WATER CONSERVATION

AND

DROUGHT CONTINGENCY PLAN

April 16, 20~~19~~24

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CITY OF CARROLLTON

Water Conservation and Drought Contingency Plan

1. INTRODUCTION AND OBJECTIVES

Conserving water and avoiding water waste are important for the long-term sustainability of the community even in times of abundant rainfall. The City of Carrollton recognizes that water is an essential resource for sustaining the growth and vitality of the city, the region and the State of Texas. This plan describes both the city's long-term commitment to conserving water resources for future generations as well as the need to manage water demands during short-term conditions when water supplies are limited.

The City of Carrollton purchases treated drinking water from the City of Dallas, Dallas Water Utilities (DWU). This Water Conservation and Drought Contingency Plan has been adopted as a comprehensive set of strategies and regulations regarding the consistent delivery and efficient use of water. The objective is to conserve the available water supply and to protect the integrity of the city's infrastructure for domestic water supply, sanitation, and fire protection, as well as protect and preserve public health, welfare, and safety. It is also the intent of the plan to minimize the adverse impacts of water supply shortage or other water supply emergency conditions. The Best Management Practices outlined in this plan have all been implemented and are well established as daily operational practices.

The authority to implement and enforce the Water Conservation and Drought Contingency Plan is established in Sec. 52.020 of the Carrollton City Code. The scope of authority applies to all persons and premises who obtain water directly or indirectly from the city.

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 (emergency response) plans for public water suppliers. The City of Carrollton has adopted this plan pursuant to TCEQ guidelines and requirements (Appendix B).

The primary changes to the 2024 plan are updated water use goals and targets, timeframes to explore and implement new Best Management Practices (BMPs) to achieve water use goals and updates to current and ongoing best management practices. The foremost strategy to achieve water use targets will be the feasibility study into an irrigation reduction ordinance which would include updates to the Drought Contingency Plan. If adopted, this amendment would account for significant water savings, particularly during peak use periods. The majority of other water savings would come from continued implementation of existing measures and improvements to these measures.

New and improved BMPs have been grouped according to Texas Water Development Boards (TWDB) categorization of BMPs. Current city water conservation initiatives are listed by program in Section 4, 5, and 6, but are summarized in BMP format in Appendix D.

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.

The objectives of the Drought Contingency Plan are to:

- conserve the available water supply in times of drought and emergency;
- maintain supplies for domestic water use, sanitation, and fire protection;
- protect and preserve public health, welfare, and safety;
- minimize the adverse impacts of water supply shortages; and
- minimize the adverse impacts of emergency water supply conditions.

2. DEFINITIONS

In the Water Conservation and Drought Contingency Plan, the following definitions apply:

Aesthetic water use: water use for ornamental or decorative purposes such as fountains, reflecting pools and water gardens.

Aquatic Life: an organism dependent upon an aquatic environment to sustain its life.

Athletic Fields: grounds designated for sports and athletic practices and contests including parks, schools (public and private), municipal and privately owned.

Automatic Irrigation System: a custom-made, site specific system of delivering water generally for landscape irrigation via a system of pipes or other conduits installed below ground that will automatically cycle water using landscape sprinklers according to a preset program, whether on a designated timer or through manual operation.

Best Management Practice (BMP): voluntary efficiency measures that are intended to save a quantifiable amount of water either directly or indirectly and can be implemented within a specified timeframe.

Commercial use: The use of water by a place of business, such as a hotel, restaurant, or office building. This does not include multi-family residences or agricultural, industrial, or institutional uses.

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

Contamination: a naturally occurring or man-made element which compromises the safety of the water supply.

Customer: any person, company, entity or organization using water supplied by the City of Carrollton.

Delivery capacity: refers to the maximum amount of water that can be delivered to customers when considering the limitation of the system components such as sources, treatment, storage, transmission, or distribution, individually and in combination with each other when operating at their designed capacity.

Domestic water use: water used for household, personal, or sanitary purposes such as drinking, cooking, bathing, and cleaning a residence, business, industry, or institution.

Drip Irrigation: micro irrigation with low volume and low pressure release of water through point source emitters or pressure compensating in-line drip emitters

Drought Contingency Plan: a strategy or combination of strategies for temporary supply and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies. This document contains the Drought Contingency plan for the City of Carrollton.

Drought of Record: the worst drought recorded in the north central/ north-east Texas area

DWU: Dallas Water Utilities

Eastern Lakes: The Eastern Lakes for the City of Dallas and Dallas Water Utilities consist of Lake Ray Hubbard, Lake Tawakoni and Lake Fork.

Even number address: street addresses (e.g. 120 Magnolia St.), box numbers, or rural postal route numbers (e.g. RR 2 Box 9802) ending in 0, 2, 4, 6, or 8 and locations without addresses.

Foundation Watering: the application of water using a hand-held hose, soaker hose or drip irrigation system placed within 24 inches of the foundation, which does not produce a spray above ground or result in water run-off.

Golf Course: a commercial or governmental property made up of greens, tees, fairways and related areas which are irrigated and landscaped for the purposes of playing golf

Hand watering: The application of water for irrigation purposes through a hand-held water hose, watering can or bucket.

Hose-end Sprinkler: a device through which water flows from a hose to a sprinkler to water any lawn or landscape.

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

Institutional use: 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.

Landscape irrigation use: water used for the irrigation and maintenance of landscaped areas, whether publicly or privately owned, including residential and commercial lawns, gardens, golf courses, parks, and rights-of-way and medians

New landscape: vegetation installed at the time of the construction of a new house, new multi-family building, or a new commercial building; installed as part of a capital improvement project; or vegetation which alters more than one half the area of an existing landscape; and has been installed for less than thirty (30) days.

Non-essential water use: – water uses that are neither essential nor required for the protection of public health, safety, or welfare, including:

- irrigation of landscape areas, including parks, athletic fields, and golf courses, where otherwise provided under the Water Conservation and Drought/Emergency Response Plan;
- washing of any motor vehicle, boat, or trailer;
- washing or rinsing of any sidewalk, walkway, driveway, parking lot, tennis court, or other hard-surfaced area;
- washing of buildings or structures for purposes other than immediate fire protection;
- flushing gutters or permitting water to run or accumulate in any gutter, alley or street;

- filling, refilling, or adding water to any indoor or outdoor swimming pool or spa;
- operating a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life.

Ornamental Fountain: an artificially created structure from which a jet, stream, valves and emission devices or flow of water emanates and is not typically utilized for the preservation of aquatic life.

Odd Numbered Address: street addresses (e.g. 121 Magnolia St.), box numbers, or rural postal route numbers (e.g. RR 2 Box 9803) ending in 1, 3, 5, 7, or 9

Person: any individual, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate, governmental entity or any other legal entity, or their legal representative, agents or assigns and includes the owner, occupant, lessee, or manager of a property

Potable Water: water that is suitable for drinking by the public.

Raw Water: water that is not intended or suitable for drinking and has not been approved for human consumption.

Recreational Water Use: water used for leisure and entertainment purposes. Examples include but are not limited to swimming pools, Jacuzzi-type pools, water theme parks, wading pools and water toys.

Reduced Delivery Capacity: refers to the maximum amount of water that can be delivered to customers when considering reductions of delivery capacity based on scheduled shutdowns of infrastructure and/or unforeseen shutdowns of infrastructure, such as line breaks, equipment failure, etc.

Retail Customers: non-wholesale customers *Soaker Hose:* a permeable garden-type hose that is laid above ground that provides irrigation at a slow and constant rate.

Swimming Pool: a structure that is used for swimming, bathing, or water play, including all equipment and appurtenant facilities.

Texas Commission on Environmental Quality (TCEQ): environmental agency for the state of Texas.

Texas Water Development Board (TWDB): water management board for the state of Texas.

Vehicle Wash Facility: a permanently-located business that washes vehicles or other mobile equipment with water or water-based products, including but not limited to self-service car washes, full service car washes, roll-over/in-bay style car washes, and facilities managing vehicle fleets or vehicle inventory.

Western Lakes: The Western Lakes for the City of Dallas and Dallas Water Utilities consist of Lake Ray Roberts, Lake Lewisville, and Lake Grapevine.

Wholesale Treated Water Customer: any water supplier that receives all or a portion of its treated water supply directly or indirectly from DWU.

Untreated water customer: any person, company, organization or water supplier buying non-potable water from DWU.

3. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES

3.1 Conservation Plans

The TCEQ rules governing development of water conservation plans for public water suppliers are contained in Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2 of the Texas Administrative Code, which is included in Appendix B. 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. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s)."

According to TCEQ rules, water conservation plans for public water suppliers must have a certain minimum content (Section 1), must have additional content for public water suppliers that are projected to supply 5,000 or more people in the next ten years (Section 2), and may have additional optional content (Section 3).

Annually, the City of Carrollton will submit a Water Conservation Annual Report to TCEQ and the TWDB by May 1st each year.

3.2 Drought Contingency (Emergency Response) Plans

The TCEQ rules governing development of drought contingency plans for public water suppliers are contained in Title 30, Part 1, Chapter 288, Subchapter B, Rule 288.20 of the Texas Administrative Code, which is included in Appendix B. For the purpose of these rules, a drought contingency plan is defined as:

"A strategy or combination of strategies for temporary supply and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies. A drought contingency plan may be a separate document identified as such or may be contained within another water management document(s)."

The Drought Contingency (Emergency Response) Plan for the City of Carrollton is contained in Section 7.

4. WATER CONSERVATION PLAN

The minimum requirements in the Texas Administrative Code for water conservation plans for public drinking water suppliers covered in this report are as follows:

- §288.2(a)(1)(A) – Utility Profile – Section 4.1 and Appendix C
- §288.2(a)(1)(B) – Record Management System– Section 4.2
- §288.2(a)(1)(C) – Specification of Goals – Section 4.3
- §288.2(a)(1)(D) – Accurate Metering – Sections 4.4
- §288.2(a)(1)(E) – Meter Testing and Repair – Section 4.5
- §288.2(a)(1)(F) – Determination and Control of Unaccounted Water – Section 4.6
- §288.2(a)(1)(G) – Public Education and Information Program – Section 4.7
- §288.2(a)(1)(H) – Non-Promotional Water Rate Structure – Section 4.8
- §288.2(a)(1)(J) – Means of Implementation and Enforcement – Section 4.10,
- §288.2(a)(1)(K) – Coordination with Regional Water Planning Group – Section 4.11

4.1 Utility Profile

Appendix C to this water conservation plan is a water utility profile for the City of Carrollton. Table 4.1 summarizes key facts from the Water Utility Profile.

4.2 Record Management System

As required by TAC Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2(a)(1)(B), the record management system for the City of Carrollton records water received, water pumped, water delivered, and water sold; estimates water losses; and allows for the separation of water sales and uses into residential (both single family and multi-family), commercial, public/institutional, and industrial categories. This information will be included in an annual conservation report, as described in Section 6.3.

4.3 Specification of Water Conservation Goals

Table 4.2 shows historical water use data in gallons per capita per day (GPCD) which includes all categories of water users (residential, commercial, institutional, and industrial) in the City of Carrollton. Baseline data for setting water conservation goals is based on an average of the past 5 years total GPCD. *Historical Residential GPCD data is outlined in the Utility Profile (Appendix C).* 5-year and 10-year goals are based on a reduction of total GPCD by up to ~~one~~ [TBD] percent as measured on historical 5 and 10 year averages for the next reporting cycle (~~2014 – 2019~~2019-2023).

Table 4.1

Water Utility Profile Summary

Water Service Area = 37.303 square miles

Miles of Distribution Pipe = 611~~7~~ miles

Water Supply Source(s): City of Dallas – Dallas Water Utilities

Population:

2000 population = 109,576
201~~8~~23 population = ~~132,330~~ 135,801
206~~8~~0 population = ~~132,974~~ 178,153 (*Projected)

Connections:

Current Connections = ~~56,604~~ 59,408 in ~~2018~~ 2023
Total Increase in Connections in Last 3 Years = ~~6,878~~ +1463 since 2020

Water Use Information:

Year	**System Input** (Gallons)	**Population**	**Total Gallons per Capita per Day (GPCD)**	**~~Unaccounted For~~ Total Water Losses (Gallons)**	**Peak Day to Average Day**
2014~~9~~	~~6,944,553,000~~ 7,085,033,831	~~124,400~~ 136,170	~~153~~143	~~287,021,750~~ 453,190,331	~~1.20~~ TBD
2015~~20~~	~~7,170,805,000~~ 7,292,481,113	~~125,250~~ 137,650	~~157~~ 145	~~436,154,250~~ 454,224,463	~~1.19~~ TBD
2016~~21~~	~~7,280,113,000~~ 7,169,455,987	~~127,980~~ 139,350	~~155~~ 141	~~523,869,588~~ 763,466,987	~~1.20~~ TBD
2017~~22~~	~~1,165,651,000~~ 7,934,101,392	~~130,820~~ 135,110	~~150~~ 161	~~446,636,363~~ 680,115,652	~~1.23~~ TBD
2018~~23~~	~~7,108,198,000~~ TBD	~~132,330~~ 135,801	~~151~~ TBD	~~338,538,500~~ TBD	~~1.45~~ TBD

Treatment and Distribution System:

DWU Delivery Capacity = 41 million gallons per day
Elevated storage = 11.5 million gallons
Ground storage = 36.5 million gallons

*Population projections are provided by ~~Region C Water Planning Group~~ the 2026 TWDB Adopted Regional Water Plan

~~The TWDB projections include the impact of low-flow plumbing fixtures and water conservation measures that have been enacted through building code amendments and state and federal legislation but do not include the effect of water conservation measures~~

~~recommended in this plan. Table 4.2 shows the projected per capita water use after implementation of this water conservation and drought contingency plan.~~

In adopting this Plan, the City of Carrollton has established a goal of reducing total *gallons per capita per day* water consumption by up to ~~one~~ [TBD] percent as measured on historical five and ten year averages as shown in Table 4.2.

Table 4.2

Historical Total Per Capita Use and Water Conservation Goals

Historical Water Use Data			
Description	**Year**	**Total GPCD**	**Residential GPCD**
Historical Per Capita Use	2004	157	-
	2005*	200*	-
	2006*	221*	-
	2007	170	-
	2008	189	-
	2009	164	105
	2010	168	110
	2011*	187*	124*
* Indicates drought conditions	2012	174	115
**Based on 5 year average	2013	159	109
	2014	153	103
	2015	157	104
	2016	155	99
	2017	150	97
	2018	151	97
	2019	143	90
	2020	145	97
	2021	141	89
	2022*	161*	104*
	2023	TBD	TBD

5 and 10 Year Targets for Water Conservation Goals				
	Historic 5 Year Average	**Baseline	5 Year Goal for year 2024~~9~~	10 Year Goal for year 2029~~34~~
Total GPCD	~~153~~ TBD	~~153~~TBD	~~152~~TBD	~~150~~TBD
Residential GPCD	~~101~~ TBD	~~101~~TBD	~~100~~TBD	~~99~~TBD
Water Loss (GPCD)	~~9~~ TBD	~~9~~ TBD	~~Less than 9~~ TBD	~~Less than 9~~ TBD
Water Loss (Percentage)	~~6~~% TBD	~~Less than 6%~~ TBD	~~Less than 5%~~ TBD	~~Less than 5%~~ TBD

The city's water conservation goals include the following:

- Maintain the city's ongoing meter replacement program (Section 4.5).
- Keep the level of unaccounted water in the system less than 10 percent. (Section 4.6).
- Raise public awareness of water conservation and encourage responsible public behavior through a public education and information program (Section 4.7).
- Improve efficiency in landscape irrigation through implementation and enforcement of a landscape water management ordinance (Section 6.2).
- Decrease outdoor water use by implementing a landscape irrigation system assistance program (Section 6.4).
- Improve efficiency in industrial, commercial, and institutional (ICI) water use by implementing a general ICI rebate program (Section 6.5).

4.4 Accurate Metering of Raw Water Supplies and Treated Water Deliveries

The City of Carrollton meters treated water deliveries to the distribution system from the city of Dallas. Each meter has an accuracy of plus or minus 5 percent. The meters are calibrated on a semiannual basis by City of Carrollton personnel to maintain the required accuracy and are repaired and/or replaced as needed. The City's Public Works Department is in the process of replacing the current meters with a smart metering program. Meters have been ordered and will be installed first at industries and commercial facilities then in the residential areas. This replacement program is expected to take several years to complete.

4.5 Metering of All Water Use and Meter Testing, Repair, and Replacement

Water usage for all customers of the City of Carrollton, including public and governmental users, is metered.

As part of this water conservation plan, the City of Carrollton tests all customer meters removed from service. The information developed from this practice will form the basis for a meter replacement program. Meters registering any unusual or questionable readings are tested and replaced.

4.6 Determination and Control of Unaccounted Water

Unaccounted water is the difference between water delivered by the city of Dallas and metered deliveries to customers. Unaccounted water can include several categories:

- line flushing;
- inaccuracies in customer meters (customer meters tend to run more slowly as they age and under-report actual use);
- losses due to water main breaks and leaks in the water distribution system;
- theft;

- firefighting;
- inaccuracies of wholesale meters (plus or minus 5%);
- inaccuracies of internal meters (plus or minus 5%); and
- other unmetered uses.

The City of Carrollton conducts water audits in accordance with the TWDB and AWWA guidelines published in *Water Audits and Leak Detection (M36)*.

As shown in Appendix C, unaccounted water for the City of Carrollton has varied from 1% to 7% in the last five years. With the measures described in this plan, it is the goal of the City of Carrollton to maintain the unaccounted water below 10% annually.

4.7 Continuing Public Education and Information Program

The continuing public education and information campaign on water conservation for the City of Carrollton includes the following elements:

- Promote the city's water conservation measures (presented in Sections 4, 5, and 6).
- Develop utility bill inserts for conservation messaging at least twice per year. Inserts may include material developed by City of Carrollton staff, Dallas Water Utilities, the American Water Works Association, TWDB, TCEQ, and other sources.
- Notify local organizations and civic groups that City of Carrollton staff members are available to make presentations on the importance of water conservation and ways to save water.
- Notify schools of the Classroom Water Education Programs offered by City of Carrollton staff. These programs are to help educate children on the importance of water conservation, pollution prevention, and ways they can help save water.
- Host public education seminars to cover issues such as Best Irrigation Practices, DIY fix-a-leak problems, and Low water landscaping to provide further water conservation educational opportunities for City of Carrollton residents.
- Maintain demonstration gardens at Josey Ranch Library~~,~~ and Don Cline Pump Station ~~and Bobby Ballard pump station~~ to showcase ~~"~~water wise landscaping. ~~"~~Promote the *Texas SmartScape* program, by providing public information brochures, and other water conservation materials available to the public.
- Provide current information on water conservation online at http://www.cityofcarrollton.com/water and include links to the *Texas SmartScape* website, savedallaswater.com, epa.gov/water sense, waterisawesome.com and other beneficial resources.
- Water Conservation Committee to review conservation efforts annually/or as needed and research new technologies related to water conservation. The Water Conservation Committee is composed of the Water Resource Management Specialist, Environmental Services Director, Environmental Quality Manager, Public Works Director, ~~the two~~ Public Works Manager~~s~~, Water Quality/ Production Maintenance Supervisor, Chief Financial Officer, Finance Director, Engineering

Director, Administrative Services Director ~~Manager~~, Parks Manager, Marketing Specialist, and Building Official.

4.8 Non-Promotional Water Rate Structure

With the intent of encouraging water conservation and discouraging waste and excessive use of water, the City of Carrollton has adopted a seasonal increasing block rate water structure where the unit price of water increases with increasing water use during the months of May through September. Current water rates are shown in Table 4.3.

Table 4.3

Monthly Customer Charges

Current Rates as of January 20~~19~~24

Subject to change per City Council action

Single-family residential use

For meter readings taken in the months of **October through April**:

- First 2,000 gallons, minimum .....$ ~~13.34~~15.51
- All use over 2,000 gallons, per 1,000 gallons.....$ ~~3.34~~3.67

For meter readings taken in the months of **May through September:**

- First 2,000 gallons, minimum .....$ ~~13.34~~15.51
- Next 8,000 gallons, per 1,000 gallons.....$ ~~3.34~~3.67
- All use over 15,000 gallons, per 1,000 gallons.....$ ~~4.50~~4.93
- All use over 25,000 gallons, per 1,000 gallons.....$ ~~5.63~~6.15

Commercial (including apartments and portable meters), industrial and irrigation minimum monthly charges, including the first 2,000 gallons of use:

- 5/8" meter.....$ ~~13.62~~15.81
- 1" meter.....$ ~~20.97~~24.36
- 1.5" meter.....$ ~~33.29~~38.65
- 2" meter.....$ ~~48.04~~55.78
- 3" meter.....$ ~~87.36~~101.44
- 4" meter.....$ ~~131.59~~152.82
- 6" meter.....$ ~~254.53~~295.58
- 8" meter.....$ ~~402.06~~466.89
- 10" meter.....$ ~~574.14~~666.75

Fire Line – regardless of size .....$ ~~74.16~~76.38

Irrigation use:

- First 2000 gallons included in the minimum charge
- Next 23,000 Gallons, per 1,000 .....$ ~~3.43~~3.91
- Next 25,000 Gallons, per 1,000 .....$ ~~4.10~~4.66
- Next 50,000 Gallons, per 1,000 .....$ ~~4.65~~5.28
- Next 100,000 Gallons, per 1,000 .....$ ~~5.24~~5.94
- All use over 200,000 gallons per 1,000 gallons .....$ ~~5.85~~6.63

Commercial use (including apartments and portable meters):

- All use over 2,000 gallons, per 1,000 gallons.....$ ~~2.31~~2.66

Industrial use - Industrial use rates for water service will apply to customers in the business of assembly or manufacturing of goods and for which water usage equals or exceeds 750,000 gallons per month for nine out of twelve months in a year:

- All use over 2,000 gallons, per 1,000 gallons.....$ ~~2.03~~2.35

4.9 Implementation of Seasonal Water Demand Strategies

A person who obtains water directly or indirectly from the City of Carrollton shall comply with the following seasonal time-of-day watering requirements.

Use of a permanently installed automatic irrigation system is prohibited between the hours of 10:00 a.m. and 6:00 p.m. from April 1 through October 31 of any year. This restriction does not apply to irrigation:

- of a new landscape for the first 60 days; or
- during installation, repair or testing of a new or existing irrigation system only if the person conducting the testing is present;
- for nursery stock including potted plants, shrubs, and trees at a commercial plant nursery.

A further reduction of water use is encouraged through voluntary landscape irrigation no more than two (2) days per week based on the last digit of the service address according to the following schedule of outdoor water use days:

Table 4.4

Twice Per Week Watering Schedule

Category	Allowed Landscape Watering Days
Non-Residential (commercial, industrial, common areas, and parks)	Tuesday and Friday
Residential Odd Number Addresses (1,3,5,7,9)	Wednesday and Saturday
Residential – Even Number Addresses (0,2,4,6,8)	Thursday and Sunday

On the above voluntary schedule there would be no watering on Mondays.

Outdoor irrigation is permitted:

- by a hand-held hose, or a hand-held bucket at any time during the day or night;
- by a hose end sprinkler, a soaker hose, or drip irrigation, from 12:00 midnight to 10:00 a.m. and from 6:00 p.m. to 12:00 midnight on an outdoor water use day; or
- by a permanently installed automatic irrigation system from 12:00 midnight to 10:00 a.m. and from 6:00 p.m. to 12:00 midnight on an outdoor water use day.

Washing a sidewalk, driveway, parking area, street, alley, tennis court, patio, or other paved area, is discouraged except to alleviate an immediate health or safety hazard.

4.10 Implementation and Enforcement of the Water Conservation Plan

Mandatory time-of-day water use restrictions outlined in Seasonal Water Demand Strategies will be enforced by Notices of Violation and penalties as follows:

- On the first violation, customers will be given a written notice of violation of the mandatory time-of-day water use restriction.
- On the second and subsequent violations, citations may be issued to customers, with fines not to exceed $2,000 per day.
- After two violations have occurred, the City of Carrollton may install a flow restrictor in the line to limit the amount of water that may pass through the meter in a 24-hour period.
- After three violations have occurred, the City of Carrollton may terminate water service to the customer.

4.11 Coordination with Regional Water Planning Group

A copy of the Water Conservation and Drought Contingency plan ~~was~~will be sent to Region C.

5. ADDITIONAL REQUIRED WATER CONSERVATION PLAN CONTENT

Title 30 of the Texas Administrative Code also includes additional requirements for water conservation plans for public drinking water suppliers that serve a population of 5,000 people or more and/or a projected population of 5,000 people or more within the next ten years:

- §288.2(a)(2)(A) – Leak Detection, Repair, and Water Loss Accounting – Sections 4.5, 5.1, and 6.3

5.1 Leak Detection and Repair; Pressure Control

Measures to control unaccounted water are part of the routine operations of the City of Carrollton. Meter readers watch for and report signs of illegal connections so they can be addressed quickly. Crews look for and report evidence of leaks in the water distribution system. Billing staff monitors all meter reads for unusual consumption trends to help identify possible leaks. Maintenance crews respond quickly to repair leaks reported by the public and city personnel. Areas of the water distribution system where numerous leaks and line breaks occur are targeted for replacement as funds are available. To further reduce water losses, the City of Carrollton maintains a proactive water loss program. As part of this

program, the City responds to reports of leaks within 24 hours and operates four pressure zones according to topography of the service area.

6. ADDITIONAL WATER CONSERVATION PLAN CONTENT

TCEQ rules also list optional conservation strategies, which may be adopted by suppliers to achieve the stated goals of the plan. The following optional strategies are listed in the rules and included in this plan:

- §288.2(a)(3)(B) – Ordinances, Plumbing Codes or Rules on Water-Conserving Fixtures – Section 6.1
- §288.2(a)(3)(F) – Landscape Water Management Ordinance – Section 6.2
- §288.2(a)(3)(G) – Monitoring Method – Section 6.3
- Residential Landscape Irrigation System Assistance Program – Section 6.4
- General ICI Rebate Program – Section 6.5
- Conservation Coordinator – Section 6.7

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

The State of Texas has required water-conserving fixtures in new construction and renovations since 1992. The state standards call for flows of no more than 2.2 gallons per minute (gpm) for faucets, 2.5 gpm for showerheads, and 1.6 gallons per flush for toilets. Similar standards are also required under federal law. These state and federal standards assure that all new construction and renovations in the City of Carrollton will use water-conserving fixtures.

6.2 Landscape Water Management Ordinance

As part of the development of this water conservation plan, the City of Carrollton adopted Landscape Management Ordinance, as established in the Carrollton City Code, Title V, Chapter 52, lawn and landscape irrigation restrictions. This ordinance is intended to minimize waste in landscape irrigation. The ordinance includes the following elements:

- Requirement that all new irrigation systems include rain and freeze sensors and are capable of multiple programming.
- Requirement that all new irrigation systems be in compliance with state design and installation regulations (Texas Administrative Code Title 30, Part 1, Chapter 344).
- Prohibition of excess runoff to public rights-of-way.
- Prohibition of use of poorly maintained sprinkler systems that waste water.
- Prohibition of outdoor watering during any form of precipitation.
- Prohibition of outdoor watering during freezing temperatures.

- Enforcement of the ordinance by a system of Notices of Violation followed by fines for continued or repeat violations.

6.3 Monitoring of Effectiveness and Efficiency - Annual Conservation Report

The City of Carrollton will submit an annual conservation report to the Texas Water Development Board by May 1 each year. The information for this report will be compiled by March 31 for the preceding calendar year and will be used by the city to monitor the effectiveness and efficiency of the water conservation program and to plan conservation related activities for the next year. The report records the water use by category, per use, and unaccounted water for the current year and compares them to historical values.

6.4 Residential Landscape Irrigation System Assistance Program

The City of Carrollton will provide assistance to residential customers to improve the efficiency of their existing irrigation system. By improving the efficiency of an irrigation system, outdoor water usage can be reduced while maintaining a healthy landscape. The City of Carrollton will offer the following landscape irrigation assistance programs:

- Rain and freeze sensor (shut-off) device: These sensors are available while supplies last and only for irrigation systems installed before 1/1/2006. Sensors are limited to one per address.
- Residential irrigation inspections: Residential water customers with an in-ground irrigation system are eligible for irrigation inspections. The service is provided by a licensed irrigation professional (city contractor). Inspection includes reviewing the irrigation controller settings, checking for leaks and other system problems and providing water conserving tips on system maintenance. Inspections are available to residential customers once every three years.

Customers will be responsible for installation of all water conservation devices.

6.5 General ICI Rebate Program

The City of Carrollton encourages its industrial, commercial, and institutional (ICI) customers to convert to water-saving equipment and practices by rebating a portion of the acquisition and installation cost of new water-saving equipment installed on or after January 1, 2006 based on funding available. Examples of equipment changes that might be eligible for a rebate are:

- Replacement of single-pass cooling systems with recirculating or air-cooling systems.
- Reuse of high quality rinse water for landscape irrigation or for wash cycles in laundry equipment.
- Improvements in manufacturing processes.
- Installation of water-savings equipment in a car wash.

The City will offer the following items per customer address:

- Rain and freeze shut-off device.

- Up to one-half the purchase price of water saving equipment (up to $5,000) not related to landscape irrigation. (Rebate dependent on review as stated in 6.6)

6.6 ICI Rebate Review and Approval Process

The city will use the following criteria for reviewing and approving the ICI rebate and approval process.

- 20 % reduction of water use from the previous three years average.
- Twelve month review period after installation of equipment or implementation of processes. For irrigation systems twenty-four month review period after installation of equipment.
- Validation process will be enforced.

6.7 Conservation Coordinator

The City of Carrollton fulfills this practice through the Water Resource Management Specialist position. The Water Resource Management Specialist is responsible for assisting in development and enforcement of ordinances and policies; preparing, updating, and implementing the City's Water Conservation and Drought Contingency Plan; preparing and submitting annual water conservation reports; developing, administering and evaluating water conservation education programs for residents, schools, businesses and community and civic groups; and acting as primary contact during mandatory drought restrictions.

7. NEW AND REVISED BMP INITIATIVES

7.1 Conservation Analysis and Planning

- Cost Effectiveness Analysis

As part of the impact analysis of the Outdoor Watering Schedule, cost analysis of other programs can be performed in parallel. Other potential improvements to the program to increase efficiency are also ongoing, with particular attention paid to the ICI rebate program and the Rain/Freeze Sensor program.

- Water Survey for Residential Customers

Improvement of data collection, analysis, and understanding of water use will help the City better understand the impact and effectiveness of our own programs; the City will endeavor to have a program to conduct regular surveys in order to better target conservation programs. These surveys should be developed in 2026 for deployment in 2027 and at regular intervals (annual, biannual, triannual, etc.) thereafter.

- Customer Characterization

Improvements of data collection, analysis, and understanding of water use will help the City better understand the impact and effectiveness of our own programs; the City will endeavor to have a program to conduct regular surveys in order to better target conservation programs. These surveys should be developed in 2026 for deployment in 2027 and at regular intervals (annual, biannual, triannual, etc.) thereafter.

7.2 Financial Measures

- Water Conservation Pricing

Rate analyses are regularly performed by the City's Finance Department to ensure effectiveness of conservation signaling, budget stability, and to maintain competitive utility rates. The most recent study was conducted in 2023 and the most recent water rates were updated in November 2023.

7.3 Landscaping Measures

- Outdoor Watering Schedule

1. Evaluate a mandatory twice-weekly watering schedule if supported by a data analysis and a feasibility study. Target adoption to be implemented in Spring of 2027. To achieve this goal, the following steps will be implemented:

a. 2024: Data Analysis

- The Conservation Coordinator in conjunction with the Public Works and Utility Customer Service Departments will perform preliminary

customer characterization and water use data analysis in comparison with temperature and precipitation data to determine seasonal/daily use patterns and potential water savings.

b. 2025: Financial Impact Analysis and Feasibility Study
    - The Finance Department will utilize data and estimates from the data analysis stage and other cities experiences to assess the financial impact of water savings under various scenarios.

c. 2026: Ordinance
    - Should the feasibility study and financial analysis support the plan, the Conservation Coordinator will draft an update to the Water Conservation Plan and Drought Contingency Plan to reflect the twice-weekly watering schedule, with variances and appropriate outreach and enforcement measures.

d. 2026: Outreach and Education Preparation
    - If ordinance amendments are adopted, the Environmental Quality division will begin educating the public on new rules and preparing to enforce the ordinance in late 2026.

e. 2027: Deploy New Rules
    - Enforce and educate on new watering limits. Gather data on effective strategies, future needs, and areas for improvement.

f. 2027: Begin Ongoing Assessment
    - Evaluate the program and ordinance to adapt to challenges and build on successes.

2. Initial estimates and analysis of other cities implementation of these and similar limits show that projected water savings for year-round fall within a range of 1% and during peak use season within a range of 11%. Ongoing adaptation and improvement of education, outreach, and enforcement of irrigation ordinances will be crucial for meeting water conservation targets.

- Park Conservation

The Parks Department continues to work towards more water-efficient operations and landscaping. Parks will continue to look for further opportunities to expand, improve, and make more visible any and all conservation measures, such as the use of river water for sports field irrigations, the use of TX SmartScape plants in public parks and rights-of-way, and water-wise irrigation control. Development of an education method to inform the public on City conservation measures during droughts, accounting for the watering of highly visible areas. Continued growth and renewal of Carrollton's demonstration gardens serves as an attractive and informational public installations and is a useful venues for classes, public education, and volunteering. Programs are currently being considered and developed in these areas (see education and outreach).

- Residential Landscape Evaluation

Conducting a study into the feasibility of performing irrigation evaluations during the contracted irrigation inspection program, or if expansion or modifications are needed will be evaluated. Possibilities include working with the City's contractors to produce and distribute educational materials, serving to educate and coach residential users. Increased data collection such as tracking before/after water usage with water billing and customer surveys for participating residents will aid in determining effectiveness. Alternatively, if the Conservation Coordinator is certified as a licensed irrigator, they may perform this function.

7.4 Education and Public Awareness Outreach

- School Education/Public Information/Public Outreach and Education

Outreach measures will be continually assessed and updated according to cost-benefit analyses and the latest data on effective outreach methodology and assessment of the most effective current programs. A recognition program for effective water savers in the City will be reviewed.

- Partnerships with Nonprofit Organizations

Increased cooperation with local volunteer and nonprofit groups, such as Master Naturalists and Master Gardeners, would be desirable. Opportunities include classes and maintenance at the demonstration gardens and public events.

  - Efforts to build programs for the newly refurbished Josey Ranch Library demonstration garden, such as volunteer native plant and irrigation classes are currently ongoing.

7.5 Rebate, Retrofit, and Incentive Programs

- Conservation Programs for ICI Accounts

  1. The City currently has an ICI retrofit rebate program, generating limited activity in recent years; however, an ICI rebate program has potential benefits and a relaunch of the program will be evaluated. If the current ICI rebate program can be restored, then efforts will be made to ensure that ICI customers are aware of and encouraged to participate in such programs.
  2. The City currently has a rain-freeze sensor giveaway program, utilizing difficult to procure sensors. Alternatives will be evaluated and in addition to a rebate or subsidization program for consumer-off-the-shelf smart meters. Programs will be designed to adapt to changing technologies.

- Water Wise Landscape Design and Conversion Programs

Single-family residential irrigation represents the largest potential water savings in Carrollton. Multifamily and commercial areas remain an additional

priority. A multifamily ICI landscaping conversion rebate program will be evaluated.

7.6 Regulation and Enforcement

- Prohibition on Wasting Water

  Upon approval of an outdoor watering schedule, a review of staffing needs to ensure enforcement and education is adequate to meet the increased need. Ordinances will be updated prior to implementation and enforcement.

- Conservation Ordinance Planning and Development

  Upon approval of an outdoor watering schedule, a study shall be conducted to review subsequent steps, including an annual internal review of WLUC reports to assess amendments in line with Water Conservation Plan best management practices.

8. DROUGHT CONTINGENCY PLAN

8.1 Introduction

The purpose of this drought contingency response plan is:

- To conserve the available water supply in times of drought and emergency;
- To maintain supplies for domestic water use, sanitation, and fire protection;
- To protect and preserve public health, welfare, and safety;
- To minimize the adverse impacts of water supply shortages; and
- To minimize the adverse impacts of emergency water supply conditions.

8.2 State Requirements for Drought Contingency Plans

This drought contingency plan is consistent with Texas Commission on Environmental Quality (TCEQ) guidelines and requirements for the development of drought contingency plans by public drinking water suppliers, contained in Title 30, Part 1, Chapter 288, Subchapter B, Rule 288.20 of the Texas Administrative Code. This rule is included in Appendix B.

TCEQ's minimum requirements for drought contingency plans are addressed in the following subsections of this report:

- §288.20(a)(1)(A) – Provisions to Inform the Public and Provide Opportunity for Public Input – Section 7.3
- §288.20(a)(1)(B) – Provisions for Continuing Public Education/Information – Section 7.4
- §288.20(a)(1)(C) – Coordination with the Regional Water Planning Group – Section 7.10

- §288.20(a)(1)(D) – Criteria for Initiation and Termination of Drought Stages – Section 7.6
- §288.20(a)(1)(E) – Drought and Emergency Response Stages – Section 7.6
- §288.20(a)(1)(F) – Specific, Quantified Targets for Water Use Reductions – Section 7.6
- §288.20(a)(1)(G) – Supply and Demand Management Measures for Each Stage – Section 7.6
- §288.20(a)(1)(H) – Procedures for Initiation and Termination of Drought Stages – Section 7.6
- §288.20(a)(1)(I) - Procedures for Granting Variances – Section 7.7
- §288.20(a)(1)(J) - Procedures for Enforcement of Mandatory Restrictions – Section 7.8
- §288.20(a)(2) – Consultation with Wholesale Supplier – Section 7.9
- §288.20(a)(3)(b) – Notification of Implementation of Mandatory Measures – Section 7.5
- §288.20(a)(3)(c) – Review and Update of Plan – Section 7.11

8.3 Provisions to Inform the Public and Opportunity for Public Input

The City of Carrollton provided opportunity for public input in the development drought contingency plan by the following means:

- Providing written notice of the proposed plan and the opportunity to comment on the plan by posted notice, and notice on City of Carrollton's web site, www.cityofcarrollton.com/water.
- Making the draft plan available on City of Carrollton's web site, www.cityofcarrollton.com/water.
- Public meeting to receive comments on the proposed plan.

8.4 Provisions for Continuing Public Education and Information

The City of Carrollton will inform and educate the public about its drought contingency (emergency response) plan by the following means:

- Preparing a bulletin describing the plan and making it available at city hall and public libraries.
- Making the plan available through the City of Carrollton web site.
- Notifying local organizations, schools, and civic groups that City of Carrollton staff members are available to make presentations on the water conservation and the drought contingency plan.

At any time that the drought contingency plan is activated or the drought response stage changes, the City of Carrollton will notify local media of the issues, the drought response stage, and the specific actions required of the public. The information will also be published on the City of Carrollton web site. Billing inserts will also be used as appropriate.

8.5 Notification of Implementation of Mandatory Measures

Initiation of Drought/Emergency Response Stages:

The City Manager or his/her designee may order the implementation of a drought contingency (emergency response) stage when one or more of the trigger conditions for that stage is met. The following actions will be taken when a drought (emergency response) stage is initiated:

- The public will be notified through local media, website postings, message boards and other communication strategies as they are developed.
- If any mandatory provisions of the drought contingency (emergency response) plan are activated, the City of Carrollton will notify the Executive Director of the TCEQ within 5 business days.

The City Manager or his/her designee may decide not to order the implementation of a drought/emergency response stage even though one or more of the trigger criteria for the stage are met. Factors that could influence such a decision include, but are not limited to, the time of the year, weather conditions, the anticipation of replenished water supplies, or the anticipation that additional facilities will become available to meet needs.

Termination of Drought Response Stages:

The City Manager or his/her designee may order the termination of a drought/emergency response stage when the conditions for termination are met or at his/her discretion. The following actions will be taken when a drought stage is terminated:

- The public will be notified through local media, website postings and message boards.
- When any mandatory provisions of the drought contingency plan have been activated or terminated, the city will notify the Executive Director of the TCEQ within 5 business days.

The City Manager or his/her designee may decide not to order the termination of a drought/emergency response stage even though the conditions for termination of the stage are met. Factors that could influence such a decision include, but are not limited to, the time of the year, weather conditions, or the anticipation of potential changed conditions that warrant the continuation of the drought stage.

8.6 Drought/Emergency Response Stages

The City Manager or his/her designee, shall monitor water supply and/or demand conditions on a weekly basis and, in accordance with the triggering criteria set forth in Section 7.6.1 through 7.6.3 of this plan, shall determine if conditions exist that would trigger any of the designated drought/emergency response stages, and if so, shall implement the following actions:

8.6.1 STAGE 1: Initiation, Termination and Restrictions Criteria

Initiation:

Customers shall be required to comply with the requirements and mandatory restrictions on certain non-essential water uses and shall be requested to adhere to voluntary measures provided in this plan when:

- Either: (1) the total raw water supply in connected lakes (east and west); or, (2) the western lakes; or, (3) the eastern lakes has dropped below 65% (35% depleted) of DWU's share of the total conservation storage of the lakes; or
- Water demand has reached or exceeded 85% of delivery capacity for 4 consecutive days; or
- Water demand **approaches** a reduced delivery capacity for all or part of the system, as determined by DWU or the City of Carrollton Water Utilities department; or
- Water line breaks or pump/system failures, which impact the ability of DWU or the City of Carrollton Water Utilities department to provide treated water service; or
- Natural or man-made contamination of the water supply source(s) occurs.

Termination:

Stage 1 may be terminated when Stage 1 conditions no longer exist and would be unlikely to recur upon termination.

STAGE 1: Water Use Restrictions

Target: Achieve a 5 percent reduction in total gallons per capita per day (GPCD) based on an average of the previous three years total GPCD.

The following is a menu of possible actions. Specific actions taken during any drought/emergency situation will be determined by the City Manager or his/her designee. The City Manager or his/her designee may also take other actions not listed, if deemed necessary.

Landscape/Outdoor Water Use:

- All water customers are reminded to observe the requirements in the Landscape Management Ordinance, as established in the Carrollton City Code, Title V, Chapter 52, lawn and landscape irrigation restrictions.
- Require **mandatory** maximum 2-day-per-week landscape watering schedule and require watering only during allowed watering hours as defined in Section 4.9, Table 4.4.
- Encourage further reduction of water use by promoting **voluntary** maximum 1-day- per-week landscape watering schedule as defined in Section 4.9, Table 4.5.
- Prohibit water run-off from any recreational water usage, including the use of faucets, hoses, hydrants or other water use that results water waste.
- Discourage planting of new landscapes.

- Encourage reduction of draining and refilling of swimming pools. Water may be added to existing pools to replace losses from normal use and operation.
- Foundations may be watered on any day of the week during the allowed watering hours as defined in Section 4.9 of this Plan. Foundations may be watered with a drip irrigation system, soaker hose or a hand-held hose equipped with a positive shutoff nozzle.
- Restrict washing of any motor vehicle, motorbike, boat, trailer, airplane or other vehicle to the use of a hand-held bucket or a hand-held hose equipped with a positive shutoff nozzle for quick rinses. Vehicle washing may be done at any time on the immediate premises of a commercial vehicle wash facility or commercial service station. Companies with an automated on-site vehicle washing facility may wash its vehicles at any time.

City Government:

- Initiate public education campaign encouraging reduced water use practices.
- Intensify normal leak detection and repair activities on water pipes and mains.
- Require reduction of water use through mandatory maximum twice weekly landscape watering schedule for city parks, golf courses and athletic fields.
- Encourage reduction of water use in city-owned ornamental fountains.
- Encourage additional reduction in landscape uses for parks.
- Encourage 25 percent reduction in frequency of wet street sweeping and city vehicle washing and rinsing.
- Increase enforcement efforts through proactive code enforcement.

Commercial Customers:

- Identify and encourage voluntary reduction measures by high-volume water users through water use audits.
- Require reduction of water use through mandatory maximum twice weekly landscape watering schedule for private parks and golf courses.
- Encourage additional reduction in landscape uses for parks.
- Encourage reduction in water use for landscape nursery stock.
- Encourage area restaurants to serve customers water by request only.
- Encourage hotel/motels to request multiple day patrons to reuse linens instead of changing every day.

8.6.2 STAGE 2: Initiation, Termination and Restrictions Criteria

Initiation:

Customers shall be required to comply with the requirements and mandatory restrictions on certain non-essential water uses and shall be requested to adhere to voluntary measures

in this Plan when:

- (1) the total raw water supply in connected lakes (east and west); or, (2) the western lakes; or, (3) the eastern lakes has dropped below 50% (50% depleted) of DWU's share of the total conservation storage of the lakes; or
- Water demand has reached or exceeded 90% of delivery capacity for 3 consecutive days; or
- Water demand **equals** a reduced delivery capacity for all or part of the system, as determined by DWU or the City of Carrollton Water Utilities department; or
- Water line breaks or pump/system failures occur, which impact the ability of DWU or the City of Carrollton Water Utilities department to provide treated water service; or
- Natural or man-made contamination of the water supply source(s) occurs.

Termination:

Stage 2 may be terminated when Stage 2 conditions no longer exist and would be unlikely to recur upon termination.

STAGE 2: Water Use Restrictions

Target: Achieve a 15 percent reduction in total gallons per capita per day GPCD based on an average of the past three years of total GPCD.

Following is a menu of possible actions. Specific actions taken during any drought/emergency situation will be determined by the City Manager or his/her designee. The City Manager or his/her designee may also take other actions not listed, if deemed necessary. All requirements of Stage 1 shall remain in effect during Stage 2, and the following additional measures will be required:

Landscape/Outdoor Water Use:

- All water customers are reminded to observe the requirements in the Landscape Management Ordinance, as established in the Carrollton City Code, Title V, Chapter 52, lawn and landscape irrigation restrictions.
- Require reduction of water use through **mandatory** maximum 1-day-per-week landscape watering schedule and require watering only during allowed watering hours as defined in Table 7.1. Encourage further reduction in frequency regarding the draining and refilling of swimming pools.

Table ~~7~~8.1

Once Per Week Watering Schedule

(For Drought Contingency Plan Stages 1&2)

Last Digit of Address	Allowed Landscape Watering Days
1, 3	Tuesday
0, 2	Wednesday
5, 7	Thursday
4, 6	Friday
9	Saturday
8	Sunday
Monday – No Watering (Storage Recovery Day)	

High Demand Surcharge

The City of Carrollton will not require the use of a high demand surcharge as the current tiered rate pricing structure has been developed to discourage excessive water use.

City Government:

- Initiate engineering studies to evaluate alternatives to mitigate drought conditions should conditions worsen.
- Accelerate public education campaign encouraging reduced water use practices.
- Continue intensified leak detection and repair activities on water pipes and mains.
- Prohibit flushing of new mains not immediately required to provide service.
- ~~City government~~Restricted to mandatory maximum once weekly landscape watering schedule.
- Require reduction of water use through mandatory once weekly landscape watering schedule for city parks and golf courses.
- Prohibited operation of ornamental fountains~~by city government~~.
- Reduce frequency of wet street sweeping and city vehicle washing or rinsing by 50 percent.
- Increase enforcement efforts through proactive code enforcement.

Commercial Customers:

- Require reduction of water use through mandatory maximum once weekly landscape watering schedule for private parks and golf courses.

- Encourage further reduction in landscape uses for nursery stock.

8.6.3 STAGE 3: Initiation, Termination and Restrictions Criteria

Initiation:

Customers shall be required to comply with the requirements and mandatory restrictions on certain non-essential water uses provided in this Plan when:

- Either (1) the total raw water supply in connected lakes (east and west) or (2) the western lakes or (3) the eastern lakes have dropped below 35% (65% depleted) of DWU's share of the total conservation storage; or
- Water demand has reached or exceeded 95% of delivery capacity for 2 consecutive days; or
- Water demand **exceeds** a reduced delivery capacity for all or part of the system, as determined by DWU or the City of Carrollton Water Utilities department; or
- Water line breaks or pump/system failures occur, which impact the ability of DWU or the City of Carrollton Water Utilities department to provide treated water service; or
- Natural or man-made contamination of the water supply source(s) occurs.

Termination:

Stage 3 of the Plan may be terminated when the Stage 3 conditions no longer exist and would be unlikely to recur upon termination.

STAGE 3: Water Use Restrictions

Target: Achieve a 20 percent reduction in total gallons per capita per day (GPCD) based on an average of the previous three years total GPCD.
Following is a menu of possible actions. Specific actions taken during any drought/emergency situation will be determined by the City Manager or his/her designee. The City Manager or his/her designee may also take other actions not listed, if deemed necessary. All requirements of Stages 1 and 2 shall remain in effect during Stage 3, and the following additional measures will be required:

Landscape/Outdoor Use:

- Irrigation of turf, shrubs, perennials, annuals, ground covers and any other landscaped area by any method is absolutely prohibited. Trees may be irrigated with drip irrigation system, soaker hoses or with a hand-held hose one day per week on the once-per-week watering schedule (Section 7.6.2, Table 7.1) and within the permitted watering hours.
- Foundations may be watered one day per week on the once-per-week watering Schedule (Section 7.6.2, Table 7.1) and within the permitted watering hours.

Foundations may be watered with a drip irrigation system, soaker hose or a hand-held hose equipped with a positive shutoff nozzle. Water run-off is prohibited

- Prohibit operation of ornamental fountains or ponds that use potable water except where supporting aquatic life or water quality.
- Prohibit the filling, draining and refilling of existing swimming pools, wading pools, Jacuzzi and hot tubs except to maintain structural integrity, proper operation and maintenance or alleviate a public safety risk. Water may be added to existing pools to replace losses from normal use and evaporation.

- Permitting of new swimming pools, wading pools, Jacuzzi and hot tubs is prohibited.
  - Hosing and washing of paved areas, buildings, structures, windows or other surfaces is prohibited except by variance and performed by a professional service using high efficiency equipment.
  - Use of water to wash any motor vehicle, motorbike, boat, trailer or other vehicle not occurring on the premises of a commercial vehicle wash facility or commercial service stations is prohibited. Companies with an automated on-site vehicle washing facility may wash its vehicles at any time. Further, such washing may be exempt from these requirements if the health, safety and welfare of the public are contingent upon frequent vehicle cleansing, such as garbage trucks and commercial vehicles used to transport food and perishables.

High Demand Surcharge:

The City of Carrollton will not require the use of a high demand surcharge as the current tiered rate pricing structure has been developed to discourage excessive water use.

City Government:

- Wet street sweeping and city vehicle washing or rinsing is prohibited except for reasons of public health, safety and welfare.
- Municipal landscape watering prohibited except golf courses (see below).
- Watering of golf course greens and tee boxes are restricted to the allowed watering hours as defined in Section 4.9; watering of other golf course areas and parks is prohibited.

Commercial Customers:

Watering of golf course greens and tee boxes are restricted to the allowed watering hours in Section 4.9 unless the golf course uses a water source other than that provided by the City of Carrollton.

8.7 Procedure for Granting Variances to the Plan

The City Manager or his/her designee may grant temporary variances for existing water uses otherwise prohibited under this drought/emergency response plan if one or more of the following conditions are met:

- Failure to grant such a variance would cause an emergency condition adversely affecting health, sanitation, or fire safety for the public or the person requesting the variance.
- Compliance with this plan cannot be accomplished due to technical or other limitations.
- Alternative methods that achieve the same level of reduction in water use can be implemented.

Variances shall be granted or denied at the discretion of the city manager or his/her designee. All petitions for variances should be in writing and should include the following information:

- Name and address of the petitioner(s).
- Purpose of water use.
- Specific provisions from which relief is requested.
- Detailed statement of the adverse effect of the provision from which relief is requested.
- Description of the relief requested.
- Period of time for which the variance is sought.
- Alternative measures that will be taken to reduce water use.
- Other pertinent information.

Persons using raw water for irrigation, whether from a customer owned and operated well or purchased raw water, must apply for a variance. The City Manager or his/her designee may grant a raw water variance under the following conditions:

- The property passes a cross-connection and backflow protection inspection as required by Section 5, Chapter 56 of the Carrollton Code of Ordinances; and
- The property owner erects and maintains a sign that clearly indicates that irrigation is with raw water.

8.8 Procedure for Enforcement of Mandatory Restrictions

Mandatory water use restrictions will be imposed in Stage 1, Stage 2, and Stage 3 drought/emergency response stages. These mandatory water use restrictions will be enforced by Notices of Violation and penalties as follows:

- On the first violation, customers will be given a written notice of violation of the mandatory water use restriction.
- On the second and subsequent violations, citations may be issued to customers, with fines not to exceed $2,000 per day.
- After two violations have occurred, the City of Carrollton may install a flow restrictor in the line to limit the amount of water that may pass through the meter in a 24-hour period.
- After three violations have occurred, the City of Carrollton may terminate water

service to the customer.

8.9 Consultation with Wholesale Supplier

The City of Carrollton is a wholesale customer of the city of Dallas. Provisions for responding to reductions or limitations in the wholesale supply are included in the triggering mechanisms for the drought/emergency response plan stages. City of Carrollton staff members regularly participate in the wholesale customer meetings with the city of Dallas.

8.10 Coordination with the Regional Water Planning Group

The City of Carrollton is located within the Region C water planning area. Appendix F includes a copy of a letter sent to the Chair of the Region C Water Planning Group (RCWPG) with this Water Conservation and Drought Contingency Plan.

8.11 Review and Update of Drought Contingency Plan

As required by TCEQ rules, the City of Carrollton will review this drought contingency plan every five years. The plan will be updated as appropriate based on new or updated information. As the plan is reviewed and subsequently updated, a copy of the revised Drought Contingency (Emergency Response) Plan will be submitted to the TCEQ and the Region C Water Planning Group for their records.

APPENDIX A

LIST OF REFERENCES

1. City of Dallas Water Utilities Department: "City of Dallas Water Conservation Plan," adopted by the City Council, Dallas, February 2014.
2. Title 30 of the Texas Administrative Code, Part 1, Chapter 288, Subchapter A, Rules §288.1 and §288.2, and Subchapter B, Rule §288.20, downloaded from http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=T&app=9&p_dir=P&p_rloc=117135&p_tloc=&p_ploc=1&pg=8&p_tac=&ti=30&pt=1&ch=288&rl=2, December 2012 http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=T&app=9&p_dir=N&p_rloc=134655&p_tloc=&p_ploc=1&pg=9&p_tac=&ti=30&pt=1&ch=288&rl=2, December 2012 http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=T&app=9&p_dir=P&p_rloc=117113&p_tloc=&p_ploc=1&pg=17&p_tac=&ti=30&pt=1&ch=288&rl=2, October 2004
3. Texas Water Development Board: "Water Demand Projections, 2021 Regional Water Plan Data," April 2018 can be accessed online at http://www.twdb.texas.gov/waterplanning/data/projections/2022/popproj.asp
4. "Water Conservation Best Management Practices Guide; Best Management Practices for Municipal Water Users ," Texas Water Development Board; November 2013. Accessed online at http://www.twdb.texas.gov/conservation/BMPs/Mun/doc/MunMiniGuide.pdf?d=1553532315418 .
5. "Drought Contingency Plan." *Texas Commission on Environmental Quality*, 11 Mar. 2019, www.tceq.texas.gov/permitting/water_rights/wr_technical-resources/contingency.html
6. Region C Water Planning Group: 2016 Water Plan http://www.twdb.texas.gov/waterplanning/rwp/plans/2016/index.asp

APPENDIX B

Texas Administrative Code

TITLE 30	ENVIRONMENTAL QUALITY
PART 1	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 288	WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS
SUBCHAPTER A	WATER CONSERVATION PLANS
RULE §288.1	**Definitions**

The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise.

(1) Agricultural or Agriculture--Any of the following activities:

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

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

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

(D) raising or keeping equine animals;

(E) wildlife management; and

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

(2) Agricultural use--Any use or activity involving agriculture, including irrigation.

(3) Best management practices--Voluntary efficiency measures that save a quantifiable amount of water, either directly or indirectly, and that can be implemented within a specific time frame.

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

(5) Commercial use--The use of water by a place of business, such as a hotel, restaurant, or office building. This does not include multi-family residences or agricultural, industrial, or institutional users.

(6) Drought contingency plan--A strategy or combination of strategies for temporary supply and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies. A drought contingency plan may be a separate document identified as such or may be contained within another water management document(s).

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

(8) Institutional use--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--The agricultural use of water for the irrigation of crops, trees, and pastureland, including, but not limited to, golf courses and parks which do not receive water from a public water supplier.

(10) Irrigation water use efficiency--The percentage of that amount of irrigation water which is beneficially used by agriculture crops or other vegetation relative to the amount of water diverted from the source(s) of supply. Beneficial uses of water for irrigation purposes include, but are not limited to, evapotranspiration needs for vegetative maintenance and growth, salinity management, and leaching requirements associated with irrigation.

(11) Mining use--The use of water for mining processes including hydraulic use, drilling, washing sand and gravel, and oil field re-pressuring.

(12) Municipal use--The use of potable water provided by a public water supplier as well as the use of sewage effluent for residential, commercial, industrial, agricultural, institutional, and wholesale uses.

(13) Nursery grower--A person engaged in the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or nonsoil media, who grows more than 50% of the products that the person either sells or leases, regardless of the variety sold, leased, or grown. For the purpose of this definition, grow means the actual cultivation or propagation of the product beyond the mere holding or maintaining of the item prior to sale or lease, and typically includes activities associated

with the production or multiplying of stock such as the development of new plants from cuttings, grafts, plugs, or seedlings.

(14) Pollution--The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property, or to the public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

(15) Public water supplier--An individual or entity that supplies water to the public for human consumption.

(16) Residential use--The use of water that is billed to single and multi-family residences, which applies to indoor and outdoor uses.

(17) Residential gallons per capita per day--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.

(18) Regional water planning group--A group established by the Texas Water Development Board to prepare a regional water plan under Texas Water Code, §16.053.

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

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

(21) Total use--The volume of raw or potable water provided by a public water supplier to billed customer sectors or nonrevenue uses and the volume lost during conveyance, treatment, or transmission of that water.

(22) Total gallons per capita per day (GPCD)--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 this chapter shall be credited against total diversion volumes for the purposes of calculating GPCD for targets and goals.

(23) Water conservation plan--A strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the

recycling and reuse of water, and for preventing the pollution of water. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s).

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

(25) Wholesale use--Water sold from one entity or public water supplier to other retail water purveyors for resale to individual customers.

Source Note: The provisions of this §288.1 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective August 15, 2002, 27 TexReg 7146; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective January 10, 2008, 33 TexReg 193; amended to be effective December 6, 2012, 37 TexReg 9515

Texas Administrative Code

TITLE 30	ENVIRONMENTAL QUALITY
PART 1	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 288	WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS
SUBCHAPTER A	WATER CONSERVATION PLANS
RULE §288.2	**Water Conservation Plans for Municipal Uses by Public Water Suppliers**

(a) A water conservation plan for municipal water use by public water suppliers must provide information in response to the following. If the plan does not provide information for each requirement, the public water supplier shall include in the plan an explanation of why the requirement is not applicable.

(1) Minimum requirements. All water conservation plans for municipal uses by public water suppliers must include the following elements:

(A) a utility profile in accordance with the Texas Water Use Methodology, including, but not limited to, information regarding population and customer data, water use data (including total gallons per capita per day (GPCD) and residential GPCD), water supply system data, and wastewater system data;

(B) a record management system which allows for the classification of water sales and uses into the most detailed level of water use data currently available to it, including, if possible, the sectors listed in clauses (i) - (vi) of this subparagraph. Any new billing system purchased by a public water supplier must be capable of reporting detailed water use data as described in clauses (i) - (vi) of this subparagraph:

(i) residential;

(I) single family;

(II) multi-family;

(ii) commercial;

(iii) institutional;

(iv) industrial;

(v) agricultural; and,

(vi) wholesale.

(C) specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal use in total GPCD and residential GPCD. The goals established by a public water supplier under this subparagraph are not enforceable;

(D) metering device(s), within an accuracy of plus or minus 5.0% in order to measure and account for the amount of water diverted from the source of supply;

(E) a program for universal metering of both customer and public uses of water, for meter testing and repair, and for periodic meter replacement;

(F) measures to determine and control water loss (for example, periodic visual inspections along distribution lines; annual or monthly audit of the water system to determine illegal connections; abandoned services; etc.);

(G) a program of continuing public education and information regarding water conservation;

(H) a water rate structure which is not "promotional," i.e., a rate structure which is cost-based and which does not encourage the excessive use of water;

(I) a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin in order to optimize available water supplies; and

(J) a means of implementation and enforcement which shall be evidenced by:

(i) a copy of the ordinance, resolution, or tariff indicating official adoption of the water conservation plan by the water supplier; and

(ii) a description of the authority by which the water supplier will implement and enforce the conservation plan; and

(K) documentation of coordination with the regional water planning groups for the service area of the public water supplier in order to ensure consistency with the appropriate approved regional water plans.

(2) Additional content requirements. Water conservation plans for municipal uses by public drinking water suppliers serving a current population of 5,000 or more and/or a projected population of 5,000 or more within the next ten years subsequent to the effective date of the plan must include the following elements:

(A) a program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system;

(B) a requirement in every wholesale water supply contract entered into or renewed after official adoption of the plan (by either ordinance, resolution, or tariff), and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements in this chapter. If the customer intends to resell the water, the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with the provisions of this chapter.

(3) Additional conservation strategies. Any combination of the following strategies shall be selected by the water supplier, in addition to the minimum requirements in paragraphs (1) and (2) of this subsection, if they are necessary to achieve the stated water conservation goals of the plan. The commission may require that any of the following strategies be implemented by the water supplier if the commission determines that the strategy is necessary to achieve the goals of the water conservation plan:

(A) conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;

(B) adoption of ordinances, plumbing codes, and/or rules requiring water-conserving plumbing fixtures to be installed in new structures and existing structures undergoing substantial modification or addition;

(C) a program for the replacement or retrofit of water-conserving plumbing fixtures in existing structures;

(D) reuse and/or recycling of wastewater and/or graywater;

(E) a program for pressure control and/or reduction in the distribution system and/or for customer connections;

(F) a program and/or ordinance(s) for landscape water management;

(G) a method for monitoring the effectiveness and efficiency of the water conservation plan; and

(H) any other water conservation practice, method, or technique which the water supplier shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

(b) A water conservation plan prepared in accordance with 31 TAC §363.15 (relating to Required Water Conservation Plan) of the Texas Water Development Board and substantially meeting the requirements of this section and other applicable commission rules may be submitted to meet application requirements in accordance with a

memorandum of understanding between the commission and the Texas Water Development Board.

(c) A public water supplier for municipal use shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or updated information. The public water supplier for municipal use shall review and update the next revision of its water conservation plan every five years to coincide with the regional water planning group.

Source Note: The provisions of this §288.2 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective December 6, 2012, 37 TexReg 9515

Texas Administrative Code

TITLE 30	ENVIRONMENTAL QUALITY
PART 1	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 288	WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS
SUBCHAPTER B	DROUGHT CONTINGENCY PLANS
RULE §288.20	**Drought Contingency Plans for Municipal Uses by Public Water Suppliers**

(a) A drought contingency plan for a retail public water supplier, where applicable, must include the following minimum elements.

(1) Minimum requirements. Drought contingency plans must include the following minimum elements.

(A) Preparation of the plan shall include provisions to actively inform the public and affirmatively provide opportunity for public input. Such acts may include, but are not limited to, having a public meeting at a time and location convenient to the public and providing written notice to the public concerning the proposed plan and meeting.

(B) Provisions shall be made for a program of continuing public education and information regarding the drought contingency plan.

(C) The drought contingency plan must document coordination with the regional water planning groups for the service area of the retail public water supplier to ensure consistency with the appropriate approved regional water plans.

(D) The drought contingency plan must include a description of the information to be monitored by the water supplier, and specific criteria for the initiation and termination of drought response stages, accompanied by an explanation of the rationale or basis for such triggering criteria.

(E) The drought contingency plan must include drought or emergency response stages providing for the implementation of measures in response to at least the following situations:

(i) reduction in available water supply up to a repeat of the drought of record;

(ii) water production or distribution system limitations;

(iii) supply source contamination; or

(iv) system outage due to the failure or damage of major water system components (e.g., pumps).

(F) The drought contingency plan must include specific, quantified targets for water use

reductions to be achieved during periods of water shortage and drought. The entity preparing the plan shall establish the targets. The goals established by the entity under this subparagraph are not enforceable.

(G) The drought contingency plan must include the specific water supply or water demand management measures to be implemented during each stage of the plan including, but not limited to, the following:

(i) curtailment of non-essential water uses; and

(ii) utilization of alternative water sources and/or alternative delivery mechanisms with the prior approval of the executive director as appropriate (e.g., interconnection with another water system, temporary use of a non-municipal water supply, use of reclaimed water for non-potable purposes, etc.).

(H) The drought contingency plan must include the procedures to be followed for the initiation or termination of each drought response stage, including procedures for notification of the public.

(I) The drought contingency plan must include procedures for granting variances to the plan.

(J) The drought contingency plan must include procedures for the enforcement of mandatory water use restrictions, including specification of penalties (e.g., fines, water rate surcharges, discontinuation of service) for violations of such restrictions.

(2) Privately-owned water utilities. Privately-owned water utilities shall prepare a drought contingency plan in accordance with this section and incorporate such plan into their tariff.

(3) Wholesale water customers. Any water supplier that receives all or a portion of its water supply from another water supplier shall consult with that supplier and shall include in the drought contingency plan appropriate provisions for responding to reductions in that water supply.

(b) A wholesale or retail water supplier shall notify the executive director within five business days of the implementation of any mandatory provisions of the drought contingency plan.

(c) The retail public water supplier shall review and update, as appropriate, the drought contingency plan, at least every five years, based on new or updated information, such as the adoption or revision of the regional water plan.

Source Note: The provisions of this §288.20 adopted to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384

Appendix C

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

CONTACT INFORMATION

Name of Utility: City of Carrollton

Public Water Supply Identification Number (PWS No): TX0570034

Certificate of Convenience and Necessity (CCN) Number: 11044

Surface Water Right ID Number:

Wastewater Number: 2114

Contact: First Name: Kiernten Last Name: Wiley

Title: Water Resource Management Specialist

Address: 2101 Old Denton Rd City: Carrollton State: TX

Zip Code: 75006 Zip+4: Email: kieF.Aefl@cityofcarrollton.com

Telephone Number: 9724664205 Date:

Is this person the designated Conservation Coordinator? ® Yes 0 No

Regional Water Planning Group: C

Groundwater Conservation District:

Our records indicate that you:

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

IZJ 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: 37

Attached file(s):

File Name	File Description
service area.pdf	Service Area Map with total Area

UTILITY PROFIIIE FOR RE.TAI **WATER SIUPPUER**

2. Historical re:nrice area pop latiol'il**ifor** the prei.i'ious five *yeam*, startil'ilg witti ltle most current year.

Vear	**1Histo:ri:cal IP'opula.tion** Saved **By Retail]Waler Seni:ce**	**Historical IPepulatiolil Served By Whole.sale Waler Service**	**Historical Pepmlation Served8y Wastewater Waler Servic:e**
2018	132,330	(1)	132,330
2017	130,820	(1)	130,820
2016	127,900	(1)	27,980
2015	125,250	(1)	125,250
2014	124,400	(1)	24,400

3. Projected seFVioe a:re:a population **ifor** the o owing deeade&

Vear	**Projeded IP'opula.tion Served Hy !Retail Water Senric:e**	**Projected P0ipu'lation Served By Who1esal:e Water Servic:e**	**!Pli'ojected Pepmlation SaYed]By Wastewater Water Service**
20:ZO	130,841	0	130,841
2030	132,965	0	132,965
2040	132,968	0	132,968
2050	132,971	0	132,971
206'0	132,974	0	132,974,

41_Descliibed sourc,e(s)lmettiodl(s) **ifor** e" •.atil'ilg ourrel'!ltta!'ilC! prqjeoted pqpulafions_

2. CUrrem. popL lia• ol'ils population numbers come from NCTCOG.

3. Po pl.lla• on prqjecliol'ils carne from http Jtwww_twdb_teiras.govfw3terplannil'ilg/'dilliifprqjeotiol'ilsl20221po;p;p:roj.asp; TVVDB 2!J21 RegiOlla'l Waiter Plan Po;pulatian Projeciiorls .. The \MJG CmroUton was. selecled_Also s.poke !Mi!h Yun Cho,Eoormmic & De:rnog;rapl7ic Anmysis Ma ;ger a Tems Wat.er Dei.relop en Boa:rd on 3-20-2[ll19 aboul how the prqjeoted :un ibers were s t n the po;pulaoon repo ed or 2[ll18_She said they were pl.a: ning Ol'il doing a better pqpt.daoon pro·ecoon wtien tlte 2020 census is released. She was also ma·rig note that City of Carrollon's pqpt.daoon pro·ecoon rnm ibers were oft

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

El . System Input

System input[Put data for the revious five years
Tota System Input= Set--s tie<il+l irted - Exponed

Year	Water Produced ilil Gallons	Purchased//Imported iWater in Gallons	Exported w ater in GallHs	liotal System Io.i,uil:	TotalGPCJD
2018	0	7,334,84'5,000		7,334,845,000	11.52
2017	0	7,11.65,651,000	0	7,165,6511.,000	11.50
2016	0	7,200,11.13,000	0	7,280,113,000	11.56
2015	0	7,11.70,005,000	0	7,170,&05,000	11.57
2014	0	6,944,553,000	0	6,944,553,000	11.53
Historic Average	0	7,11.79,193,"Kl{	0	7,179,193,400	11.54

C. Ware. - Suppliy System

Attached file(s):

File Name	File Deso i;ptio111
PMPSTR. m	

1 . Designed d y capacity of system i111ga om. 91,38□,I:D□I]

2. Storage Capacity

2a. Elei.<ated srorage ill ga'lh:ms:_ 11,SI'.I!□,I:DDI]

2b_Ground storage i g,allans: 36,SI'.IID,I:DDI]

UTILITY PROFIILIE FOR RE.TA.IL WATER SUPPUER

I:ls Pmojec,ted I:I:el1ilancl's

I_ The estimated water supply require_ents fo:rtlhe ne>rtten years using population trernds, hiisforical \'Yater us,e, economic growth!, etc.

Year	Pqpulati.on	Water Demand (gailons)
20-20	136,490	7,903,841,586
20-21	13{!,620	7,745,764,754
20-22	140,782	**7,590,849,459**
20-23	142.97B	7,439,032,470
20-24	145,20,9	7,290,251,821
20-25	147,474	7,144,446,785
20-26	149,775	7,0011,557,849
20-Zl	152,111	6,001,526,692
20-.28	154!,484	6,7114,296,158
20-29	156,69'4	6,589,B10,235

2:. Description of siourice data and how projected ed water ,de_ands were detenmined_

Fo. Population projeclion we fol.lnd the average pen:ent increase in population ove. the lasl 5 years, wtiich was 1_5%. We then increased the population each year by 1.5%_

Fo.-Wate.- DernancEs (G_ on5)
Fo.-Ware.- demand5 tounci the ,a,,•erage percent change over the la.. 5 yrs to be -2%. Then took the projected 2020 wa,te.- demand eoomate5 and decreased it by 2%.

E. High Volul1ile Cusfomfils

I_ The annual water use fortlhe five highest volume IRIETAIL mstorn ers.

Customer	Ware.- l.fae Categnry	Annual!Wa:te.- l.Jse	Trreateciarr Raw
RiUI:ly'5 Torti la5	Indl.Istrial	so,osB,m:m	Treated
Wester Extrusiosn5 INC_	Indl.Istrial	64,759,(1(1(1	Treated
Lewisvi elSD	Institu_ onal	5(1,657,(1(1(1	Treated
SIR lm.wnlree,ILC	Commercial	44,(1(17,(1(1(1	Treated
Frankel Family Trusl.	Oommer:cial	36,4!94!,(l(l(l	Treated

2_ he annual water use iortlhe five highest volume WHOlJES.ALIE,cust0mer:s.

Customer	Ware.- l.fae Category	Annual!Wa:te.- Use	Trreateci arr Raw

UTILITY PROFILE FOR RETAIL WATER SUPPUER

F.. Utility Data Comme:nt Section

Additional comments about utility data.

These numbers came from1utility Bi ing.

Section I: Sys em Data

A . Retail Water Supplier Con111eotio 1m;;

1\. List of active retail connections by major water use caitiegory.

Water Use Category "fype	Total Reta1l Connections (Actiive + Inactive)	Perrcen.t of Totai Connections
Residerriia1- Single Family	34,0116	6[to9 %
Residerriia1 — llH°amity	118,107	31.99 %
Indt.r.smal	28	m.DS %
Commercial	3,972	7.02%
Institutional	461	rn.ss %
Agricu t.mil	[	rn.orn%
Total	56,604	1[[[D_[[[D %

:2.. Net number of new refail amnectiicms by waiter use caitiegory for tthe p:reVliouis frv e years.

	New Retail Connections						
Year	Residential - Single Family	Residential - Multi-Family	Industrial	Commercial	Institutional	Agricultural	Total
2018	197	2,142	0	30	4	0	2,373
2017	50	659	0	55	5	0	769
2016	219	1,089	0	30	6	0	1,344
2015	429	172	0	60	7	0	668
2014	545	0	0	26	39	0	610

UTILITY PROFIIIE FOR RETA WATER SUPPUER

B. Accou!lltin@1ptita

irhe previous five y ears' g;allons of RETAil!..W. <il!ber provided irn each major water usecategory.

Vear	Residential!- Single· family	!Res·'dlential - Multi-Family	Imdustrial!	Comn-.e1roial!	Instituti'omal	AgrirnImral!	Total!
2018	3,479,646,540	1,189,196,000	209,241,QOO	1,528,355,000	347,718,QQQ		6,754,156,540
2017	3,383,664,000	1,233,Q90,000	297,574,QOO	1,558,736,000	156,380,QQQ	0	6,629,4H,OO0
ZOU,	3,380,759,000	1,253,478,000	251,576,QOO	1,417,858,000	361,571,QQQ	0	6,66'5,242,000
2015	3,536,200,000	1,224,152,000	264,284,000	1,409,038,000	300,134,000	0	6,733.,BU8,000
2014	3,480,009,000	1,217,CD87,000	258,756,QOO	1,407,107,000	293,791,CDCDQ	0	6,656,750,000

C. R!sidearlti,al 'Water Ulise

irhe previous five years residlenti<il!G OD fur single family <il!'lld multi-family units_

Year	Residential!- Single Familly	!Residential - Mu ltii-ifami'ly	Total! Resideliltial!
201,8:	72	25	97
201.7	71	26	97
2016	72	27	99
2015	77	27	104
201.4	77	26	103
1Histo:ri'c Average	7-1	26	100

UTILITY PROFIILIE FOR RETAIL WATER SIUJPPLIER

D.. Annual a1d Seasa11al water Use

'11.. The previous fi've years' g;a11ons of tre.;itted watte, provided to RETAll oustiorn ers_

tilonth	Total Gallons of Treated Water				
	2018	:ZiOl.7	:ZOl.6,	201.5	201.4
January	430,3%,000	+w,193,000	·H 1,631,300	415,700,000	402,189,0(Dll
FeliJtiUilliY	371,843,000	377,145,620	364,151,000	361,881,800	382,946,00C J
Mardi	361,682,000	412,.033,000	427,790,610	332,126,300	368,501,00C J
April	441,840,540	476,247,000	473,476,620	396,191,000	449,808,00C J
May	523,228,000	508,777,000	461,285,000	401,525,000	558,254,00C J
June	738,175,000	1 675,462,000	514,107,000	425,755,000	621,314,000
July	817,921,0001	630,168,000	69'2,546,000	652,0M,OOO	665,0 51,000
August	916,49'3,ooo	1 817,766,000	8°'4,585,000	941,707,000	729,000,000
Septembetr	790,549,000	723,,981,000	792,064,000	977,582,000	776,590,00C J
Octobetr	520,994,000	694,723,000	673,835,000	843,638,000	730,846,00C J
Nmre1nber	438,438,000	5%,589,000	562,503,000	558,815,000	574,915,00C J
Dec.ember	410,572,000	530,859,000	487,688,000	427,239,000	397,838,00C J
liotal	6,762,001,540	6,833,943,620	6,665,662,530	6,734,164,100	6,657,252,00C J

UTIILll"Y PROFILE FOR RE]iAIL WAl"IER SUPPLIIER

:2.. The p:revious fiive years' gallons of raw water provided 1to RETAIIL customers.

H'.om:h	Total Gallons of Raw W11ter				
	2018	2017	2016	2015	2014
January	0	3	0	0	0
FeliJru!ary	0	0	0	0	0
Harch	0	0	0	0	0
April	0	0	12	0	0
Hiay	6,284	0	0	0	748
.J'll.lne	5,388	0	0	0	763
July	4'2,962	0	0	0	415
AoguiSl:	15,128	0	0	0	541
September	910	11,778	4,002	0	'925
October	0	0	7	0	845
Novenmer	0	0	0	0	0
DecunlJer	0	0	0	0	0
Total	70,672	11,781	4,821	0	4,237

3.. Summa[V of seasonal and an111ua1!.¥1!'Gtler use_

	Summer RETAIL (T1reatedl + Raw)	Total RETAJ:L (Treated + Raw)
2018,	2.,472,652,478	6,762,152,212
2017	2.,123,396,000	6,833,955,401
2016,	2.,011,238,000	fi,665,667,351
21015	2.,019,466,000	6,73'1,164,100
2014	2.,0 S,366,719	6,6:57,256,237
Average in Ga lons	2,128,423,839.40	6,730,639,(!160.20

UT11LIITY PRO'FI|LE FDR RJETA!IL WATER SUIPIPUIER

E. Water Loss

Water Loss data for the previous five years.

Yur	'Tbtat Water l.ass, in1Gallans	'Waller L.oss iin1 GPCD	W'ataIrLOIIS,iIS,iI Pel"Cl!lnbtga
201B	528,818,454	11	7.I6%
2017	446,636,363	9	6.23%
2016	523,869,5&8	11	7.20%
2015	436,154,250	10	6.iIB %
201,4	287,ll21 750	6	4.13%
Avm;aga	444,500,0Sl	9	6.18%

F. Peak Dary ll.lsa

A @ge Daily Wa1h:1r Usti! and Peak nay W il:ti!r U:sti! fo:rthti! p:r,i:n1im.11s ftvti! \i'ti!iilrs

Yur	Averaga Daily U.. ,(ga.1)	Peak,Day IUN fgal)	Ratio, (puk/,avg)
20.IB	18,,526,444	26876657	1.4507
201.7	18,,723,,165	23080391	1.2327
20.16	18,,262,102	21861282]	1.197:1.
20.15	18 449,764	21950717]	1.1898
20J4	18,,239,058	21906:1.59]	1.201:1.

G. Summary cf !Historic Water U\se

Water IlJ'sa cat.gory	Histariic AvHaga	Pel"Cl!lnl: ,of GDiiiiiH!ctiDIiIS	Parceml:af WaterlU'sa
Resid@ntial - Singl@ fsamily	3,452 llS,5,708	60.09 %	.51.62 %
Residl!Intial - MLIlli..f=amily	1,223 '400,600	31.99 %	18.29 %
Indumia1	256 l86,2.00	0.05%	3.83%
CiD:mmucial	1,464 218,800	7.02%	21.89 %
Insl:itultio:na.1	2!:U,,918,800	0.85%	4.36%
Agriia.lll:1.1ral	Cl	0.00%	Cl.Oil%

UTILITY PROFILE FOR REGIONAL WATER SUPPLIER

H. Systems 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 active wastewater connections by meter size and type of customer:

Water Use Classification	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 total water used by the wastewater system: _____ %

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

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

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

5. Could treated wastewater be substituted for potable water?

Q Yes Oe

B. Reuse Data

1. Data by type of reGding and rieu e actiivities implennented during the cunnent reporting period.

Type of Reuse	Total **Annual Volume** (in gallons)
On-siil:e **Jin'iga tion**	
Pla11t wash down	
C::hlorinatKHil/de-dJlorina tion	
Iod ri!al	
Landscape irrigation {parl, golf courses)	
Agri'aditural	
Disdiarge to suiface **wa ter**	
Evaporation Pond	
otfier	
Tolal	

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

C. Wastewater System Data Comment

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

City of Carrollton does not treat wastewater. We simply act as a conveyance system.

Appendix D

Current Conservation BMPs:

1. **Conservation Analysis and Planning**
    - 1.1 Conservation Coordinator
2. **Financial Measures**
    - 2.1 Water Conservation Pricing
3. **System Operations Measures**
    - 3.1 Metering New Connections and Retrofitting Existing Connections
    - 3.2 Utility Water Audit and Water Loss
4. **Landscaping Measures**
    - 4.1 Athletic Field Conservation
    - 4.2 Golf Course Conservation
    - 4.3 Park Conservation
    - 4.4 Residential Landscape Evaluation
5. **Education and Public Awareness Outreach**
    - 5.1 School Education
    - 5.2 Public Information
    - 5.3 Public Outreach and Education
    - 5.4 Partnerships and Nonprofit Organizations
6. **Rebate, Retrofit, and Incentive Programs**
    - 6.1 Conservation Programs for ICI Accounts
    - 6.2 Rain/Freeze Sensors Distribution
7. **Regulation and Enforcement**
    - 7.1 Prohibition on Wasting Water
    - 7.2 Conservation Ordinance Planning and Development