90	176	235	286
		<b>2</b>	<b>35</b>	<b>94</b>	<b>182</b>	<b>243</b>	<b>297</b>
<b>WEST LEONARD WSC, TRINITY (C)</b>							
CONSERVATION - WEST LEONARD WSC	DEMAND REDUCTION [COLLIN]	0	0	0	1	2	3
CONSERVATION, WATER LOSS CONTROL - WEST LEONARD WSC	DEMAND REDUCTION [COLLIN]	0	0	0	0	0	0
		<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>WESTMINSTER WSC, TRINITY (C)</b>							
CONSERVATION - WESTMINSTER WSC	DEMAND REDUCTION [COLLIN]	1	2	4	6	8	11
CONSERVATION, WATER LOSS CONTROL - WESTMINSTER WSC	DEMAND REDUCTION [COLLIN]	1	1	0	0	0	0
		<b>2</b>	<b>3</b>	<b>4</b>	<b>6</b>	<b>8</b>	<b>11</b>
<b>WYLIE, TRINITY (C)</b>							
CONSERVATION - WYLIE	DEMAND REDUCTION [COLLIN]	113	153	184	219	256	301
CONSERVATION, IRRIGATION RESTRICTIONS – WYLIE	DEMAND REDUCTION [COLLIN]	187	198	208	223	232	255
CONSERVATION, WATER LOSS CONTROL - WYLIE	DEMAND REDUCTION [COLLIN]	31	32	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	673	862	841
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	48	134	195
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	60	73	47	54	48
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	542	709	480	609	590
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	39	63	56	81	85
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	3	45	43	79	104
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	250
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	234	385	491	571
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	285
		<b>331</b>	<b>1,027</b>	<b>1,516</b>	<b>2,174</b>	<b>2,798</b>	<b>3,525</b>

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**WYLIE NORTHEAST SUD, TRINITY (C)**

CONSERVATION - WYLIE NORTHEAST SUD	DEMAND REDUCTION [COLLIN]	2	5	9	22	43	74
CONSERVATION, WATER LOSS CONTROL - WYLIE NORTHEAST SUD	DEMAND REDUCTION [COLLIN]	3	4	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	162	287	366
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	11	45	85
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	11	13	11	18	21
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	96	121	116	202	258
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	7	11	14	27	37
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	8	10	26	45
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	109
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	40	93	164	249
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	124
<b>Sum of Projected Water Management Strategies (acre-feet)</b>		<b>5</b>	<b>123</b>	<b>202</b>	<b>439</b>	<b>812</b>	<b>1,368</b>
		<b>13,540</b>	<b>63,304</b>	<b>104,920</b>	<b>157,581</b>	<b>208,357</b>	<b>254,039</b>

**COOKE COUNTY**

**WUG, Basin (RWPG)**

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
<b>BOLIVAR WSC, TRINITY (C)</b>							
ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	3
BOLIVAR WSC - NEW WELL(S) IN THE TRINITY AQUIFER	TRINITY AQUIFER [DENTON]	24	22	19	17	15	13
CONSERVATION - BOLIVAR WSC	DEMAND REDUCTION [COOKE]	0	1	1	2	2	3
CONSERVATION, WATER LOSS CONTROL - BOLIVAR WSC	DEMAND REDUCTION [COOKE]	0	1	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	2	3	3	3	2
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	0	1	0	1	1
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	4	6	5

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DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	4	8	6	7	5
GAINESVILLE - UNALLOCATED SURFACE WATER SUPPLY UTILIZATION	HUBERT H MOSS LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	1	4
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	4	6	7	6	4
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	21	20	18
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	3	2
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	8	8	9
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	21	20	12	12	11
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	59	54	31	30	27
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	6
		<b>24</b>	<b>114</b>	<b>112</b>	<b>111</b>	<b>114</b>	<b>113</b>
<b>CALLISBURG WSC, RED (C)</b>							
CONSERVATION - CALLISBURG WSC	DEMAND REDUCTION [COOKE]	0	0	0	1	1	1
CONSERVATION, WATER LOSS CONTROL - CALLISBURG WSC	DEMAND REDUCTION [COOKE]	0	0	0	0	0	0
		<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>CALLISBURG WSC, TRINITY (C)</b>							
CONSERVATION - CALLISBURG WSC	DEMAND REDUCTION [COOKE]	1	1	1	1	1	2
CONSERVATION, WATER LOSS CONTROL - CALLISBURG WSC	DEMAND REDUCTION [COOKE]	1	1	0	0	0	0
		<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>
<b>COUNTY-OTHER, COOKE, RED (C)</b>							
CONSERVATION - COOKE COUNTY OTHER	DEMAND REDUCTION [COOKE]	0	1	2	3	5	15
CONSERVATION, WATER LOSS CONTROL - COOKE COUNTY OTHER	DEMAND REDUCTION [COOKE]	1	1	0	0	0	0
GAINESVILLE - UNALLOCATED SURFACE WATER SUPPLY UTILIZATION	HUBERT H MOSS LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	8	179
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	0	0	0	31	196
		<b>1</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>44</b>	<b>390</b>
<b>COUNTY-OTHER, COOKE, TRINITY (C)</b>							
CONSERVATION - COOKE COUNTY OTHER	DEMAND REDUCTION [COOKE]	2	4	6	13	20	56
CONSERVATION, WATER LOSS CONTROL - COOKE COUNTY OTHER	DEMAND REDUCTION [COOKE]	3	3	0	0	0	0

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GAINESVILLE - UNALLOCATED SURFACE WATER SUPPLY UTILIZATION	HUBERT H MOSS LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	24	655
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	0	0	0	115	714
		<b>5</b>	<b>7</b>	<b>6</b>	<b>13</b>	<b>159</b>	<b>1,425</b>
<b>GAINESVILLE, RED (C)</b>							
CONSERVATION - GAINESVILLE	DEMAND REDUCTION [COOKE]	0	0	0	0	0	0
CONSERVATION, WATER LOSS CONTROL - GAINESVILLE	DEMAND REDUCTION [COOKE]	0	0	0	0	0	0
GAINESVILLE - UNALLOCATED SURFACE WATER SUPPLY UTILIZATION	HUBERT H MOSS LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	2	6
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	2	8	7	7	6
		<b>0</b>	<b>2</b>	<b>8</b>	<b>7</b>	<b>9</b>	<b>12</b>
<b>GAINESVILLE, TRINITY (C)</b>							
CONSERVATION - GAINESVILLE	DEMAND REDUCTION [COOKE]	12	25	35	46	68	111
CONSERVATION, WATER LOSS CONTROL - GAINESVILLE	DEMAND REDUCTION [COOKE]	13	14	0	0	0	0
GAINESVILLE - UNALLOCATED SURFACE WATER SUPPLY UTILIZATION	HUBERT H MOSS LAKE/RESERVOIR [RESERVOIR]	0	0	0	34	1,094	3,554
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	1,576	5,510	5,471	4,937	3,877
		<b>25</b>	<b>1,615</b>	<b>5,545</b>	<b>5,551</b>	<b>6,099</b>	<b>7,542</b>
<b>IRRIGATION, COOKE, RED (C)</b>							
GAINESVILLE - EXPAND DIRECT REUSE FOR IRRIGATION	DIRECT REUSE [COOKE]	21	21	21	21	21	21
GAINESVILLE - UNALLOCATED SURFACE WATER SUPPLY UTILIZATION	HUBERT H MOSS LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	9	66
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	0	0	0	39	72
NON-MUNICIPAL CONSERVATION, IRRIGATION, COOKE	DEMAND REDUCTION [COOKE]	0	0	0	0	7	15
		<b>21</b>	<b>21</b>	<b>21</b>	<b>21</b>	<b>76</b>	<b>174</b>
<b>IRRIGATION, COOKE, TRINITY (C)</b>							
GAINESVILLE - EXPAND DIRECT REUSE FOR IRRIGATION	DIRECT REUSE [COOKE]	49	49	49	49	49	49
GAINESVILLE - UNALLOCATED SURFACE WATER SUPPLY UTILIZATION	HUBERT H MOSS LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	20	154
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	0	0	0	90	167

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NON-MUNICIPAL CONSERVATION, IRRIGATION, COOKE	DEMAND REDUCTION [COOKE]	0	0	0	1	17	32
		<b>49</b>	<b>49</b>	<b>49</b>	<b>50</b>	<b>176</b>	<b>402</b>
<b>LAKE KIOWA SUD, TRINITY (C)</b>							
CONSERVATION - LAKE KIOWA SUD	DEMAND REDUCTION [COOKE]	3	6	9	13	16	20
CONSERVATION, WATER LOSS CONTROL - LAKE KIOWA SUD	DEMAND REDUCTION [COOKE]	4	5	0	0	0	0
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	443	493	631	870	866
SHERMAN - UNALLOCATED SUPPLY UTILIZATION	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	432	384	242	0	0
		<b>7</b>	<b>886</b>	<b>886</b>	<b>886</b>	<b>886</b>	<b>886</b>
<b>LINDSAY, RED (C)</b>							
CONSERVATION - LINDSAY	DEMAND REDUCTION [COOKE]	0	0	0	0	1	0
CONSERVATION, WATER LOSS CONTROL - LINDSAY	DEMAND REDUCTION [COOKE]	0	0	0	0	0	0
GAINESVILLE - UNALLOCATED SURFACE WATER SUPPLY UTILIZATION	HUBERT H MOSS LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	1
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	0	0	0	0	1
		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>
<b>LINDSAY, TRINITY (C)</b>							
CONSERVATION - LINDSAY	DEMAND REDUCTION [COOKE]	1	1	2	3	3	7
CONSERVATION, WATER LOSS CONTROL - LINDSAY	DEMAND REDUCTION [COOKE]	1	1	0	0	0	0
GAINESVILLE - UNALLOCATED SURFACE WATER SUPPLY UTILIZATION	HUBERT H MOSS LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	12	89
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	5	13	30	56	97
		<b>2</b>	<b>7</b>	<b>15</b>	<b>33</b>	<b>71</b>	<b>193</b>
<b>MANUFACTURING, COOKE, TRINITY (C)</b>							
GAINESVILLE - UNALLOCATED SURFACE WATER SUPPLY UTILIZATION	HUBERT H MOSS LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	7	39
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	0	0	0	29	43
		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>36</b>	<b>82</b>
<b>MINING, COOKE, TRINITY (C)</b>							
GAINESVILLE - EXPAND DIRECT REUSE FOR MINING	DIRECT REUSE [COOKE]	99	67	71	74	77	80
GAINESVILLE - UNALLOCATED	TRINITY AQUIFER	484	83	77	72	84	56

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GROUNDWATER SUPPLY UTILIZATION [COOKE]

**583      150      148      146      161      136**

**MOUNTAIN SPRINGS WSC, TRINITY (C)**

CONSERVATION - MOUNTAIN SPRING WSC	DEMAND REDUCTION [COOKE]	2	3	5	7	25	51
CONSERVATION, IRRIGATION RESTRICTIONS – MOUNTAIN SPRINGS WSC	DEMAND REDUCTION [COOKE]	0	0	0	0	22	39
CONSERVATION, WATER LOSS CONTROL - MOUNTAIN SPRING WSC	DEMAND REDUCTION [COOKE]	2	2	0	0	0	0
GAINESVILLE - UNALLOCATED SURFACE WATER SUPPLY UTILIZATION	HUBERT H MOSS LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	44	323
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	0	0	0	198	352

**4      5      5      7      289      765**

**MUENSTER, TRINITY (C)**

CONSERVATION - MUENSTER	DEMAND REDUCTION [COOKE]	1	2	3	3	4	5
CONSERVATION, WATER LOSS CONTROL - MUENSTER	DEMAND REDUCTION [COOKE]	1	1	0	0	0	0
MUENSTER - DEVELOP MUENSTER LAKE SUPPLY	MUENSTER LAKE/RESERVOIR [RESERVOIR]	280	280	280	280	280	280

**282      283      283      283      284      285**

**TWO WAY SUD, RED (C)**

CONSERVATION - TWO WAY SUD	DEMAND REDUCTION [COOKE]	0	0	0	0	0	0
CONSERVATION, WATER LOSS CONTROL - TWO WAY SUD	DEMAND REDUCTION [COOKE]	0	0	0	0	0	0
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	6	7	9	13	10
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	0	0	0	0	0
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	0	0	0	0
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	0
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	0
SHERMAN - UNALLOCATED SUPPLY UTILIZATION	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	6	5	3	0	0
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0

**0      12      12      12      13      10**

**WOODBINE WSC, RED (C)**

CONSERVATION - WOODBINE WSC	DEMAND REDUCTION [COOKE]	0	0	1	1	1	2
CONSERVATION, WATER LOSS CONTROL - WOODBINE WSC	DEMAND REDUCTION [COOKE]	0	0	0	0	0	0
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	28	42	53	73	73
SHERMAN - UNALLOCATED SUPPLY UTILIZATION	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	28	33	20	0	0
		<b>0</b>	<b>56</b>	<b>76</b>	<b>74</b>	<b>74</b>	<b>75</b>

**WOODBINE WSC, TRINITY (C)**

CONSERVATION - WOODBINE WSC	DEMAND REDUCTION [COOKE]	2	5	7	10	14	19
CONSERVATION, WATER LOSS CONTROL - WOODBINE WSC	DEMAND REDUCTION [COOKE]	3	4	0	0	0	0
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	329	481	620	857	857
SHERMAN - UNALLOCATED SUPPLY UTILIZATION	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	322	374	238	0	0
		<b>5</b>	<b>660</b>	<b>862</b>	<b>868</b>	<b>871</b>	<b>876</b>
<b>Sum of Projected Water Management Strategies (acre-feet)</b>		<b>1,010</b>	<b>3,871</b>	<b>8,031</b>	<b>8,067</b>	<b>9,365</b>	<b>13,371</b>

**DENTON COUNTY**

**WUG, Basin (RWPG)**

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	62
ARGYLE WSC - NEW WELL(S) IN TRINITY AQUIFER	TRINITY AQUIFER [DENTON]	250	250	250	250	250	250
CONSERVATION - ARGYLE WSC	DEMAND REDUCTION [DENTON]	12	80	140	155	169	183
CONSERVATION – WASTE PROHIBITION, ARGYLE WSC	DEMAND REDUCTION [DENTON]	0	36	51	51	51	51
CONSERVATION, IRRIGATION RESTRICTIONS – ARGYLE WSC	DEMAND REDUCTION [DENTON]	0	101	144	144	144	143
CONSERVATION, WATER LOSS CONTROL - ARGYLE WSC	DEMAND REDUCTION [DENTON]	13	43	101	101	101	101
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	2	3	3	4	3
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	9	40	42	54	51
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	1	7	12	21	19

DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	82	115	107
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	30	117	108	131	113
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	356	391	388
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	60	53
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	141	154	205
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	139	276	210	230	228
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	392	737	530	582	577
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	131
		<b>275</b>	<b>1,083</b>	<b>1,866</b>	<b>2,185</b>	<b>2,457</b>	<b>2,665</b>

**AUBREY, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	37
CONSERVATION - AUBREY	DEMAND REDUCTION [DENTON]	2	5	8	13	20	32
CONSERVATION, WATER LOSS CONTROL - AUBREY	DEMAND REDUCTION [DENTON]	3	4	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	1	1	1	2	2
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	4	16	19	29	30
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	1	3	5	11	11
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	37	60	63
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	14	45	49	69	67
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	161	205	230
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	32	31
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	64	81	122
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	62	107	95	121	136
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	173	285	242	305	344
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	78
		<b>5</b>	<b>264</b>	<b>465</b>	<b>686</b>	<b>935</b>	<b>1,183</b>

**BLACK ROCK WSC, TRINITY (C)**

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BLACK ROCK WSC - NEW WELL(S) IN TRINITY AQUIFER	TRINITY AQUIFER [DENTON]	0	0	0	8	82	154
CONSERVATION - BLACK ROCK WSC	DEMAND REDUCTION [DENTON]	1	2	4	15	22	26
CONSERVATION, IRRIGATION RESTRICTIONS – BLACK ROCK WSC	DEMAND REDUCTION [DENTON]	0	0	0	14	18	20
CONSERVATION, WATER LOSS CONTROL - BLACK ROCK WSC	DEMAND REDUCTION [DENTON]	1	2	0	0	0	0
		<b>2</b>	<b>4</b>	<b>4</b>	<b>37</b>	<b>122</b>	<b>200</b>

**BOLIVAR WSC, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	49
BOLIVAR WSC - NEW WELL(S) IN THE TRINITY AQUIFER	TRINITY AQUIFER [DENTON]	208	210	214	217	219	222
CONSERVATION - BOLIVAR WSC	DEMAND REDUCTION [DENTON]	5	9	16	22	33	45
CONSERVATION, WATER LOSS CONTROL - BOLIVAR WSC	DEMAND REDUCTION [DENTON]	5	5	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	3	3	3	3	3
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	12	31	31	40	40
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	2	6	9	16	15
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	62	85	83
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	44	95	81	97	88
GAINESVILLE - UNALLOCATED SURFACE WATER SUPPLY UTILIZATION	HUBERT H MOSS LAKE/RESERVOIR [RESERVOIR]	0	0	0	1	20	62
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	42	63	84	88	67
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	266	291	303
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	45	41
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	106	115	161
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	199	224	157	171	178
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	561	599	398	435	450
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	102
		<b>218</b>	<b>1,087</b>	<b>1,251</b>	<b>1,437</b>	<b>1,658</b>	<b>1,909</b>

**CARROLLTON, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	522
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CONSERVATION - CARROLLTON	DEMAND REDUCTION [DENTON]	254	325	368	414	462	511
CONSERVATION, IRRIGATION RESTRICTIONS – CARROLLTON	DEMAND REDUCTION [DENTON]	398	446	439	434	434	434
CONSERVATION, WATER LOSS CONTROL - CARROLLTON	DEMAND REDUCTION [DENTON]	73	74	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	18	34	31	29	28
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	94	406	430	432	425
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	13	75	125	164	157
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	857	908	892
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	316	1,194	1,133	1,040	945
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	478	440
		<b>725</b>	<b>1,286</b>	<b>2,516</b>	<b>3,424</b>	<b>3,947</b>	<b>4,354</b>
<b>CELINA, TRINITY (C)</b>							
ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	176
CONSERVATION - CELINA	DEMAND REDUCTION [DENTON]	3	32	117	276	301	327
CONSERVATION, IRRIGATION RESTRICTIONS – CELINA	DEMAND REDUCTION [DENTON]	4	32	108	231	231	231
CONSERVATION, WATER LOSS CONTROL - CELINA	DEMAND REDUCTION [DENTON]	1	5	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	1	5	10	11	9
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	4	58	134	163	143
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	1	11	39	62	53
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	267	342	300
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	14	172	353	392	318
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	265	580	1,057	1,222	1,049
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	1,670	1,573	1,357
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	36	63	61
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	13	36	35	26	15
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	118	348	362	287	186

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NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	8	31	42	38	27
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	1	22	32	37	33
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	79
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	115	290	231	180
SHERMAN - UNALLOCATED SUPPLY UTILIZATION	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	258	451	406	0	0
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	180	148
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	460	461	578
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	63	404	686	687	643
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	177	1,077	1,736	1,740	1,625
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	460
		<b>8</b>	<b>992</b>	<b>3,535</b>	<b>8,122</b>	<b>8,047</b>	<b>7,998</b>

**COPPELL, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	10
CONSERVATION - COPPELL	DEMAND REDUCTION [DENTON]	11	14	13	15	14	15
CONSERVATION, IRRIGATION RESTRICTIONS – COPPELL	DEMAND REDUCTION [DENTON]	8	9	9	9	9	9
CONSERVATION, WATER LOSS CONTROL - COPPELL	DEMAND REDUCTION [DENTON]	2	1	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	0	1	1	1	1
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	0	7	8	8	8
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	0	1	2	3	3
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	15	17	16
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	2	20	20	19	17
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	9	8
		<b>21</b>	<b>26</b>	<b>51</b>	<b>70</b>	<b>80</b>	<b>87</b>

**CORINTH, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	85
CONSERVATION - CORINTH	DEMAND REDUCTION [DENTON]	20	120	161	177	193	210

CONSERVATION – WASTE PROHIBITION, CORINTH	DEMAND REDUCTION [DENTON]	0	39	43	43	43	43
CONSERVATION, IRRIGATION RESTRICTIONS – CORINTH	DEMAND REDUCTION [DENTON]	0	146	161	160	160	160
CONSERVATION, WATER LOSS CONTROL - CORINTH	DEMAND REDUCTION [DENTON]	21	25	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	4	5	4	5	4
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	19	60	59	75	70
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	3	11	17	28	26
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	116	157	145
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	63	175	153	180	154
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	506	536	528
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	83	72
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	200	212	280
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	287	411	298	316	311
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	805	1,096	755	799	784
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	179
		<b>41</b>	<b>1,511</b>	<b>2,123</b>	<b>2,488</b>	<b>2,787</b>	<b>3,051</b>
<b>COUNTY-OTHER, DENTON, TRINITY (C)</b>							
ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	233
CONSERVATION - DENTON COUNTY	DEMAND REDUCTION [DENTON]	4	10	19	55	121	273
CONSERVATION, WATER LOSS CONTROL - DENTON COUNTY	DEMAND REDUCTION [DENTON]	6	8	0	0	0	0
COUNTY-OTHER, DENTON - NEW WELL(S) IN TRINITY AQUIFER	TRINITY AQUIFER [DENTON]	504	504	504	504	504	504
COUNTY-OTHER, DENTON - NEW WELL(S) IN WOODBINE AQUIFER	WOODBINE AQUIFER [DENTON]	817	817	817	817	817	817
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	1	2	3	7	12
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	5	23	47	105	190
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	1	4	14	40	70
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	94	221	399
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	18	66	124	253	423

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MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	408	753	1,452
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	116	197
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	161	298	768
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	80	156	241	443	855
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	226	414	611	1,120	2,161
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	491
		<b>1,331</b>	<b>1,670</b>	<b>2,005</b>	<b>3,079</b>	<b>4,798</b>	<b>8,845</b>

**CROSS TIMBERS WSC, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	30
CONSERVATION - CROSS TIMBERS WSC	DEMAND REDUCTION [DENTON]	5	45	62	70	81	91
CONSERVATION, IRRIGATION RESTRICTIONS – CROSS TIMBERS WSC	DEMAND REDUCTION [DENTON]	0	56	62	63	64	65
CONSERVATION, WATER LOSS CONTROL - CROSS TIMBERS WSC	DEMAND REDUCTION [DENTON]	8	10	0	0	0	0
CROSS TIMBERS WSC - NEW WELL(S) IN TRINITY AQUIFER	TRINITY AQUIFER [DENTON]	250	250	250	250	250	250
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	1	2	1	2	2
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	5	19	20	27	25
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	1	3	6	10	9
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	39	55	52
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	18	55	51	63	55
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	168	188	189
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	29	26
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	66	74	100
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	82	130	99	110	111
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	230	347	251	279	280
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	64
		<b>263</b>	<b>698</b>	<b>930</b>	<b>1,084</b>	<b>1,232</b>	<b>1,349</b>

**DALLAS, TRINITY (C)**

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ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	268
CONSERVATION - DALLAS	DEMAND REDUCTION [DENTON]	159	309	658	784	830	856
CONSERVATION, IRRIGATION RESTRICTIONS – DALLAS	DEMAND REDUCTION [DENTON]	197	210	234	259	279	289
CONSERVATION, WATER LOSS CONTROL - DALLAS	DEMAND REDUCTION [DENTON]	66	70	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	1	9	12	14	14
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	3	107	167	203	219
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	0	20	48	77	81
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	333	426	459
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	11	316	440	488	487
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	224	226
		<b>422</b>	<b>604</b>	<b>1,344</b>	<b>2,043</b>	<b>2,541</b>	<b>2,899</b>
<b>DENTON, TRINITY (C)</b>							
ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	6,966
CONSERVATION - DENTON	DEMAND REDUCTION [DENTON]	710	1,203	1,572	2,314	3,563	4,711
CONSERVATION, IRRIGATION RESTRICTIONS – DENTON	DEMAND REDUCTION [DENTON]	707	990	1,227	1,687	2,417	2,974
CONSERVATION, WATER LOSS CONTROL - DENTON	DEMAND REDUCTION [DENTON]	131	165	0	0	0	0
DENTON - UNALLOCATED SUPPLY UTILIZATION	INDIRECT REUSE [DENTON]	0	1,501	2,184	3,819	3,922	3,779
DENTON - UNALLOCATED SUPPLY UTILIZATION	LEWISVILLE LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	1,338	1,609	1,884	2,386	2,356	2,250
DENTON - UNALLOCATED SUPPLY UTILIZATION	RAY ROBERTS LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	3,235	3,884	4,502	5,647	5,607	5,408
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	0	1	116	285	365
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	0	2,783	5,589	10,196	13,337
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	0	2	466	1,608	2,103
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	3,207	8,909	11,921
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	0	30	4,241	10,204	12,632
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	4,690	5,877

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6,121 9,352 14,185 29,472 53,757 72,323

**DENTON COUNTY FWSD 1-A, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	210
CONSERVATION - DENTON COUNTY FWSD #1A	DEMAND REDUCTION [DENTON]	72	189	253	278	304	329
CONSERVATION, IRRIGATION RESTRICTIONS – DENTON COUNTY FWSD 1-A	DEMAND REDUCTION [DENTON]	110	195	233	233	233	233
CONSERVATION, WATER LOSS CONTROL - DENTON COUNTY FWSD #1A	DEMAND REDUCTION [DENTON]	18	32	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	12
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	8	13	13	13	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	45	165	168	192	172
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	6	31	48	73	64
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	336	405	360
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	148	487	443	463	383
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	547	579	569
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	213	178
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	216	229	301
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	252	446	323	341	335
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	710	1,190	817	862	846
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	193
		<b>200</b>	<b>1,585</b>	<b>2,818</b>	<b>3,422</b>	<b>3,907</b>	<b>4,185</b>

**DENTON COUNTY FWSD 10, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	63
CONSERVATION - DENTON COUNTY FWSD #10	DEMAND REDUCTION [DENTON]	5	72	120	132	144	157
CONSERVATION – WASTE PROHIBITION, DENTON COUNTY FWSD 10	DEMAND REDUCTION [DENTON]	0	28	37	37	37	37
CONSERVATION, IRRIGATION RESTRICTIONS – DENTON COUNTY FWSD #10	DEMAND REDUCTION [DENTON]	0	92	121	121	121	121
CONSERVATION, WATER LOSS	DEMAND REDUCTION	7	16	0	0	0	0

CONTROL - DENTON COUNTY FWSD #10	[DENTON]							
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	4	3	
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	3	4	3	0	0	
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	11	44	43	56	51	
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	1	8	13	21	19	
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	86	117	108	
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	39	129	114	134	114	
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	376	399	393	
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	61	53	
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	149	158	208	
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	179	304	222	235	232	
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	507	812	561	595	587	
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	133	
		<b>12</b>	<b>948</b>	<b>1,579</b>	<b>1,857</b>	<b>2,082</b>	<b>2,279</b>	
<b>DENTON COUNTY FWSD 7, TRINITY (C)</b>								
ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	58	
CONSERVATION - DENTON COUNTY FWSD #7	DEMAND REDUCTION [DENTON]	15	83	111	122	133	144	
CONSERVATION - WASTE PROHIBITION, DENTON COUNTY FWSD 7	DEMAND REDUCTION [DENTON]	0	33	37	37	37	37	
CONSERVATION, IRRIGATION RESTRICTIONS - DENTON COUNTY FWSD #7	DEMAND REDUCTION [DENTON]	0	101	112	112	112	112	
CONSERVATION, WATER LOSS CONTROL - DENTON COUNTY FWSD #7	DEMAND REDUCTION [DENTON]	17	17	0	0	0	0	
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	3	3	
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	2	3	3	0	0	
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	12	40	40	51	48	
DWU - INDIRECT REUSE	INDIRECT REUSE	0	2	7	12	19	18	

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IMPLEMENTATION	[DENTON]							
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	79	108	100	
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	42	119	105	123	105	
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	346	367	362	
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	57	49	
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	137	145	192	
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	194	280	204	216	213	
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	546	748	516	549	538	
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	122	
		<b>32</b>	<b>1,032</b>	<b>1,457</b>	<b>1,713</b>	<b>1,920</b>	<b>2,101</b>	
<b>FLOWER MOUND, TRINITY (C)</b>								
ALLIANCE DIRECT REUSE	DIRECT REUSE [TARRANT]	0	554	554	554	554	554	
ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	521	
CONSERVATION - FLOWER MOUND	DEMAND REDUCTION [DENTON]	182	295	372	450	536	628	
CONSERVATION, IRRIGATION RESTRICTIONS – FLOWER MOUND	DEMAND REDUCTION [DENTON]	512	629	639	651	666	686	
CONSERVATION, WATER LOSS CONTROL - FLOWER MOUND	DEMAND REDUCTION [DENTON]	95	105	0	0	0	0	
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	16	16	
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	20	31	28	12	9	
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	107	370	381	440	426	
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	15	69	110	166	158	
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	756	923	891	
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	355	1,090	999	1,057	945	
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	1,625	1,768	1,810	
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	487	440	
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	643	699	957	
UTRWD - RALPH HALL RESERVOIR	INDIRECT REUSE	0	875	1,296	959	1,040	1,065	

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AND REUSE	[FANNIN]						
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	2,462	3,452	2,428	2,636	2,691
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	612
		<b>789</b>	<b>5,417</b>	<b>7,873</b>	<b>9,584</b>	<b>11,000</b>	<b>12,409</b>

**FORT WORTH, TRINITY (C)**

ALLIANCE DIRECT REUSE	DIRECT REUSE [TARRANT]	0	62	201	254	299	337
CONSERVATION - FORT WORTH	DEMAND REDUCTION [DENTON]	120	215	301	448	664	927
CONSERVATION, IRRIGATION RESTRICTIONS – FORT WORTH	DEMAND REDUCTION [DENTON]	216	325	467	653	835	1,017
CONSERVATION, WATER LOSS CONTROL - FORT WORTH	DEMAND REDUCTION [DENTON]	683	925	467	435	278	0
FORT WORTH - UNALLOCATED SUPPLY UTILIZATION	TRWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	737	1,371	1,836	1,906	1,716
FORT WORTH - VILLAGE AND MARY CREEK WRF FUTURE DIRECT REUSE	DIRECT REUSE [TARRANT]	0	309	363	459	541	610
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	2,048	3,308	4,256
TRWD - ADDITIONAL CEDAR CREEK AND RICHLAND-CHAMBERS	INDIRECT REUSE [NAVARRO]	0	0	580	628	920	1,034
TRWD - AQUIFER STORAGE AND RECOVERY PILOT	TRINITY AQUIFER ASR [TARRANT]	0	0	52	61	99	127
TRWD - CARRIZO-WILCOX GROUNDWATER	CARRIZO-WILCOX AQUIFER [ANDERSON]	0	0	195	231	372	479
TRWD - CARRIZO-WILCOX GROUNDWATER	CARRIZO-WILCOX AQUIFER [FREESTONE]	0	0	27	33	52	67
TRWD - CARRIZO-WILCOX GROUNDWATER	QUEEN CITY AQUIFER [ANDERSON]	0	0	109	129	208	267
TRWD - CEDAR CREEK WETLANDS	INDIRECT REUSE [HENDERSON]	0	0	577	865	1,656	2,237
TRWD - REUSE FROM TRA CENTRAL WWTP	INDIRECT REUSE [DALLAS]	0	0	310	489	987	1,523
TRWD - TEHUACANA	TEHUACANA LAKE/RESERVOIR [RESERVOIR]	0	0	218	258	415	536
TRWD - UNALLOCATED SUPPLY UTILIZATION	TRWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	79	89	170	340
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	1,440
		<b>1,019</b>	<b>2,573</b>	<b>5,317</b>	<b>8,916</b>	<b>12,710</b>	<b>16,913</b>

**FRISCO, TRINITY (C)**

CONSERVATION - FRISCO	DEMAND REDUCTION [DENTON]	334	604	856	917	1,007	1,102
CONSERVATION, IRRIGATION RESTRICTIONS – FRISCO	DEMAND REDUCTION [DENTON]	551	689	865	875	886	889
CONSERVATION, WATER LOSS CONTROL - FRISCO	DEMAND REDUCTION [DENTON]	92	115	0	0	0	0
FRISCO - ADDITIONAL DIRECT REUSE	DIRECT REUSE [COLLIN]	130	267	398	423	475	454
MARVIN NICHOLS (328) STRATEGY	MARVIN NICHOLS	0	0	0	2,523	3,159	2,813

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FOR NTMWD, TRWD, AND UTRWD	LAKE/RESERVOIR [RESERVOIR]							
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	178	493	651	
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	189	284	172	198	160	
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	1,700	2,755	1,795	2,233	1,975	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	122	244	211	298	283	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	8	175	160	291	346	
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	840	
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	907	1,439	1,797	1,913	
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	952	
		<b>1,107</b>	<b>3,694</b>	<b>6,484</b>	<b>8,693</b>	<b>10,837</b>	<b>12,378</b>	

#### HACKBERRY, TRINITY (C)

CONSERVATION - HACKBERRY	DEMAND REDUCTION [DENTON]	9	16	22	30	40	54	
CONSERVATION – WASTE PROHIBITION, HACKBERRY	DEMAND REDUCTION [DENTON]	3	5	7	8	10	13	
CONSERVATION, IRRIGATION RESTRICTIONS – HACKBERRY	DEMAND REDUCTION [DENTON]	13	18	24	29	36	44	
CONSERVATION, WATER LOSS CONTROL - HACKBERRY	DEMAND REDUCTION [DENTON]	2	3	0	0	0	0	
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	77	117	125	
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	5	18	29	
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	4	7	5	7	7	
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	40	67	55	83	89	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	3	6	6	11	13	
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	4	5	11	15	
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	37	
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	22	44	67	85	
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	42	
		<b>27</b>	<b>89</b>	<b>159</b>	<b>264</b>	<b>400</b>	<b>553</b>	

#### HIGHLAND VILLAGE, TRINITY (C)

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ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	44
CONSERVATION - HIGHLAND VILLAGE	DEMAND REDUCTION [DENTON]	241	323	354	365	378	391
CONSERVATION, IRRIGATION RESTRICTIONS – HIGHLAND VILLAGE	DEMAND REDUCTION [DENTON]	0	107	118	117	117	117
CONSERVATION, WATER LOSS CONTROL - HIGHLAND VILLAGE	DEMAND REDUCTION [DENTON]	19	20	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	3	2
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	1	2	2	0	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	6	26	28	38	36
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	1	5	8	15	13
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	54	81	76
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	20	74	72	93	80
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	237	276	276
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	43	37
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	94	109	146
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	90	175	140	162	163
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	252	464	353	409	414
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	93
		<b>260</b>	<b>820</b>	<b>1,218</b>	<b>1,470</b>	<b>1,724</b>	<b>1,888</b>

**IRRIGATION, DENTON, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	73
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	4
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	19	6	6	6	4	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	42	29	64	62	61	59
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	2	4	12	18	23	22
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	124	128	125

DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	97	190	164	147	132
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	68	61
UTRWD - ADDITIONAL DIRECT REUSE	DIRECT REUSE [DENTON]	0	560	1,121	2,240	2,240	2,240
		<b>63</b>	<b>696</b>	<b>1,393</b>	<b>2,614</b>	<b>2,671</b>	<b>2,716</b>

**JUSTIN, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	28
CONSERVATION - JUSTIN	DEMAND REDUCTION [DENTON]	2	8	20	28	34	39
CONSERVATION, WATER LOSS CONTROL - JUSTIN	DEMAND REDUCTION [DENTON]	8	12	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	2	1
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	1	2	1	0	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	4	20	19	25	22
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	0	4	6	10	8
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	38	53	48
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	12	57	51	60	51
JUSTIN - NEW WELL(S) IN TRINITY AQUIFER	TRINITY AQUIFER [DENTON]	244	244	244	244	244	244
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	166	180	175
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	28	24
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	66	71	93
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	54	134	98	106	103
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	153	357	249	267	263
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	59
		<b>254</b>	<b>488</b>	<b>838</b>	<b>966</b>	<b>1,080</b>	<b>1,158</b>

**KRUM, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	48
CONSERVATION - KRUM	DEMAND REDUCTION [DENTON]	21	37	51	68	93	125
CONSERVATION, IRRIGATION RESTRICTIONS - KRUM	DEMAND REDUCTION [DENTON]	31	42	51	62	74	88

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CONSERVATION, WATER LOSS CONTROL - KRUM	DEMAND REDUCTION [DENTON]	6	7	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	2	3
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	0	1	2	0	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	3	14	21	35	39
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	0	3	6	13	14
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	42	74	82
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	8	43	56	84	87
KRUM - NEW WELL(S) IN TRINITY AQUIFER	TRINITY AQUIFER [DENTON]	202	202	202	202	202	202
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	183	251	299
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	39	40
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	72	99	158
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	39	102	108	148	176
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	109	273	274	374	445
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	101

**260      447      740      1,096      1,488      1,907**

**LAKE CITIES MUNICIPAL UTILITY AUTHORITY, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	57
CONSERVATION - LAKE CITIES MUA	DEMAND REDUCTION [DENTON]	10	22	35	46	56	66
CONSERVATION, WATER LOSS CONTROL - LAKE CITIES MUA	DEMAND REDUCTION [DENTON]	11	12	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	3	3
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	2	3	3	0	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	11	39	40	51	46
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	2	7	12	19	17
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	80	106	97
DWU - LAKE PALESTINE	PALESTINE	0	37	114	105	121	103

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	LAKE/RESERVOIR [RESERVOIR]							
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	347	362	353	
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	56	48	
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	137	143	187	
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	171	268	205	213	208	
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	481	715	517	539	523	
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	119	
		<b>21</b>	<b>738</b>	<b>1,181</b>	<b>1,492</b>	<b>1,669</b>	<b>1,827</b>	

**LEWISVILLE, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	1,547	
CONSERVATION - LEWISVILLE	DEMAND REDUCTION [DENTON]	191	316	441	594	771	874	
CONSERVATION, IRRIGATION RESTRICTIONS – LEWISVILLE	DEMAND REDUCTION [DENTON]	560	695	789	897	1,002	1,002	
CONSERVATION, WATER LOSS CONTROL - LEWISVILLE	DEMAND REDUCTION [DENTON]	100	111	0	0	0	0	
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	98	81	
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	68	89	90	0	0	
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	352	1,074	1,237	1,448	1,260	
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	49	199	357	548	467	
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	2,459	3,040	2,646	
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	1,183	3,159	3,250	3,483	2,805	
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	1,601	1,305	
		<b>851</b>	<b>2,774</b>	<b>5,751</b>	<b>8,884</b>	<b>11,991</b>	<b>11,987</b>	

**LITTLE ELM, TRINITY (C)**

CONSERVATION - LITTLE ELM	DEMAND REDUCTION [DENTON]	59	78	94	109	123	139	
CONSERVATION, IRRIGATION RESTRICTIONS – LITTLE ELM	DEMAND REDUCTION [DENTON]	122	137	137	136	136	136	
CONSERVATION, WATER LOSS CONTROL - LITTLE ELM	DEMAND REDUCTION [DENTON]	20	23	0	0	0	0	
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	432	516	455	

NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	31	80	105
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	48	53	30	32	26
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	437	515	307	364	318
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	31	46	36	49	46
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	2	33	27	48	56
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	136
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	170	247	294	309
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	154
		<b>201</b>	<b>756</b>	<b>1,048</b>	<b>1,355</b>	<b>1,642</b>	<b>1,880</b>

**MANUFACTURING, DENTON, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	27
DENTON - UNALLOCATED SUPPLY UTILIZATION	INDIRECT REUSE [DENTON]	0	14	21	25	17	13
DENTON - UNALLOCATED SUPPLY UTILIZATION	LEWISVILLE LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	15	18	15	10	8
DENTON - UNALLOCATED SUPPLY UTILIZATION	RAY ROBERTS LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	34	43	36	24	19
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	2
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	1	1	1	1	1	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	0	28	37	47	49
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	0	0	3	7	7
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	24	43	46
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	2	5	32	49	49
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	12	13	13
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	0	1	1
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	0

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NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	4	5	3	3	3
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	0	0	0	0	0
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	0	0	0	0	0
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	1
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	1	2	2	2
TRWD - ADDITIONAL CEDAR CREEK AND RICHLAND-CHAMBERS	INDIRECT REUSE [NAVARRO]	0	2	1	2	1	2
TRWD - AQUIFER STORAGE AND RECOVERY PILOT	TRINITY AQUIFER ASR [TARRANT]	0	0	0	0	0	0
TRWD - CARRIZO-WILCOX GROUNDWATER	CARRIZO-WILCOX AQUIFER [ANDERSON]	0	0	1	1	1	1
TRWD - CARRIZO-WILCOX GROUNDWATER	CARRIZO-WILCOX AQUIFER [FREESTONE]	0	0	0	0	0	0
TRWD - CARRIZO-WILCOX GROUNDWATER	QUEEN CITY AQUIFER [ANDERSON]	0	0	0	0	0	0
TRWD - CEDAR CREEK WETLANDS	INDIRECT REUSE [HENDERSON]	0	1	2	1	2	2
TRWD - REUSE FROM TRA CENTRAL WWTP	INDIRECT REUSE [DALLAS]	0	0	1	1	1	1
TRWD - TEHUACANA	TEHUACANA LAKE/RESERVOIR [RESERVOIR]	0	0	1	0	0	0
TRWD - UNALLOCATED SUPPLY UTILIZATION	TRWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	0
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	23	23
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	2	2	3
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	3	5	4	4	4
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	7	14	10	10	9
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	4
		<b>1</b>	<b>83</b>	<b>147</b>	<b>211</b>	<b>261</b>	<b>289</b>

**MINING, DENTON, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	96
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	4	5
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	0	1	2	0	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	1	17	34	63	78
DWU - INDIRECT REUSE	INDIRECT REUSE	0	0	3	10	24	29

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IMPLEMENTATION	[DENTON]							
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	66	133	164	
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	4	49	88	153	174	
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	289	455	597	
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	70	81	
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	114	180	316	
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	17	114	171	267	351	
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	49	305	433	678	889	
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	202	
		<b>0</b>	<b>71</b>	<b>489</b>	<b>1,207</b>	<b>2,027</b>	<b>2,982</b>	

#### MOUNTAIN SPRINGS WSC, TRINITY (C)

CONSERVATION - MOUNTAIN SPRING WSC	DEMAND REDUCTION [DENTON]	0	0	0	0	1	1	
CONSERVATION, IRRIGATION RESTRICTIONS – MOUNTAIN SPRINGS WSC	DEMAND REDUCTION [DENTON]	0	0	0	0	0	0	
CONSERVATION, WATER LOSS CONTROL - MOUNTAIN SPRING WSC	DEMAND REDUCTION [DENTON]	0	0	0	0	0	0	
GAINESVILLE - UNALLOCATED SURFACE WATER SUPPLY UTILIZATION	HUBERT H MOSS LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	1	4	
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	0	0	0	3	4	
		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>9</b>	

#### MUSTANG SUD, TRINITY (C)

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	435	
CONSERVATION - MUSTANG SUD	DEMAND REDUCTION [DENTON]	21	75	152	254	381	535	
CONSERVATION, WATER LOSS CONTROL - MUSTANG SUD	DEMAND REDUCTION [DENTON]	23	42	0	0	0	0	
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	21	23	
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	6	13	14	0	0	
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	32	153	201	323	355	
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	4	28	58	122	132	

DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	399	677	745
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	104	447	527	775	790
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	1,737	2,308	2,711
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	356	367
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	686	913	1,435
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	476	1,054	1,024	1,358	1,595
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	1,339	2,806	2,595	3,442	4,034
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	917
		<b>44</b>	<b>2,078</b>	<b>4,653</b>	<b>7,495</b>	<b>10,676</b>	<b>14,074</b>

**NORTHLAKE, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	131
CONSERVATION - NORTHLAKE	DEMAND REDUCTION [DENTON]	6	57	108	179	265	302
CONSERVATION, IRRIGATION RESTRICTIONS – NORTHLAKE	DEMAND REDUCTION [DENTON]	0	119	186	258	330	330
CONSERVATION, WATER LOSS CONTROL - NORTHLAKE	DEMAND REDUCTION [DENTON]	10	22	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	8	7
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	2	4	5	0	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	11	53	71	116	106
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	2	10	20	44	39
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	141	243	224
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	39	154	186	279	237
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	909	1,269	1,247
TRWD - ADDITIONAL CEDAR CREEK AND RICHLAND-CHAMBERS	INDIRECT REUSE [NAVARRO]	0	51	95	90	121	105
TRWD - AQUIFER STORAGE AND RECOVERY PILOT	TRINITY AQUIFER ASR [TARRANT]	0	2	9	9	13	13
TRWD - CARRIZO-WILCOX GROUNDWATER	CARRIZO-WILCOX AQUIFER [ANDERSON]	0	0	32	32	50	49
TRWD - CARRIZO-WILCOX GROUNDWATER	CARRIZO-WILCOX AQUIFER [FREESTONE]	0	0	5	5	7	7

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TRWD - CARRIZO-WILCOX GROUNDWATER	QUEEN CITY AQUIFER [ANDERSON]	0	0	18	19	27	27
TRWD - CEDAR CREEK WETLANDS	INDIRECT REUSE [HENDERSON]	0	32	95	125	219	227
TRWD - REUSE FROM TRA CENTRAL WWTP	INDIRECT REUSE [DALLAS]	0	17	51	70	131	155
TRWD - TEHUACANA	TEHUACANA LAKE/RESERVOIR [RESERVOIR]	0	0	36	37	55	54
TRWD - UNALLOCATED SUPPLY UTILIZATION	TRWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	3	5	7	14	23
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	128	110
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	243	328	431
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	179	362	362	489	479
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	505	963	919	1,238	1,213
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	422

**16    1,041    2,186    3,687    5,374    5,938**

**PALOMA CREEK NORTH, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	39
CONSERVATION - PALOMA CREEK NORTH	DEMAND REDUCTION [DENTON]	6	53	75	83	90	98
CONSERVATION – WASTE PROHIBITION, PALOMA CREEK NORTH	DEMAND REDUCTION [DENTON]	0	21	23	23	23	23
CONSERVATION, IRRIGATION RESTRICTIONS – PALOMA CREEK NORTH	DEMAND REDUCTION [DENTON]	0	68	75	75	75	75
CONSERVATION, WATER LOSS CONTROL - PALOMA CREEK NORTH	DEMAND REDUCTION [DENTON]	9	12	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	2	2
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	2	2	2	0	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	8	27	27	35	32
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	1	5	8	13	12
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	54	73	67
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	29	81	71	84	71
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	235	249	245
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	38	33

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UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	93	98	130
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	132	190	138	146	144
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	372	508	350	372	367
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	83
		<b>15</b>	<b>698</b>	<b>986</b>	<b>1,159</b>	<b>1,298</b>	<b>1,421</b>
<b>PALOMA CREEK SOUTH, TRINITY (C)</b>							
ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	20
CONSERVATION - PALOMA CREEK SOUTH	DEMAND REDUCTION [DENTON]	3	25	35	39	42	46
CONSERVATION - WASTE PROHIBITION, PALOMA CREEK SOUTH	DEMAND REDUCTION [DENTON]	0	12	13	13	13	13
CONSERVATION, IRRIGATION RESTRICTIONS - PALOMA CREEK SOUTH	DEMAND REDUCTION [DENTON]	0	34	39	39	39	39
CONSERVATION, WATER LOSS CONTROL - PALOMA CREEK SOUTH	DEMAND REDUCTION [DENTON]	4	6	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	1	1
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	1	1	1	0	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	4	14	14	18	16
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	1	3	4	7	6
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	27	37	34
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	15	41	36	42	36
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	119	126	125
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	20	17
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	47	50	66
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	67	96	70	74	73
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	188	257	178	189	186
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	42
		<b>7</b>	<b>353</b>	<b>499</b>	<b>587</b>	<b>658</b>	<b>720</b>
<b>PILOT POINT, TRINITY (C)</b>							

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ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	95
CONSERVATION - PILOT POINT	DEMAND REDUCTION [DENTON]	3	7	16	31	51	80
CONSERVATION, WATER LOSS CONTROL - PILOT POINT	DEMAND REDUCTION [DENTON]	4	5	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	4	5
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	1	2	3	0	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	4	26	37	65	78
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	1	5	11	24	29
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	74	135	162
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	16	75	98	155	172
GTUA - REGIONAL WATER SYSTEM	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	494	707	908	1,256	1,256
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	323	462	589
PILOT POINT - NEW WELL(S) IN TRINITY AQUIFER	TRINITY AQUIFER [DENTON]	313	313	313	313	313	313
SHERMAN - UNALLOCATED SUPPLY UTILIZATION	TEXOMA LAKE/RESERVOIR NON-SYSTEM PORTION [RESERVOIR]	0	481	549	348	0	0
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	71	80
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	128	183	312
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	73	178	191	272	347
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	206	474	482	688	875
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	199
		<b>320</b>	<b>1,601</b>	<b>2,345</b>	<b>2,947</b>	<b>3,679</b>	<b>4,592</b>
<b>PLANO, TRINITY (C)</b>							
CONSERVATION - PLANO	DEMAND REDUCTION [DENTON]	28	39	58	52	57	65
CONSERVATION, IRRIGATION RESTRICTIONS - PLANO	DEMAND REDUCTION [DENTON]	58	59	60	60	60	60
CONSERVATION, WATER LOSS CONTROL - PLANO	DEMAND REDUCTION [DENTON]	10	10	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	183	225	198

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NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	13	35	46
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	18	21	13	14	11
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	166	202	130	159	139
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	12	18	15	21	20
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	1	13	12	21	24
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	59
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	66	105	128	135
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	67
		<b>96</b>	<b>305</b>	<b>438</b>	<b>583</b>	<b>720</b>	<b>824</b>
<b>PONDER, TRINITY (C)</b>							
ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	35
CONSERVATION - PONDER	DEMAND REDUCTION [DENTON]	1	3	7	12	18	29
CONSERVATION, WATER LOSS CONTROL - PONDER	DEMAND REDUCTION [DENTON]	2	3	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	2	2
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	1	1	1	0	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	3	13	17	27	29
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	0	2	5	10	11
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	33	56	60
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	9	37	43	64	64
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	143	191	219
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	29	30
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	57	75	116
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	42	88	84	112	129
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	116	233	214	284	323
WRIGHT PATMAN REALLOCATION FOR	WRIGHT PATMAN	0	0	0	0	0	74

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NTMWD, TRWD, AND UTRWD	LAKE/RESERVOIR [RESERVOIR]						
		<b>3</b>	<b>177</b>	<b>381</b>	<b>609</b>	<b>868</b>	<b>1,121</b>
<b>PROSPER, TRINITY (C)</b>							
CONSERVATION - PROSPER	DEMAND REDUCTION [DENTON]	3	20	44	79	99	111
CONSERVATION, IRRIGATION RESTRICTIONS – PROSPER	DEMAND REDUCTION [DENTON]	9	43	77	115	121	121
CONSERVATION, WATER LOSS CONTROL - PROSPER	DEMAND REDUCTION [DENTON]	1	7	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	648	774	584
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	46	121	135
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	21	54	44	48	33
NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	184	522	461	547	410
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	13	46	54	73	59
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	1	33	41	71	72
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF- RIVER [OKLAHOMA]	0	0	0	0	0	174
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	172	370	440	397
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	198
		<b>13</b>	<b>289</b>	<b>948</b>	<b>1,858</b>	<b>2,294</b>	<b>2,294</b>
<b>PROVIDENCE VILLAGE WCID, TRINITY (C)</b>							
ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	18
CONSERVATION - PROVIDENCE VILLAGE WCID	DEMAND REDUCTION [DENTON]	3	6	9	12	15	19
CONSERVATION, WATER LOSS CONTROL - PROVIDENCE VILLAGE WCID	DEMAND REDUCTION [DENTON]	5	5	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS- LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	1	1
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	1	1	1	0	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	4	13	12	16	14
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	1	2	4	6	5
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	25	33	30
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR	0	14	39	33	38	32

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	[RESERVOIR]							
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	109	114	111	
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	18	15	
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	43	45	59	
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	66	91	64	67	65	
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	185	243	164	169	166	
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	37	
		<b>8</b>	<b>282</b>	<b>398</b>	<b>467</b>	<b>522</b>	<b>572</b>	

**ROANOKE, TRINITY (C)**

ALLIANCE DIRECT REUSE	DIRECT REUSE [TARRANT]	0	224	448	448	448	448	
CONSERVATION - ROANOKE	DEMAND REDUCTION [DENTON]	8	36	58	70	81	92	
CONSERVATION – WASTE PROHIBITION, ROANOKE	DEMAND REDUCTION [DENTON]	0	19	27	27	27	27	
CONSERVATION, IRRIGATION RESTRICTIONS – ROANOKE	DEMAND REDUCTION [DENTON]	0	81	107	107	107	107	
CONSERVATION, WATER LOSS CONTROL - ROANOKE	DEMAND REDUCTION [DENTON]	11	14	0	0	0	0	
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	140	204	227	
TRWD - ADDITIONAL CEDAR CREEK AND RICHLAND-CHAMBERS	INDIRECT REUSE [NAVARRO]	0	0	44	43	57	55	
TRWD - AQUIFER STORAGE AND RECOVERY PILOT	TRINITY AQUIFER ASR [TARRANT]	0	0	4	4	6	7	
TRWD - CARRIZO-WILCOX GROUNDWATER	CARRIZO-WILCOX AQUIFER [ANDERSON]	0	0	15	16	23	25	
TRWD - CARRIZO-WILCOX GROUNDWATER	CARRIZO-WILCOX AQUIFER [FREESTONE]	0	0	2	2	3	4	
TRWD - CARRIZO-WILCOX GROUNDWATER	QUEEN CITY AQUIFER [ANDERSON]	0	0	8	9	13	14	
TRWD - CEDAR CREEK WETLANDS	INDIRECT REUSE [HENDERSON]	0	0	44	59	102	119	
TRWD - REUSE FROM TRA CENTRAL WWTP	INDIRECT REUSE [DALLAS]	0	0	23	34	61	81	
TRWD - TEHUACANA	TEHUACANA LAKE/RESERVOIR [RESERVOIR]	0	0	16	18	26	29	
TRWD - UNALLOCATED SUPPLY UTILIZATION	TRWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	5	10	8	12	20	
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	77	
		<b>19</b>	<b>379</b>	<b>806</b>	<b>985</b>	<b>1,170</b>	<b>1,332</b>	

**SANGER, TRINITY (C)**

ANRA-COL - LAKE COLUMBIA	COLUMBIA	0	0	0	0	0	46	
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	LAKE/RESERVOIR [RESERVOIR]						
CONSERVATION - SANGER	DEMAND REDUCTION [DENTON]	4	11	21	32	46	65
CONSERVATION, IRRIGATION RESTRICTIONS – SANGER	DEMAND REDUCTION [DENTON]	34	41	50	60	72	86
CONSERVATION, WATER LOSS CONTROL - SANGER	DEMAND REDUCTION [DENTON]	6	7	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS- LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	2	2
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	0	0	1	1	0	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	3	13	20	33	38
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	0	2	6	13	14
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	39	70	79
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	7	39	52	80	84
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	170	239	288
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	37	39
UTRWD - ADDITIONAL INDIRECT REUSE	INDIRECT REUSE [DENTON]	0	0	0	67	95	152
UTRWD - RALPH HALL RESERVOIR AND REUSE	INDIRECT REUSE [FANNIN]	0	33	91	100	141	169
UTRWD - RALPH HALL RESERVOIR AND REUSE	RALPH HALL LAKE/RESERVOIR [RESERVOIR]	0	91	243	254	358	430
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	97

**44      193      460      801      1,186      1,589**

**SOUTHLAKE, TRINITY (C)**

CONSERVATION - SOUTHLAKE	DEMAND REDUCTION [DENTON]	4	11	15	24	30	45
CONSERVATION, IRRIGATION RESTRICTIONS – SOUTHLAKE	DEMAND REDUCTION [DENTON]	13	16	20	25	31	37
CONSERVATION, WATER LOSS CONTROL - SOUTHLAKE	DEMAND REDUCTION [DENTON]	2	3	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	85	121	145
TRWD - ADDITIONAL CEDAR CREEK AND RICHLAND-CHAMBERS	INDIRECT REUSE [NAVARRO]	0	17	31	26	34	35
TRWD - AQUIFER STORAGE AND RECOVERY PILOT	TRINITY AQUIFER ASR [TARRANT]	0	1	3	3	4	4
TRWD - CARRIZO-WILCOX GROUNDWATER	CARRIZO-WILCOX AQUIFER [ANDERSON]	0	0	11	10	14	16
TRWD - CARRIZO-WILCOX GROUNDWATER	CARRIZO-WILCOX AQUIFER [FREESTONE]	0	0	1	1	2	2

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TRWD - CARRIZO-WILCOX GROUNDWATER	QUEEN CITY AQUIFER [ANDERSON]	0	0	6	5	8	9
TRWD - CEDAR CREEK WETLANDS	INDIRECT REUSE [HENDERSON]	0	10	31	36	61	76
TRWD - REUSE FROM TRA CENTRAL WWTP	INDIRECT REUSE [DALLAS]	0	5	17	20	36	52
TRWD - TEHUACANA	TEHUACANA LAKE/RESERVOIR [RESERVOIR]	0	0	12	11	15	18
TRWD - UNALLOCATED SUPPLY UTILIZATION	TRWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	1	2	2	4	8
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	49
		<b>19</b>	<b>64</b>	<b>149</b>	<b>248</b>	<b>360</b>	<b>496</b>
<b>STEAM ELECTRIC POWER, DENTON, TRINITY (C)</b>							
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	0	0	0	0	0	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	0	0	0	0	0	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	0	0	0
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0
		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>THE COLONY, TRINITY (C)</b>							
ANRA-COL - LAKE COLUMBIA	COLUMBIA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	274
CONSERVATION - THE COLONY	DEMAND REDUCTION [DENTON]	84	132	169	214	247	280
CONSERVATION, WATER LOSS CONTROL - THE COLONY	DEMAND REDUCTION [DENTON]	40	43	0	0	0	0
DWU - CONSERVATION SURPLUS REALLOCATION	RAY ROBERTS-LEWISVILLE-GRAPEVINE LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	13
DWU - CONSERVATION SURPLUS REALLOCATION	TAWAKONI LAKE/RESERVOIR [RESERVOIR]	39	14	18	17	15	0
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [COLLIN]	89	77	213	237	232	224
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [DENTON]	4	11	39	69	88	83
DWU - INDIRECT REUSE IMPLEMENTATION	INDIRECT REUSE [ELLIS]	0	0	0	472	487	469
DWU - LAKE PALESTINE	PALESTINE LAKE/RESERVOIR [RESERVOIR]	0	259	626	624	557	497
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	230	275	239
NTMWD - ADDITIONAL LAVON WATERSHED REUSE	INDIRECT REUSE [COLLIN]	0	0	0	16	43	55
NTMWD - ADDITIONAL MEASURES TO ACCESS FULL LAVON YIELD	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	25	28	16	17	14

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NTMWD - BOIS D'ARC LAKE	BOIS D ARC LAKE/RESERVOIR [RESERVOIR]	0	223	276	163	193	168
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [COLLIN]	0	16	24	19	26	24
NTMWD - EXPANDED WETLAND REUSE	INDIRECT REUSE [KAUFMAN]	0	1	17	15	25	29
NTMWD - OKLAHOMA	OKLAHOMA RUN-OF-RIVER [OKLAHOMA]	0	0	0	0	0	71
NTMWD - TEXOMA BLENDING	NORTH TEXAS MWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	91	132	157	163
UNM-ROR-NECHES RUN OF RIVER	NECHES RUN-OF-RIVER [ANDERSON]	0	0	0	0	256	231
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	81
		<b>256</b>	<b>801</b>	<b>1,501</b>	<b>2,224</b>	<b>2,618</b>	<b>2,915</b>

**TROPHY CLUB MUD 1, TRINITY (C)**

CONSERVATION - TROPHY CLUB MUD 1	DEMAND REDUCTION [DENTON]	71	117	133	149	165	181
CONSERVATION, IRRIGATION RESTRICTIONS – TROPHY CLUB MUD 1	DEMAND REDUCTION [DENTON]	146	145	144	144	144	144
CONSERVATION, WATER LOSS CONTROL - TROPHY CLUB MUD 1	DEMAND REDUCTION [DENTON]	24	24	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	410	481	478
TRWD - ADDITIONAL CEDAR CREEK AND RICHLAND-CHAMBERS	INDIRECT REUSE [NAVARRO]	0	109	181	126	134	116
TRWD - AQUIFER STORAGE AND RECOVERY PILOT	TRINITY AQUIFER ASR [TARRANT]	0	4	16	12	14	14
TRWD - CARRIZO-WILCOX GROUNDWATER	CARRIZO-WILCOX AQUIFER [ANDERSON]	0	0	61	45	54	54
TRWD - CARRIZO-WILCOX GROUNDWATER	CARRIZO-WILCOX AQUIFER [FREESTONE]	0	0	9	6	8	8
TRWD - CARRIZO-WILCOX GROUNDWATER	QUEEN CITY AQUIFER [ANDERSON]	0	0	33	27	30	29
TRWD - CEDAR CREEK WETLANDS	INDIRECT REUSE [HENDERSON]	0	68	179	173	241	251
TRWD - REUSE FROM TRA CENTRAL WWTP	INDIRECT REUSE [DALLAS]	0	36	96	98	143	171
TRWD - TEHUACANA	TEHUACANA LAKE/RESERVOIR [RESERVOIR]	0	0	68	52	60	60
TRWD - UNALLOCATED SUPPLY UTILIZATION	TRWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	5	10	10	15	25
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	162
		<b>241</b>	<b>508</b>	<b>930</b>	<b>1,252</b>	<b>1,489</b>	<b>1,693</b>

**WESTLAKE, TRINITY (C)**

ALLIANCE DIRECT REUSE	DIRECT REUSE [TARRANT]	0	5	13	21	27	33
CONSERVATION - WESTLAKE	DEMAND REDUCTION [DENTON]	0	0	1	1	2	2

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CONSERVATION – WASTE PROHIBITION, WESTLAKE	DEMAND REDUCTION [DENTON]	0	0	1	1	1	1
CONSERVATION, IRRIGATION RESTRICTIONS – WESTLAKE	DEMAND REDUCTION [DENTON]	0	1	2	2	2	3
CONSERVATION, WATER LOSS CONTROL - WESTLAKE	DEMAND REDUCTION [DENTON]	0	0	0	0	0	0
MARVIN NICHOLS (328) STRATEGY FOR NTMWD, TRWD, AND UTRWD	MARVIN NICHOLS LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0
TRWD - ADDITIONAL CEDAR CREEK AND RICHLAND-CHAMBERS	INDIRECT REUSE [NAVARRO]	0	0	0	0	0	0
TRWD - AQUIFER STORAGE AND RECOVERY PILOT	TRINITY AQUIFER ASR [TARRANT]	0	0	0	0	0	0
TRWD - CARRIZO-WILCOX GROUNDWATER	CARRIZO-WILCOX AQUIFER [ANDERSON]	0	0	0	0	0	0
TRWD - CARRIZO-WILCOX GROUNDWATER	CARRIZO-WILCOX AQUIFER [FREESTONE]	0	0	0	0	0	0
TRWD - CARRIZO-WILCOX GROUNDWATER	QUEEN CITY AQUIFER [ANDERSON]	0	0	0	0	0	0
TRWD - CEDAR CREEK WETLANDS	INDIRECT REUSE [HENDERSON]	0	0	0	0	0	0
TRWD - REUSE FROM TRA CENTRAL WWTP	INDIRECT REUSE [DALLAS]	0	0	0	0	0	0
TRWD - TEHUACANA	TEHUACANA LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0
TRWD - UNALLOCATED SUPPLY UTILIZATION	TRWD LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	0
WRIGHT PATMAN REALLOCATION FOR NTMWD, TRWD, AND UTRWD	WRIGHT PATMAN LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	0
		<b>0</b>	<b>6</b>	<b>17</b>	<b>25</b>	<b>32</b>	<b>39</b>
<b>Sum of Projected Water Management Strategies (acre-feet)</b>		<b>15,630</b>	<b>49,563</b>	<b>85,464</b>	<b>132,798</b>	<b>182,719</b>	<b>223,944</b>