WATER CONSERVATION PLAN FOR

City of Richmond
402 Morton Street
Richmond, Texas 77469

RETAIL PUBLIC WATER SUPPLY

PWS # 0790023 City System

WHOLESALE WATER SUPPLY

PWS # 0790393	Fort Bend County MUD 121
PWS # 0790445	Fort Bend County MUD 140
PWS # 0790535	Fort Bend County MUD 187
PWS # 0790155	Fort Bend County MUD 19
PWS # 0790502	Fort Bend County MUD 145
	Fort Bend County MUD 215
	Fort Bend County MUD 207
	Williams Ranch MUD 1

Adopted April 15, 2019

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WATER CONSERVATION PLAN

I. INTRODUCTION

This Water Conservation Plan is presented by the City of Richmond pursuant to the requirements of the Texas Water Development Board (TWDB) and the Texas Commission on Environmental Quality (TCEQ), pertaining to the water and wastewater services provided in the area served by the City of Richmond Public Water System PWS 0790023. This plan extends by contract to the following Fort Bend County Municipal Utility Districts (FBC MUD):

Existing City served MUD Areas	TCEQ System ID
Fort Bend County MUD 121	0790393
Fort Bend County MUD 140	0790445
Fort Bend County MUD 145	0790502
Fort Bend County MUD 19	0790155
Fort Bend County MUD 187	0790535
Fort Bend County MUD 215	0790023 (same as City ID)
Fort Bend County MUD 207	0790023 (same as City ID)
Williams Ranch MUD 1	0790023 (same as City ID)

This Plan represents a summarization of the current status of the City's water and wastewater utilities, a profile of their use patterns, a description of current and planned water conservation efforts, and an a brief description of potential additional opportunities.

The City, guided by the Water Conservation Plan adopted by the City Commission, has recognized the importance of water conservation as a tool for wise and efficient management of our water resources. Under the guidance of the Plan, the City is coordinating its various water conservation programs, Best Management Practices (BMPs) and projected enhancements under a Water Conservation Program (Program). Whereas the Plan serves as a guide for the general direction of City efforts, the Program serves as an internal work plan and implementation schedule for the specific collection of programs and BMPs the City employs to meet the goals of this Water Conservation Plan.

Several of the additional program elements under consideration by the City are drawn from BMPs recommended by the TWDB and programs that have been successful in other cities.

This document was prepared by the City of Richmond's Public Works Department. The Utilities Coordinator will manage and implement the program detailed herein, including submission of the annual report. This program is under the direction of the Director of Public Works, and is conducted in coordination with other City Departments and staff.

Contact Information

The City of Richmond Public Works Department can be reached at:

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Address: City of Richmond
600 Morton
Richmond, TX 77469-0110

II. SYSTEM DESCRIPTION

City of Richmond
The City of Richmond (City) is a home-rule municipality located in Fort Bend County, and is on the Brazos River fifteen miles southwest of Houston. The City and County have experienced dramatic growth in the recent past, with an expectation that the pace of development will continue into the foreseeable future. The City's developmental path has been oriented toward single family residential with growing emphasis on commercial. About 30% of land within the City limits and over 1/2 of land within Extra Territorial Jurisdiction (ETJ) is undeveloped. The City falls within the jurisdiction of the Fort Bend Subsidence District (FBSD), and Region H of the State's Regional Water Planning groups.

City of Richmond Public Water System
The area served by the City of Richmond potable water system (TCEQ PWS ID #0790023) includes the City limits, with a significant percentage of customers within the ETJ (See Appendix A). The City is a wholesale provider of potable water/wastewater service and operations to FBC MUD's 121,140,187, 215, 207, Williams Ranch MUD 1 and just a wholesale provider of water/wastewater to FBC MUD's 19, and 145. The City delivers drinking water with an air gap into FBC MUD 121 Ground Storage Tank (GST). The Fort Bend County MUD 121's system is therefore hydraulically separated and operates on a separate pressure plane from the City system. The City's potable water production, treatment and distribution are handled by the Water Utilities Division of the Public Works Department.

The City's water use patterns follow a seasonal use pattern characteristic of the area, with significant irrigation demand in the warmer months. Residential use, including residential irrigation, accounts for approximately 50% of the average annual potable demand. The projections of demand and subsequent supply and infrastructure planning for the City are incorporated into the updated Water Master Plan.

The City's potable water (described in greater detail in the Utility Profile, attached as Appendix B) is supplied by six (6) groundwater wells and surface water from the Brazos River via the NRG canal system. The five (5) City-owned ground water plants produce water from the Chicot and Evangeline aquifer components of the Gulf Coast aquifer system. Surface water treated at the City's Surface Water Treatment Plant (SWTP) is supplied under water supply agreements with the Brazos River Authority.

Surface Water Conversion
To adhere to Fort Bend Subsidence District's (FBSD) Regulatory Plan requirements, the City was required to convert 30% of its total water demand to non-groundwater sources by 2016, and 60% by 2025. The City, in conjunction with the communities in its ETJ, and private well owners, has an approved Groundwater Reduction Plan detailing how we are meeting this regulatory mandate with the completion of the City's surface water treatment plant. The first phase of the SWTP was completed in March 2018. The treated surface water is pumped directly into the City's existing distribution system.

While the two (2) million gallon a day SWTP will meet the bulk of the FBSD regulatory compliance, the City has also implemented several non-potable water supply projects. The City currently owns and operates a reclaimed water system at the Regional Wastewater Treatment Plant (WWTP). The reclaimed water system currently provides non-potable water for amenity lake filling for the Del Webb Community and irrigation to the Fort Bend Country Club. The reclaimed water distribution system operates in an "on-demand" basis wherein system operation is based on customer demands. In addition, the City has begun utilizing the re-claimed water at the WWTP for use in the internal water needs for the facility i.e. grey water reuse.

City of Richmond Wastewater System
The sanitary sewer and wastewater treatment system (as described in greater detail in the Utility Profile, attached in Appendix B) for the City of Richmond is comprised of one Wastewater Treatment Plant. The Regional Plant is

located roughly in the middle of the City service area and receives flows from all of the MUD's the City provides water service. The Regional WWTP, located at 218 Legion Drive, Richmond, Texas 77469, was expanded to a 3.0 MGD plant in 2009. The existing WWTP treats wastewater by way of conventional treatment process and includes a LS, headworks, aeration basin, four (4) conventional clarifiers, chlorine contact basin, aerobic digesters, belt press, five (5) horizontal centrifugal blowers, and a 1.5 MGD aqua disk re-use filter system. The WWTP is permitted for 3.0 MGD average daily flow (ADF) and 6,388 gallons per minute (9.199 MGD) 2-hour peak flow per TPDES Permit No. WQ0010258003 (renewed on July 8, 2009). The current permit also has two (2) additional planned phases for expansion to 4.5 MGD and 6.0 MGD. Based on monthly WWTP operating reports, the City had an average Daily Flow (ADF) condition of 1.51 MGD in 2018.

Water Conservation Utility Profile
The required Water Conservation Utility Profile is attached to the Plan as Appendix B. The profile is based on the best available data as of January 2019. The demand projections, system descriptions and other related sections it contains are drawn primarily from the City's Water and Wastewater Master Plans to ensure continuity between City planning documents and efforts.

III. WATER CONSERVATION PROGRAMMING

Water Conservation Plan
By City Commission Plan (please refer to Appendix C), the City of Richmond confirms the value of water conservation as a tool for managing our water resources, and as an important component in our future water supply. Towards that end, the City has committed itself to finding fiscally responsible ways to reduce water use, prevent water loss, and promote water conservation among our residents and community organizations. The City's Water Conservation Plan identifies seven (7) core areas of opportunity in which the City will seek to maintain or expand its water conservation efforts:

Water Conservation Opportunities

1) Continued refinement and implementation of a comprehensive, citywide Water Conservation Program.
2) Continued and enhanced supply-side management of the City's public water utility infrastructure.
3) Promotion of community involvement through public-private partnership opportunities and programs.
4) Continued development and expansion of City's educational outreach on water issues.
5) Requiring efficient irrigation systems for City facilities, as is feasible.
6) Consideration of water conservation goals in City landscape installation and maintenance.
7) Promotion of water conservation practices with new development.

Programs designed to explore these opportunities alongside the City's current efforts, are reflected in the City's Program.

Water Conservation Program
The City's Program is a working document used to detail and coordinate water conservation efforts to implement the goals of the City's Water Conservation Plan

This document is a comprehensive work plan and projected implementation schedule for BMPs, programs, and other water conservation efforts. Project choices and schedules are subject to potential funding, schedule changes, and review. The information in the following subsections summarizes the scope of current water conservation efforts, potential future programs, and evaluation criteria and methodology used by the City and contained within the Program. The Program is administered by the Utilities Coordinator, under the direction of the Director of Public Works. However, as the Program seeks to coordinate all City water conservation activities, some specific elements are managed and implemented by other City departments and staff. In these cases, the Utilities Coordinator serves as a liaison rather than a direct program manager.

Current Water Conservation Programs

The City currently employs water conservation oriented programs and efforts. The traditional focus of these program elements has been on curtailing supply-side water loss with a significant emphasis community education addressing the City's conversion to surface water. The following is a brief description of the City's current efforts, as well as elements being considered as future additions:

Universal Metering

Metering of all retail and wholesale potable water customers provides the means for accurate accounting of water uses throughout the system. All meters are installed and maintained in accordance with all applicable local, state and federal regulations and standards. Surface water supplied by the City through non-potable water supply contracts is also metered.

Master Meters

A master meter is located at each supply source (production wells and surface water plant) to effectively track water production.

Meter Testing, Repair and Replacement

The City maintains an aggressive and proactive meter testing, repair and replacement program for both its customer and master meters. Residential meters are replaced every ten (10) to twelve (12) years. Large meters are tested at regular intervals depending on the size. Meters found to be outside the AWWA accuracy guidelines are repaired or replaced.

Leak Detection and Avoidance Program

The City maintains a proactive stance in maintaining its utility system assets to minimize leaks and water loss due to old or failing infrastructure. The City operators currently conduct routine inspections for leaks or illegal water use and monthly water audits. Customers are notified if water use is abnormally high and encouraged to check their home for possible leaks. Sudden decreases in usage or cessation of reported use also triggers an investigation of the meter in question. Review of potential rehabilitation needs for the next five (5) years is conducted on an annual basis as part of the City's Capital Improvements Projects process. Additionally, a comprehensive geographic information system (GIS) component detailing the City's utility infrastructure has been established and provides support in rehabilitation and loss prevention efforts.

Water Loss Prevention

Unaccounted for water can typically be attributed to firefighting, unauthorized water use, inaccurate metering of customer use and distribution system leaks. As detailed above, aggressive inspection and repair programs by the City staff minimize the losses due to meter inaccuracies and system leaks. In addition, the City has been monitoring the water used in their system flushing program since 2016. The City conducts regular water loss audits, in accordance with TWDB and TCEQ standards. Additionally, transient meters are required for all temporary uses from the City's hydrants or other access points to curtail unauthorized water use. The transient meters are colored distinctively to aid in identifying potential unauthorized users.

Plumbing Codes and New Development

The City has adopted the International Plumbing Code (IPC), which matches the AWWA standards. These standards guard against inefficient water technologies. The City's Plan directs the City to continue to consider water conservation goals in the adoption or modification of codes and ordinances. Additionally, the City will work to encourage water conservation goals in new development. While house-specific technologies like graywater reuse systems are not the most feasible option, the City will be targeting irrigation system efficiency to reduce outdoor water use.

Conservation-Oriented Rate Structure

The City has an increasing block water rate structure with an increasing rate base charge dependent upon on meter size. Additionally, the rate structure includes separate rates for irrigation water. This rate structure is reviewed and evaluated on a routine basis. Detailed information on the City's current water rate structure can be found in Appendix D. An assessment of the City's rate structure is expected to be completed in 2019.

Water Use / Water Conservation Analysis

Water data is collected from production and individual customer meters and used in monthly desk top water loss audits and annual water use reporting. The City is exploring tools and methods to perform deeper analysis of water use data by customer class (residential, commercial, industrial, and institutional) and water end-use (consumption and irrigation) to help in targeting water conservation programming and communicate water use to customers.

Education

The City has placed an emphasis on education as an important tool in promoting water conservation. The following is a list of the City's current educational activities.

- Through the Fort Bend Subsidence District's Learning to be WaterWise program, the City sponsors water conservation education in local schools, including the distribution of water efficient technology and multimedia education kits to children in grades 4 and 5. The kits are complemented by in-school educational seminars and curriculum components.
- The City also maintains its own water conservation education program, in which it makes water conservation literature, hand-outs, on-line web information, and other water conservation materials available to its residents.
- Seasonally, the City will be featuring water conservation and water education articles in its City- wide newsletter

Non-Potable Water Projects

Through a recent non-potable water supply project, the City is currently supplying up to 1.5 MGD of treated wastewater water to replace groundwater or potable water being used for non- potable applications (primarily amenity lake maintenance and irrigation).

Water Resources Planning

The City's aggressive comprehensive planning process includes updating the Water/Wastewater Master Plan every five (5) years. Part of the Water/Wastewater Master Plan evaluates the cost effectiveness of water re-use opportunities.

Potential Future Additional Conservation Programs

The City will be continuing to evaluate the feasibility of adding other elements to the selection of tools it may employ to achieve its water conservation goals. The majority of these projects are drawn from the Best Management Practices recommended by the TWDB. Some of the BMPs currently projected to be evaluated and/or implemented are:

- System Water Audit and Water Loss Prevention Study
- Increased water use communication with customers
- Water Wise Landscape Design and Conservation Programs
- Rainwater Harvesting

In general, the City plans to maintain or expand its current supply-side programs while continuing to explore and evaluate demand-side opportunities to broaden the scope of our water conservation efforts. The intent is to incorporate voluntary projects and mutually beneficial partnership programs to the greatest extent practicable, while continuing enhanced community education. In subsequent annual reports, the City will detail new program elements evaluated and/or added to its current collection of water conservation efforts.

IV. FIVE AND TEN YEAR TARGETS AND GOALS

The City of Richmond continues to pursue a multi-faceted approach to encouraging water conservation and combating water loss. With continuing and improved educational efforts, continued efforts to induce water savings via rate structures, and continued vigilance in preventative maintenance and active efforts to reduce losses, we expect to increase per capita savings in water use. The following sections contain specific targets and goals for water conservation savings/water loss reduction. The specific percentage and actual gallon reductions are based on best currently available data and may not reflect outcomes that are impacted by unforeseen funding and schedule changes, shifting water use patterns, or changing developmental trends. The goals are broken out between those relating to water conservation savings and those regarding water loss reduction.

Conservation Savings and Goals
While these goals are provisional due to levels of precipitation, general weather conditions, and a host of other factors that along with conservation efforts, help determine per capita use, the City of Richmond is committed to pursuing these courses of action. For those factors within our control, we feel the aforementioned range of conservation strategies will continue to trend toward the targets described.

Five Year Target Goal:
In the next five (5) years, the City expects continued population growth and development. Water conservation is a priority of our public education efforts. The City expects a 1% reduction in current per capita usage. Based on a five (5) year potable consumption average of 111 gpcd, this translates to an approximate per capita reduction of 1.0 gpcd and 110 gpcd at the five (5) year target mark.

Ten Year Target Goal:
Building on the efforts and factors discussed in the five (5) year target goal, and based on potential wastewater reuse projects and benefits of Subsidence District-mandated surface water conversion strategies, the City expects a continued decrease in per-capita water use. The expected target goal is 2%. Based on a five (5) year average of 111 gpcd, this translates to an approximate per capita usage reduction of two (2) gpcd at the ten (10) year target mark.

Water Loss Reduction Goals
While these goals are provisional due to the effects of aging infrastructure, development, and a host of other factors, the City of Richmond is committed to reducing water loss. For those factors within our control, we feel the aforementioned range of strategies will continue trend toward the target goals.

Five Year Target Goal:
In conjunction with the water conservation efforts outlined above, the City is also focusing strongly on reducing water loss in its system. Water loss prevention efforts, such as our meter replacement program, are a priority for our utility. The City's Water Utility has maintained an average water loss of 3.67% over the past 5 years. Continuing current efforts to curb water loss, the City expects to maintain a water loss of less than 5% during the next five (5) years.

Ten Year Target Goal
Building on the efforts and factors discussed in the five (5) year target goal, the City expects to maintain a water loss of less than 5% through the next ten (10) year period.

V. IMPLEMENTATION AND EVALUATION

Implementation
The goals and projected strategies detailed in this Water Conservation Plan are a reflection of the program elements in the City's Water Conservation Program. The Program is administered by the Utilities Coordinator, under the direction of the Director of Public Works. The activities it encompasses are city-wide in scope; however a given

individual element may be administered by other staff in other City departments.

The implementation schedules for the City's water conservation efforts are reviewed every year as part of the Water Conservation Program, but may change from year to year based on available funding, economic conditions, and workload. The City's current intent is to continue their current supply-side and educational water conservation efforts as implemented, while at the same time evaluating enhancement to these programs, as well as additional programs as described previously.

Evaluation
The City will evaluate its Water Conservation Plan on a yearly basis per TWDB and TCEQ requirements and submit a subsequent Annual Report. At that time, the City will review the success of its efforts, and shift its collection of strategies to meet the current demands of its water supply situation and water conservation goals. To facilitate the evaluations, the City will perform an internal audit of water loss and measured or projected water conservation savings.

VI. PUBLIC PARTICIPATION

The City of Richmond conducts regularly scheduled public meetings once a month. The City Commission meetings are open to the public, and citizens are free to offer public comment. The City's Water Conservation Plan and the Resolutions adopting the Water Conservation and Drought Contingency Plans were brought before the City Commission for approval, at which time citizens had an opportunity to voice their opinion on the items.

In addition to these meetings, the City is open to comment from its citizens at all times and maintains an active education and outreach program, including public appearances and information dissemination at local events.

VII. ADOPTION OF PLAN

On April 15, 2019, the Water Conservation Plan for the City of Richmond was discussed at the City Commission meeting. The City Commission agenda which included the Plan was advertised along with the rest of the items as part of the normal dissemination of the City Commission Agenda. At that time, the City Commission gave direction to City staff concerning the Plan.

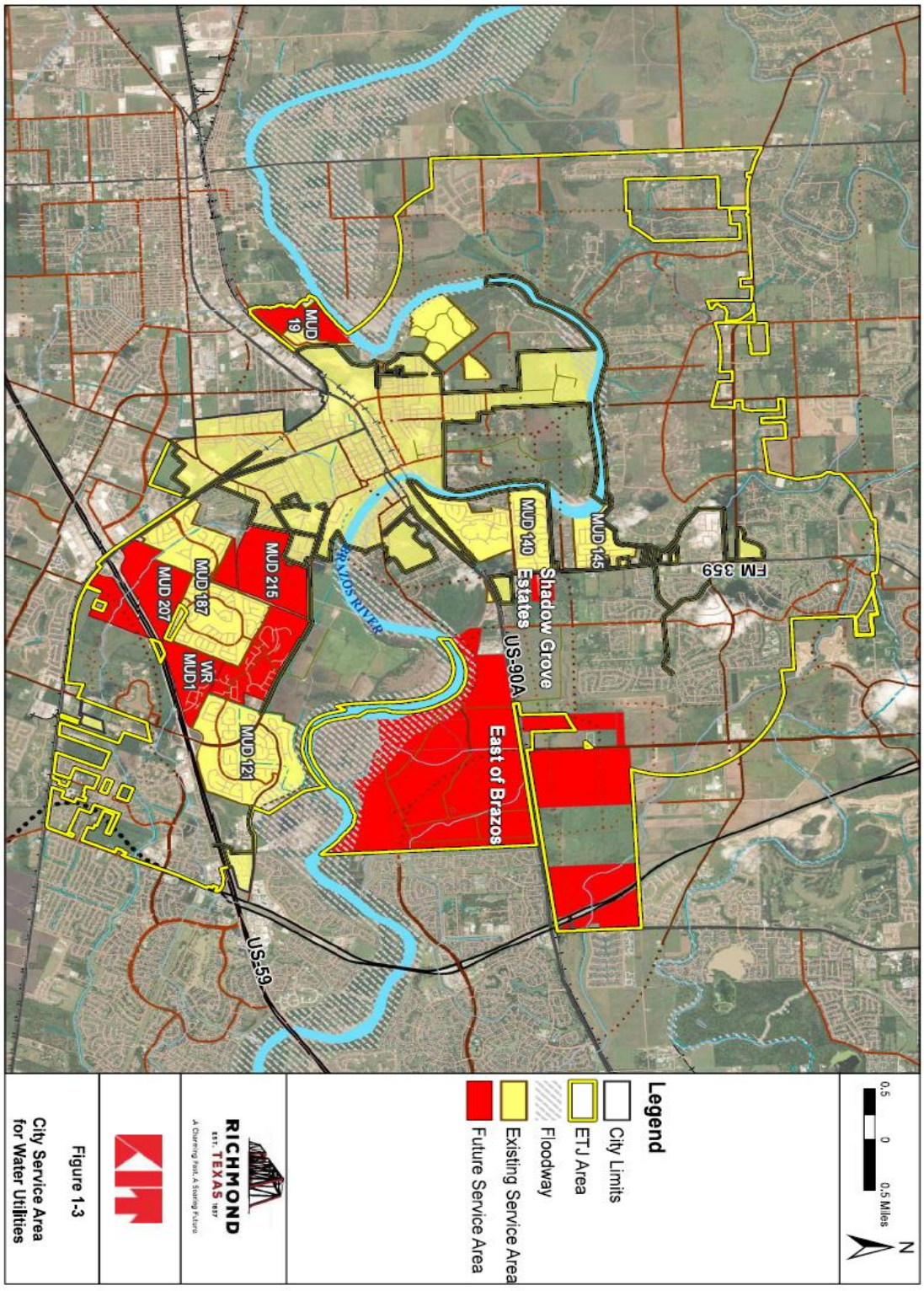
On April 15, 2019, the Water Conservation Plan for the City of Richmond was discussed at the City Commission meeting as a proposed resolution of the City of Richmond to adopt the aforementioned Plans. The City Commission agenda which included the Plan was advertised as part of the normal dissemination of the City Commission Agenda.

The public has the opportunity to provide comments on any City Commission agenda item and no comments were presented for the Plan. At that time, the City Commission took action, as the duly elected governing body of the City of Richmond, and formally adopted the Plans by resolution. The resolution adopting the Water Conservation Plan was passed, and a copy of said resolution can be found in Appendix C of this Document.

VIII. REGIONAL WATER PLANNING GROUP NOTIFICATION

In accordance with the TWDB and TCEQ requirements for Water Conservation Plans, the City has notified Region H that we have filed a Plan, and forwarded a copy to their representative. A copy of the letter of notification is attached as Appendix E.

APPENDIX A: Utilities Service Area Map



APPENDIX B: Water Conservation Utility Profile

Texas Water Development Board

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

CONTACT INFORMATION

Name of Utility: City of Richmond

Public Water Supply Identification Number (PWS ID): TX0790023

Certificate of Convenience and Necessity (CCN) Number: 10714

Surface Water Right ID Number:

Wastewater ID Number: 20315

Contact: First Name: Scott Last Name: Fajkus

Title: Utilities Coordinator

Address: 600 Morton City: Richmond State: TX

Zip Code: 77469 Zip+4: Email: sfajkus@richmondtx.gov

Telephone Number: 2813420559 Date:

Is this person the designated Conservation Coordinator? (•) Yes ( ) No

Regional Water Planning Group: H

Groundwater Conservation District:

Our records indicate that you:

☐ Received financial assistance of $500,000 or more from TWDB

☑ Have 3,300 or more retail connections

☐ Have a surface water right with TCEQ

A. Population and Service Area Data

1. Current service area size in square miles: 6

Attached file(s):

File Name	File Description
Service Area 2019.pdf	

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UTILITY PROFILE FOR RETAIL WATER SUPPLIER

2. Historical service area population for the previous five years, starting with the most current year.

Year	Historical Population Served By Retail Water Service	Historical Population Served By Wholesale Water Service	Historical Population Served By Wastewater Water Service
2018	14,253	10,970	25,223
2017	13,404	10,816	24,220
2016	12,093	10,662	22,755
2015	14,328	7,779	22,107
2014	14,943	4,869	19,812

3. Projected service area population for the following decades.

Year	Projected Population Served By Retail Water Service	Projected Population Served By Wholesale Water Service	Projected Population Served By Wastewater Water Service
2020	15,513	11,320	26,833
2030	39,036	13,042	52,078
2040	39,063	13,042	52,078
2050	39,063	13,042	52,078
2060	39,063	13,042	52,078

4. Described source(s)/method(s) for estimating current and projected populations.

We have used the 2019 Water / Wastewater Master to update these population numbers.

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

B. System Input

System input data for the previous five years.
Total System Input = Self-supplied + Imported – Exported

Year	Water Produced in Gallons	Purchased/Imported Water in Gallons	Exported Water in Gallons	Total System Input	Total GPCD
2018	930,091,633	0	357,404,000	572,687,633	110
2017	889,144,330	0	376,012,800	513,131,530	105
2016	852,270,103	0	362,453,608	489,816,495	111
2015	877,581,603	0	341,508,700	536,072,903	103
2014	850,559,800	0	158,305,500	692,254,300	127
Historic Average	879,929,494	0	319,136,922	560,792,572	111

C. Water Supply System

Attached file(s):

File Name	File Description
Water Supply System Description.pdf	
Water Supply Description Location.pdf	

1. Designed daily capacity of system in gallons: 13,618

2. Storage Capacity

2a. Elevated storage in gallons: 710,000

2b. Ground storage in gallons: 4,410,000

Texas Water Development Board

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

D. Projected Demands

1. The estimated water supply requirements for the next ten years using population trends, historical water use, economic growth, etc.

Year	Population	Water Demand (gallons)
2020	26,833	6,000,000
2021	29,556	7,000,000
2022	32,279	7,500,000
2023	35,100	8,000,000
2024	38,066	8,200,000
2025	43,150	8,500,000
2026	46,116	10,000,000
2027	49,082	11,900,000
2028	52,048	11,900,000
2029	52,900	11,900,000

2. Description of source data and how projected water demands were determined.

The Water Master Plan includes potable water demands for the City and the MUD's within the City's service area.

Fort Bend County MUD 145
Fort Bend County MUD 140
Fort Bend County MUD 121
Fort Bend County MUD 187
Fort Bend County MUD 19
Fort Bend County MUD 215
Fort Bend County MUD 205
Williams Ranch MUD 1

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

E. High Volume Customers

1. The annual water use for the five highest volume **RETAIL customers.**

Customer	Water Use Category	Annual Water Use	Treated or Raw
Ft. Bend Justice Center	Commercial	32,699,000	Treated
Ft. Bend County Jail	Commercial	28,870,000	Treated
Texas Department Aging and Disability	Commercial	13,898,000	Treated
Oak Bend Medical Center	Commercial	11,711,800	Treated
Southern Cotton Oil Company	Industrial	7,443,000	Treated

2. The annual water use for the five highest volume **WHOLESALE customers.**

Customer	Water Use Category	Annual Water Use	Treated or Raw
Fort Bend County MUD 121	Municipal	122,166,800	Treated
Fort Bend County MUD 145	Municipal	120,776,500	Treated
Fort Bend County MUD 140	Municipal	76,848,000	Treated
Fort Bend County MUD 145	Municipal	28,541,100	Treated
Fort Bend County MUD 19	Municipal	9,071,600	Treated

F. Utility Data Comment Section

Additional comments about utility data.

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

Section II: System Data

A. Retail Water Supplier Connections

1. List of active retail connections by major water use category.

Water Use Category Type	Total Retail Connections (Active + Inactive)	Percent of Total Connections
Residential - Single Family	4,023	85.85 %
Residential - Multi-Family	45	0.96 %
Industrial	4	0.09 %
Commercial	314	6.70 %
Institutional	125	2.67 %
Agricultural	175	3.73 %
Total	4,686	100.00 %

2. Net number of new retail connections by water use category for the previous five years.

	Net Number of New Retail Connections						
Year	Residential - Single Family	Residential - Multi-Family	Industrial	Commercial	Institutional	Agricultural	Total
2018	4,023	45	4	314	125	175	4,686
2017	3,089	44	4	327	139	163	3,766
2016	2,873	42	4	313	141	158	3,531
2015	2,466	42	4	313	141	189	3,155
2014	2,401	42	4	318	139	205	3,109

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

B. Accounting Data

The previous five years' gallons of RETAIL water provided in each major water use category.

Year	Residential - Single Family	Residential - Multi-Family	Industrial	Commercial	Institutional	Agricultural	Total
2018	207,918,600	66,234,500	9,288,600	133,804,200	71,092,900	46,497,900	534,836,700
2017	190,102,100	70,886,200	8,276,500	106,299,900	78,167,000	38,280,100	492,011,800
2016	166,452,400	67,103,000	9,225,200	88,310,800	94,829,300	29,626,000	455,546,700
2015	199,768,400	73,054,100	12,702,900	100,231,100	96,450,800	25,367,600	507,574,900
2014	300,574,100	65,131,400	8,040,200	114,970,700	109,520,200	64,949,800	663,186,400

C. Residential Water Use

The previous five years residential GPCD for single family and multi-family units.

Year	Residential - Single Family	Residential - Multi-Family	Total Residential
2018	196,942,200	66,234,500	60
2017	109,102,100	70,886,200	69
2016	166,452,400	67,103,000	73
2015	199,768,400	73,054,100	88
2014	300,574,100	65,131,400	77
Historic Average	194,567,840	68,481,840	73

Texas Water Development Board

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

D. Annual and Seasonal Water Use

1. The previous five years' gallons of treated water provided to RETAIL customers.

Month	Total Gallons of Treated Water				
	2018	2017	2016	2015	2014
January	37,139,700	41,636,000	39,081,100	35,616,400	32,218,900
February	26,602,600	41,156,400	38,574,600	31,830,500	36,185,100
March	29,509,400	36,218,900	36,448,336	31,272,600	29,364,500
April	42,321,200	44,650,000	40,267,500	36,240,400	33,024,200
May	50,815,200	44,994,600	39,553,600	44,327,600	39,864,200
June	57,138,600	47,800,600	40,636,300	37,660,500	47,001,900
July	53,981,300	54,001,700	51,368,400	46,411,300	44,821,600
August	65,760,600	49,275,400	45,982,400	52,982,500	58,669,900
September	56,549,600	52,903,700	54,075,800	35,184,400	51,423,300
October	46,092,400	47,980,400	52,168,800	43,403,100	44,634,800
November	39,960,000	42,600,100	51,135,700	34,988,000	40,854,800
December	40,367,000	43,653,100	39,420,800	42,552,100	33,306,500
Total	546,237,600	546,870,900	528,713,336	472,469,400	491,369,700

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

2. The previous five years' gallons of raw water provided to RETAIL customers.

Month	Total Gallons of Raw Water				
	2018	2017	2016	2015	2014
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	0	0	0	0	0
May	0	0	0	0	0
June	0	0	0	0	0
July	0	0	0	0	0
August	0	0	0	0	0
September	0	0	0	0	0
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Total	0	0	0	0	0

3. Summary of seasonal and annual water use.

	Summer RETAIL (Treated + Raw)	Total RETAIL (Treated + Raw)
2018	176,880,500	546,237,600
2017	151,077,700	546,870,900
2016	137,987,100	528,713,336
2015	137,054,300	472,469,400
2014	150,493,400	491,369,700
Average in Gallons	150,698,600.00	517,132,187.20

Texas Water Development Board

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

E. Water Loss

Water Loss data for the previous five years.

Year	Total Water Loss in Gallons	Water Loss in GPCD	Water Loss as a Percentage
2018	30,692,337	6	5.36 %
2017	20,119,730	4	3.92 %
2016	16,043,841	4	3.28 %
2015	15,099,132	3	2.82 %
2014	20,522,719	4	2.96 %
Average	20,495,552	4	3.67 %

F. Peak Day Use

Average Daily Water Use and Peak Day Water Use for the previous five years.

Year	Average Daily Use (gal)	Peak Day Use (gal)	Ratio (peak/avg)
2018	1,496,541	1922614	1.2847
2017	1,498,276	1642148	1.0960
2016	1,448,529	1499859	1.0354
2015	1,294,436	1489720	1.1509
2014	1,346,218	1635797	1.2151

G. Summary of Historic Water Use

Water Use Category	Historic Average	Percent of Connections	Percent of Water Use
Residential - Single Family	212,963,120	85.85 %	40.13 %
Residential - Multi-Family	68,481,840	0.96 %	12.91 %
Industrial	9,506,680	0.09 %	1.79 %
Commercial	108,723,340	6.70 %	20.49 %
Institutional	90,012,040	2.67 %	16.96 %
Agricultural	40,944,280	3.73 %	7.72 %

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

H. System Data Comment Section

The potable water data for the last two years include MUD's plus the City of Richmond. These MUD's operate off the City of Richmond's Public Water System I.D. #, and are directly connected to the distribution system without master meters.

Fort Bend County MUD 215
Fort Bend County MUD 207
Williams Ranch MUD 1

Section III: Wastewater System Data

A. Wastewater System Data

Attached file(s):

File Name	File Description
Sanitary Sewer Flow Diagram.pdf	
Sanitary Sewer Service Map.pdf	

1. Design capacity of wastewater treatment plant(s) in gallons per day: 6,000,000

2. List of active wastewater connections by major water use category.

Water Use Category	Metered	Unmetered	Total Connections	Percent of Total Connections
Municipal	3,384	0	3,384	88.42 %
Industrial	4	0	4	0.10 %
Commercial	314	0	314	8.20 %
Institutional	125	0	125	3.27 %
Agricultural	0	0	0	0.00 %
Total	3,827	0	3,827	100.00 %

3. Percentage of water serviced by the wastewater system: 100.00 %

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

4. Number of gallons of wastewater that was treated by the utility for the previous five years.

Month	Total Gallons of Treated Water				
	2018	2017	2016	2015	2014
January	54,631,000	53,989,000	46,645,000	41,874,000	34,670,000
February	44,739,000	43,155,000	41,121,000	31,967,000	32,407,000
March	44,158,000	49,021,000	51,844,000	45,925,000	38,217,000
April	41,940,000	44,082,000	52,819,000	46,820,000	33,701,000
May	37,376,000	36,091,000	55,894,000	57,226,000	43,003,000
June	39,429,000	45,285,000	62,879,000	39,561,000	37,599,000
July	42,417,000	43,291,000	31,247,000	30,538,000	39,250,000
August	34,171,000	62,053,000	45,451,000	27,397,000	39,250,000
September	47,144,000	48,273,000	47,944,000	38,124,000	43,119,000
October	53,496,000	39,847,000	36,801,000	39,955,000	39,256,000
November	50,168,000	37,065,000	43,143,000	45,960,000	37,008,000
December	63,130,000	45,213,000	48,354,000	48,843,000	43,229,000
Total	552,799,000	547,365,000	564,142,000	494,190,000	460,709,000

5. Could treated wastewater be substituted for potable water?

○ Yes ◉ No

B. Reuse Data

1. Data by type of recycling and reuse activities implemented during the current reporting period.

Type of Reuse	Total Annual Volume (in gallons)
On-site Irrigation	55,893,000
Plant wash down	32,538,000
Chlorination/de-chlorination	
Industrial	
Landscape irrigation (park,golf courses)	0
Agricultural	
Discharge to surface water	0
Evaporation Pond	0
Other	
Total	88,431,000

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

C. Wastewater System Data Comment

Additional comments and files to support or explain wastewater system data listed below.

The Regional Wastewater Treatment Facility
218 Legion Drive
Richmond, Texas 77469
WQ0010258003

The sanitary sewer and wastewater treatment system for the City of Richmond is comprised of one Wastewater Treatment Plant. The Regional Plant is located in the middle of the City service area and receives flows from all of the MUD's the City provides water service. It was expanded to a 3.0 MGD plant in 2009. The plant treats wastewater by way of conventional treatment process and includes a LS, headworks, aeration basin, four (4) conventional clarifiers, chlorine contact basin, aerobic digesters, belt press, and five (5) horizontal centrifugal blowers. The WWTP is permitted for 3.0 MGD average daily flow (ADF) and 6,388 gallons per minute (9.199 MGD) 2-hour peak flow (renewed on July 8, 2009). The current permit also has two (2) additional planned phases for expansion to 4.5 MGD and 6.0 MGD. Based on monthly WWTP operating reports, the City had an ADF condition of 1.459 MGD in 2017.

APPENDIX C: Resolution Adopting a Water Conservation Plan

RESOLUTION NO. 271-2019

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF RICHMOND, TEXAS, ADOPTING A WATER CONSERVATION PLAN; AND PROVIDING AN EFFECTIVE DATE

WHEREAS, the City of Richmond recognizes that water is an essential resource for sustaining the growth and vitality of the city. the region and the State of Texas; and

WHEREAS, conserving water and avoiding water waste are important for the long-term Sustainability of the community even in times of abundant rainfall; and

WHEREAS, the Water Conservation Plan describes both the city's long-term commitment to conserving water resources for future generations and the need to manage water demands during short-term conditions when water supplies are limited; and

WHEREAS, the City of Richmond has adopted this Water Conservation Plan as a comprehensive set of strategies and regulations on the delivery and consumption of water to conserve the available water supply and to protect the integrity of water supply infrastructure. Particularly facilities critical for domestic water supply, sanitation, and fire protection, and to protect and preserve public health, welfare, and safety; and

WHEREAS, it is the intent of the Plan to minimize the adverse impacts of water supply shortage or other water supply emergency condition; and

WHEREAS, the objectives of the Water Conservation Plan are to reduce water consumption, reduce the loss and waste of water, improve efficiency in the use of water, and extend the life of current regional water supplies by reducing the rate of growth in per capita demand; and

WHEREAS, Resolution No. 271-2019 shall replace Resolution No. 71-2014 and shall become effective the date of its passage.

NOW, THEREFORE BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF RICHMOND, TEXAS:

Section 1. That the City Commission of the City of Richmond, Texas, adopts the City of Richmond Water Conservation Plan attached hereto as Exhibit "A."

Section 2. That the City of Richmond Water Conservation Plan shall be submitted to the Texas Water Development Board and the Texas Commission on Environmental Quality.

PASSED AND APPROVED BY THE CITY COMMISSION this the 15th day of April, 2019.

Evalyn Moore, Mayor

ATTEST:

Laura Scarlato, City Secretary

APPROVED AS TO FORM:

Gary W. Smith, City Attorney

APPENDIX D: Water and Wastewater Rate Structure

City of Richmond
2018 Water & Wastewater Rates

Water	Existing
	FY 2018
Minimum Bill	
Meter Size	
5/8 inch	$15.00
1 inch	$21.00
1.5 inch	$27.00
2 inch	$43.50
3 inch	$165.00
4 inch	$210.00
6 inch	$315.00
8 inch	$435.00
10 inch	$600.00
Volumetric Rates ($ / kgal)	
Residential	
0-2,000 gal	See minimum bill table above
2,001-5,000 gal	$2.62
5,001-10,000 gal	$2.87
10,001-20,000 gal	$3.12
20,001-50,000 gal	$3.37
50,000-75,000 gal	$3.62
75,000+ gal	$3.87
Irrigation	
0-5,000 gal	$3.46
5,001-10,000 gal	$3.71
10,001-20,000 gal	$3.96
20,001-50,000 gal	$4.21
50,001-75,000 gal	$4.46
75,000+ gal	$4.71
Schools	$1.57
Government	$4.40
Cooling Towers	$5.08
Commercial	$2.34
Industrial	$3.79

Wastewater	Existing
	FY 2018
Minimum Monthly Charge	
Customer Class	
Residential	$20.00
Residential Senior	$15.00
Commercial	$20.00

Volumetric Charge ($ / kgal)	
Residential (Based on Winter Average)	
0-2,000 Gallons	$20.00
2,000+ Gallons	$3.00

Commercial (Based on Water Consumption)	
0-2,000 Gallons	$20.00
2,000+ Gallons	$3.00

Surface Water	Existing
	FY 2018
Groundwater Reduction Fee ($ / kgal)	$2.20

APPENDIX E: Region H Notification Letter

Evalyn W. Moore
Mayor

Barry C. Beard
Terry Gaul
Josh Lockhart

Commissioners

City of Richmond
Public Works Department
City Hall Annex
600 Morton Street
Richmond, Texas 77469
281.342.0559
FAX: 281.232.0704
www.richmondtx.gov

April 15, 2019

Mark Evans, Chair
Region H Water Planning Group
C/O San Jacinto River Authority
P.O. Box 329
Conroe, Texas 77305

Re: Five year plan Submittal

Mr. Evans:

Attached to this letter you will find the City of Richmond's updated Water Conservation Plan, Retail and Wholesale Drought Contingency Plan(s).

If you need any additional information, please contact me at 281-342-0559 or at hchristian@richmondtx.gov.

Cordially,

Howard Christian
Assistant City Manager

Enclosure