WATER CONSERVATION PLAN
FOR
THE CITY OF RICHARDSON, TEXAS

MAY 2019

FORWARD

This Water Conservation Plan was prepared by the City of Richardson. The Water Conservation Plan was prepared pursuant to Texas Commission on Environmental Quality (TCEQ) rules. Questions regarding this Water Conservation plan should be addressed to the following:

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This Water Conservation plan is based on the Texas Administrative Code in effect on January 18, 2019 and considers water conservation best management practices from Texas Water Development Board Report 362, *Water Conservation Best Management Practices Guide*. In 2007, the state legislature created the Water Conservation Advisory Council (WCAC) as a council with expertise in water conservation representing various interest with one of their charges to regularly review existing Best Management Practices (BMPs) and add additional new BMPs as appropriate. The draft WCAC BMPs available as of November 30, 2018 have also been considered in the preparation of this plan.

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1. INTRODUCTION AND OBJECTIVES

Water supply has always been a key issue in the development of Texas. In recent years, the increasing population and economic development of North Central Texas have led to growing demands for water supplies. At the same time, local and less expensive sources of water supply are largely already developed. Additional supplies to meet future demands will be expensive and difficult to secure. Severe drought conditions in recent years have highlighted the importance of efficient use of our existing supplies to make them last as long as possible. This will delay the need for new supplies, minimize the environmental impacts associated with developing new supplies, and delay the high cost of additional water supply development.

Recognizing the need for efficient use of existing water supplies, the Texas Commission on Environmental Quality (TCEQ) has developed guidelines and requirements governing the development of water conservation and drought contingency plans for municipal uses by public water suppliers[2]. The City of Richardson has developed this water conservation plan to be consistent with to TCEQ guidelines and requirements. The best management practices established by the Water Conservation Implementation Task Force[3] were also considered in the development of the water conservation measures.

This Water Conservation Plan includes measures that are intended to result in ongoing, long-term water savings. This plan replaces the previous plan dated May 2014. The objectives of this water conservation plan are as follows:

- To reduce water consumption from the levels that would prevail without conservation efforts.
- To reduce the loss and waste of water.
- To improve efficiency in the use of water.
- Encourage efficient outdoor water use.
- To document the level of recycling and reuse in the water supply.
- To extend the life of current water supplies by reducing the rate of growth in demand.

[1] Superscripted numbers match references listed in Appendix A.

2. DEFINITIONS

1. ATHLETIC FIELD means a public sports competition field, the essential feature of which is turf grass, used primarily for organized sports practice, competition or exhibition events for schools, professional sports, or sanctioned league play.

2. COOL SEASON GRASSES are varieties of turf grass that grow best in cool climates primarily in northern and central regions of the U.S. Cool season grasses include perennial and annual rye grass, Kentucky blue grass and fescues.

3. CUSTOMERS include those entities to whom City of Richardson provides water on a customer basis and that are not members of NTMWD.

4. DRIP IRRIGATION is a type of micro-irrigation system that operates at low pressure and delivers water in slow, small drips to individual plants or groups of plants through a network of plastic conduits and emitters; also called trickle irrigation.

5. EVAPOTRANSPIRATION abbreviated as ET represents the amount of water lost from plant material to evaporation and transpiration. The amount of ET can be estimated based on the temperature, wind, and relative humidity.

6. ET/SMART CONTROLLERS are irrigation controllers that adjust their schedule and run times based on weather (ET) data. These controllers are designed to replace the amount of water lost to evapotranspiration.

7. EXECUTIVE DIRECTOR means the Executive Director of the North Texas Municipal Water District and includes a person the Director has designated to administer or perform any task, duty, function, role, or action related to this plan or on behalf of the Executive Director.

8. INSTITUTIONAL USE means the use of water by an establishment dedicated to public service, such as a school, university, church, hospital, nursing home, prison or government facility. All facilities dedicated to public service are considered institutional regardless of ownership.

9. IRRIGATION SYSTEM means a custom-made, site-specific system of delivering water generally for landscape irrigation via a system of pipes or other conduits.

10. LANDSCAPE means any plant material on a property, including any tree, shrub, vine, herb, flower, succulent, ground cover, grass or turf species, that is growing or has been planted out of doors.

11. MEMBER CITIES include the cities of Allen, Farmersville, Forney, Frisco, Garland, McKinney, Mesquite, Plano, Princeton, Richardson, Rockwall, Royce City, and Wylie, Texas, which are members of NTMWD

12. MULTI-FAMILY PROPERTY means a property containing five or more dwelling units.

13. MUNICIPAL USE means the use of potable water provided by a public water supplier as well as the use of treated wastewater effluent for residential, commercial, industrial, agricultural, institutional, and wholesale uses.

14. RESIDENTIAL GALLONS PER CAPITA PER DAY (Residential GPCD) means the total gallons sold for residential use by a public water supplier divided by the residential population served and then divided by the number of days in the year.

15. TOTAL GALLONS PER CAPITA PER DAY (Total GPCD) means the total amount of water diverted and/or pumped for potable use divided by the total permanent population divided by the days of the year. Diversion volumes of reuse as defined in TAC 288.1 shall be credited against total diversion volumes for the purposes of calculating GPCD for targets and goals.

16. WATER CONSERVATION PLAN means this water conservation plan approved and adopted by the City of Richardson on April 1, 2019.

Abbreviations

Abbreviation	Full Nomenclature
BMP	Best Management Practices
NTMWD or District	North Texas Municipal Water District
TCEQ	Texas Commission on Environmental Quality
TWDB	Texas Water Development Board
WCAC	Water Conservation Advisory Council
WCP	Water Conservation Plan

3. REGULATORY BASIS FOR WATER CONSERVATION PLAN

3.1 TCEQ Rules Governing Conservation Plans

The TCEQ rules governing development of water conservation plans for municipal uses by public water suppliers are contained in Title 30, Chapter 288, Subchapter A, Section 288.2 of the Texas Administrative Code. For the purpose of these rules, a water conservation plan is defined as "[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[2]." The elements in the TCEQ water conservation rules covered in this conservation plan are listed below.

Minimum Conservation Plan Requirements

The minimum requirements in the Texas Administrative Code for Water Conservation Plans for Municipal Uses by Public Water Suppliers are covered in this water conservation plan as follows:

- 288.2(a)(1)(A) – Utility Profile – Section 4 and Appendix C
- 288.2(a)(1)(B) – Record Management System – Section 6.1.5
- 288.2(a)(1)(B) – Specification of Goals – Section 5
- 288.2(a)(1)(C) – Specific, Quantified Goals – Section 5
- 288.2(a)(1)(D) – Accurate Metering – Section 6.1.1
- 288.2(a)(1)(E) – Universal Metering – Section 6.1.2
- 288.2(a)(1)(F) – Determination and Control of Water Loss – Sections 6.1.3 and 6.1.4
- 288.2(a)(1)(G) – Public Education and Information Program – Section 6.2
- 288.2(a)(1)(H) – Non-Promotional Water Rate Structure – Section 6.6
- 288.2(a)(1)(I) – Reservoir System Operation Plan – Section 6.3
- 288.2(a)(1)(J) – Means of Implementation and Enforcement – Section 8
- 288.2(a)(1)(K) – Coordination with Regional Water Planning Group – Section 6.4 and Appendix F
- 288.2(c) – Review and Update of Plan – Section 9

Conservation Additional Requirements (Population over 5,000)

- The Texas Administrative Code includes additional requirements for water conservation plans for drinking water supplies serving a population over 5,000
- 288.2(a)(2)(A) – Leak Detection, Repair, and Water Loss Accounting – Sections 6.1.4
- 288.2(a)(2)(B) – Record Management System – Section 6.1.5
- 288.2(a)(2)(C) – Requirement for Water Conservation Plans by Wholesale Customers – Section 6.5

Additional Conservation Strategies

The TCEQ requires that a water conservation implementation report be completed and submitted on an annual basis.

3.2 Guidance and Methodology for Reporting on Water Conservation and Water Use

In addition to TCEQ rules regarding water conservation, this plan also incorporates elements of the Guidance and Methodology for Reporting on Water Conservation and Water Use developed by TWDB and TCEQ, in consultation with the Water Conservation Advisory Council (the "Guidance"). The Guidance was developed in response to a charge by the 82nd Texas Legislature to develop water use and calculation methodology and guidance for preparation of water use reports and water conservation plans in accordance with TCEQ rules.

4. WATER UTILITY PROFILE

Appendix B to this Water Conservation Plan is the water utility profile submitted to TWDB in March 2019.

5. SPECIFICATION OF WATER CONSERVATION GOALS

TCEQ rules require the adoption of specific water conservation goals for a water conservation plan. As part of plan adoption, the City of Richardson must develop 5-year and 10-year goals for per capita municipal use. The goals for this water conservation plan include the following:

- Maintain the total and residential per capita water use below the specified amount in gallons per capita per day in a dry year, as shown in the completed Table 5-1.
- Maintain the water loss percentage in the system below 12 percent annually in 2013 and subsequent years, as discussed in Section 6.1.3. (The 12 percent goal for water loss is recommended but is not required. Systems with long distances between customers may adopt a higher percent water loss goal.)
- Implement and maintain a program of universal metering and meter replacement and repair, as discussed in Section 6.1.2.
- Increase efficient water usage through a water conservation ordinance, order or resolution as discussed in Section 7.5 and Appendix G. Decrease waste in lawn irrigation by implementation and enforcement of landscape water management regulations, as discussed in Section 7.6. (These landscape water management regulations are recommended but are not required.)
- Raise public awareness of water conservation and encourage responsible public behavior by a public education and information program, as discussed in Section 6.2.
- Develop a system specific strategy to conserve water during peak demands, thereby reducing the peak use.

Table 5-1 Five-Year and Ten-Year Per Capita Water Use Goals (gpcd)

Description	Historic 5-year Average[3]	5-Year Goal for 2024	10-Year Goal for 2029
Total GPCD	208	229	218
Residential GPCD	100	123	117
Water Loss (GPCD)[1]	25	22	22
Water Loss (Percentage)[2]	12	10	10

1. Water Loss GPCD = (Total Water Loss ÷ Permanent Population) ÷ 365
2. Water Loss Percentage = (Total Water Loss ÷Total Gallons in System) x 100; or (Water Loss GPCD ÷ Total GPCD) x 100
3. During the historic 5-year average (2014-2018) the City of Richardson was under 2X per week water periods.

6. BASIC WATER CONSERVATION STRATEGIES

6.1 Metering, Water Use Records, Control of Water Loss, and Leak Detection and Repair

One of the key elements of water conservation is tracking water use and controlling losses through illegal diversions and leaks. It is important to carefully meter water use, detect and repair leaks in the distribution system and provide regular monitoring of real losses.

6.1.1 Accurate Metering of Treated Water Deliveries from NTMWD

Water deliveries from NTMWD are metered by the City of Richardson using meters with accuracy of ±2%. These production meters are calibrated on an annual basis by the City of Richardson to maintain the required accuracy.

6.1.2 Metering of Customer and Public Uses and Meter Testing, Repair, and Replacement

The provision of water to all customers, including public and governmental users, should be metered. In many cases, the City of Richardson already meter retail and commercial water users. The City of Richardson test and replace their commercial meters on a regular basis.

6.1.3 Determination and Control of Water Loss

Total water loss is the difference between the water delivered from NTMWD to the City of Richardson (and other supplies, if applicable) and metered water sales to customers plus authorized for use but not sold. (Authorized for use but not sold would include use for firefighting, releases for flushing of lines, uses associated with new construction, etc.) Total water loss includes three categories:

- Apparent Losses – including inaccuracies in customer meters. Losses due to illegal connections and theft. Accounts which are being used but have not yet been added to the billing system.
- Real Losses – Includes physical losses from the system or mains, reported breaks and leaks, storage overflow.

Measures to control water loss are part of the routine operations of the City of Richardson. Maintenance crews and personnel look for and report evidence of leaks in

the water distribution system. Meter readers watch for and report signs of illegal connections, so they can be quickly addressed.

Total water loss should be calculated in accordance with the provisions of Appendix D. With the measures described in this plan, Member Cities and Customers should maintain water loss percentage below 12 percent in 2018 and subsequent years. If total water loss exceeds this goal, the City of Richardson should implement a more intensive audit to determine the source(s) of loss and to reduce the water loss. The annual conservation report described below is the primary tool that should be used to monitor water loss.

6.1.4 Leak Detection and Repair

As described above, city crews and personnel should look for and report evidence of leaks in the water distribution system. Areas of the water distribution system in which numerous leaks and line breaks occur should be targeted for replacement as funds are available.

6.1.5 Record Management System

As required by TAC Title 30, , Chapter 288, Section 288.2(a)(1)(B), a record management system should allow for the separation of water sales and uses into residential, commercial, public/institutional, and industrial categories. This information will be included in an annual water conservation report, as described in Section 7.6 below.

6.2 Continuing Public Education and Information Campaign

The continuing public education and information campaign on water conservation includes the following elements:

- Utilize the "Water IQ: Know Your Water" and other public education materials produced by NTMWD.
- Insert water conservation information with water bills. Inserts will include material developed by Member Cities' and Customers' staff and material obtained from the TWDB, TCEQ, and other sources.
- Encourage local media coverage of water conservation issues and the importance of water conservation.

- Notify local organizations, schools, and civic groups that Member City or Customer staff and staff of the City of Richardson are available to make presentations on the importance of water conservation and ways to save water.
- Promote the *Texas Smartscape* web site (www.txsmartscape.com) and provide water conservation brochures and other water conservation materials available to the public at City Hall and other public places.
- Make information on water conservation available on its website, and include links to the "Water IQ: Know Your Water" website, *Texas Smartscape* website and to information on water conservation on the TWDB and TCEQ web sites and other resources.
- The City of Richardson is an EPA Water Sense Partner and participates in the EPA Water Sense sponsored events.
- The City of Richardson is currently developing a comprehensive environmental outreach and educational plan. This plan is an essential part of achieving the City's water conservation goals. The objectives for the plan include:
    - Increasing the willingness of Richardson's residents to take actions to conserve water resources
    - Develop consistent messages and branding for conservation efforts
    - Detail opportunities to reach the public through community events, speaking engagements, training classes, printed materials, promotional items, electronic resources, social media, street banners, and incentive programs
    - Establish metrics for measuring the impact of outreach and education efforts

The final approved plan will be added to the appendix of the Water Conservation Plan and available online.

6.3 NTMWD Reservoir System Operation Plan

Member Cities of NTMWD, which includes the City of Richardson, purchase treated water from NTMWD, and do not have surface water supplies for which to implement a reservoir system operation plan. NTMWD operates multiple sources of water supply as a system. The operation of the reservoir system is intended to optimize the use of the District's sources (within the constraints of existing water rights) while minimizing energy use cost for pumping, maintaining

water quality, minimizing potential impacts on recreational users of the reservoirs and fish and wildlife.

6.4 Coordination with Regional Water Planning Group and NTMWD

Appendix F includes a copy of the letter sent to the Chair of the Region C and Region D water planning group with this water conservation plan. The City of Richardson will send a copy of their ordinance(s) or regulation(s) implementing the plan and their water utility profile to NTMWD. The adopted ordinance(s) or regulation(s) and the adopted water utility profile will be sent to the Chair of the appropriate Water Planning Group and to NTMWD.

6.5 Requirement for Water Conservation Plans by Wholesale Customers

Every contract for the wholesale sale of water by the City of Richardson that is entered into, renewed, or extended after the adoption of this water conservation plan will include a requirement that the wholesale customer and any wholesale customers of that wholesale customer develop and implement a water conservation plan meeting the requirements of Title 30, Chapter 288, of the Texas Administrative Code. This requirement extends to each successive wholesale customer in the resale of the water.

7. ENHANCED WATER CONSERVATION STRATEGIES

7.1 Water Rate Structure

The City of Richardson has an increasing block rate water structure that is intended to encourage water conservation and discourage excessive use and waste of water. The City of Richardson's current water rate structure is as follows:

Residential Rates

Minimum of $8.00 and per each 1,000 gallons consumed as described below:

$6.15 for 1,000 – 11,000 gallons

$6.66 for 11, 001 – 20,000 gallons

$6.94 for 20,001 – 40,000 gallons

$8.08 for 40,001 – 60,000 gallons

$8.45 for 60,001 and over

Commercial Rates

Minimum of $8.00 and per each 1,000 gallons consumed as described below:

$6.15 for 1,000 – 11,000 gallons

$6.66 for 11, 001 – 20,000 gallons

$6.94 for 20,001 – 40,000 gallons

$8.08 for 40,001 – 60,000 gallons

$8.45 for 60,001 and over

7.2 Ordinances, Plumbing Codes, or Rules on Water-Conserving Fixtures

The state has required water-conserving fixtures in new construction and renovations since 1992. The state standards call for flows of no more than 2.5 gallons per minute (gpm) for faucets, 2.5 gpm for showerheads. As of January 1, 2014, the state requires maximum average flow rates of 1.28 gallons per flush (gpf) for toilets and 0.5 gpf for urinals. Similar standards are now required under federal law. These state and federal standards assure that all new construction and renovations will use water-conserving fixtures.

7.3 Compulsory Landscape and Water Management Measures

The following landscape water management measures are required by the City of Richardson for this plan. These measures are to be implemented and enforced in order to conserve water resources and irrigate the landscape appropriately and are to remain in effect on a permanent basis unless water resource management stages are declared.

1. **Landscape Water Management Measures**

- Limit landscape watering with sprinklers or irrigation systems at each service address to no more than two days per week year-round, with education that less than twice per week is usually adequate. Additional watering of landscape may be provided by hand-held hose with shutoff nozzle, use of dedicated irrigation drip zones, and/or soaker hose provided no runoff occurs.
- Prohibit lawn irrigation watering from 10 AM to 6 PM (April 1 – October 31).
- Prohibit the use of irrigation systems that water impervious surfaces. (Wind driven water drift will be taken into consideration.)
- Prohibit outdoor watering during precipitation or freeze events.
- Prohibit use of poorly maintained sprinkler systems that waste water.
- Prohibit excess water runoff or other obvious waste.

7.4 Monitoring of Effectiveness and Efficiency - Annual Water Conservation Report

The annual conservation report will be submitted by the City of Richardson on March 31 each year. This report is used to monitor the effectiveness and efficiency of the water conservation program, and to plan conservation-related activities for the next year. The form records the water use by category, per capita municipal use, and total water loss for the current year and compares them to historical values.

The annual water conservation report will be sent to NTMWD, which will monitor NTMWD Member Cities' and Customers' water conservation trends.

7.5 Water Conservation Implementation Report

Appendix F includes the TCEQ-required water conservation implementation report. The report is due to the TCEQ by May 1 of every year. This report lists the various water conservation strategies that have been implemented including the date the strategy was implemented. The report also calls for the five-year and ten-year per capita water use goals from the previous water conservation plan. The reporting entity must answer whether or not these goals have been met and if not, why not. The amount of water saved is also requested.

8. IMPLEMENTATION AND ENFORCEMENT OF THE WATER CONSERVATION PLAN

Appendix G contains the ordinance that was adopted by the City Council regarding the water conservation plan. The resolution designates responsible officials to implement and enforce the water conservation plan.

Enforcement

a) For a first violation of any provision of this article, the city shall issue a letter and provide educational materials on water conservation, including a copy of the relevant provisions of this article, to the water user violating the provisions of the ordinance. The city shall give the water user a reasonable time to correct the violation.

b) For a second violation of any provision of this article, the city shall issue the water user a citation and a fine not to exceed the sum of $2,000.

c) The city's current, five-tier level conservation rate structure is in effect year-round to encourage ongoing water conservation. Additional rate surcharges may be established when it is required to meet the reduction goal in each respective stage of this article.

9. REVIEW AND UPDATE OF WATER CONSERVATION PLAN

TCEQ requires that the water conservation plans be updated prior to May 1, 2019. The plans are required to be updated every five years thereafter. The plan will be updated as required and as appropriate based on new or updated information.

Appendix A
List of References

1. Texas Commission on Environmental Quality Annual Report. http://www.tceq.texas.gov/permitting/water_rights/conserve.html#imple

2. Title 30 of the Texas Administrative Code, Part 1, Chapter 288, Subchapter A, Rules 288.1 and 288.5, and Subchapter B, Rule 288.22, downloaded from http://info.sos.state.tx.us/pls/pub/readtac$ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=288, June 2013.

3. Water Conservation Implementation Task Force: "Texas Water Development Board Report 362, Water Conservation Best Management Practices Guide," prepared for the Texas Water Development Board, Austin, November 2004.

4. Water Conservation Advisory Council: Guidance and Methodology for Reporting on Water Conservation and Water Use, December 2012

5. Freese and Nichols, INC.: Model Water Conservation Plan for NTMWD Members Cities and Customers, prepared for the North Texas Municipal Water District, Fort Worth, November 2013.

6. Definitions from City of Austin Water Conservation and Drought Contingency Ordinance adopted August 16, 2012. http://www.austintexas.gov/sites/default/files/files/Water/Conservation/Planning_and_Policy/ProposedCodeRevision_DRAFT_with_watering_schedule-8-15-2012.pdf

7. Definition from City of San Antonio Water Conservation Ordinance adopted 2005. http://saws.org/conservation/ordinance/docs/Ch34_Ordinance_2009.pdf

8. Definition developed by Freese and Nichols Inc.

9. Texas Water Development Board, Texas Commission on Environmental Quality, Water Conservation Advisory Council. "DRAFT Guidance and Methodology for Water Conservation Reporting."

10. Freese and Nichols Inc., Alan Plummer and Associates, CP & Y Inc. and Cooksey Communications. "2011 Region C Regional Water Plan"

Appendix B

City of Richardson's TCEQ Water Utility Profile

Texas Water Development Board

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

CONTACT INFORMATION

Name of Utility: City of Richardson

Public Water Supply Identification Number (PWS ID): TX0570015

Certificate of Convenience and Necessity (CCN) Number: 10083

Surface Water Right ID Number: 19, 5516, 5544, 5805

Wastewater ID Number: 20031

Contact: First Name: Bradley Last Name: Due

Title: Utilities Superintendent

Address: 1260 Columbia Dr. City: Richardson State: TX

Zip Code: 75081 Zip+4: Email: bradley.due@cor.gov

Telephone Number: 9727444416 Date: 4/30/2019

Is this person the designated Conservation Coordinator? ○ Yes ◉ No

Coordinator: First Name: Pharr Last Name: Andrews

Title: Environmental Outreach Manager

Address: 1260 Columbia Dr. City: Richardson Zip Code: 75081

Email: pharr.andrews@cor.gov Telephone Number: 972-744-4228

Regional Water Planning Group: C

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: 29

Texas Water Development Board

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

Attached file(s):

File Name	File Description
CoR.pdf	City of Richardson Map

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	110,140	0	110,140
2017	107,400	0	107,400
2016	104,300	0	104,300
2015	102,430	0	102,430
2014	101,820	0	101,820

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	112,685	0	112,685
2030	125,412	0	125,412
2040	138,138	0	138,138
2050	0	0	0
2060	0	0	0

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

Population projections calculated by the average projected growth (Year 2035 projected population minus current population divided by the time span in years to obtain average. 2040 projected population utilizes same calculation to obtain average growth projection in a 22 year time span. The results are then averaged to find the estimated average growth per year.). Source: North Central Texas Council of Governments

Texas Water Development Board

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	0	8,504,599,000	0	8,504,599,000	212
2017	0	8,109,700,701	0	8,109,700,701	207
2016	0	8,081,598,599	0	8,081,598,599	212
2015	0	8,078,544,000	0	8,078,544,000	216
2014	0	7,090,034,000	0	7,090,034,000	191
Historic Average	0	7,972,895,260	0	7,972,895,260	208

C. Water Supply System

1. Designed daily capacity of system in gallons: 98,900,000
2. Storage Capacity
   - 2a. Elevated storage in gallons: 8,750,000
   - 2b. Ground storage in gallons: 27,500,000

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	112,685	8,513,937,397
2021	113,958	8,610,092,246
2022	115,231	8,706,247,094
2023	116,503	8,802,401,943
2024	117,776	8,898,556,791
2025	119,049	8,994,711,640
2026	120,321	9,090,866,488
2027	121,594	9,187,021,337
2028	122,866	9,283,176,185
2029	124,139	9,379,331,034

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

Population projections calculated from North Central Texas Council of Governments population projections for 2035. The average growth was calculated by subtracting the current population of 2018 from the projected population for 2035 then divided by 17 (time span in years) to obtain the average projected growth per year. Estimated population projections calculated by adding the average estimated growth. Demand projections are calculated by estimated population and GPCD goals.

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
Texas Instruments	Industrial	839,275,000	Treated
QORVO	Industrial	199,714,000	Treated
Honeywell Optoelectronic	Industrial	35,220,000	Treated
CISCO Systems	Industrial	30,752,000	Treated
MCI Telecom	Industrial	27,156,000	Treated

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

Customer	Water Use Category	Annual Water Use	Treated or Raw

Texas Water Development Board

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

F. Utility Data Comment Section

Additional comments about utility data.

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	27,966	80.74 %
Residential - Multi-Family	631	1.82 %
Industrial	494	1.43 %
Commercial	1,602	4.62 %
Institutional	437	1.26 %
Agricultural	3,508	10.13 %
Total	34,638	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	243	21	0	9	0	32	305
2017	0	19	0	0	29	9	57
2016	0	0	0	0	0	3,467	3,467
2015	402	0	2	20	0	0	424
2014	198	42	14	70	94	0	418

Texas Water Development Board

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	2,750,192,000	775,009,000	1,331,837,000	1,043,262,000	104,804,000	1,094,867,000	7,099,971,000
2017	2,784,938,000	796,655,000	1,173,714,000	997,337,000	107,044,000	1,075,076,000	6,934,764,000
2016	3,142,971,000	904,464,000	1,238,235,000	1,047,161,000	602,486,000	0	6,935,317,000
2015	3,330,352,000	835,727,000	1,180,453,000	1,029,639,000	678,685,000	0	7,054,856,000
2014	3,006,107,000	785,177,000	1,048,691,000	937,166,000	545,128,000	0	6,322,269,000

C. Residential Water Use

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

Year	Total Residential GPCD
2018	88
2017	91
2016	106
2015	111
2014	102
Historic Average	100

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	555,267,000	410,391,000	524,863,000	494,263,000	478,867,000
February	490,098,000	418,556,000	514,306,000	423,572,000	449,975,000
March	539,026,000	691,599,000	542,046,000	449,705,000	453,231,000
April	611,205,000	622,830,000	616,780,000	491,122,000	511,835,000
May	874,750,000	751,301,000	590,108,000	496,223,000	647,435,000
June	866,330,000	695,113,000	777,972,000	664,817,000	620,682,000
July	1,146,892,000	859,693,000	861,557,000	941,390,000	691,108,000
August	1,075,725,000	824,466,000	968,225,000	1,270,868,000	798,069,000
September	629,698,000	782,660,000	793,795,000	1,013,538,000	747,652,000
October	621,982,000	866,642,000	756,082,000	881,409,000	655,843,000
November	586,665,000	657,103,000	588,078,000	492,667,000	567,159,000
December	506,961,000	521,237,000	539,705,000	458,970,000	468,178,000
Total	8,504,599,000	8,101,591,000	8,073,517,000	8,078,544,000	7,090,034,000

Texas Water Development Board

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					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
Total					

3. Summary of seasonal and annual water use.

	Summer RETAIL (Treated + Raw)	Total RETAIL (Treated + Raw)
2018	3,088,947,000	8,504,599,000
2017	2,379,272,000	8,101,591,000
2016	2,607,754,000	8,073,517,000
2015	2,877,075,000	8,078,544,000
2014	2,109,859,000	7,090,034,000
Average in Gallons	2,612,581,400.00	7,969,657,000.00

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	1,365,092,366	34	16.05 %
2017	1,150,678,844	29	14.19 %
2016	900,889,579	24	11.15 %
2015	756,819,395	20	9.37 %
2014	570,517,481	15	8.05 %
Average	948,799,533	24	11.76 %

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	23,300,271	33575510	1.4410
2017	22,196,139	25861652	1.1651
2016	22,119,224	28345152	1.2815
2015	22,132,997	31272554	1.4129
2014	19,424,750	22933250	1.1806

G. Summary of Historic Water Use

Water Use Category	Historic Average	Percent of Connections	Percent of Water Use
Residential - Single Family	3,002,912,000	80.74 %	43.71 %
Residential - Multi-Family	819,406,400	1.82 %	11.93 %
Industrial	1,194,586,000	1.43 %	17.39 %
Commercial	1,010,913,000	4.62 %	14.72 %
Institutional	407,629,400	1.26 %	5.93 %
Agricultural	433,988,600	10.13 %	6.32 %

Texas Water Development Board

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

H. System Data Comment Section

Section III: Wastewater System Data

A. Wastewater System Data

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

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

Water Use Category	Metered	Unmetered	Total Connections	Percent of Total Connections
Municipal			0	0.00 %
Industrial			0	0.00 %
Commercial			0	0.00 %
Institutional			0	0.00 %
Agricultural			0	0.00 %
Total			0	100.00 %

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

Texas Water Development Board

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	393,324,000	381,148,000	451,271,000	398,055,000	370,865,000
February	485,030,000	362,129,000	388,599,000	381,016,000	339,490,000
March	551,635,000	352,056,000	492,796,000	516,762,000	371,988,000
April	450,236,000	389,224,000	504,097,000	525,814,000	365,348,000
May	423,259,000	388,268,000	464,467,000	661,948,000	388,560,000
June	394,328,000	436,593,000	498,266,000	457,411,000	349,554,000
July	395,565,000	435,304,000	379,625,000	357,099,000	360,990,000
August	441,336,000	398,187,000	383,088,000	353,578,000	357,239,000
September	544,883,000	377,917,000	364,705,000	348,525,000	344,236,000
October	767,516,000	385,271,000	368,182,000	415,475,000	351,872,000
November	534,194,000	265,378,000	370,644,000	529,569,000	333,002,000
December	562,830,000	398,858,000	362,712,000	577,151,000	349,624,000
Total	5,944,136,000	4,570,333,000	5,028,452,000	5,522,403,000	4,282,768,000

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	
Plant wash down	
Chlorination/de-chlorination	
Industrial	
Landscape irrigation (park,golf courses)	
Agricultural	
Discharge to surface water	
Evaporation Pond	
Other	
Total	

Texas Water Development Board

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 City of Richardson is a collection system only and does not operate a wastewater treatment facility.

Appendix C

City of Richardson's Annual Water Conservation Report

Texas Water Development Board

Water Conservation Plan Annual Report
Retail Water Supplier

CONTACT INFORMATION

Name of Utility: City of Richardson

Public Water Supply Identification Number (PWS ID): TX0570015

Certification of Convenience and Necessity (CCN) Number: 10083

Surface Water Right ID Number: 19, 5516, 5544, 5805

Wastewater ID Number: 20031

Check all that apply:

- [x] Retail Water Supplier
- [ ] Wholesale Water Supplier
- [ ] Wastewater Treatment Utility

Address: 1260 Columbia Dr City: Richardson Zip Code: 75081

Email: bradley.due@cor.gov Telephone Number: 9727444416

Regional Water Planning Group: C

Groundwater Conservation District:

Contact: First Name: Bradley Last Name: Due

Title: Utilities Superintendent

Is this person the designated Conservation Coordinator? ○ Yes ◉ No

Coordinator: First Name: Pharr Last Name: Andrews

Title: Environmental Outreach Manager

Address: 1260 Columbia Dr. City: Richardson Zip Code: 75491

Email: pharr.andrews@cor.gov Telephone Number: 972-744-4228

Regional Water Planning Group: C

Groundwater Conservation District:

Reporting Period (Calendar year):

Period Begin (mm/yyyy): 01/2018 Period End (mm/yyyy): 12/2018

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Check all that apply:

- ☐ Received financial assistance of $500,000 or more from TWDB
- ☑ Have 3,300 or more retail connections
- ☑ Have a surface water right with TCEQ

SYSTEM DATA

1. For this reporting period, select the category(s) used to classify customer water usage:

	Retail Customer Water Usage Categories
☑	Residential - Single Family
☑	Residential - Multi-family
☑	Industrial
☑	Commercial
☑	Institutional
☑	Agricultural

Retail Customers Categories*

- Residential Single Family
- Residential Multi-Family
- Industrial
- Commercial
- Institutional
- Agricultural

**Recommended Customer Categories for classifying customer water use. For definitions, refer to Guidance and Methodology on Water Conservation and Water Use.*

2. For this reporting period, enter the number of connections for and the gallons of metered retail water used by each category. If the Customer Category does not apply, enter zero or leave blank. These numbers should be the same as those reported on the Water Use Survey.

Retail Customer Category	Number of Connections	Gallons Metered
Residential - Single Family	27,966	2,750,192,000
Residential - Multi-family	631	775,009,000
Industrial	494	1,331,837,000
Commercial	1,602	1,043,262,000
Institutional	437	104,804,000
Agricultural	3,508	1,094,867,000
Total Retail Water Metered[1]	34,638	7,099,971,000

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[1]Residential + Industrial + Commercial + Institutional + Agricultural = Total Retail Water Metered

Water Use Accounting

	Total Gallons During the Reporting Period
1. Corrected Input Volume: The volume of treated water input to the distribution system from own production facilities. Same as line 13b of the Water Loss Audit for reporting periods >= 2015. Same as line 14 of the Water Loss Audit for reporting periods <= 2014.	0
2. Corrected Treated Purchased Water Volume: The amount of treated purchased wholesale water transfered into the utility's distribution system from other water suppliers system. Same as line 14b of the Water Loss Audit for reporting periods >= 2015. Same as line 15 of the Water Loss Audit for reporting periods <= 2014.	8,504,599,000
3. Corrected Treated Wholesale Water Sales Volume: The amount of treated wholesale water transfered out of the utility's distribution system, although it may be in the system for a brief time for conveyance reasons. Same as line 15b of the Water Loss Audit for reporting periods >= 2015. Same as line 16 of the Water Loss Audit for reporting periods <= 2014.	0
4. Total System Input Volume: This is the sum of the corrected input volume plus corrected treated purchased water volume minus corrected treated wholesale water sales volume. Same as line 16 of the Water Loss Audit for reporting periods >= 2015. Same as line 17 of the Water Loss Audit for reporting periods <= 2014. Produced + Imported - Exported = Total System Input Volume	8,504,599,000
5. Billed Metered: All retail water sold and metered. Same as line 17 of the Water Loss Audit for reporting periods >= 2015. Same as line 18 of the Water Loss Audit for reporting periods <= 2014.	7,099,971,000
6. Other Authorized Consumption: Water that is authorized for other uses such as back flushing, line flushing, storage tank cleaning, fire department use, municipal government offices or municipal golf courses/parks. This water may be metered or unmetered. Same as lines 18, 19, and 20 of the Water Loss Audit for reporting periods >= 2015. Same as lines 19, 20, and 21 of the Water Loss Audit for reporting periods <= 2014.	39,535,634
7. Total Authorized Consumption: All water that has been authorized for use. Same as Line 21 of the Water Loss Audit for reporting periods >= 2015. Same as line 22 of the Water Loss Audit for reporting periods <= 2014. Total Billed and Metered Retail Water + Other Authorized Consumption = Total Authorized Consumption	7,139,506,634

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8. Total Apparent Losses: Water that has been consumed but not properly measured or billed (losses due to customer meter inaccuracy, systematic data handling discrepancy and/or unauthorized consumption such as theft). Same as line 27 of the Water Loss Audit for reporting periods >= 2015. Same as line 28 of the Water Loss Audit for reporting periods <= 2014.	**92,978,376**
9. Total Real Loss: Physical losses from the distribution system prior to reaching the customer destination (losses due to reported breaks and leaks, physical losses from the system or mains and/or storage overflow). Same as line 30 of the Water Loss Audit for reporting periods >= 2015. Same as line 31 of the Water Loss Audit for reporting periods <= 2014.	**1,272,113,990**
10. Total Water Loss: Apparent + Real = Total Water Loss	**1,365,092,366**

Programs and Activities

1. What year did your entity adopt or revise their most recent Water Conservation Plan? 2014

2. Does The Plan incorporate Best Management Practices? (●) Yes ( ) No

3. Using the table below select the types of Best Management Practices or water conservation and reuse strategies actively administered during this reporting period and estimate the savings incurred in implementing water conservation and reuse activities and programs. Leave fields blank if unknown. **Please separate reuse volumes from gallons saved.**

Methods and techniques for determining gallons saved are unique to each utility as they conduct internal cost analyses and long-term financial planning. Texas Best Management Practice can be found at TWDB's Wate Conservation Best Management Practices webpage. The Alliance for Efficiency Water Conservation Tracking Tool may offer guidance on determining and calculating savings for individual BMPs.

Best Management Practice	Check if Implemented	Estimated Gallons Saved	Estimated Gallons Reused
Conservation Analysis and Planning			
Conservation Coordinator	☑	0	
Cost Effective Analysis	☐		
Water Survey for Single Family and Multi-family Customers	☐		
Financial			
Wholesale Agency Assistance Programs	☐		
Water Conservation Pricing	☐		
System Operations			
Metering New Connections and Retrofitting Existing Connections	☑	35,490	
System Water Audit and Loss Control	☐		

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Landscaping			
Landscape Irrigation Conservation and Incentives	☐		
Athletic Fields Conservation	☐		
Golf Course Conservation	☐		
Park Conservation	☐		
Residential Landscape Irrigation Evaluation	☐		
Education and Public Awareness			
School Education	☑	2,380	
Public Information	☑	298,289	
Small Utility Outreach and Education	☐		
Partnerships with Nonprofit Organizations	☑	1,763	
Rebate, Retrofit, and Incentive Programs			
Conservation Programs for ICI Accounts	☐		
Residential Clothes Washer Incentive Program	☐		
Water Wise Landscape Design and Conversion Programs	☐		
Showerhead, Aerator, and Toilet Flapper Retrofit	☐		
Residential Toilet Replacement Programs	☐		
ICI Incentive Programs	☐		
Conservation Technology & Resuse			
New Construction Graywater	☐		
Rainwater Harvesting and Condensate Reuse	☐		
Reuse for On-site Irrigation	☐		
Reuse for Plant Washdown	☐		
Reuse for Chlorination/Dechlorination	☐		
Reuse for Industry	☐		
Reuse for Agriculture	☐		
Regulatory and Enforcement			
Prohibition on Wasting Water	☑	0	
Retail			
Other	☐		
Totals		**337,922**	

4. For this reporting period, estimate the savings from water conservation activities and programs.

Gallons Saved/Conserved	Gallons Recycled/Reused	Total Volume of Water Saved[1]	Dollar Value of Water Saved[2]
337,922		337,922	1,745

[1]Estimated Gallons Saved + Estimated Gallons Recycled/Reused = Total Volume Saved

[2]Estimated this value by taking into account water savings, the cost of treatment or purchase of water, and deferred capital cost due to conservation.

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5. Comments or Explanations Regarding Data Entered in Sections Above. Files to support or explain this may be attached below.

6. During this reporting period, did your rates or rate structure change? (•) Yes ( ) No

Select the type of rate pricing structure used. Check all that apply.

☑	Uniform Rates
☐	Flat Rates
☑	Inclining/Inverted Block Rates
☐	Declining Block Rates
☐	Seasonal Rates
☐	Water Budget Based Rates
☐	Excess Use Rates
☐	Drought Demand Rates
☐	Tailored Rates
☐	Surcharge - usage demand
☐	Surcharge - seasonal
☐	Surcharge - drought
☐	Other

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7. For this reporting period, select the public awareness or educational activities used.

Name	Implemented This Year	Number Of Times This Year	Total Population Reached this Year
Brochures Distributed	☐		
Messages Provided on Utility Bills	☑	3	26,000
Press Releases	☑	7	46,000
TV Public Service Announcements	☐		
Radio Public Service Announcements	☐		
Educational School Programs	☐		
Displays, Exhibits, and Presentations	☑	7	1,135
Community Events	☑	83	9,723
Social Media campaign - Facebook	☐		
Social Media campaign - Twitter	☐		
Social Media campaign - Instagram	☐		
Social Media campaign - YouTube	☐		
Facility Tours	☑	2	100
Other	☐		
Total		102	82,958

Leak Detection and Water Loss

1. During this reporting period, how many leaks were repaired in the system or at service connections? 287

2. Select the main cause(s) of water loss in your system.

	Water Loss Causes
☑	Distribution line leaks and breaks
☐	Unauthorized use and theft

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☐	Master meter problems
☐	Customer meter problems
☐	Record and data problems
☐	Other

3. For this reporting period, provide the following information on your distribution lines.

Total Length of Main Lines (miles)	Total Length Repaired (feet)	Total Length Replaced (feet)
544	260	3520

4. For this reporting period, provide the following information regarding your meters:

Type of Meter	Total Number	Total Tested	Total Repaired	Total Replaced
Production Meters	5	5	0	0
Meters larger than 1 1/2 inches	2355	181	21	67
Meters 1 1/2 inches or smaller	32201	16	0	3482

5. Does your system have automated meter reading? ◉ Yes ○ No

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Program Effectiveness

1. Program Effectiveness

   In your opinion, how would you rank the overall effectiveness of your conservation programs and activities?

Customer Classification	Less Than Effective	Somewhat Effective	Highly Effective	Does Not Apply
Residential Customers	○	◉	○	○
Industrial Customers	○	◉	○	○
Institutional Customers	○	◉	○	○
Commercial Customers	○	◉	○	○
Agricultural Customers	○	◉	○	○

2. During the reporting period, did you implement your Drought Contingency Plan? ○ Yes ◉ No

3. Select the areas for which you would like to receive more technical assistance:

	Technical Assistance Areas
☑	Best Management Practices
☐	Drought Contingency Plans
☐	Landscape Irrigation
☑	Leak Detection and Equipment
☐	Rainwater Harvesting
☐	Rate Structures
☐	Educational Resources
☑	Water Conservation Annual Reports
☑	Water Conservation Plans
☐	Water IQ: Know Your Water
☑	Water Loss Audits
☐	Recycling and Reuse

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Water Loss, Target and Goals

Total, Residential and Water Loss Gallons Per Capita per Day (GPCD) and Water Loss Percentage

The tables below display your current GPCD totals and water loss percentage for your service area.

Total System Input in Gallons Water Produced + Wholesale Imported - Wholesale Exported	Retail Population[1]	Total GPCD (System Input / Retail Population) / 365
8,504,599,000	110,140	212

[1]Retail Population is the total permanent population of the service area, including single family, multi-family, and group quarter populations

Residential Use in Gallons (Single Family + Multi-family)	Residential Population[2]	Residential GPCD (Residential Use / Residential Population) / 365
3,525,201,000	110,140	88

[2]Residential Population is the total residential population of the service area, including only single family and multi-family populations

Total Water Loss in Gallons Apparent + Real = Total Water Loss	Retail Population	Water Loss GPCD[3]	Water Loss Percent
1,365,092,366	110,140	34	16.05%

[3](Total Water Loss / Residential Population) / 365 = Water Loss GPCD
(Total Water Loss / Total System Input) * 100 = Water Loss Percentage

The table below displays the specific and quantified five-year and ten-year goals listed in your current Water Conservation Plan alongside the current GPCD and water loss totals.

Achieve Date	Target for Total GPCD	Current Total GPCD	Target for Residential GPCD	Current Residential GPCD	Target for Water Loss GPCD	Current Water Loss GPCD	Target for Water Loss Percentage	Current Water Loss Percentage
Five-year Target Date 2019	242	212	129	88	22	34	9.09 %	16.05 %
Ten-year Target Date 2024	242	212	129	88	22	34	9.09 %	16.05 %

Appendix D

City of Richardson's TCEQ Water Conservation Implementation Report

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 1st, 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: City of Richardson
2. Water Right Permit or Certificate Nos. 19

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

X Municipal Water Use by Public Water Supplier

_____ Wholesale Public Water Supplier

X 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 x 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
   - 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

*Call **512-239-4691** or email to **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).

   Page 5-2 in Specification of Water Conservation Goals, Table 5-1 Five-Year and Ten-Year Per Capita Water Use Goals (gpcd)

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.

2019 WATER CCONSERVATION PLAN CHANGES

REVISIONS – Clarifications and Fixes
- Updated Staff Contacts
- Revised Dates
- Added new definitions and abbreviations
- Correct sentence structure, punctuation, and grammar

REVISIONS – Legal Requirements
- Update rule references
- Align with state rule language
- Reference new Water Conservation Advisory Council
- Add new legal requirements – records managements
- Include language for new state requirement for low flow toilets

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

Contact Person Title/Position: Pharr Andrews - Environmental Outreach Manager

Contact Address: 1260 Columbia Dr. Richardson, Texas 75081

Contact Phone Number: 972.744.4228 Contact Email Address: pharr.andrews@cor.gov

Signature: _____ Date: 4/30/2019

Appendix E

GPCD 5 year and 10 year Chart here

Annual GPCD vs Watering Restriction GPCD

Total GPCD 10 Yr Avg	Total GPCD 5 Yr Avg	Total GPCD Annual	Residential GPCD 10 Yr Avg	Residential GPCD 5 Yr Avg	Residential GPCD Annual	Annual Water Loss (GPCD/%)	Year		Watering Restrictions	Average Population	Rainfall	Total Gallons	Total GPCD	Residential Gallons	Residential GPCD
238	245	251	126	121	110	46/18.07%	2004	1/1/04 thru 5/31/06 (882 Days)	No Restrictions	96,518	88.28"	21,468,256,000	252	9,800,022,000	115
		264			127	34/12.89%	2005								
		274			135	29/10.67%	2006	6/1/06 thru 7/3/07 (398 Days)	2x Week	97,643	52.68"	9,488,149,000	244	4,798,440,908	123
		202			93	25/12.45%	2007	7/4/07 thru 8/18/11 (1,507 Days)	No Restrictions	98,592	164.16"	38,433,700,000	259	19,354,012,226	124
		233			136	23/9.88%	2008	8/19/11 thru 10/31/11 (74 Days)	2x Week	97,644	6.07"	2,398,406,000	332	1,694,931,871	235
	232	214		132	124	21/9.89%	2009	11/1/11 thru 4/2/12 (154 Days)	2x Month	100,160	20.69"	2,286,499,000	145	1,503,341,733	84
		241			136	28/11.71%	2010	4/3/12 thru 5/31/12 (59 Days)	1x Week	100,450	4.74"	1,261,557,000	213	581,586,257	98
		256			152	19/7.61%	2011	6/1/12 thru 5/31/13 (365 Days)	2x Week	100,650	29.63"	8,840,511,000	241	4,994,887,000	136
		234			132	23/9.74%	2012	6/1/13 thru 10/31/13 (153 Days)	1x Week	100,850	10.91"	4,124,206,000	267	2,354,603,000	153
		215			118	21/10.14%	2013	11/1/13 thru 8/31/14 (303 Days)	2x Month	100,850	44.23"	5,566,556,000	182	2,296,560,000	75
	208	191		100	102	20/11%	2014	9/1/14 thru 10/31/14 (61 Days)	1x Week	100,850	5.88"	1,209,800,000	245	September Only 330,655,000	109
		216			111	20/9%	2015	11/1/14 thru 4/30/15 (180 Days)	Every other Week	102,480	21.85"	2,693,988,000	157	1,456,396,000	79
		212			106	24/11%	2016	5/1/15 thru 12/31/2017 (975 Days)	2x Week	104,710	133.86"	22,411,181,300	220	10,927,598,000	107
		207			91	29/14%	2017								
		212			88	34/16%	2018	1/1/18 thru 12/31/18 (365 Days)	2x Week	110,140	71.09 "	8,513,112,112	212	3,525,201,000	88

Appendix F

Letter to Region C

May 1, 2019

Region C Water Planning Group
c/o Trinity River Authority
P.O. Box 60
Arlington, TX 76004

Dear Sir/Madam:

Enclosed please find a copy of the Water Conservation Plan and a copy of the Water Resource Management Plan (which is an update to the previous Drought Contingency and Water Emergency Response Plan) for the City of Richardson, Texas. I am submitting a copy of both plans to the Region C Water Planning Group in accordance with the Texas Water Development Board and Texas Commission on Environmental Quality rules.

The City of Richardson City Council adopted this Water Conservation Plan through Ordinance on April 15, 2019.

Sincerely,

Dan Johnson

City Manager

City of Richardson, TX

Appendix F

Letter to Region D

May 1, 2019

Mr. Richard LeTourneau
Chair, Region D Water Planning Group
P.O. Box 12071
Longview, TX 75607

Dear Mr. LeTourneau:

Enclosed please find a copy of the Water Conservation Plan and a copy of the Water Resource Management Plan (which is an update to the previous Drought Contingency and Water Emergency Response Plan) for the City of Richardson, Texas. I am submitting a copy of both plans to the Region D Water Planning Group in accordance with the Texas Water Development Board and Texas Commission on Environmental Quality rules.

The City of Richardson City Council adopted this Water Conservation Plan through Ordinance on April 15, 2019.

Sincerely,

Dan Johnson

City Manager

City of Richardson, TX

Appendix G

Ordinance

ORDINANCE NO. 4296

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF RICHARDSON, TEXAS, AMENDING THE CODE OF ORDINANCES OF THE CITY OF RICHARDSON, TEXAS, BY AMENDING CHAPTER 23, ARTICLE V-I WATER CONSERVATION AND EMERGENCY WATER MANAGEMENT PLAN; BY ADOPTING THE 2019 WATER CONSERVATION PLAN AND THE 2019 WATER RESOURCE MANAGEMENT PLAN; PROVIDING FOR THE DELAYED EFFECTIVE DATE FOR THE MAY 2019 WATER CONSERVATION AND 2019 WATER RESOURCE MANAGEMENT PLAN; PROVIDING A REPEALING CLAUSE; PROVIDING A SEVERABILITY CLAUSE, PROVIDING A SAVINGS CLAUSE; PROVIDING FOR A PENALITY OF FINE NOT TO EXCEED THE SUM OF TWO THOUSAND DOLLARS ($2,000.00); AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, recognizing the need for efficient use of existing water supplies, the Texas Commission on Environmental Quality (TCEQ) and Texas Water Development Board (TWDB) have developed guidelines and requirements governing the development of a Water Conservation Plan and a Water Resource Management Plan for wholesale water suppliers; and

WHEREAS, the City of Richardson has been an active participant in the regional planning process of compatible messaging of its Water Conservation Plan and Water Resource Management Plan; and

WHEREAS, the City Council has reviewed the proposed May 2019 City of Richardson Water Conservation Plan and Water Resource Management Plan and finds it is in the best interest of the City to adopt the same; **NOW, THEREFORE,**

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF RICHARDSON, TEXAS:

SECTION 1. That the May 2019 City of Richardson Water Conservation Plan and May 2019 Water Resource Management Plan, copies of which are in file in the office of the City Secretary, and incorporated herein for all purposes, are hereby adopted; provided, however, the May 2019 City of Richardson Water Conservation Plan and May 2019 Water Resource Management Plan shall not become effective until the date the City Manager has ordered implementation of Stage 1 or Stage 2 under Chapter 23, Article V-1 of the Code of Ordinances as a result of a recommendation of the North Texas Municipal Water District.

SECTION 2. That effective on the date the City Manager has ordered implementation of Stage 1 or Stage 2 under Chapter 23, Article V-1 of the Code of Ordinances as a result of a recommendation of the North Texas Municipal Water District, Section 23-268 is amended to read as follows:

"Sec. 23-268. - Adoption of water conservation and water resource plans.

That the May 2019 City of Richardson Water Conservation Plan and the May 2019 Water Resource Management Plan incorporated herein by reference as if fully set forth in full, copies of which are on file in the office of the City Secretary, are hereby adopted."

SECTION 3. That effective on the date the City Manager has ordered implementation of Stage 1 or Stage 2 under Chapter 23, Article V-1 of the Code of Ordinances as a result of a recommendation of the North Texas Municipal Water District, Section 23-269 thru 23-272, and Section 23-274 are repealed, and Section 23-273 is renumbered as Section 23-269 and amended to read as follows:

"Sec. 23-269. - Enforcement.

(a) It is unlawful for any person to violate any of the provisions of the City of Richardson Water Conservation Plan and Water Resource Management Plan.

(b) For a first violation of any provision of the Water Conservation Plan and/or the Water Resource Management Plan or this article, the city shall issue a letter and provide educational materials on water conservation, including a copy of the relevant provisions of the Water Conservation Plan and/or the Water Resource Management Plan to the water user violating the provisions of this Article. The city shall give the water user a reasonable time to correct the violation.

(c) For a second violation of any provision the Water Conservation Plan and/or the Water Resource Management Plan or this article, the city shall issue the water user a citation to appear in municipal court and upon conviction shall be subject to a fine not to exceed the sum of $2,000.00."

SECTION 4. That all provisions of the ordinances of the City of Richardson in conflict with the provisions of this Ordinance be, and the same are hereby, repealed, and all other

provisions of the ordinances of the City of Richardson not in conflict with the provisions of this Ordinance shall remain in full force and effect.

SECTION 5. That should any sentence, paragraph, subdivision, clause, phrase or section of this Ordinance be adjusted or held to be unconstitutional, illegal or invalid, the same shall not affect the validity of this Ordinance as a whole, or any part or provision thereof other than the part so decided to be invalid, illegal or unconstitutional, and shall not affect the validity of the Code of Ordinances as a whole.

SECTION 6. That an offense committed before the effective date of this Ordinance is governed by prior law and the provisions of the Code of Ordinances, as amended, in effect when the offense was committed, and the former law is continued in effect for this purpose.

SECTION 7. That any person, firm or corporation violating any of the provisions or terms of this Ordinance shall be subject to the same penalty as provided for in the Code of Ordinances of the City of Richardson as heretofore amended and upon conviction shall be punished by a fine not to exceed the sum of Two Thousand Dollars ($2,000.00) for each offense, and each and every day such violation shall continue shall be deemed and constitute a separate offense.

SECTION 8. That this Ordinance shall take effect immediately from and after its passage and the publication of the caption, as the law and charter in such cases provide.

DULY PASSED by the City Council of the City of Richardson, Texas, on the 14th day of April 2019

CITY OF RICHARDSON
RICHARDSON, TEXAS

APPROVED:

MAYOR

APPROVED AS TO FORM:

Peter G Smith

CITY ATTORNEY
(PGS:4-15-19:TM 106964)

CORRECTLY ENROLLED:

Aimee Nemer

CITY SECRETARY