Adopted December 2, 2010

BRAZOS VALLEY GROUNDWATER CONSERVATION DISTRICT
WATER CONSERVATION PLAN

I: INTRODUCTION

The BRAZOS VALLEY GROUNDWATER CONSERVATION DISTRICT (BVGCD) was created by the Texas Legislature to protect and conserve the groundwater resources of Robertson and Brazos Counties through local management in concert with Groundwater Management Areas 12 and 14. **The District will direct its efforts toward preventing waste, collecting data, promoting water conservation, protecting existing users and preventing irreparable harm to the aquifers**.

In an effort to achieve these stated goals, the Board has created this Water Conservation Plan. The implementation of an effective conservation effort will require the dedication of resources to accomplish. The resolution of the Board of Directors adopting the Water Conservation Plan shall authorize the Board to implement, enforce, and administer the program.

II. PUBLIC INVOLVEMENT, AWARENESS AND EDUCATION

A. Public Input

Opportunity for the public to provide input into the preparation of the Plan was provided by the District by scheduling and providing public notice of a public meeting to accept input on the Plan. In the adoption of this Plan, the District considered all submitted comments.

B. Public Awareness

The District will post this Water Conservation Plan on its website, send a copy by mail or email to all permit holders, County Commissioners Courts, applicable Regional Planning Groups and Groundwater Management Areas to notify the public and permit holders of its policy regarding the District's actions in regard to water conservation.

C. Public Education

The District will endeavor to provide an on-going, comprehensive public education effort to promote water conservation and prevent waste of groundwater resources.

III: DISTRICT PROFILE

The District encompasses Robertson and Brazos Counties in Central Texas. The boundaries of the District are coterminous with the counties' boundaries. The District is bordered by Falls and Limestone counties to the north; Grimes and Washington counties to the south; Leon and Grimes counties to the east; and Burleson and Milam counties to the west. The District comprises an area approximately 1,456 square miles or 932,000 acres.

The United States Census Bureau 2009 estimate for population of Brazos County was 179,992 people. This represented an increase of 18.1% from the 2000 estimate of 152,402 people. This compares closely to the overall growth rate of 18.8% for the State of Texas in that same period. There are four incorporated cities in Brazos County including College Station, Bryan, Kurten and Wixon Valley. Texas A&M University, located in College Station, operates its own water supply system for the main campus.

The Census Bureau estimate for Robertson County for 2009 was a population of 15,706. The estimate for 2000 was 16,013 which indicate a slight decrease of 1.9%. There are four incorporated Cities in Robertson County including Bremond, Calvert Franklin and Hearne.

The Texas State Data Center and Office of the State Demographer provide the Texas Population Projections Programs produces biennial projections of the population of the state and all counties in the state by age, sex and race/ethnicity. The projections are used extensively by public and private entities. Every 2-3 years, the program also produces state and county level projections with several scenarios for every year through 2040.

These studies suggest the following potential 2040 populations based upon the generally recommended scenario. This scenario assumes rates of net migration one-half of those of the 1990s. The reason for including this scenario is that many counties in the State are unlikely to continue to experience the overall levels of relative extensive growth of the 1990s. A scenario which projects rates of population growth that are approximately an average of the zero scenario and the 1990-2000 scenario is one that suggests slower than 1990-2000 but steady growth.

Brazos County: 224,635 Robertson County: 22, 262

SOURCE: Population Estimates and Projections Program, Texas State Data Center, Office of the State Demographer, Institute for Demographic and Socioeconomic Research, The University of Texas at San Antonio February 2009

2009 GROUNDWATER AVAILABILITY ESTIMATES:

The District has five significant aquifers within its boundaries. They include the CARRIZO-WILCOX, QUEEN CITY, SPARTA, YEGUA-JACKSON and BRAZOS RIVER ALLUVIUM aquifers. The SIMSBORO SAND is the most prolific water-yielding unit and is part of the CARRIZO-WILCOX aquifer. The total availability estimates for each aquifer are listed below along with distribution for each county.

AQUIFER	AC-FT/YEAR	BRAZOS COUNTY	ROBERTSON COUNTY
Brazos River Alluvium*	N/A	N/A	N/A
Carrizo-Wilcox	103,400	57,200	46,200
Queen City	1,100	650	450

Sparta	9,000	7,800	1,200
Yeagua-Jackson	6,100	6,100	0
Gulf Coast	1,200	1,200	0

* Brazos River Alluvium aquifer is not relevant to this plan

IV: CONSERVATION GOALS

The purpose of this water conservation plan is to reduce long-term demand on limited water resources by encouraging more efficient water use practices in the District. Its primary goal is to prevent irreparable harm to the aquifers by regulating pumping and managing the aquifers to the approved Desired Future Condition (DFC).

A. Retail Water Supplies

The goal for retail water supply agencies is focused on reducing peak demand. This will help municipalities and rural water supplies make better use of available water resources. Because TCEQ rules require public water supplies to build capacity to meet escalating peak daily demands, reducing those peak demands will enable those agencies to defer new capital expenditures for production facilities.

The public water supply agencies of Robertson and Brazos Counties will periodically evaluate their conservation plans in accordance with State and Federal regulations to determine the extent, if any, that the plans need modification.

To achieve this goal, the District will notify all retail water supply agencies regarding the adoption of this plan and ensure that each agency has a water conservation plan on file with the District.

B. Agricultural Users

The goal for agricultural users is to encourage the use of Best Management Practices as defined by the Texas Water Development Board Report Number 362. This report provides guidance to agricultural users regarding the conservation of groundwater and protection of the watersheds.

C. Public Education Program

The goal of the public education program is to make at least 3,000 direct customer contacts each year through presentations, booths at community fairs, special events and plant tours. This does not include indirect contacts through mail outs, web site, newspaper and radio ads, and similar programs. The District will promote water conservation issues by informing the public in the following ways:

1. Requiring a Water Conservation Plan with the permit application process as stated in the District's Rules
2. Providing water conservation information to all permit holders upon request
3. Conducting at least four educational presentations, lectures, or demonstrations for schools, civic groups, water user groups and the general public each year
4. Providing exhibits at least two public events each year
5. Providing water conservation information to the public at the District's headquarters.
6. Providing book covers with a water conservation message for students
7. Coordinating educational programs or activities with at least two school districts each year.
8. Coordinating environmental education activities with the municipal, industrial, rural and agricultural users and other local organizations to promote water conservation education

SECTION V: COORDINATION

This Water Conservation Plan shall work in concert with all water supply agencies in the District, agricultural and industrial permit holders and in cooperation with the regional water planning authorities. Specifically, the plan will include:

A. **Coordination with Drought Contingency Plan**

The Water Conservation Plan shall work in accordance with the related Drought Contingency Plan as it may be revised from time to time.

B. **Coordination with Regional Water Planning Group**

The District will provide this Water Conservation Plan to the Brazos Region (Region G) Water Planning Group, as designated by the TWDB.

VI: MUNICIPAL AND RETAIL WATER SUPPLY AGENCIES

Most public water supply agencies in Robertson and Brazos Counties depend upon ground water for their public water supply.

The District will, as part of the permitting process, require that water supply agencies adopt applicable provisions of a water conservation and drought contingency plan or have a plan in effect previously adopted and meeting the basic requirements of 30 TAC §288. These agencies are strongly encouraged to adopt the following measures as part of their Water Conservation Plans:

A. Plumbing Retrofit Program

Educate the residents, plumbers, and contractors on the benefits of retrofitting existing facilities with water saving devices through its public education program. In addition, the agencies are encouraged to evaluate the feasibility and cost effectiveness of

implementing an Ultra-Low Flow (ULF) rebate program or similar incentive program that would offer cash rebates or other incentives to water customers that replace old toilets, showerheads, and other fixtures with new ULF models

B. Landscape Water Management Program

Agencies should provide information about the methods and benefits of water conserving landscaping practices and devices, through public education to homeowners, business owners, landscape architects and designers, and irrigation professionals. The following methods are encouraged:

1) The use of Xeriscape™ and "Water Wise" landscaping techniques, including drought tolerant plants and grasses for landscaping new homes and commercial areas.
2) The use of drip irrigation systems when possible or other water conserving irrigation systems that utilize efficient sprinklers and considerations given to prevailing winds.
3) Making sure that ornamental fountains and similar water features are designed to recycle water and use minimal amounts of water.
4) Working with area landscape supply businesses and nurseries to encourage them to sell locally adapted, drought tolerant plants and grasses along with efficient irrigation systems, and to promote use of these materials through demonstrations and advertisements.

C. Water Loss Control Measures

The goal of the District's water loss control program is to maintain unbilled water at or below 10% of water produced, on a monthly basis. In order to meet this goal, public water systems are strongly encouraged to have proactive programs in place, including routine water audits, a program of leak detection and repair, and meter testing for accuracy including:

1) Routine Audits of Public Water Systems
   This should include a monthly water loss report that compares metered production with metered consumption, as well as accounted-for and unaccounted for water losses. This report provides an effective tracking system of water loss. A detailed water system audit by the Texas Water Development Board (TWDB) is required of Public Water Systems once every five years. The public water system audit determines the volume of actual water loss, the identification of water loss sources, the status and condition of primary water meters, an analysis of water line breaks, an evaluation of underground leakage potential, and provides recommendations for meter replacement.
2) Leak Detection and Repair
   This includes a leak detection and repair program for water distribution systems. This program features a work order prioritization system for leaks needing repair and an inventory of equipment and materials needed to promptly repair all

detected or reported leaks. Rehabilitation of the water distribution system should be based on the findings of monthly water loss reports and the leak detection program.

3) Universal Metering
   All water production wells and service connections to the public water system must be metered. All pumping stations, interconnections, irrigation, swimming pools, parks, and municipal structures operated by the public water system should be metered.
   Meters at water well production pump stations must be calibrated and tested every three years in accordance with the American Water Works Association (AWWA) standards to provide a minimum accuracy of plus or minus five percent (5%).
   The public water system should provide a preventive maintenance program for its water meters, wherein regular scheduled testing, repairs, and replacements are performed in accordance with the American Water Works Association (AWWA) standards.

D. Wastewater Recycling and Reuse

Where feasible, agencies should consider seeking authorization from the TCEQ to reuse treated wastewater effluent as reuse water. The goal for a water reuse program is to reduce peak demand on the potable (drinking) water systems by switching non-potable uses of water, such as athletic field irrigation, golf courses, parks and public landscape areas to reuse water. Implementation of reuse programs will further reduce the overall demand on the various groundwater aquifers in the District.

E. Water Rate Structure

Agencies are strongly encouraged to adopt water rate structures that utilize a cost-of-service method, which is based on costs incurred for services provided. Fees may include an inclining water rate structure to encourage customers to reduce both peak and overall water usage, while fairly allocating cost of service to each customer class. Under an inclining rate structure, the rate per thousand gallons increases as the amount of water used increases. If implemented, this rate structure would ensure that the rates adequately recover the cost of service and meet the goals of this water conservation plan.

F. COORDINATION

Recognizing that each agency has similar water systems and customer bases, and similar needs for water conservation, the municipalities and rural water supply systems are encouraged to work together in developing similar water conservation plans and public education efforts to achieve an effective message through Robertson and Brazos Counties.

SECTION VII: AGRICULTURAL USERS

The Texas Water Development Board (TWDB), in cooperation with the Texas State Soil and Water Conservation Board (TSSWCB) and the Texas Irrigation Council has developed a resource for BEST MANAGEMENT PRACTICES (BMP) GUIDE for water conservation by agricultural users in Texas. The resource is REPORT 362, April 2005 published by the Water Conservation Implementation Task Force. The legislation that created this Task Force was passed in order to further conservation efforts in Texas.

A. Best Management Practices

Agricultural water users are encouraged to explore and adopt appropriate Best Management Practices to maximize the effective and efficient use of groundwater. The BMP for agriculture are outlined in the report under the following general categories:

1) Agricultural irrigation water use management. This BMP includes specific information related to irrigation scheduling, volumetric measurement of irrigation water use, crop residue management and conservation tillage, and on farm irrigation audits.
2) Land management systems. This BMP includes information related to furrow dikes, land leveling, contour farming, conversion of supplemental irrigated farmland to dry-land farming, brush control management, lining of on-farm irrigation ditches, replacement of irrigation ditches with pipelines, low pressure center pivot sprinkler irrigation systems,-drip-micro irrigation systems, field irrigation distribution systems, and linear move irrigation systems.
3) Miscellaneous Systems including tail water recovery and reuse systems.
4) Cost effectiveness for agricultural water users is covered in under section 2.5.

B. Technical Assistance

1) Help or assistance comes from various federal, state and local agencies. A primary source of help to agricultural landowners or operators is the technical assistance of the Natural Resources Conservation Service (NRCS), an agency of the United States Department of Agriculture (USDA). Through Memoranda of Understanding with USDA and NRCS, local Soil and Water Conservation Districts (SWCD) are able to furnish technical assistance to farmers and ranchers in the preparation of a complete soil and water conservation plan to meet each land unit's specific capabilities and needs.

2) The TSSWCB, the state agency charged with the overall responsibility of coordinating the SWCD programs in Texas, also makes technical assistance funds available to districts through a grant program. Personnel hired under this program are district employees who work cooperatively with NRCS employees to help agricultural landowners/operators plan and install conservation practices.

3) With water quality being a major issue of concern in Texas, the 73rd Legislature passed Senate Bill 503. This bill created the Water Quality Management Plan Program to provide agricultural and silvicultural (forestry) producers with an

opportunity to comply with state water quality laws through traditional, voluntary, incentive-based programs.

4) Landowners and operators may request the development of a site-specific water quality management plan through local SWCDs. Plans include appropriate land treatment practices, production practices and management and technology measures to achieve a level of pollution prevention or abatement consistent with state water quality standards.
5) Districts also work with the USDA-Farm Service Agency, Texas Agricultural Extension Service, Texas Forest Service, U.S. Forest Service and others when necessary to assist agricultural landowners/operators meet individual land use needs.

C. Water Conservation Plans for Agricultural Users

The Texas Commission for Environmental Quality provides sample plans for agricultural users to implement their management practices. These plans are included in APPENDIX A: AGRICULTURAL WATER CONSERVATION PLAN (NON IRRIGATION) and APPENDIX B: SYSTEM INVENTORY & WATER CONSERVATION PLAN FOR INDIVUALLY-OPERATED IRRIGATION SYSTEMS. These plans can be used by permit holders and applicants to comply with the provisions of the District's rules related to the requirement for conservation plans.

APPENDIX A: AGRICULTURAL WATER CONSERVATION PLAN (NON IRRIGATION)

Texas Commission on Environmental Quality

AGRICULTURAL WATER CONSERVATION PLAN

(NON-IRRIGATION)

This form is provided to assist entities in conservation plan development for agricultural water uses.

If you need assistance in completing this form or in developing your plan, please contact the conservation staff of the Resource Protection Team in the Water Supply Division at (512) 239-4691.

If you have any questions on how to fill out this form or about the _____ program, please contact us at 512/239-_____.

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512-239-3282.

Name:

Address: _____

Telephone Number: ( ) **Fax: ( )** _____

Form Completed By: **Title:** _____

Adopted December 2, 2010

Signature: _____ **Date:** _____

NOTE: If the plan does not provide information for each requirement below, include an explanation of why the requirement is not applicable.

I. BACKGROUND DATA

A. Diversion

1. Annual diversion requested or appropriated (in acre-feet): _____

2. Maximum diversion rate (cubic feet per second): _____

B. Water Sources

1. Indicate next to the appropriate source(s) below, the maximum or average annual amounts of water currently used and anticipated to be used (in acre-feet) for agricultural uses (other than for irrigation):

Source	**Current Use**	**Anticipated Use**
Surface water		
Groundwater		
Purchased		
TOTAL		

2. How was the surface water figure provided in (B1) above obtained?

G Master meter G Customer meter
G Other

If other, identify source: _____

3. How was the groundwater figure provided in (B1) above obtained?

G Master meter G Customer meter
G Other

If other, identify source: _____

4. Was purchased water G raw or G treated

If both, ___ % raw and ___ % treated

Supplier(s): _____

C. Agricultural Activity

Indicate below the major agricultural activity.

G cultivating the soil to produce crops for human food, animal feed, or planting seed or for the production of fibers;

G the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or non-soil media by a nursery grower;

G raising, feeding, or keeping animals for breeding purposes or for the production of food or fiber, leather, pelts, or other tangible products having a commercial value;

G raising or keeping equine animals;

G wildlife management; or

G planting cover crops, including cover crops cultivated for transplantation, or leaving land idle for the purpose of participating in any governmental program or normal crop or livestock rotation procedure.

II. WATER USE AND CONSERVATION PRACTICES

A. Agricultural Activity Water Use

1. Describe how the water is diverted and transported from the source of supply and how the water is utilized in the agricultural activity.

_____

_____

_____

2. List the monthly surface water demand or projected demand if requesting a new appropriation (in acre-feet).

	Diversion	**Return Flow (if applicable)**	**Percent of Monthly Demand(if applicable)**
January			
February			
March			

April			
May			
June			
July			
August			
September			
October			
November			
December			
TOTAL			

B. Conservation Practices

1. Indicate specific and quantified five-year and ten-year targets for water savings and the basis for developing of such goals.

_____

_____

_____

_____

2. Describe the device(s) and/or method(s) used to measure and account for the amount of water diverted from the source of supply.

_____

_____

_____

_____

3. Can the amount of water diverted from the source be measured and accounted for within an accuracy of plus or minus 5%? G YES G NO

4. Describe the leak-detection, repair, and water-loss accounting measures to

be used.

_____

_____

_____

_____

5. Describe the equipment and/or process modifications to be used to improve water use efficiency.

_____

_____

_____

_____

6. List any other appropriate practice, method, or technique, not listed above, for achieving water conservation.

_____

_____

_____

_____

III. ADDITIONAL COMMENTS/INFORMATION

Please provide any additional information that may indicate present and future water needs for this water use and any water problems that may have.

_____

_____

Best Management Practices Guide

On November 2004, the Texas Water Development Board=s (TWDB) Report 362 was completed by the Water Conservation Implementation Task Force. Report 362 is the Water Conservation Best Management Practices (BMP) Guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The BMP Guide is available on the TWDB's website at the link below or by calling (512) 463-7847.

http://www.twdb.state.tx.us/assistance/conservation/TaskForceDocs/WCITFBMPGuide.pdf

APPENDIX B: SYSTEM INVENTORY &WATER CONSERVATION PLAN FOR INDIVUALLY-OPERATED IRRIGATION SYSTEMS

Texas Commission on Environmental Quality

SYSTEM INVENTORY AND WATER CONSERVATION PLAN

FOR INDIVIDUALLY-OPERATED IRRIGATION SYSTEMS

This form is provided to assist entities in conservation plan development for individually-operated irrigation systems. If you need assistance in completing this form or in developing your plan, please contact the conservation staff of the Resource Protection Team in the Water Supply Division at (512) 239-4691.

Name:

Address:

Telephone Number: ( ) **Fax: ( )**

Form Completed By: **Title:**

Signature: **Date:**

Annual diversion requested or appropriated (in acre-feet):

I.

Type of Crop: (Include hybrid crop names; e.g., which type of coastal Bertmuda?)	**Growing season** (months)	**Acres irrigated per year:**

Total # of acres: _____

In the table below, list, on average, the total amount of water (in acre-feet) that is or will be diverted monthly for irrigation during the year:

January		May		September		Overall
February		June		October		total for
March		July		November		all
April		August		December		months
Monthly Totals						

Are crops rotated seasonally or annually? G YES G NO (check one)

If yes, please describe: _____

NOTE: If the plan does not provide information for each requirement below, include an explanation of why the requirement is not applicable.

II. Describe soil type (include permeability characteristics, if available):

III. Describe the existing irrigation system, including plans, designs, and/or sketches of the system layout, pump location, slope of the land to be irrigated, and specifics about the delivery method:

IV. Describe the methods and/or device within an accuracy of plus or minus 5% that will be used to measure and account for the amount of water diverted for irrigation:

V. Describe the specific and quantified five-year and ten-year targets for water saving including, where appropriate, quantitative goals for irrigation water use efficiency.

_____

_____

_____

_____

_____

VI. If there is an existing irrigation system, have any system evaluations been performed on the efficiency of the system? G YES G NO (check one)

If YES, please indicate: _____

When evaluation(s) was performed: _____

Who performed the evaluation(s): _____

Results of evaluation(s): _____

_____

VII. Describe any water conserving equipment, application system or method in the irrigation system:

VIII. Describe any methods that will be used for water loss control and leak detection and repair:

IX. Describe any water-saving scheduling or measurement practices to be used in the application of water; (for example, irrigation only early in the morning, late evening or night hours, and when the wind is calm and temperatures lower) and the utilization of soil-moisture monitoring:

X. Describe any water-saving land improvements that the applicant plans to incorporate into the irrigation practices, such as conservation tillage, knifing, furrow diking, weed control, etc.:

XI. Describe any recovery and reuse of tail water runoff:

XII. Describe, where applicable, any xeriscape practices to be used (usually associated with landscaping):

XIII. Indicate (in gallons-per-minute or cubic-feet-per-second) the rate that water is diverted from the source:

Best Management Practices Guide

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APPENDIX C: Resolution of the Board of Directors of the Brazos Valley Groundwater Conservation District adopting this Water conservation Plan

APPENDIX D: Transmittal Letter to Brazos Region G Regional Water Planning Group

APPENDIX E: Transmittal Letter to Texas Water Development Board

APPENDIX F: Transmittal Letter to Public Water Supply Agencies, agricultural water permit holders and industrial water permit users.