GATEWAY GROUNDWATER CONSERVATION DISTRICT

MANAGEMENT PLAN

DISTRICT MISSION

The mission of the Gateway Groundwater Conservation District is to manage, protect, and conserve the groundwater resources of the District for the citizens, economy, and environment of the District; while protecting personal property rights, and promoting the constructive and beneficial uses of the available groundwater in the District.

STATEMENT OF GUIDING PRINCIPLES

The District recognizes the vital importance of groundwater resources in the region. The District is committed to the following principles, which we believe will maximize the benefits of these water resources for the citizens of the District. The goals of the Management Plan are consistent with those of the Region A, Region B, and the Region O Water Plans.

1. Citizens of the District should be benefited economically and aesthetically by the natural resources of the District.
2. These natural resources should be preserved for present and future generations.
3. A better understanding of the amount of available groundwater, the quality of the groundwater, and factors affecting the sustainable use of the groundwater will be necessary to achieve the District's mission.
4. Landowner property rights should be honored, and landowners will be partners with the District in managing and protecting groundwater resources. Groundwater resources should be managed by local interest.
5. All citizens will be treated equally, without preference or prejudice.
6. The District will coordinate with the Regional Water Planning Groups, other affected water planning groups, private or public water supply entities, and State water management agencies.
7. The District does not wish to become a tax burden on the citizens. The water resources should not be over-managed so as to become an impediment to the beneficial uses of groundwater.

GENERAL DESCRIPTION

The District was created by the Citizens of Hardeman and Foard Counties through election on February 1, 2001. The original name of the District was Tri-county Groundwater Conservation District, because the District anticipated including at least part of Wilbarger County in the future. Since that time, the citizens of Childress and Cottle Counties have elected to join the District, and the new name of Gateway Groundwater Conservation District has been adopted. Motley County joined the District after approval in an election on 3 November 2009. The District has a ten member Board of Directors, with two directors for each of the four counties. Current officers

are Johnny Kajs – President, and Jason Poole – Secretary. Other members are H. L. Ayers, Weldon Tabor, Brent Whitaker, Bill Haseloff, Bob Biddy, Todd Smith, William Luckett, and Marisue B. Potts-Powell.

The District comprises an area of 3967 square miles, containing all of Cottle, Foard, Hardeman & Motley counties, and approximately 94% of Childress County. These counties are located in the northern low rolling plains area of Texas. Much of the area is rough rangeland not suitable for cultivated crops. Cropland production is limited by low rainfall (an average of about 23 inches annually) and low water infiltration for the heavy clay soils in large parts of the District. The District is within the Red River Watershed. The topography of the Foard and Hardeman County area consists of level to rolling plains farmland in the eastern parts of these counties to the rough, juniper covered hills of the Blaine Escarpment in western Foard and Hardeman Counties. The ground surface elevation generally slopes downward from west to east. The highest land surface elevations are in Motley County, located above the "Caprock" of the Llano Estacado plateau. There are areas of cultivation in the northwest part of Motley County, with smaller areas scattered throughout the county. Cottle, Foard and Motley Counties have the largest percentages of rough land suitable only for range land (approximately 70%), while only about 40% of Childress and Hardeman Counties is restricted to rangeland.

The economy is dominated by agriculture; primarily beef cattle, wheat and cotton production. Sport hunting has increased significantly in recent years, and has been a boost to the otherwise generally depressed agricultural economy. Land leases to power companies for possible wind energy development has been another recent source of income for landowners. A slow but steady decline in population for the counties in the District and a slight decline in irrigation water use indicates that future water use demand is unlikely to increase. However, as water shortages increase in other areas, there may be potential for District landowners to sell water outside the District.

About 75% of the groundwater use in the District is for agriculture. Compared to other groundwater districts, the groundwater use and economic impact of groundwater use in Gateway Groundwater Conservation District is small.

Gateway GCD is located within the State designated Groundwater Management Area 6. Gateway GCD coordinates with and participates in planning meetings of the Groundwater Management Area.

Gateway GCD is located within the State designated Regional Water Planning Groups A (Childress County), B (Cottle, Foard & Hardeman Counties), and O (Motley County).

GROUNDWATER RESOURCES

The District has two significant groundwater sources: the Blaine Aquifer in the western parts of Foard County and Hardeman County & the eastern parts of Cottle County and Childress County; and the Seymour Aquifer located in eastern Hardeman County, northeastern Foard County, and northern Motley County. There is a limited source of groundwater from the Ogallala & Dockum Aquifers in southwestern Motley County.

The geologic and hydrologic character of the Seymour Aquifer is quite variable. Typically, wells are 30 to 60 feet deep and are completed in the lower part of the formation, which consists of sand and gravel. Well yields average 270 gallons per minute and can be as high as 1300 gallons per minute. Saturated thickness is typically between 20 and 40 feet.

SEYMOUR AQUIFER

The Seymour Aquifer is frequently disconnected hydraulically from one area to another. Since it is an alluvial aquifer, porosity and continuity is quite variable. Artificial recharge by pumping would probably not be an efficient way to store water in this aquifer, except in areas where the formation is fairly uniform. However, there may be effective ways to increase recharge from rainwater. Furrow diking is an experimental farming method used to increase soil infiltration into the root zone of cultivated crops. It creates small water pockets in the furrows after rainfall and reduces runoff. This method should also increase infiltration into the shallow Seymour Aquifer, especially in the lighter soils. Other methods may be building small berms to trap runoff water in shallow ponds to allow more time for infiltration. Mesquite is a costly invader in the rangelands of the District. Brush control to remove or kill mesquite will increase groundwater recharge, because the large amount of deep soil moisture taken by mesquite would be reduced.

The water quality in the Seymour aquifer is variable. The dissolved solids content varies from about 50 milligrams per liter to about 300 mg/l. Dissolved solids are typically lower for the more prolific wells in the high infiltration rate sands of the major recharge and irrigation areas. Therefore, the dissolved solid concentrations are normally not a problem for irrigation or for public supplies. However, nitrate levels often exceed the State standard of 10 mg/l recommended for public water supplies. These high nitrate concentrations are the result of leaching of natural soil nitrogen and nitrogen fertilizers from the land above the Seymour Aquifer.

BLAINE AQUIFER

The Blaine Aquifer consists of water stored in cavities of gypsum and limestone rock. This aquifer is typically encountered about 100 to 150 feet below the ground surface and has a saturated thickness less than 300 feet. Recharge is via open cavities and infiltration.

The Blaine Aquifer water is high in dissolved solids, typically about 3000 mg/l. This salinity is too high for public water supply use. However, it can and has been used to irrigate cotton. Local farmers report that it has been used to irrigate cotton fields since the 1950’s without significant problems due to salinity buildup in the soil. The high solids results from the natural dissolving of the gypsum and limestone rock of the aquifer, therefore there are no feasible methods to reduce the dissolved solids levels.

OGALLALA AQUIFER

The Ogallala Aquifer is present in the southwest corner of Motley County. The formation thickness at the western edge of the county is approximately 100 feet. The formation thins rapidly to the east, and does not reach the North-South Texas 70 Highway. The maximum saturated thickness is about 30 feet, in the western portion.
The sediments are primarily sands with silt and clay. A gravel conglomerate is often present at the base. The formation is highly eroded and the topography is not suitable for wide spread irrigation activities. Water quality is generally good, Reported water production rates are generally less than 300 GPM.

DOCKUM GROUP AQUIFERS

The Dockum Aquifer underlies the Ogallala Aquifer and extends farther to the east where it is exposed on the surface. The sediments are primarily sandstones, conglomerates and sandy shales. Irrigation wells completed in the Dockum Group formations have had yields as high as 700 GPM in the past. Current yields are generally lower. Water quality is good to fair.

MANAGED AVAILABLE GROUNDWATER - Appendix A**,** TWDB Letter, December 9, 2011, Re: Modeled available groundwater estimates for the Blaine, Dockum, Ogallala, and Seymour aquifers in GMA 6.

AMOUNT OF GROUNDWATER BEING USED – Appendix B, Estimated Historical Groundwater Use And State Water Plan Datasets, July 7, 2015, TWDB

RECHARGE FROM PRECIPITATION - Appendix C, GAM Run 14-013, April 10, 2015, Gateway Groundwater Conservation District Management Plan.

DISCHARGE FROM THE AQUIFERS TO SPRINGS, LAKES & STREAMS – Appendix C, GAM Run 14-013, April 10, 2015, Gateway Groundwater Conservation District Management Plan

FLOW INTO THE DISTRICT AQUIFERS – Appendix C, GAM Run 14-013, April 10, 2015, Gateway Groundwater Conservation District Management Plan

FLOW OUT OF THE DISTRICTAQUIFERS – Appendix C, GAM Run 14-013, April 10, 2015, Gateway Groundwater Conservation District Management Plan

FLOW BETWEEN DISTRICT AQUIFERS – Appendix C, GAM Run 14-013, April 10, 2015, Gateway Groundwater Conservation District Management Plan

PROJECTED SURFACE WATER SUPPLIES – Appendix B, Estimated Historical Groundwater Use And State Water Plan Datasets, July 7, 2015, TWDB

PROJECTED TOTAL WATER DEMAND – Appendix B, Estimated Historical Groundwater Use And State Water Plan Datasets, July 7, 2015, TWDB

PROJECTED WATER SUPPLY NEEDS - Appendix B, Estimated Historical Groundwater Use And State Water Plan Datasets, July 7, 2015, TWDB

WATER MANAGEMENT STRATEGIES - Appendix B, Estimated Historical Groundwater Use And State Water Plan Datasets, July 7, 2015, TWDB

MANAGEMENT OF GROUNDWATER SUPPLIES

This management plan has been adopted by the Board in accordance with Section 36.1071 of the Texas Water Code and will remain in effect for a period of five years unless modified by the Board prior to the end of the planning period. The District, in partnership with the landowners of the District, will manage the groundwater within the District in accordance with its mission and goals while seeking to maintain the economic viability of all resource user groups, public and private. The District will strive to identify and implement practices which will result in the sustainability of the groundwater resources within the District, including reductions of groundwater use where necessary to achieve that result.

The District will implement monitoring programs and collect any available information to increase our understanding of the groundwater resources and help determine any trends in groundwater availability and quality.

The District will have rules which may regulate groundwater withdrawals by means of production limits and fees, spacing regulations, and export fees and requirements. The District may deny a well construction permit or limit groundwater withdrawals in accordance with District rules. In making a determination to deny a permit or limit groundwater withdrawals or export, the District will weigh the public benefit against individual hardship after considering all appropriate testimony. However, the conservation and preservation of the groundwater resource is a major consideration in any such determination.

In pursuit of the District's mission of preserving and protecting the resource, the District will enforce the terms and conditions of permits and the rules of the District by enjoining the permit holder in a court of competent jurisdiction, as provided for in Texas Water Code Chapter 36.102, if necessary.

MANAGEMENT ISSUES

The total amount of water supply within the District remains greater than the projected water demands. The challenge for the District will be to protect and conserve the available water supply.

Even though the estimated sustainable use for the District is higher than the current use, conservation and avoidance of water wasteful practices will be a concern of the District. Localized areas of high irrigation use can exceed supply, especially in the Seymour aquifer. Permeability through the Seymour alluvium is variable and typically slow. Farmers report that their wells draw down during prolonged dry spells. Certain areas are more prone to well

drawdown and pumping limitations than other areas nearby. There are some areas within the Seymour Aquifer that do not appear to be well connected hydraulically with other nearby areas. Proper management will be difficult in these areas. Avoidance of waste will help to maximize the sustainable benefits of the groundwater resource and will be a District goal.

Another challenge for the District will be to prevent degradation of the water quality in the aquifers. Primary concerns are

(1) Contamination of the Blaine and Seymour Aquifer water resulting from improperly plugged or capped abandoned wells, due to inflow from the surface or other water bearing strata.
(2) Increasing nitrate concentrations in the Seymour Aquifer due to leaching of nitrates from fertilizer, nitrogen fixing crops, or naturally occurring nitrogen.

Another management concern for the District is the operating expenses of the District. These aquifers have been used for many years without becoming depleted, without significant avoidable deterioration in water quality, and without serious conflicts between water users. If the District cannot provide positive benefits to the District's citizens, then we believe that we should spend a minimum of tax dollars in this effort. Litigation expenses are out of proportion to the economy and the life styles of the citizens and landowners of the District. We will not commit our citizens to these type expenses, and we are concerned that the State mandated management of these Groundwater Districts amounts to an unfunded State mandate, and we will not be an economic burden upon our own citizens.

ACTIONS, PROCEDURES, PERFORMANCE AND AVOIDANCE FOR PLAN IMPLEMENTATION

The District will implement the provisions of this plan and will utilize the provisions of this plan as guidelines for determining the direction or priority for all District activities. All operations of the District, all agreements entered into by the District, and any additional planning efforts in which the District may participate will be consistent with the provisions of this plan.

The District has adopted District rules relating to the permitting of wells and the production of groundwater. The District rules shall be as required by the Water Code the provisions of this plan. All District rules will be enforced. The promulgation and enforcement of the District rules will be based on the best technical evidence available.

The District will treat all citizens equally. Citizens may apply to the District for a waiver in the enforcement of one or more of the District rules on the grounds of adverse economic effects or unique local conditions. In granting or denying any waiver to the District rules, the Board shall consider the potential for adverse effects on adjacent landowners. The exercise of discretion in granting or denying of any waiver by the Board shall not be construed as limiting the power of the Board.

In the implementation of this plan and in the management of groundwater resources within the District, the District will seek the cooperation of all residents, landowners, and well owners of

the District. All activities of the District will be undertaken in cooperation and coordination with any appropriate state, regional, or local water management entity.

MANAGEMENT GOALS AND PERFORMANCE STANDARDS

Methodology for tracking the progress in achieving management goals will be addressed by providing an annual report to the Board of Directors.

1. GOAL: To gather and publicize the necessary information to enable the District to promote water conservation. To initiate collection of information through monitoring and assembling existing information and create a data base to help define existing conditions of the aquifers, concerning water availability and quality; and to provide a base line to help determine any future trends in water use, water level drawdown, and water quality.

1.1 MANAGEMENT OBJECTIVE: Construct comprehensive maps of the District showing all major permitted wells. Information on the wells including well logs will be keyed to map locations. Obtain and include other available information on wells in the District from the Texas Water Development Board and other water resource agencies.

1.1.1. PERFORMANCE STANDARDS: Report annually to the Board on the progress of the maps and data base, the number of requests for information, and the usefulness of the information on the maps and data base.

1.2 MANAGEMENT OBJECTIVE: Provide portable flow meters for flow measurements in the District, monitor MesoNet rain gages, and establish an observation well for monitoring representative irrigation well water use in relationship to water use, rainfall, and static water levels.

1.2.1. PERFORMANCE STANDARD: Report annually to the Board the use of flow meters within the District. Provide MesoNet rainfall summaries in the Manager's Reports.

1.3 MANAGEMENT OBJECTIVE: Collect well log and location of new wells drilled within the District. Construct a data base with the available well information which includes a District map with major irrigation wells located.

1.3.1. PERFORMANCE STANDARD: Report annually to the Board on the progress of the District map and the available data.

1.4. MANAGEMENT OBJECTIVE: Establish a cooperative education program with each County Agent to provide an annual presentation to a school, an agricultural producers group, and a general public meeting in each county.

1.4.1 PERFORMANCE STANDARDS: Report annually to the Board the number of presentations provided.

2. GOAL: To prevent waste and to assure the sustainability of the beneficial uses in the District.

2.1 MANAGEMENT OBJECTIVE: Review District rules as necessary to evaluate their applicability to preventing problems such as water table drawdown, interference between wells, and degradation of water quality.

2.1.1. PERFORMANCE STANDARDS: Review District rules at least once per year and report to the District Board incidences of complaints and problems concerning overuse, water waste, interference between wells, water quality problems and other problems.

2.1.2. PERFORMANCE STANDARD: Post available information on the District's Web Site at least once per year promoting the efficient uses and avoidance of waste of groundwater.

3. GOAL: To implement management strategies to promote most efficient uses of groundwater.

3.1. MANAGEMENT OBJECTIVE: To encourage and help farmers in the District to convert their irrigation systems to more efficient systems by assistance through Federal cost share programs such as EQIP.

3.1.1 PERFORMANCE STANDARD: Post information on the District's Web Site at least once per year containing information about assistance available to farmers in the District to improve the efficiency of their irrigation systems.

4. GOAL: Implement management strategies to prevent and protect against degradation of groundwater quality.

4.1. MANAGEMENT OBJECTIVE: Enforce District rules concerning capping and plugging of abandoned wells, and other actions as necessary to protect the quality of the groundwater in the District.

4.1.1 PERFORMANCE STANDARD: Report to the Board on the number of complaints, reports, and actions taken concerning groundwater quality.

4.2. MANAGEMENT OBJECTIVE: Disseminate information concerning the requirements and recommended practices to prevent the contamination of groundwater.

4.2.1. PERFORMANCE STANDARD: Post information on the District's Web Site at least once per year concerning the prevention of contamination of groundwater.

5. GOAL: To implement management strategies to promote the additional beneficial and economic uses of groundwater in the District.

5.1. MANAGEMENT OBJECTIVE: Disseminate information from the A&M University system, Texas Water Development Board, and other sources to promote the additional beneficial and economic uses of groundwater in the District.

5.1.1 PERFORMANCE STANDARD: Post available information on the District's Web Site concerning the additional beneficial and economic uses of groundwater.

6. GOAL: Encourage stretching of high quality surface water through conjunctive use with lower quality groundwater.

6.1. MANAGEMENT OBJECTIVE: Support and assist efforts to implement conjunctive surface water and groundwater projects within the District, providing that such projects are consistent with District goals. (Lake Pauline may be a good possibility)

6.1.1 PERFORMANCE STANDARD: Attend at least one meeting per year of the Red River Water Authority of Texas and the Greenbelt Municipal and Industrial Water Authority.

7. Goal: Address Natural Resource issues that impact the use and availability of groundwater and which are impacted by the use of groundwater.

7.1 .MANAGEMENT OBJECTIVE: Assist wildlife and conservation groups, by providing groundwater use estimates and other District information that may be useful in determining the effects of increased groundwater use on spring flow and other natural resources.

7.1.1 PERFORMANCE STANDARD: Attend at least once per year a meeting of a natural resource conservation association.

8. GOAL: Provide service to citizens when possible and promote citizen participation in the activities of the District.

8.1. MANAGEMENT OBJECTIVE: Coordinate District activities with stakeholders within the District, and help landowners as requested, if requests are consistent with District goals.

8.1.1. PERFORMANCE STANDARD: Attend at least once per year a meeting of a Citizens group such as the Lions Club, Rotary Club, Chamber of Commerce, Farm Bureau, or a wildlife association and give a presentation of the activities of the District.

9. GOAL: Provide information to assist with drought preparedness.

9.1 MANAGEMENT OBJECTIVE: Provide Drought Severity information.

9.1.1. PERFORMANCE STANDARD: Post the Palmer Drought severity index value on the District Web Site bi-monthly.

10. GOAL: Support Brush Control

10.1 MANAGEMENT OBJECTIVE: Support the NRCS Brush Control conferences and workshops.

10. 1.1 PERFORMANCE STANDARD: At least once per year attend the NRCS Brush Control conference.

11. GOAL: Rainwater Harvesting

11.1 MANAGEMENT OBJECTIVE: Demonstrate feasibility of rainwater harvesting in the District area.

11.1.1 PERFORMANCE STANDARD: Develop a project implementation plan by December 31, 2017. Report results of plan implementation in the annual report.

12. GOAL: MONITOR DESIRED FUTURE CONDITION STATUS

12.1 MANAGEMENT OBJECTIVE: The District will annually measure water levels in at least one monitoring well in Seymour Aquifer Pod 3; at least one monitoring well in each of the counties in Seymour Aquifer Pod 4; at least one monitoring well in the Ogallala/Dockum area of Motley County, and at least one monitoring well in each of the counties in the Blaine Aquifer.

12.1.1 PERFORMANCE STANDARD: The District will construct water level tracking charts using the annual water level measurements, prepare annual water level trend analysis, compare the trend results to the desired future conditions of each aquifer subdivision, and provide the results in the District Annual report.

SB-1 MANAGEMENT GOALS
DETERMINED NOT APPLICABLE

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

1.0 Control and prevention of subsidence.

Subsidence in the District is caused by groundwater dissolving the gypsum commonly found in the Blaine formation, forming local sinkholes. There are no available measures to prevent groundwater from dissolving gypsum.

2.0 Addressing Precipitation Enhancement.

Presently not cost effective.

3.0 Addressing Recharge Enhancement

Not applicable due to limitations of topography and soil conditions.

APPROVAL AND ADOPTION

Be it resolved that the Board of Directors of the Gateway Groundwater Conservation District does hereby approve and adopt this Groundwater Management Plan in open meeting on August 25, 2015.

_____	_____
President	Member
_____	_____
Vice-President	Member
_____	_____
Secretary	Member
_____	_____
Member	Member