

**Guadalupe-Blanco River Authority**

**Wholesale Water Conservation Plan**

**Wholesale Water Conservation Providers  
Title 30. Part I, Chapter 288,  
Subchapter A, 288.5**



**July 17, 2019**

---

## **TABLE OF CONTENTS**

<b>1.0 Introduction.....</b>	<b>1</b>
1.1 Definitions .....	2
<b>2.0 Wholesale Water Conservation Plan .....</b>	<b>4</b>
2.1 Planning Area Description.....	5
2.2 Conservation Goals.....	6
2.3 Monitoring and Record Management Program .....	8
2.4 Metering/Leak Detection and Repair Program.....	8
2.5 Water Supply Contracts .....	10
2.6 Water Conservation Education .....	11
<b>3.0 Canyon Reservoir Operation.....</b>	<b>14</b>
3.1 Reservoir Averaging.....	15
3.2 Pricing for Stored Water .....	15
<b>4.0 Additional Conservation Practices for Irrigation.....</b>	<b>16</b>
4.1 Education on Best Irrigation Practices .....	16
4.2 Canal Rehabilitation and Maintenance.....	17
4.3 Volumetric Pricing and Billing.....	17
<b>5.0 Coordination with Regional Planning Groups.....</b>	<b>17</b>
<b>6.0 Board Resolution and Implementation.....</b>	<b>17</b>

---

## **APPENDICES**

APPENDIX 1 – GBRA Board Policy on Water Conservation

APPENDIX 2 – Population and Customer Data

APPENDIX 3 – TCEQ Implementation Report with Water Use Data and Customer Data

APPENDIX 4 – Wastewater System Data

APPENDIX 5 – 2016 Region L Water Plan Municipal Population and Demand Projections

APPENDIX 6 – GBRA Guidelines for Water Conservation

APPENDIX 7 – GBRA Board Resolution Adopting Wholesale Water Conservation Plan

---

---

## **Guadalupe-Blanco River Authority Wholesale Water Conservation Plan**

### **1.0 Introduction**

The Guadalupe-Blanco River Authority (GBRA) is a water conservation and reclamation district created by the State of Texas in 1933 as a public corporation under Section 59, Article 16 of the Constitution of Texas. It was re-authorized in 1935 as the Guadalupe-Blanco River Authority by an act of the Texas Legislature.

GBRA was established to develop, conserve and protect the water resources of the Guadalupe River Basin and make them available for beneficial use. Since its beginning, GBRA has understood that planning and resource development efforts cannot take place in isolation, but must always consider the broader scope of regional and statewide water needs. GBRA's statutory district begins near the headwaters of the Guadalupe and Blanco Rivers, ending at San Antonio Bay. The district includes the Kendall, Comal, Hays, Caldwell, Guadalupe, Gonzales, DeWitt, Victoria, Calhoun, and Refugio Counties, encompassing approximately 7,900 square miles. GBRA is made up of 10 operational divisions and the General Division to supply essential services including water and wastewater treatment, water quality testing, the management of water rights and delivery of stored water, the production of electricity from seven hydroelectric plants, engineering and design support, economic development and educational support to a population of greater than 650,000 people.

GBRA is governed by a board of nine directors appointed by the Governor, subject to confirmation by the Texas Senate. Each director serves a six-year term with three directors appointed or reappointed every two years. Management and administrative functions are performed by the General Manager and staff under policies established by the Board.

The mission of the GBRA is to protect, conserve, reclaim and steward the resources of the 10-county District in order to ensure and promote quality of life for those we serve. This mission has been separated into six specific goals:

- Water Resource Management – To ensure a supply of quality water for both immediate and long-term needs of the District by development of all feasible alternatives; and development of flood management measures.

- 
- **Water Quality** – To ensure that the quality of water in the District is suitable for municipal, agricultural, environmental and industrial supplies as well as recreational uses.
  - **Public Services** – To expand the GBRA's public services and continue to enhance current operations.
  - **Economic Development** – To create economic development opportunities for each community in the District through partnerships with the GBRA.
  - **Technical Assistance and Support** – To provide increased professional and technical assistance to customers and other entities.
  - **Communication and Education** – To inform and educate employees and the public regarding protection, conservation and reclamation of District resources and GBRA stewardship of those resources.

This Water Conservation Plan (Plan) pertains to the use of wholesale water by GBRA's customers and is intended to meet the requirements of the Texas Commission on Environmental Quality (TCEQ), Texas Water Development Board (TWDB), and the Guadalupe-Blanco River Authority.

## **1.1 Definitions**

Definitions of commonly used terms are provided as follows:

**Conservation** – Those practices, techniques and technologies that reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water, or increase the recycling and reuse of water so that a water supply is made available for future or alternative uses.

**Drought Contingency Plan** – A strategy for implementing water use restrictions during periods of drought and emergency events.

**Industrial Use** – The use of water in processes designed to convert materials of a lower order of value into forms having greater usability and commercial value, commercial fish production and the development of power by means other than hydroelectric, but does not include agricultural use.

---

**Municipal per capita water use** – The sum total of water diverted into a water supply system for residential, commercial, public and institutional uses divided by actual population served.

**Municipal use** – The use of potable water within or outside a municipality and its environs whether supplied by a person, privately owned utility, political subdivision, or other entity as well as the use of sewage effluent for certain purposes, including the use of treated water for domestic purposes, fighting fires, sprinkling streets, flushing sewers and drains, water parks and parkways and recreational purposes, including public and private swimming pools, the use of potable water in industrial and commercial enterprises supplied by a municipal distribution system without special construction to meet its demands and for the watering of lawns and family gardens.

**Municipal use in gallons per capita per day** – The total average daily amount of water diverted or pumped for treatment of potable use by a public water supply system. The calculation is made by dividing the water diverted or pumped for treatment for potable use by population served. Indirect reuse volumes shall be credited against total diversion volumes for the purpose of calculating gallons per capita per day for targets and goals.

**Public water supplier** – An individual or entity that supplies water to the public for human consumption.

**Regional water planning group** – A group established by the Texas Water Development Board to prepare a regional water plan under Texas Water Code, § 16.053.

**Retail public water supplier** – An individual or entity that for compensation, supplies water to the public for human consumption. The term does not include an individual or entity that supplies water to itself or to its employees or tenants when that water is not resold to or used by others.

---

**Reuse** – The authorized use for one or more beneficial purposes of use of water that remains unconsumed after the water is used for the original purpose of use and before that water is either disposed of or discharged or otherwise allowed to flow into a watercourse, lake or other body of state-owned water.

**Water conservation plan** – A strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water and for preventing the pollution of water. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s).

**Water loss** – The difference between water diverted or treated and water delivered (sold). Water loss can result from: (1) inaccurate or incomplete record keeping; (2) meter error; (3) unmetered uses such as firefighting, line flushing and water for public buildings and water treatment plants; (4) leaks; and (5) water theft and unauthorized use.

**Wholesale public water supplier** – An individual or entity that for compensation, supplies water to another for resale to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants as an incident of that employee service or tenancy when that water is not resold to or used by others, or an individual or entity that conveys water to another individual or entity, but does not own the right to the water which is conveyed, whether or not for a delivery fee.

## **2.0 Wholesale Water Conservation Plan**

GBRA provides wholesale water to municipal customers through contracts for stored water out of Canyon Reservoir and run-of-river water under GBRA's water right permits authorized by TCEQ. As the customers' retail utility systems are separate from the GBRA's water system, the GBRA does not have the ability to implement most of the water conservation measures discussed in this Plan. The customers will be able to implement these measures as a part of their respective retail water supply operations. GBRA's role in this program will include the administration and promotion of the Plan, and public education and information.

---

This Water Conservation Plan pertains to the use of all wholesale water delivered through contracts with GBRA and is intended to meet the requirements of the Texas Commission on Environmental Quality (TCEQ), Texas Water Development Board (TWDB), and the Guadalupe-Blanco River Authority. Under Senate Bill 1 approved in 1997 by the Texas Legislature, all major municipal water rights holders are required to submit to TCEQ for approval and then implement a water conservation plan. This Plan is consistent with the requirements of TCEQ Rules, Title 30 TAC Section 288.5 and 288.30. The Plan also adheres to the provisions of the GBRA Board Policy on water conservation, which has been included in **Appendix 1**.

Components of the Plan include:

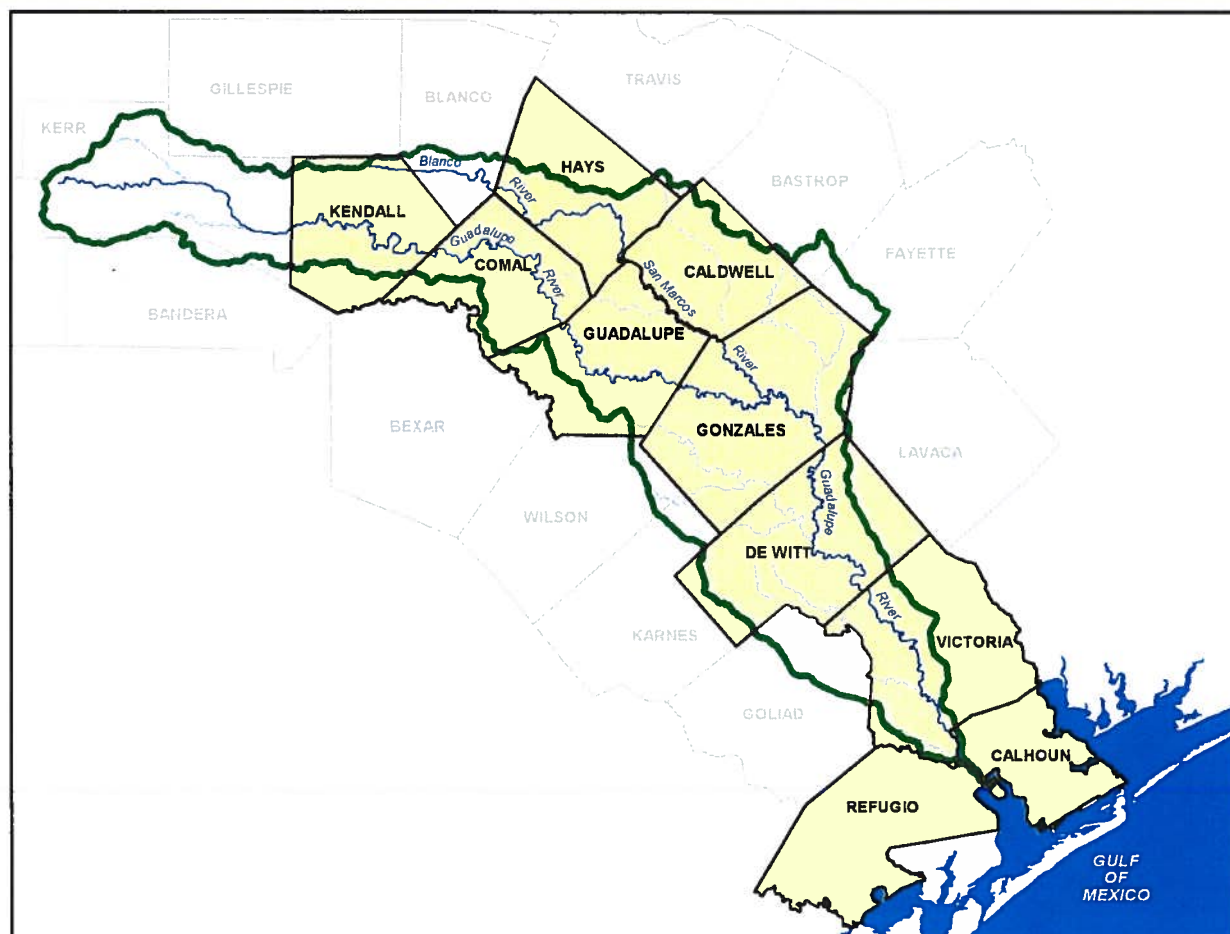
- Technical assistance
- Administrative and pricing requirements
- Water distribution system efficiency improvement
- Implementation reports
- Education

## **2.1 Planning Area Description**

GBRA's statutory district begins near the headwaters of the Guadalupe and Blanco Rivers, ends at San Antonio Bay, and includes Kendall, Comal, Hays, Caldwell, Guadalupe, Gonzales, DeWitt, Victoria, Calhoun and Refugio counties (see figure 1). Today, Eleven Operating Divisions and General Division supply essential services including water and wastewater treatment, water quality testing, the management of water rights and delivery of stored water, the production of electricity from seven hydroelectric plants, engineering and design support, economic and community development and natural resource education. Population data, the TCEQ implementation report form containing water use data and customer data, and wastewater system data have been included in **Appendices 2, 3, and 4**, respectively.



**Figure 1 – GBRA Statutory District**



## **2.2 Conservation Goals**

The purpose of the GBRA's water conservation program is to increase water use efficiency and reduce water waste. Achievement of significant water conservation savings can only occur if each retail water utility sets and aggressively implements its own water conservation programs. GBRA's water conservation program is predicated on the fact that the implementation of conservation measures must occur largely at the local level and is focused on encouraging and supporting initiatives by wholesale customers.

The conservation goals for wholesale water deliveries established by the Plan are, as follows:

1. Provide technical assistance in developing water conservation plans and drought

---

contingency plans for each city in the district with a population of 5,000 or more and for each major customer (100 acre feet or more) of wholesale water from GBRA.

2. Achieve an average municipal per capita water use within GBRA's statutory district of 132 gpd by the year 2024 and 130 gpd by the year 2029.
3. Utilize the "averaging concept" in the commitment of water in order to stretch the supply of stored water.
4. Work with systems to develop water supplies based on a firm yield.
5. Develop criteria for use of reuse water for golf courses and residential purposes.
6. Establish criteria for increased metering to track and manage water supplies.
7. Maximum acceptable unaccounted for water of 15% or less by the year 2024 and 15% or less by the year 2029.

The target goals for municipal use in the GBRA service area specified in the Plan are based on the 2016 South Central Texas Regional Water Plan (Region L Plan) population and demand projections (see **Appendix 5**). These municipal demand projections assume that the water conservation goals in the Region L plan have been met for all municipal users. The municipal water conservation goals established in the Region L Plan are, as follows:

- For municipal water user groups (WUGs) with water use of 140 gpcd and greater, reduction of per capita water use by 1 percent per year until the level of 140 gpcd is reached, after which, the rate of reduction of per capita water use is one-fourth percent (0.25 percent) per year.
- For municipal WUGs having water use of less than 140 gpcd, reduction of per capita water use by one-fourth percent per year.

GBRA requires each of its municipal customers to set goals in gallons per capita per day (gpcd) and goals for a maximum acceptable level of unaccounted-for water as part of their local

---

water conservation planning. Municipal customers of GBRA's wholesale water operations will be encouraged to adopt water conservation goals consistent with the goals established in the Region L Plan.

Goals for industrial water conservation are dependent upon individual manufacturing processes. These goals will be determined on a case-by-case basis, and their implementation will be specified in individual water sale contracts.

Irrigation water conservation efforts will continue for water delivered by the GBRA Calhoun Canal System. It must be recognized that GBRA's Calhoun Canal System is more than a seasonal irrigation canal system and is used throughout the year to deliver municipal, industrial, and livestock water. Most of these off-peak season deliveries are for small quantities of water, making the operation more challenging when compared to some other canal operations. Refer to Section 4.0 for additional information on conservation practices for irrigation.

### ***2.3 Monitoring and Record Management Program***

GBRA maintains records of all water transactions as well as daily reading of Canyon Reservoir storage capacity, inflow and releases and requires annual reports of all water use. Each year GBRA's records, including water sales, deliveries, and losses are audited by an independent auditor. In addition, flow records and reports are routinely audited by GBRA's internal auditor.

### ***2.4 Metering/Leak Detection and Repair Program***

Wholesale water customers shall meter all retail water uses and will be encouraged to provide a master meter as well as metering of all utility, city and other public facilities. The customers will manage their ongoing leak detection, location and repair programs. Waterline leaks are detected by utility personnel while reading meters, maintaining their water and wastewater systems, and while performing other routine surveillance programs.

Additionally, as required by House Bill 3338, a water audit shall be conducted and submitted to the Texas Water Development Board every five years. In addition, each customer city will be encouraged to submit, on an annual basis, a water system audit to the GBRA in order

---

to determine the amount of water, which is being lost from the system as a result of various conditions including theft, leaks, inaccurate meters, or bookkeeping errors.

As a contract requirement, each municipal water purchaser is required to submit on at least an annual basis a water system audit to determine the amount of water which is being lost from the system as a result of various conditions including theft, leaks, inaccurate meters, or bookkeeping errors. If such audit reveals that the customer's average system loss has been in excess of twenty (20) percent, the GBRA customer must perform the following:

- a) All system master meters and a random sampling of at least five (5) percent of Purchaser's customer meters are tested to determine their accuracy.
- b) After audit or testing performed in accordance with this section, Purchaser would submit in writing to GBRA a system efficiency plan outlining the corrective actions to be taken by Purchaser and a specific time schedule for each of the deficiencies found by the survey to be remedied.

Additional purchaser requirements include:

- Metering (unless GBRA agrees otherwise) all water pumped at the contractual diversion points and calibrating those meters at least once a year,
- Implementing an ongoing education program promoting water conservation through distribution of educational material and by conducting workshops,
- For municipal customers, no declining block rates for retail customers, and
- Adopting water conservation and drought contingency plans which include appropriate water use goals such as percentage reduction in per capita use, reduced peak water demands or reduced wastewater flows.

A further requirement is that each purchaser report every five years to the GBRA on the status of their water conservation program.

---

GBRA will monitor for leaks in any water storage, delivery, and transmission system components used to transport treated water prior to delivery to the wholesale customers. Any reported leaks will be repaired in a timely manner.

## **2.5 Water Supply Contracts**

It is a mandatory requirement for GBRA to require customers with any new or amended contracts or successor contracts to develop a water conservation plan. GBRA's Guidelines for Development of a Water Conservation Plan has been included in **Appendix 6**. Minimum plan requirements for municipal customers entering or renewing GBRA contracts include:

- A completed TCEQ utility profile;
- Specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal use, in gallons per capita per day.
- Metering devices having accuracy within plus or minus 5 percent in order to measure and account for the amount of water diverted from the supply source;
- A program for universal metering of both customer and public uses of water, for meter testing and repair, and for periodic meter replacement;
- Measures to determine and control unaccounted-for uses of water (for example, periodic visual inspections along distribution lines, annual or monthly audit of the water system to determine illegal connections, abandoned services, etc.);

All new water sales and water or wastewater utility service contracts or any extension of such contracts are required to contain appropriate conditions requiring conservation measures that are consistent with the provisions of this Plan and the current Drought Contingency Plan as adopted or amended by the GBRA Board of Directors.

This Plan requires that a water sale contract applicant must promote efficiency in the purchaser's use of water. In addition, each purchaser further agrees that, in the event that it furnishes water or water services to a third party that in turn will furnish the water or services to the ultimate consumer, the requirements of the water sale contract relative to water conservation shall be met through contractual agreements between it and the third party.

---

## **2.6 Water Conservation Education**

For 30 years, GBRA has provided educational programs to thousands of students and teachers, as well as distributed thousands of pieces of water conservation literature to our customers and communities in our water service area.

### **Status of Elementary Water Education Program**

GBRA continues to provide a high-quality water education program to elementary schools. Printed materials are provided free of charge to second and fourth grade classes. Classroom presentations are presented upon request, as staff calendars allow.

***A Journey Through the Guadalupe River Basin:*** This one and a half week unit for the 4<sup>th</sup> grade classroom, written and developed by GBRA, introduces students to basin-wide water uses and issues. Cartoon characters “Edward A. Armadillo” and “Lupe the Turtle” present the learning narrative, which includes place-based geography, watersheds, water uses and regulations, the importance of spring flow, water quality and conservation. Each classroom kit includes 25 workbooks, and a map poster. An electronic teacher’s guide is available upon request. Since its introduction in 1989, nearly 250,000 students have studied and completed this program. In 2019-20, approximately 400 classes (10,000 students) will study the *Journey* program. The student workbook is also available in Spanish. Date Initiated: 1989; updated and distributed annually

***Water Makes the World Go ‘Round*** is a second grade workbook, first introduced in schools in 2012. This colorful booklet, written and developed by GBRA staff, introduces young students to the importance of water, the water cycle, water uses and water conservation. During school year 2018-19, GBRA distributed 12,000 copies to public and private schools. This publication is available in Spanish. Date Initiated: 2012, distributed annually

---

## **Status of Middle School Water Education Program**

Starting school year 2013-14, GBRA was pleased to provide a new multi-media middle school program, targeting seventh grade science and social studies classes:

**Waters to the Sea, Guadalupe River:** Teacher trainings are provided free of charge.

Classroom presentations are provided upon request, as staff calendars allow. *Waters to the Sea, Guadalupe River* presents content through video stories, animation, and computer based interactive modules. Water quality and water conservation are the focus of the majority of the modules. A teacher's guide has been developed and made available to all teachers who have been trained. The guide includes supplemental worksheets, student readings, and labs. Trainings for this program began in summer 2013, and have continued throughout the school year. *Waters to the Sea, Guadalupe River* is available free of charge to any educator, and can be found online at

<http://waterstothesea.com/guadalupe>. Date Initiated: 2013

## **Status of GBRA's Education Programs for General Public; Schools, etc.**

GBRA provides additional water conservation education for students and the general public through participation in national programs during late spring.

**Drinking Water Week and Water Conservation Awareness Week:** GBRA continues to participate in this nationwide program the first week of May. For the last 16 years, GBRA Education staff has sponsored a Composition Challenge (essay contest) for fourth grade students, focusing on water conservation. Awarded prizes include t-shirts, cups, stickers and certificates, all with a water conservation message. During spring of 2019, over 2,000 students participated. Prizes are awarded during Drinking Water Week and throughout the month of May. Date Initiated: 1998

**Earth Day Celebrations:** GBRA presents water conservation education materials and interactive games during Earth Day celebrations (late April) in numerous cities: Seguin, New Braunfels, Sattler, and Victoria. Date Initiated: 2009

---

## **Status of Special Literature Regarding Water Conservation/Drought Contingency**

GBRA maintains an inventory of its own water conservation literature as well as some from various organizations (primarily the Texas Water Development Board and Texas Commission on Environmental Quality), which it distributes free to schools, civic groups, as bill stuffers, and at other public and private functions.

**Aqua-Phil's Conservation Basin:** Introduced in 2011, Aqua Phil's Conservation Basin brochure shares overall tips about how citizens can contribute to the overall efforts of water conservation in the Guadalupe River Basin and throughout the state. Tips focus on: Retrofit, Repair, Reduction; In-Home Conservation in the Kitchen, Bathroom, and Laundry; and Outdoor Water Conservation in Lawns and Gardens. The publication and an accompanying video are available on the GBRA website. This publication is available in Spanish.

**Aqua-Phil's Hydro-Illogical Cycle:** Using the National Drought Mitigation Center's Hydro-ILLOGICAL cycle idea, users can explore this concept through a short animation featuring Aqua Phil (GBRA water character). This is available on the GBRA website.

**River Run:** This award-winning publication, published throughout the year, features articles on water conservation and water quality topics, ranging from legislative efforts, regional planning, water supply projects and drought. River Run is distributed to interested persons, including legislators other public /water planning officials, water managers and other constituents.

## **Status of public information advertising by GBRA**

**Public Service Announcements:** GBRA will publish a series of "water-saving tips" that are in both English and Spanish. The tips will be disseminated on GBRA's social media accounts and local news stations during times when drought conditions are affecting counties within GBRA's statutory district. A sample of an English/Spanish tip is noted below:



- 
- "Check your sprinkler system frequently and adjust sprinklers so only your lawn is watered and not the house, sidewalk, or street."
  - "Verifique su sistema de la regadera con frecuencia y ajuste las regaderas tan sólo su césped se riega y no la casa, la acera, ni la calle."

### **Status of Any Special Advertising by the GBRA**

GBRA has not purchased "special advertising" for conservation, but rather, it mostly pushes the continuous use of its water-saving tips program year round.

### **3.0 Canyon Reservoir Operation**

Canyon Dam and Reservoir was completed in 1964 as a cooperative project that is jointly managed by GBRA and the U.S. Army Corps of Engineers. GBRA is responsible for reservoir water management and release within the 'conservation pool,' between 800 feet mean sea level (msl) and the normal operating elevation of 909 feet msl. The Corps is responsible for management and release of waters within the 'flood control pool,' at elevations above 909 feet msl. Water is normally released as soon as possible from this portion of the reservoir as it must be kept empty to contain runoff from high rainfall and flood events.

Canyon Reservoir supplies stored water to cities, industries, and agricultural users. Under a permit issued by TCEQ, GBRA is currently allowed to divert a five-year average of 90,000 acre feet per year of stored water to supply contracted water users. To many users Canyon storage is their sole source of water; for others, it provides a dependable, alternative source of water during drought conditions and low river flows.

At maximum conservation pool level of 909 feet elevation msl, the reservoir covers more than 8,200 surface acres and impounds 386,200 acre-feet of water to a depth of 140 feet.

---

### **3.1 Reservoir Averaging**

GBRA has developed an operating procedure whereby stored water from Canyon Reservoir is used to "firm-up" run-of-the-river water for users downstream of the reservoir. As an example, by using stored water from Canyon Reservoir, GBRA developed and used a "reservoir averaging" method whereby Coleta Creek Reservoir, an off-channel cooling lake for a steam-electric power plant in the lower basin, has been dependably operated with a run-of-the-river permit for water from the Guadalupe River, firmed up by a minimum quantity of stored water. The run-of-the river permit for Coleta Creek Reservoir is 20,000 acre-feet per year. With TCEQ's approval, GBRA's contract for stored water provides for an average of 6,000 acre-feet per year of stored water from Canyon, with a special condition that the maximum quantity of stored water that can be used during any one year is 18,900 acre-feet. This is possible, because in most years, the run of the river permit and natural run off are sufficient to keep Coleta Creek Reservoir full, and no Canyon releases are necessary. In this way, stored water for the electric utility is minimized, and the project has an adequate water supply to allow operations during short term droughts. This is just one example of the benefits of reservoir averaging.

### **3.2 Pricing of Stored Water**

GBRA has a philosophy of pricing stored water, so the rate includes the cost of the capital; operation and maintenance of facilities; management of water rights; and other expenses required to store, manage and deliver water. A basin-wide price is calculated as the weighted average cost of service from all water resource activities. The current rate for stored water is \$147.00 per acre-foot per year. This rate will increase as new projects are financed and built, and GBRA becomes more active in other water-related activities such as flood management and conservation.

### **4.0 Additional Conservation Practices for Irrigation**

The GBRA's efforts in irrigation water conservation have been and continue to be focused to promote water conservation. The system accounts for approximately 80 percent of the surface water irrigation in GBRA's ten-county statutory district. The GBRA's conservation activities are directed at improving the efficiency of the water delivery systems and enhancing water use efficiency on the individual farms served by GBRA system.

---

Three major elements comprise the GBRA conservation program:

- Education on Best Irrigation Practices,
- Canal Rehabilitation and Maintenance; and
- Volumetric Water Pricing and Billing.

Each of these programs are described in the following sections.

#### **4.1 Education on Best Irrigation Practices**

Key elements of the on-farm water conservation education program include:

1. Working with local extension agencies to educate rice producers.
2. Establishing a row-crop rate to reduce the number of acres of marginal crops irrigated.
3. Support of crop tours and field days.

Based on the preliminary results of the "Less Water, More Rice" research program, improved cultivation and management practices (e.g., precision land leveling, multiple inlet systems, etc.) can reduce on-farm water use by 25 to 30 percent. Importantly, the conservation practices examined in the research program have been shown to significantly increase crop yield. As such, individual rice producers have a direct economic incentive to adopt the recommended conservation practices. Indications are that a majority of producers have been exposed to the "Less Water, More Rice" conservation practices and that many producers have or intend to adopt recommended practices.

#### **4.2 Canal Rehabilitation and Maintenance**

Improving the canal conveyance efficiency, reducing power consumption and improving canal system management are goals of a rehabilitation and maintenance program. GBRA will enhance its program to improve irrigation efficiency by re-sectioning canals, rebuilding levees, and removing vegetation. GBRA will also investigate the possibility of abandoning lateral canals that are seldom used.

#### **4.3 Volumetric Pricing and Billing**

As part of the Water Conservation Plan, GBRA will continue to investigate volumetric pricing and billing in the Calhoun Canal System.

---

## **5.0    *Coordination with Regional Planning Groups***

GBRA's statutory district is located within the South Central Texas Regional Water Planning Area (Region L) and the GBRA will provide a copy of the Plan to Region L.

## **6.0    *Board Resolution and Implementation***

By resolution dated July 17, 2019, the GBRA Board of Directors adopted the Wholesale Water Conservation Plan for GBRA. The General Manager or his/her designee is authorized and directed to implement the applicable provisions of this plan. The General Manager or his/her designee will act as the administrator of the plan, oversee the execution and implementation of the plan, and will be responsible for keeping adequate records for program verification. A copy of the Board Resolution adopting the Plan has been provided in **Appendix 7**.

## **APPENDIX 1**

---

### **GBRA Board Policy on Water Conservation**

## **GBRA Board Policy**

### **501 – Water Conservation**

**501.10 Purpose.** This policy provides direction for GBRA's leadership role in assuming an adequate supply of clean water within the GBRA10-county statutory district sufficient to meet the needs of municipal, agricultural and industrial uses for the future through promoting the conservation of both ground and surface waters.

#### **501.20 Policy**

**501-201 Leadership.** GBRA directors and employees will exercise leadership by encouraging and where appropriate, requiring the conservation of both ground and surface waters within GBRA's statutory district as follows:

- A) GBRA will promote practices and enter into cooperative efforts while avoiding duplication of other efforts.
- B) GBRA's goals will be to promote the development and application of practices and technologies that improve water use efficiency, increase the beneficial reuse and recycling of water, and minimize the waste of water such that water supplies are extended.
- C) GBRA will support local, state, federal and private-sector initiatives to develop, demonstrate and apply water conservation measures where appropriate.
- D) GBRA will implement technical assistance, demonstrations, public information and educational programs on water conservation.
- E) In the operation and management of GBRA facilities and properties, GBRA will use water efficiency measures and demonstrate water conserving technology.
- F) All future water sales contracts will contain appropriate conservation and drought management conditions requiring the purchaser to provide to the maximum extent for the conservation of water, and to operate and maintain its facilities in a manner that prevents waste of water.

**501.202 Technical Assistance.** GBRA's efforts in technical assistance will focus on the development and implementation of local water conservation and drought contingency programs that encourage local initiative and achievement. GBRA will provide assistance in the preparation of local conservation plans.

**501.202 Cooperative Efforts.** GBRA will look for opportunities for cooperative efforts with the Texas Water Development Board and the Texas Commission on Environmental Quality for the development and review of water conservation plans affecting the

GBRA statutory district. GBRA will also seek grants, matching funds, or other financial arrangements from public and private sources.

**501.202.1 Research and Legislation.** GBRA will support research, regulatory initiatives and legislation that advance the conservation and beneficial reuse of water in the GBRA statutory district. GBRA also will assist in the research and transfer of technology and information regarding cost-effective conservation measures for the benefit of water users within the statutory district.

**501.203 Municipal and Industrial Water Efficiency.** GBRA will integrate, as appropriate, water efficiency measures into the development and implementation of GBRA programs and projects. Such programs and projects may include, but shall not be limited to: water resources planning and demand forecasting such as the Senate Bill One Regional Water Planning Study; water and wastewater utility service studies, new projects and service agreements; water rate design; environmental programs; and energy efficiency programs.

**501.204 Agricultural Water Efficiency.** GBRA will support public and private-sector initiatives to develop, and apply cultivation and irrigation practices to improve on-farm water use efficiency as follows:

- A) GBRA will assist with the transfer of information and technology for improving on-farm water use efficiency from research to the producer.
- B) GBRA will undertake maintenance, rehabilitation and management practices, where feasible, to minimize water losses from GBRA irrigation water delivery systems.

**501.205 Public Education.** GBRA will cooperate in the distribution of water conservation materials to water users in GBRA's statutory district. GBRA will include water conservation information as a part of education programs.

**501.301 Responsibility.**

**501.301 General Manager.** The General Manager is responsible for the development of the water conservation program and will prepare the necessary management directives to carry out this policy.

**Effective:** May 16, 2007

## **APPENDIX 2**

---

### **Population Data for GBRA Statutory District**



# POPULATION FOR GBRA'S TEN COUNTIES\*

Census	Caldwell	Calhoun	Comal	Dewitt	Gonzales	Guadalupe	Hays	Kendall	Refugio	Victoria	Total
2006	36,533	20,839	95,637	20,108	19,633	111,878	132,111	29,134	7,548	84,528	557,949
2007	36,906	20,888	99,540	19,961	19,512	117,667	140,480	30,330	7,414	85,261	577,959
2008	37,671	21,127	103,272	19,902	19,538	123,398	147,674	31,754	7,430	85,762	597,528
2009	37,829	21,388	106,350	20,048	19,628	128,265	153,619	32,655	7,410	86,635	613,827
2010	38,066	21,381	108,472	20,097	19,807	131,533	157,107	33,410	7,383	86,793	624,049
2011	38,422	21,356	112,039	20,202	19,742	135,789	163,234	34,456	7,319	87,530	640,089
2012	38,684	21,575	114,808	20,365	19,915	139,586	168,478	35,574	7,252	89,067	655,304
2013	39,205	21,735	118,576	20,382	20,139	142,840	176,019	37,163	7,273	90,058	673,390
2014	39,693	21,805	123,120	20,516	20,357	146,765	184,871	38,408	7,354	90,988	693,877
2015	40,337	21,881	128,653	20,630	20,338	150,585	194,497	39,968	7,320	92,082	716,531
2016	41,108	21,942	134,142	20,618	20,863	154,596	204,345	41,964	7,293	92,379	739,250
2017	42,338	21,744	141,009	20,226	20,893	159,659	214,485	44,026	7,224	92,084	763,688
2018	43,247	21,561	148,373	20,187	20,826	163,694	222,631	45,641	7,032	92,035	785,227

\*2000 & 2009, 2010 & 2010-2017 US Census Bureau; 2000-2009, 2010, and 2010-2017 Texas State Library and Archives Commission; 2018 US Census Bureau 2010-2018, Texas Association of Counties

## **APPENDIX 3**

---

### **TCEQ Implementation Report with Water Use Data and Customer Data**



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
Water Availability Division - MC-160, P.O. Box 13087 Austin, Texas 78711-3087  
Telephone (512) 239-4691, FAX (512) 239-2214

## WATER CONSERVATION IMPLEMENTATION REPORT FORM AND SUMMARY OF UPDATES/REVISIONS TO WATER CONSERVATION PLAN

(Texas Water Code §11.1271(b) and Title 30 Texas Administrative Code §288.30(1) to (4))

*Please note, this form replaces the following forms: TCEQ-20645 (Non-Public Water Suppliers) and TCEQ-20646 (Public Water Suppliers)*

**This Form is applicable to the following entities:**

1. Water Right Holders of 1,000 acre-feet or more for municipal, industrial, and other non-irrigation uses.
2. Water Right Holders of 10,000 acre-feet or more for irrigation uses.

The above noted entities are required by rule to submit updates to their water conservation plan(s) and water conservation implementation report(s) every five years. The most current five-year submittal deadline is **May 1<sup>st</sup>, 2019**. See 30 Texas Administrative Code (TAC) §288.30(1) to (4). Entities must also submit any revisions to their water conservation plan within 90 days of adoption when the plans are revised in between the five-year submittal deadlines. This form may be used for the five-year submittal or when revisions are made to the water conservation plans in the interim periods between five-year submittals. Please complete the form as directed below.

1. Water Right Holder Name: Guadalupe-Blanco River Authority
2. Water Right Permit or Certificate Nos. 2074-E, 3600-D, 3863-D, 3896-A, 4167, 5173-E, 5174-E, 5175-E, 5176-E, 5177-E, 5178-E, 5234-B, 5484, 5172, 5488
3. Please Indicate by placing an 'X' next to all that Apply to your Entity:

Water Right Holder of 1,000 acre-feet or more for non-irrigation uses

- ☐ Municipal Water Use by Public Water Supplier  
☒ Wholesale Public Water Supplier  
☐ Industrial Use  
☐ Mining Use  
☐ Agriculture Non-Irrigation

Water Right Holder of 10,000 acre-feet or more for irrigation uses

- ☐ Individually-Operated Irrigation System  
☐ Agricultural Water Suppliers Providing Water to More Than One User

### Water Conservation Implementation Reports/Annual Reports

4. Water Conservation Annual Reports for the previous five years were submitted to the Texas Water Development Board (TWDB) for each of the uses indicated above as required by 30 TAC §288.30(10)(C)? Yes ☒ No ☐

**TCEQ no longer requires submittal of the information contained in the detailed implementation report previously required in Forms TCEQ-20645 (Non-Public Water Suppliers) and TCEQ-20646 (Public Water Suppliers). However, the Entity must be up-to-date on its Annual Report Submittals to the TWDB.**

**Water Conservation Plans**

5. For the five-year submittal (or for revisions between the five-year submittals), attach your updated or revised Water Conservation Plan for each of the uses indicated in Section 3, above. Every updated or revised water conservation plan submitted must contain each of the minimum requirements found in the TCEQ rules and must be duly adopted by the entity submitting the water conservation plan. Please include evidence that each water conservation plan submitted has been adopted.

- Rules on minimum requirements for Water Conservation Plans can be found in 30 TAC 288.  
[http://texreg.sos.state.tx.us/public/readtac%24ext.ViewTAC?tac\\_view=4&ti=30&pt=1&ch=288](http://texreg.sos.state.tx.us/public/readtac%24ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=288)
- Forms which include the minimum requirements and other useful information are also available to assist you. Visit the TCEQ webpage for Water Conservation Plans and Reports. [https://www.tceq.texas.gov/permitting/water\\_rights/wr\\_technical-resources/conserve.html](https://www.tceq.texas.gov/permitting/water_rights/wr_technical-resources/conserve.html)

*Call 512-239-4691 or email to [wcp@tceq.texas.gov](mailto:wcp@tceq.texas.gov) for assistance with the requirements for your water conservation plan(s) and report(s).*

6. For each Water Conservation Plan submitted, state whether the five and ten-year targets for water savings and water loss were met in your *previous* water conservation plan.

Yes   X   No           

If the targets were not met, please provide an explanation.

7. For each five-year submittal, does each water conservation plan submitted contain *updated* five and ten-year targets for water savings and water loss?

Yes   X   No           

If yes, please identify where in the water conservation plan the updated targets are located (page, section).

Section 2, Pages 6-14

8. In the box below (or in an attachment titled "Summary of Updates or Revisions to Water Conservation Plans), please identify any other revisions/updates made to each water conservation plan that is being updated or revised. Please specify the water conservation plan being updated and the location within the plan of the newly adopted updates or revisions.

Section 2.2, No. 2 on Page 7 - Average municipal per capita water use  
Section 3.2, Page 15 - Current rate for stored water  
Appendix 2 - Population Data for GBRA Statutory District  
Appendix 3 - Texas Commission on Environmental Quality Implementation Report  
2019 Canyon Contracts  
Appendix 4 - Wastewater System Data  
Appendix 5 - Region L Municipal Population Projections

9. Form Completed by (Point of Contact): Darel Ball  
(If different than name listed above, owner and contact may be different individual(s)/entities)

Contact Person Title/Position: Executive Manager of Operations

Contact Address: 933 E. Court St., Seguin, TX 78155

Contact Phone Number: 830-379-5822 Contact Email Address: dball@gbra.org

Signature: 

Date: 7/16/19

## January 2019 Canyon Contracts

Customer	Purpose	Commit.	Exp Dt	Div Rate	County
Springs Hill WSC I	Mun 010	1850	12/31/2050	500 GPM	Guad
Canyon Lake WSC	Mun 010	2000	12/31/2044	4200 GPM	Comal
Canyon Lake WSC II	Mun 010	2000	12/31/2050	4200 GPM	Comal
Canyon Lake WSC III	Mun 010	2000	12/31/2050	6945 GPM	Comal
Green Valley SUD	Mun 010	1000	12/31/2040	1200 GPM	Guad
WW Sports	Mun 010	1	12/31/2019	60 GPM	Comal
Gonzales Co. WSC	Mun 010	350	03/31/2039	600 GPM	Gonz
CLWSC - Rebecca Crk. MUD	Mun 010	130	12/31/2037	600 GPM	Comal
Calhoun County RWSC	Mun 010	1500	12/31/2030	898 GPM	Calhoun
City of Port Lavaca	Mun 010	4480	08/31/2035	2 MGD	Calhoun
POC Improvement Dist	Mun 010	1170	07/19/2040	725 GPM	Calhoun
Yacht Club	Mun 010	10	12/31/2027	6 GPM	Comal
CRWA (Dunlap)				3000 GPM	
City of Marion	Mun 010	100	12/31/2039		Guad
City of Cibolo	Mun 010	1350	12/31/2039		Guad
Green Valley SUD	Mun 010	1800	Varies		Various
Springs Hill WSC	Mun 010	1925	12/31/2039		Guad
East Central WSC	Mun 010	1400	Varies		Various
SAWS	Mun 010	4000	12/31/2018		Bexar
NBU	Mun 010	9720	02/25/2050	6000 GPM	Comal
City of Seguin	Mun 010	1000	08/31/2022	10327 PM	Guad
Crystal Clear	Mun 010	800	11/12/2032	600 GPM	Guad
Dittmar, Gary	Mun 010	5	N/A	2800 GPM	Guad
Dittmar, Ray	Mun 010	5	N/A	1200 GPM	Guad
Springs Hill WSC II	Mun 010	1000	12/31/2050	10327 GPM	Guad
City of Blanco	Mun 010	600	12/31/2050	375 GPM	Comal
HH Ranch Properties	Mun 010	250	12/31/2044	600 GPM	Comal
Boerne	Mun 010	3611	12/31/2037		Kendall
Fair Oaks Ranch	Mun 010	1850	12/31/2037		Bexar
SAWS	Mun 010	4000	12/31/2037		Bexar
Cordillera Ranch	Mun 010	1500	12/31/2037		Comal
Kendall & Tapatio	Mun 010	750	12/31/2037		Kendall
DH Invest.-Johnson Ranch	Mun 010	900	12/31/2037		Comal
Miralomas MUD (Lerin Hills)	Mun 010	750	12/31/2036		Kendall
Comal Trace	Mun 010	100	file missing		Comal
CLWSC-Bulverde	Mun 010	400	12/31/2040		Com/Ken/ Bex
CLWSC-Park Village	Mun 010	322	12/31/2040		Com/Ken/ Bex
Bremer Ranch LTD	Mun 010	100	12/31/2043		Comal
Jacquelyn Couser	Mun 010	100	12/31/2043		Comal

Cliff View Condominium Community Inc.	Irr 030	2	12/31/2019		Comal
Daniel Gayle	Irr 030	1	12/31/2019		Comal
Mark & Kris Burken	Irr 030	1	12/31/2019		Comal
DL Stafford Real Estate LP	Irr 030	2	12/31/2019		Comal
Ted Bowen	Irr 030	1	12/31/2019		Comal
Carl Hendrickson	Irr 030	1	12/31/2019		Comal
<b>SUBTOTAL Irrigation</b>		<b>401</b>			
<b>UPSTREAM DIVERSION CONTRACTS</b>					
River Crossing Golf Club LTD	Irr 030	117	12/31/2029	900 GPM	Comal
Tom J. Fatjo, Jr. (file 041-703)	Irr 030	11	12/31/2040		Kerr
Sylvia Sieker	Irr 030	1	12/31/2035	.03 GPM	Kerr
<b>SUBTOTAL Upstream Diversion</b>		<b>129</b>			
<b>TOTALS</b>		<b>99,963</b>			
<b>*Multiple Sources - not solely Canyon</b>					

## I. WHOLESALE SERVICE AREA POPULATION AND CUSTOMER DATA

### B. Customers Data

Irrigation Customers	1,331 ac.ft. contracted	1,331 ac.ft. used 2018
Union Carbide Dow	NA**	13,108 ac.ft. used 2018

**\*\*Note:** Union Carbide Dow does not directly contract with GBRA for surface water because they possess surface water rights, either solely owned or shared with GBRA.

### INDUSTRIAL CUSTOMERS

<u>Raw Water Customer</u>	<u>Total Contracted</u>	<u>Storage/Alternate Source</u>	<u>Notes</u>
Ineos	3300 acre-feet	1100 ac-ft	
Seadrift Coke	1000 acre-feet	334 ac-ft	
Union Carbide(Dow)	Not applicable	100 ac-ft	note 1
Ponds	3,648 surface acres	no alt. source	Ag 1 yr term 2018

### IRRIGATION CUSTOMERS

<u>Raw Water Customer</u>	<u>Total Contracted</u>	<u>Storage/Alternate Source</u>	<u>Notes</u>
US Fish & Wildlife	4,000 acre-feet	no alt. source	Ag 5 yr term
Rice	291 surface acres	no alt. source	Ag 1 yr term 2018
Row crop & pasture	1,196 surface acres	no alt. source	Ag 1 yr term 2018

## III. WATER SUPPLY SYSTEM DATA

### 3. Description of the Water System

#### Guadalupe Blanco River Authority Port Lavaca Water Treatment Plant

The GBRA Port Lavaca Water Treatment Plant is a surface water plant rated at 6.0 MGD. The plant wholesales the water to the City of Port Lavaca, the Calhoun County Rural Water Supply System, and the Port O'Connor Improvement District. The plant has a 1.0 MG Clearwell. The City of Port Lavaca has two 0.5 MG elevated tanks. The Calhoun County Rural Water System wheels off of the City of Port Lavaca and also has a 0.03 MG ground storage tank. The Port O'Connor Improvement District has a 0.75 MG in ground storage and 0.25 MG in an elevated tower.



## **APPENDIX 4**

---

### **Wastewater System Data**

**GBRA WASTEWATER DISCHARGE PERMITS**

<b>WWTP</b>	<b>TPDES/ TLAP No.</b>	<b>Permit Expiration Date</b>	<b>Design Capacity (interim/final)</b>	<b>Receiving Stream</b>	<b>Area Served</b>
Lockhart WWTF No. 1	10210-001	Feb 1, 2020	1.1 MGD	Town Creek to Plum Creek	City of Lockhart (50%)
Lockhart WWTP No. 2	10210-002	Feb 1, 2020	1.5 MGD	Plum Creek	City of Lockhart (50%)
City of Buda WWTF	11060-001	Feb 1, 2020	1.5/1.75/3.5 MGD	001: Porter Creek to Plum Creek 002: Brushy Creek to Plum Creek	City of Buda
Canyon Park Estates WWTP	11496-001	Feb 1, 2020	0.26 MGD	Canyon Reservoir	Silverleaf Condominiums/Hancock, TX
Dunlap WWTP	11378-001	Feb 1, 2020	0.95 MGD	Guadalupe River	River Bend, Bandit and Southbank Subdivisions, southeast of New Braunfels, Comal Co., TX
Northcliffe WWTP	11751-001	Feb 1, 2020	0.3 MGD	No discharge	Northcliffe Subdivision/Schertz, TX
Crestview WWTP	13954-001	Feb 1, 2020	0.03 MGD	Chocolate Bayou	Crestview Sub-division/Calhoun Co., TX
Cordillera Ranch	14385-001	April 17, 2029	0.064/0.128/0.19 2 MGD	No discharge	Cordillera Ranch Subdivision
A&M Heep WWTF	14377-001	Feb 1, 2020	0.5/0.99 MGD	Brushy Creek to Plum Creek	Sunfield Subdivision
Gerdes Land Application	04438	Aug 25, 2023			
Luling WTP Land Application	730021	May 26, 2022			
Port Lavaca WTP Land Application	730106	Sept 11, 2020			

## **APPENDIX 5**

---

### **Region L Municipal Population Projections**

## 2016 Region L Plan Population Projections for GBRA Service Area

	Census		Projections					
	2000	2010	2020	2030	2040	2050	2060	2070
Caldwell	32,194	45,958	47,008	57,553	67,955	78,243	88,639	98,754
Calhoun	20,647	23,556	24,037	26,866	29,622	32,276	34,906	37,545
Comal	78,021	108,219	121,221	152,031	183,259	215,010	246,432	276,707
DeWitt	20,013	20,460	20,855	21,555	21,900	22,216	22,425	22,572
Gonzales	18,628	19,872	21,751	23,921	25,963	28,330	30,738	33,256
Guadalupe	89,023	114,878	182,693	235,318	276,064	315,934	356,480	396,261
Hays (Part*)	72,499	120,199	183,278	240,549	303,637	353,172	441,377	541,765
Kendall	23,743	35,720	42,185	52,213	62,807	73,308	84,028	94,549
Refugio	7,828	8,217	7,687	7,929	7,985	8,119	8,175	8,213
Victoria	74,361	93,073	93,857	100,260	105,298	109,785	113,470	116,522
<b>TOTAL</b>	<b>436,957</b>	<b>590,152</b>	<b>744,572</b>	<b>918,195</b>	<b>1,084,490</b>	<b>1,236,393</b>	<b>1,426,670</b>	<b>1,626,144</b>

## 2016 Region L Plan Municipal Demand Projections for GBRA Service Area

	Census		Projections					
	2000	2010	2020	2030	2040	2050	2060	2070
Caldwell	4,643	6,306	7,939	8,992	10,069	11,191	12,362	13,557
Calhoun	2,705	2,948	71,705	74,773	78,299	81,636	86,052	89,788
Comal	14,055	18,771	42,660	50,555	58,562	66,459	74,986	83,562
DeWitt	3,065	3,064	11,836	11,719	10,961	10,238	8,885	8,615
Gonzales	3,828	4,108	15,824	15,635	15,522	15,508	14,729	15,247
Guadalupe	13,850	17,113	36,487	42,642	48,287	54,229	61,977	68,632
Hays (Part*)	10,926	17,278	25,950	32,343	40,928	48,133	60,344	74,547
Kendall	3,262	4,649	7,536	9,097	10,768	12,426	14,201	15,950
Refugio	1,191	1,249	3,036	3,038	2,988	2,991	2,507	2,502
Victoria	13,664	14,590	79,119	108,161	119,083	138,761	159,410	163,073
<b>TOTAL</b>	<b>60,984</b>	<b>71,189</b>	<b>90,076</b>	<b>112,195</b>	<b>133,400</b>	<b>153,590</b>	<b>175,670</b>	<b>197,632</b>

\*Includes only that part of Hays County within the Guadalupe River Basin

## **APPENDIX 6**

---

### **GBRA Water Conservation Plan Guidelines**

**GBRA GUIDELINES**  
**WATER CONSERVATION GUIDELINES**

## **TABLE OF CONTENTS**

### **FORWARD**

Article 1.0    **PURPOSE**

Article 2.0    **DEFINITIONS**

Article 3.0    **AUTHORITY**

Article 4.0    **PROCESSING OF WATER CONSERVATION PLANS**

4.1    Preparation of the Water Conservation Plan

4.2    Review and Approval of Water Conservation Plan

4.3    Appeal of Rejection of Plan

4.4    GBRA Board Approval

Article 5.0    **WATER CONSRVATION GUIDELINES**

5.1    Water Sale Contracts

5.1.1    Municipal Water Sale Contracts

5.1.2    Industrial Water Sale Contracts

5.1.3    Irrigation Water Sale Contracts

5.1.4    Compliance with GBRA Drought Contingency Plan

5.2    GBRA Water and Wastewater Utility Service Agreements

5.3    GBRA Facilities

Article 6.0    **REPORTING REQUIREMENTS**

6.1    Report Schedule

6.2    Content of Progress Reports

Article 7.0    **COMPLIANCE AND ENFORCEMENT**

## **FORWARD**

GBRA was originally the Guadalupe River Authority, a water conservation and reclamation district created in 1933 as a public corporation under Section 59, Article 16 of the Constitution of Texas. It was reauthorized in 1935 as the Guadalupe-Blanco River Authority by an act of the Texas Legislature (VCS Art. 8280-106).

The guidelines for water conservation are promulgated pursuant to this GBRA policy under the authority granted to the GBRA under the Texas Water Code, Section 11.037.

Each person, association of persons, corporation, and district authorized by law to carry out irrigation powers that is conserving or supplying water for any of the purposes authorized by Chapter 11, Texas Water Code may make and publish reasonable guidelines relating to water conservation, as defined by Subsection (8) (B), Section 11.002, Texas Water Code.

The many benefits of water conservation include:

- Extends available water supplies and reduces the risk of shortage during periods of extreme drought;
- Reduces wastewater flows;
- Provides a larger utility customer base over which to spread capital and other costs
- Improves the reliability and quality of water utility service;
- Reduces water and wastewater utility operating costs;
- Reduces customer costs for water service;
- Improves the performance of wastewater treatment systems; and
- Enhances environmental and recreation values.

GBRA intends to pursue an aggressive role in promoting efficient water use and the beneficial reuse of reclaimed water. By adopting these guidelines, GBRA's commitment to conserving water is affirmed.



## **GUIDELINES FOR WATER CONSERVATION**

### **ARTICLE 1. PURPOSE**

- 1.0 The purpose of these guidelines is to extend existing surface and groundwater supplies through conservation and beneficial reuse and thereby to assure an adequate supply of clean water within the GBRA 10-county district. These guidelines apply to all GBRA municipal, industrial and irrigation water sale contracts (specifically excluding water service agreements or contracts between GBRA and downstream irrigation districts or irrigation companies), all water and wastewater utility service agreements and all GBRA facilities.

### **ARTICLE 2. DEFINITIONS**

- 2.1 Acre-foot of water: Enough water to cover one acre of land one foot deep. One acre foot of water is equal to 325,851 gallons of water.
- 2.2 Applicant: A person, association of persons, or other entity who has submitted a water conservation plan to GBRA, and who has provided all information required by these guidelines.
- 2.3 Beneficial use: Use of the amount of water which is economically necessary for a purpose authorized by law, when reasonable intelligence and reasonable diligence are used in applying the water to that purpose.
- 2.4 Customer: A person, association of persons, or other entity to whom a water sale contract has been issued.
- 2.5 Domestic use: Use of water by an individual or a household used for drinking, washing, or culinary purposes; for irrigation of lawns, or of a family garden and/or orchard when the produce is not sold; for watering of domestic animals; and for water recreation for which no consideration is given or received. If the water is diverted, it must be diverted solely through the efforts of the user.
- 2.6 Drought of record: The drought which occurred during the critical drought period. That critical drought period is the period of time during which the reservoir system was last full and refilled, and the storage content was at its minimum value. The current drought-of-record occurred during the period from 1946-1957.
- 2.7 Firm water: A supply of water that is available even during a repeat of the conditions of the historic drought of record.
- 2.8 Industrial Water Sale Contract: Contracts for uses of water associated with the operation of some industrial or mining process. The industrial use of water is defined as water used in processes designed to convert materials of a lower order of value into forms having greater usability and commercial value, including commercial feedlot operations, commercial fish production, and the development of power by means other than

hydroelectric. The use of water for mining purposes, including hydraulic use, drilling, washing sand and gravel, and oil field re-pressuring also falls under industrial water sale contracts.

- 2.9 Interruptible water: A supply of water that is not defined as firm water. Such supplies are diverted under a contract or resolution approved by the GBRA Board and is usually run-or-river water.
- 2.10 Irrigation Water Sale Contract: A contract for uses of water that entail direct applications of raw water. Irrigation uses may include, but are not limited to, the following: agricultural production, water applied to golf courses, athletic fields and other landscaped areas.
- 2.11 Non-potable water: Water that is not suitable for direct human consumption.
- 2.12 Municipal Water Sale Contract: A contract for raw water which is to be treated by the Purchaser to a potable quality and supplied to users by a centralized water supply system. Municipal use is defined as the use of treated water for domestic purposes, fighting fires, sprinkling streets, flushing sewers and drains, watering parks and parkways, and recreational purposes, including public and private swimming pools, the use of treated water in industrial and commercial enterprises supplied by a municipal distribution system without special construction to meet its demands, and for the watering of lawns and family gardens. Municipal use also includes the application of municipal sewage effluent upon land sites, pursuant to a Texas Water Code, Chapter 26, permit, where:
  - a) the primary purpose of the application is the treatment and/or necessary disposal of such effluent;
  - b) the application site is a park, parkway, golf course, or other landscaped area owned by the owner of the permitted sewerage system; or
  - c) the effluent applied to such site is generated within an area for which the commission has adopted a no-discharge rule.
- 2.13 Potable Water: Water that is suitable for direct human consumption.
- 2.14 Primary Customer: A customer who diverts water directly from a river or stream, Canyon Reservoir, or a GBRA irrigation canal and delivers all or a part of that water to a secondary customer.
- 2.15 Secondary Customer: A water user who does not divert water directly from a river or stream, Canyon Reservoir or a GBRA irrigation canal, but who receives water from a primary customer.
- 2.16 Wastewater Effluent: Water discharged after the treatment of domestic or industrial sewage.
- 2.17 Water Conservation: Those practices, techniques, and technologies that reduce the consumption of water, reduce the waste of water, improve efficiency in the use of water,

or increase the recycling and reuse of water so that a water supply is made available for future or alternative uses.

- 2.18 Water Sale Contract: A contractual agreement between GBRA and a Purchaser for the sale of raw water under GBRA's Certificates of Adjudication or permits.
- 2.19 Water Customer: A person, association of persons, or other entity to whom a water sale contract has been issued.

### **ARTICLE 3. AUTHORITY**

- 3.0 These guidelines are promulgated in accordance with Section 11.037(b), of the Texas Water Code, the GBRA Act, and GBRA Board Resolution dated October 30, 1998.

### **ARTICLE 4. PROCESSING OF WATER CONSERVATION PLANS**

- 4.1 Preparation of the Water Conservation Plan. The applicant shall submit to the GBRA for review and approval a water conservation plan. This plan shall be prepared in accordance with Article 5.0 of these rules. Prior to submittal of the plan, the applicant (or applicant's representative) is encouraged to discuss the scope and content of the plan with GBRA staff. GBRA staff shall review and approve all water conservation plans. In considering approval of a water conservation plan, the staff shall consider the best management practices, the best available techniques and technologies, the financial capability of the applicant, the term of the contract, lease, or easement and other such factors. The Applicant shall implement the water conservation plan as approved.
- 4.2 Review and Approval of Water Conservation Plan. GBRA shall conduct a review of the plan for administrative completeness. If the plan is not determined to be administratively complete, GBRA staff shall notify the applicant and shall detail the deficiencies. The applicant shall have thirty (30) working days to file appropriate additional information to correct such deficiencies. If such information is not provided within said time period, then the plan shall be considered withdrawn.

After a plan has been determined to be administratively complete, GBRA staff shall conduct a technical review as necessary and appropriate. The technical review period is the period of time beginning with the determination that the plan is administratively complete and continuing for a period not to exceed thirty (30) calendar days. After the appropriate technical review has been completed, the applicant shall be notified regarding whether the plan has been approved or rejected.

Unless GBRA staff is able to establish good cause for exceeding the above-mentioned time limitations for either, approval or rejection of a plan, failure of GBRA to make such a determination shall result in said plan being deemed approved.

- 4.3 Appeal of Rejection of Plan. If an Applicant believes that its water conservation plan was improperly returned, or that the reasons cited for rejection of the plan were not consistent with these rules, the applicant may appeal the decision. Any appeal must be made in writing and directed to the GBRA General Manager or his designee. The General Manager or his designee shall promptly review any such appeal and shall either agree with the staff's decision to return and/or reject the plan or shall approve the plan.
- 4.4 GBRA Board Approval. All applicable water sale contracts, affecting GBRA lands and GBRA water and wastewater utility service agreements will not be brought to the Board of Directors for approval until a water conservation plan has first been approved by GBRA staff or the General Manager or his designee in accordance with Section 4.3.

## **ARTICLE 5. WATER CONSERVATION PLAN REQUIREMENTS**

- 5.0 The water conservation plan shall effectively address all appropriate methods for reducing water consumption and water waste, methods for improving water use efficiency and methods for increasing the beneficial reuse and recycling of water. The plan shall include a long-term water conservation plan and a drought contingency or emergency water management plan. Applicant shall explain reasons for not including a particular measure in the conservation plan.

The required information may be given in either narrative or outline format.

- 5.1 Water Sale Contracts.

- 5.1.1 Municipal Water Sale Contracts.

- (a) Water and Wastewater Utility Profile.

A profile of an applicant's water and wastewater utility system should be developed in order to identify the goals and emphasis of the plan. This profile shall include, at a minimum, the following:

- (1) Service area population: current population and estimated population at build-out or at the end of the contract term.
- (2) Water Utility Data.
  - (a) Number of water service connections, by use sector if available (residential, industrial, commercial, public);
  - (b) Percent of connections metered;
  - (c) Monthly water consumption for previous two (2) years (by use sector, if available);
  - (d) Average daily use for previous two (2) years;

- (e) Peak day demand for previous two (2) years;
  - (f) Percent of water use unaccounted for; and
  - (g) Description of system: peak daily water production and distribution capacity; number of plants, wells, and storage tanks; system constraints; and planned capital improvement projects.
- (3) Wastewater Utility Data (if the customer also operates a wastewater system).
  - (a) Average monthly wastewater flows for previous two (2) years;
  - (b) Peak monthly wastewater flows for previous two (2) years;
  - (c) Percent of water service connections using private sewage on-site facilities (i.e., septic systems);
  - (d) Description of wastewater system, system constraints; and planned capital improvement projects;
- (4) Financial Data
  - (a) Current and projected (if available) water rates;
  - (b) Current and projected (if available) wastewater rates; and
  - (c) Connection and/or impact fees.

(b) Long-range Conservation Plan

A water conservation plan specifies and explains the actions that an applicant will take to implement a water conservation program. The implementation of the water conservation plan is considered to be the water conservation program.

- (1) The long-range plan shall, at a minimum, include:
  - (a) An evaluation of the customer's water and wastewater system and customer water use characteristics to identify water conservation opportunities and set water conservation goals (e.g., reduced peak water demand, reduced wastewater flows).
  - (b) Education and public information programs. Applicants should implement a program of continuing public education and information to inform and/or remind their customers about ways to save water. At a minimum, GBRA water customers are required to distribute published information on water conservation to their retail customers once a year and provide such information to new retail customers when they apply for service. Customers should also conduct or participate in at least one other type of annual educational water conservation activity. Assistance with the implementation of a public education program is available from the GBRA.

- (c) Universal metering and meter repair and replacement. All water users should be metered, including public facilities. For new multifamily dwellings that are easily metered individually (such as duplexes and fourplexes), each living unit should be metered separately. A regularly scheduled maintenance program of meter repair and replacement will need to be established in accordance with the following time intervals:
    - (1) Production (master) meters - test once a year;
    - (2) Meters larger than 1" - test once a year;
    - (3) Meters 1" or smaller - test once every 10 years.
  - (d) Water utility distribution system leak detection and repair. A leak detection audit should be conducted at regular intervals. If records indicate that unaccounted for water losses are greater than fifteen (15%) percent from the quantity diverted, meters should be inspected. After inspection, if unaccounted for water is still significant, the utility should initiate a full-scale leak detection and repair program. Sources of unaccounted for water include leaks in mains and services, defective hydrants, abandoned services, unmetered water used for fire fighting or other municipal uses, inaccurate or leaking meters, illegal hook-ups, and unauthorized use of fire hydrants.
  - (e) Water rates. Utilities should adopt a water rate structure that encourages water conservation. Such a rate usually takes the form of an increasing block rate, a seasonal load rate or an excess use rate. At a minimum the applicant should adopt a uniform rate structure. Rate structures in which the unit cost of water decreases as consumption increases and flat rates are not usually acceptable.
- (2) The long-range plan may also include other measures that the customer deems appropriate. These may include, but are not limited to, measures such as:
- (a) codes and ordinances which require the use of water-conserving technologies;
  - (b) measurement and control of excessive pressure in the distribution system;
  - (c) ordinances to promote efficiency and avoid waste;
  - (d) commercial and residential audits for indoor and landscape water uses-;
  - (e) plumbing fixture replacement and retrofit programs;
  - (f) recycling and reuse of reclaimed wastewater and/or gray water; and
  - (g) other measures as may be applicable.

- (c) Drought Contingency or Emergency Water Management Procedures. This plan shall include the following:
  - (1) definition of trigger conditions signaling the start of an emergency period;
  - (2) demand management measures (i.e. time of day or day of week water use restrictions);
  - (3) measures to educate and inform the public concerning the plan;
  - (4) means of implementation and enforcement;
  - (5) termination procedures ending the emergency period.

#### 5.1.2 Industrial Water Sale Contracts.

- (a) Water Use Profile. This profile shall include:
  - (1) Monthly use over previous two (2) year period; and
  - (2) Estimated use, by category (processing, cooling, employee-related) at the end of the contract period.
- (b) Water Conservation Measures. A water conservation plan shall include the following measures:
  - (1) Use of water conserving plumbing fixtures (as defined in Article 5.1.1.) in new construction and/or plumbing fixture retrofits where technically and economically feasible;
  - (2) Use of state-of-the-art equipment and/or process modes including, if necessary, justification of any proposed use of less efficient equipment or process modes;
  - (3) Water reuse, where possible, for processing, cooling, landscape irrigation and other non-potable uses;
  - (4) Employee education and awareness.
- (c) Drought Contingency or Emergency Water Management Procedures. Applicant shall comply with the GBRA Drought Contingency Plan as outlined in Article 5.1.4.

#### 5.1.3 Irrigation Water Sale Contracts for Water Customers other than the Calhoun Canal System.

- (a) Water Use Profile. This profile shall include:
  - (1) Monthly water use over previous two (2) year period, if applicable; and
  - (2) A site map showing irrigated areas and the layout of irrigation equipment.

- (b) At a minimum, a water conservation plan shall include the following measures:
- (1) **Irrigation Inspection.** Conduct periodic irrigation system inspections and perform necessary adjustments/repairs to eliminate leaks, overspray or clogging.
  - (2) **Irrigation testing and scheduling.** The irrigation system should be tested for uniformity of spray or flood as well as the application rate. Irrigation testing should be conducted for each area capable of independent control. Maintenance zones shall be identified, and irrigation schedules including frequency and duration should be developed for these zones.
  - (3) **Seasonal irrigation scheduling.** Irrigation scheduling will be adjusted to reflect changes in seasonal irrigation requirements.
  - (4) **Equipment Upgrades.** Equipment upgrades should be implemented where technically and economically feasible. Examples of upgrades include automatic controllers, rain shut-off devices, sod moisture monitors, and installation of water conserving irrigation equipment.
  - (5) **Leak detection.** Irrigation system shall be checked for leaks at least once a year.
  - (6) **Maintenance schedule.** Maintenance zones shall be established which reflect plant type and level of care. Examples of items to include in the plan are mowing and fertilization frequency, clipping disposal, sod aeration, etc.
  - (7) **Employee education and training.** Applicant is required to provide and carry out training for landscape maintenance staff in the proper implementation of the applicant's water conservation plan. Applicant can distribute literature, acquire videotapes, and conduct seminars on information relating to this top. Assistance with employee training may be available from the GBRA.
- (c) The plan may also include other measures that the customer deems appropriate. These may include, but are not limited to, measures such as:
- (1) **Integrated Pest Management (IPM).** The purpose of an Integrated Pest Management program is to minimize the need for applications of chemical fertilizers and pesticides thereby minimizing the use of water and the potential runoff of pollutants into water courses. Non-toxic pest control should be attempted where possible. As an attachment to the plan, the applicant must submit a material safety data sheet and a product label for each pesticide, herbicide, fungicide, insecticide, and fertilizer used.



The IPM program should be developed considering crop or plant requirements for water; nutrients, pesticides, or herbicides- sod types and permeability; rainfall frequency, patterns and amounts; runoff containment and controls; and drainage patterns of the irrigated area. The program must address fertilizer types and manufacturers, applications rates and application schedule; pesticides and herbicides to be used and justification for such use- biological pest control measures to be employed (if any); and plant replacement procedures.

- (2) Future conversions. Where feasible, landscape areas should be converted to low maintenance plantings.
  - (3) Beneficial water reuse and recycling. Where appropriate, the applicant should identify and evaluate opportunities for the beneficial reuse and recycling of reclaimed water for irrigation or other non-potable uses. Such reuse and recycling may provide an attractive approach to extending water supplies, reduce demands on the potable water treatment and distribution facilities, and reduce or eliminate wastewater discharges to sensitive surface waters.
- (c) Drought Contingency or Emergency Water Management Procedures. Applicant shall comply with the GBRA Drought Contingency Plan as outlined in Article 5.1.4.
  - (d) Integration of GBRA Water Plans. Applicants are encouraged to develop one plan that incorporates both GBRA water conservation and nonpoint source pollution abatement requirements.

#### 5.1.4 Compliance with the GBRA Drought Contingency Plan

- (a) The GBRA Drought Contingency Plan (DCP), as approved by the Texas Commission on Environmental Quality and modified from time to time, establishes GBRA's policy and procedures for the allocation of GBRA's stored water supply during times of drought. The scope of the DCP is essentially limited to curtailment of GBRA interruptible water supplies as determined by the TCEQ's South Texas Water Master. Firm stored water supplies are subject to curtailment only if it is determined that a drought in effect is worse than the Drought of Record.
- (b) The GBRA DCP specifies actions that are to be taken by GBRA firm stored water customers during drought. These are:
  - (1) GBRA will request voluntary water conservation by firm stored water customers where the total storage in Canyon Reservoir is less than elevation 895 M.S.L. or 277,500 acre-feet.

- (2) GBRA will request that all GBRA firm stored water customers reduce water use by their end users when the combined storage for Canyon Reservoir is at or below Elevation 890 or 245,333 acre-feet.
  - (3) GBRA will request that all GBRA firm water customers reduce water use by their end users when the combined storage of Canyon Reservoir is at or below elevation 885 M.S.L. or 215,615 acre-feet.
  - (4) During a drought determined to be more severe than the Drought of Record, GBRA will curtail and distribute the available supply of firm stored water among all of its firm stored water supply customers on a pro rata basis according to their historic demand for stored water.
- (c) All GBRA firm stored water customers shall include in their required water conservation plan a statement that they will comply with GBRA Drought Contingency Plan. Customers will also specify how they will comply with this plan.

## 5.2 Water and Wastewater Utility-Service Agreement.

Any retail water or wastewater entity that enters into a water or wastewater utility service agreement with the GBRA shall implement the measures listed in Article 5.1.1

## 5.3 GBRA Facilities

All new GBRA facilities and additions to existing facilities will include water-conserving designs and facilities.

# ARTICLE 6. REPORTING REQUIREMENTS

## 6.1 Report Schedule

- (a) All GBRA water customers shall periodically report on the progress of their water conservation program. Progress reports will be due to the GBRA every five years, with the next report due on or before January 30, 2014. Progress reports will be reviewed by GBRA staff.
- (b) Water Conservation Plans should be updated periodically to reflect conditions associated with the use of water that have changed since the plan was first adopted. Any amendments to these rules that occurred after the customers plan was adopted shall be included in the updated plan. GBRA will provide advance notice of any such proposed amendments to these rules.

## 6.2 Content of Progress Reports

GBRA will develop a report form for customers to complete. This report shall include the following:

- (a) A description of specific measures implemented. These measures will match measures included in customer's water conservation plan.
- (b) Results of conservation measures. Customers should report on any observed change in water use and water demand, economic savings, and public response that occurred as a result of implementing these measures.

A summary of these reports will be developed and made available to all water contract customers.

## **ARTICLE 7. COMPLIANCE AND ENFORCEMENT**

The applicant agrees to commence implementation of the water conservation programs listed in the water conservation plan immediately and agrees to continue these programs for the duration of the contract, lease or easement with GBRA. Failure of the applicant to implement said water conservation plan may result in GBRA taking legal action to require compliance.

## **APPENDIX 7**

---

### **GBRA Board Resolution Adopting Wholesale Water Conservation Plan**

**GUADALUPE-BLANCO RIVER AUTHORITY RESOLUTION**  
**ADOPTING A WATER CONSERVATION PLAN**  
**FOR WHOLESALE WATER**

WHEREAS, the Guadalupe-Blanco River Authority (GBRA) has exercised leadership in promoting, and where appropriate, requiring the conservation of ground and surface waters within GBRA's 10-county statutory district, and

WHEREAS, GBRA's goals are to promote the development and application of practices and technologies that improve water use efficiency, increase the beneficial reuse and recycling of water, and minimize the waste of water such that water supplies are extended, and

WHEREAS, GBRA supports and assists local and state initiatives to develop and apply water conservation measures for municipal, industrial and agricultural uses where appropriate. GBRA provides technical assistance, public information and education programs on water conservation, and

WHEREAS, all water sales contracts contain appropriate conditions requiring conservation measures that are economically feasible, and

WHEREAS, GBRA's efforts in technical assistance focuses on the development and implementation of local water conservation and drought contingency programs that encourage local initiative and achievement, and

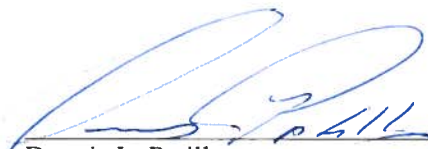
WHEREAS, GBRA shall support research, regulatory initiatives and legislation that advance the conservation and beneficial reuse of water in the GBRA 10-county statutory district, and

WHEREAS, GBRA also shall assist in the research and transfer of technology and information regarding cost effective conservation measures for the benefit of water users within the 10-county statutory district, and


WHEREAS, GBRA shall integrate, as appropriate, water efficiency measures into the development and implementation of GBRA programs and projects. Such programs and projects shall include but not be limited to: water resources planning and demand forecasting and management; water and wastewater utility service studies, projects and service agreements; water rate design; environmental programs, and

NOW THEREFORE BE IT RESOLVED, that the Board of Directors of the Guadalupe-Blanco River Authority does hereby approve and adopt the updates to the Water Conservation Plan for Wholesale Water, and Drought Contingency Plan and directs the General Manager/CEO to submit a copy to the Texas Commission on Environmental Quality, Texas Water Development Board, and to make improvements to the plans on a regular basis as consistent with sound water conservation management, and to administer and enforce the plans as adopted.

Adopted this the 17<sup>th</sup> day of July 2019.

  
Dennis L. Patillo  
Chairman of the Board of Directors  
Guadalupe-Blanco River Authority

Attest:

  
Kenneth A. Motl, DVM, Secretary  
Board of Directors  
Guadalupe-Blanco River Authority