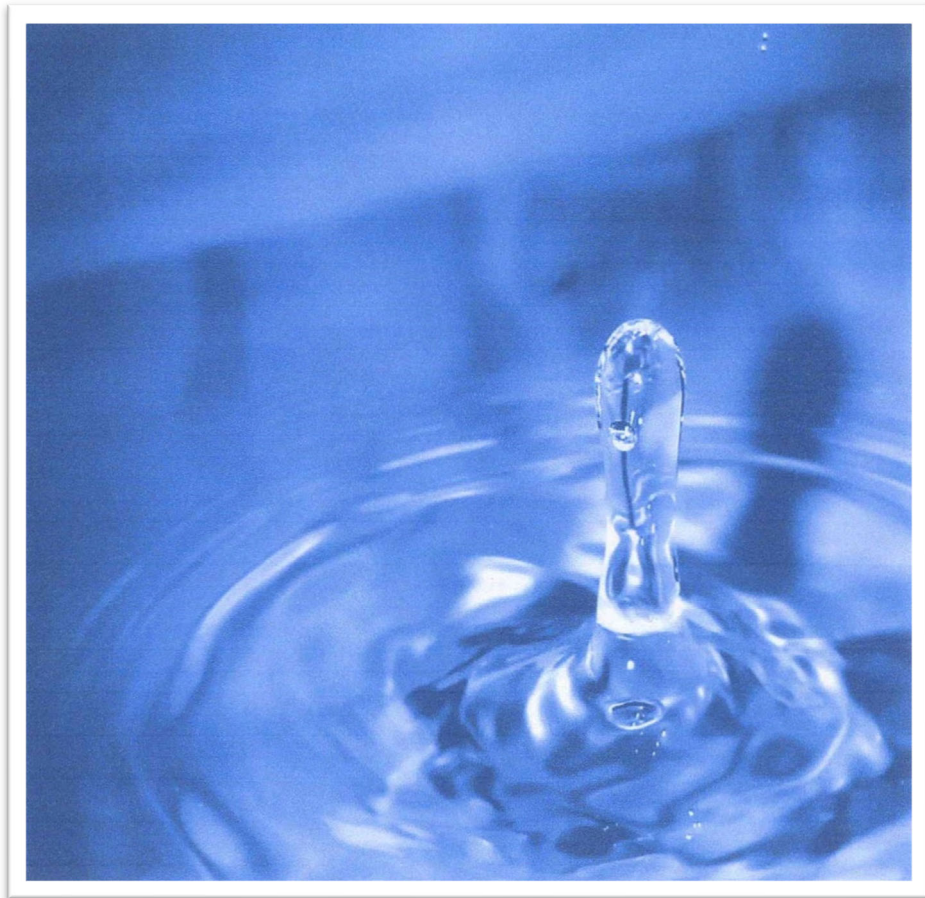


2024 Water Conservation Plan



NORTH RICHLAND HILLS
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1.0 INTRODUCTION AND OBJECTIVES

This document outlines the City of North Richland Hills' Water Conservation Plan. The objective of the conservation plan is to reduce the quantity required for each water using activity, insofar as is practical, through implementation of efficient water use practices.

Having a dependable water supply has always been a key issue in the development of Texas. The growing population and economic expansion occurring in North Central Texas are placing increased demands on our water supplies. In order to meet the challenge of providing for our current and future needs, we must learn to use the water we already have more efficiently. By stretching our existing supplies we can delay the need for new supplies, minimize the environmental impacts associated with developing new water resources, and postpone the high cost of building the infrastructure (dams, treatment facilities, and pipelines) necessary to capture, treat, and transport the additional water into our homes and businesses.

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 plans for public water suppliers. TCEQ guidelines and requirements are included in Appendix A. The City of North Richland Hills has developed this water conservation plan in response to TCEQ guidelines and requirements. This Water Conservation Plan replaces the previous plan dated 2019.

The objectives of this water conservation plan are as follows:

- To reduce water consumption from the levels that would prevail without conservation efforts.
- To reduce the loss and waste of water.
- To improve efficiency in the use of water.
- Encourage efficient outdoor water use.
- To extend the life of current water supplies by reducing the rate of growth in demand.
- To educate the citizens of North Richland Hills about the need for water conservation and the benefits of conserving our most valued natural resource.

2.0 TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES

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 (TAC), which is included in Appendix A. 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." The elements in the TCEQ water conservation rules covered in this water conservation plan are listed below.

Minimum Water Conservation Plan Requirements

The minimum requirements in the TAC for Water Conservation Plans for Public Water Suppliers are covered in this report as follows:

TAC	Plan	Page	Section
288.2(a)(1)(A)	Description of Service and Water Utility Profile	3	3.0
288.2(a)(1)(A)	City of North Richland Hills Utility Profile	24	Appendix B
288.2(a)(1)(A)	City of Watauga Utility Profile	37	Appendix C
288.2(a)(1)(C)	Specification of Water Conservation Goals	4	4.0
288.2(a)(1)(D)	Accurate Metering	5	5.1
288.2(a)(1)(D)	Metering of Customer and Public Uses and Meter Testing	6	5.2
288.2(a)(1)(E)	Universal Metering	6	5.2
288.2(a)(1)(F)	Determination and Control of Water loss	6	5.4
288.2(a)(1)(G)	Continuing Public Education and Information Program	8	6.0
288.2(a)(1)(H)	Water Rate Structure	9	7.0
288.2(a)(1)(I)	Reservoir System Operation Plan	9	8.1
288.2(a)(1)(J)	Implementation and Enforcement of the Water Conservation Plan	13	9.0
288.2(a)(1)(K)	Coordination with Regional Water Planning Organizations	12	8.6
288.2(a)(1)(K)	Coordination with Regional Water Planning Organizations	49	Appendix D

Conservation Additional Requirements (Population over 5,000)

The TAC includes additional requirements for water conservation plans for cities with a population over 5,000:

TAC	Plan	Page	Section
288.2(a)(2)(A)	Metering of Customer and Public Uses and Meter Testing	6	5.2
288.2(a)(2)(A)	Determination/Control of Water loss	6	5.4
288.2(a)(2)(A)	Leak Detection and Repair	7	5.5
288.2(a)(2)(B)	Record Management System	6	5.3
288.2(a)(2)(C)	Requirement for Water Conservation Plans by Wholesale Customers	11	8.5

Additional Conservation Strategies

TCEQ rules also list additional optional, but not required conservation strategies, which may be adopted by suppliers. The following optional strategies are included in this plan:

TAC	Plan	Page	Section
288.2(a)(3)(B)	Ordinances, Plumbing Codes or Rules on Water Conserving Fixtures	10	8.3
288.2(a)(3)(D)	Reuse and Recycling of Wastewater	10	8.2
288.2(a)(3)(F)	Water Waste Prohibition	10	8.4
288.2(a)(3)(G)	Monitoring of Effectiveness and Efficiency Annual Water Conservation Report	7	5.6

3.0 DESCRIPTION OF SERVICE AND UTILITY PROFILE

The City of North Richland Hills provides retail water and sewer service to approximately 72,587 residents and wholesale water service to the City of Watauga. Service through wholesale customers accounts for approximately 23,650 additional residents.

Appendix B contains North Richland Hills' 2023 water utility profiles based on the formats recommended by TCEQ.

The City of Watauga is the City of North Richland Hills' only wholesale customer and is contractually obligated to develop and implement a conservation plan that meets applicable TCEQ Water Conservation Plan Requirements. Appendix C includes the City of Watauga's Water Utility Profile.

4.0 SPECIFICATION OF WATER CONSERVATION GOALS

Current TCEQ regulations require the adoption of specific water conservation goals for a water conservation plan. As part of the plan adoption, the City of North Richland Hills will develop 5-year and 10-year goals for per capita municipal use, following TCEQ procedures described in the water utility profile, Appendix B for the City of North Richland Hills. The goals for this water conservation plan include the following:

- Maintain the 5-year moving average total per capita and residential per capita water use below specified amount in **Table 4-2**
- Keep the level of water loss in the system below 6% annually in 2024 and subsequent years, as discussed on page 5, Section 5.4.
- Maintain meter replacement and repair programs, as discussed on page 5, Section 5.2.
- Decrease waste in lawn irrigation by continuing enforcement of the landscape water management ordinance, as discussed on page 9, Section 8.4.
- Raise public awareness of water conservation and encourage responsible public behavior with a public education and information program, as discussed on page 7, Section 6.0.

In the previous (2019) Plan, total capita use goals were 130 gallons per capita per day (GPCD) by 2019 and 120 GPCD by 2029; also, the water loss goals were 6 gallons per capita per day (GPCD) by 2024 and 5 GPCD by 2029 as outlined in Table 4-1 below. North Richland Hills' five-year average per capita use (2019-2023) was 130 GPCD which in-line with the 2019 plan. Although, water loss was 7.39% GPCD which is higher than the 2019 plan because we had more main breaks due to extreme weather conditions.

TABLE 4-1: PREVIOUS PLAN GPCD GOALS (2019)

Description	Units	2018	2024	2029
Total GPCD ^a	GPCD	130	125	120
Residential GPCD ^b	GPCD	92	89	86
Water Loss (GPCD) ^c	GPCD	5	6	5
Water Loss Percentage ^d	%	4	5	5

a. Total GPCD = (Total Gallons in System ÷ Permanent Population) ÷ 365

b. Residential GPCD = (Gallons Used for Residential Use ÷ Permanent Population) ÷ 365

c. Water Loss GPCD = (Total Water Loss ÷ Permanent Population) ÷ 365

d. Water Loss Percentage = (Total Water Loss ÷ Total Gallon in System) x 100; or (Water Loss GPCD ÷ Total GPCD) x 100

The 2019 Water Conservation Plan works for our city therefore we will readopt this Plan for 2024. Going forward, the city has committed to achieving reductions in usage and water loss GPCD that are more progressive than the 2019 Plan, as shown in Table 4-2 below. The projected reduction for the city is 1/2 % per year due to elements in this Plan.

TABLE 4-2: WATER CONSERVATION PLAN 5- AND 10-YR GOALS FOR WATER SAVING

	Historic 5yr Average	Baseline	5-Year Goal for Year 2029	10-Year Goal for Year 2034
Total GPCD ¹	130	130	120	115
Residential GPCD ²	92	92	89	86
Water Loss (GPCD) ³	11	6	6	5
Water Loss (Percentage) ⁴	8.00%	5.00%	5.00%	5.00%

a. Total GPCD = (Total Gallons in System ÷ Permanent Population) ÷ 365

b. Residential GPCD = (Gallons Used for Residential Use ÷ Permanent Population) ÷ 365

c. Water Loss GPCD = (Total Water Loss ÷ Permanent Population) ÷ 365

d. Water Loss Percentage = (Total Water Loss ÷ Total Gallon in System) x 100; or (Water Loss GPCD ÷ Total GPCD) x 100

5.0 METERING, WATER USE RECORDS, CONTROL OF WATER LOSS, AND LEAK DETECTION AND REPAIR

One of the key elements in water conservation is careful tracking of water use and control of losses through illegal diversions and leaks. Careful metering of water deliveries and water use, detection and repair of leaks in the distribution system and regular monitoring of water loss are important in controlling losses.

5.1 Accurate Metering of Treated Water Deliveries

North Richland Hills supplies all of the water used by its customers. Water deliveries are metered by the City of North Richland Hills using a meter accuracy of ±5%. These meters are calibrated by the City's wholesale suppliers on an annual basis to maintain their level of accuracy.

North Richland Hills has four (4) main points of entry for treated water intake into the City. Three (3) entry points are from the City of Fort Worth and one (1) entry point from Trinity River Authority (TRA). Each point of entry contains a master meter that is the property of the wholesale provider (Fort Worth/TRA). By the wholesale contract, these entry point meters, are tested and calibrated to ensure accuracy at least once per year.

The City of North Richland Hills is the water supplier for the City of Watauga. The City of North Richland Hills has installed several meters at the main entry points into the City of Watauga. The main entry point meters are tested, calibrated, and maintained by the City of North Richland Hills on a regular basis.

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

All connections to the water system are metered connections. All meters are maintained within an acceptable operating accuracy range as defined by the manufacturer or American Water Works Association (AWWA) Standards for Meter Accuracy, whichever is more stringent. Non-functioning meters and meters that indicate reduced or high usage will be flagged during the electronic billing process. These meters will be checked, field tested, and replaced when found to be out of the manufacturer specifications or not meeting AWWA Standards.

The City of North Richland Hills has a Meter Replacement Program that is currently in progress. The goal of the program is to replace approximately 23,000 customer water meters in the next 18 months.

The City also replaces water meters on an as needed basis. These meters are usually suspected of inaccurate readings, such as reading high or too low, erratic, or not reading any flow at all.

This aggressive water meter replacement program helps to ensure the meters are accurate and helps to reduce the water loss in the City.

5.3 Record Management System

As required by TAC Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2(a)(2)(B), the City of North Richland Hills record management system allows for the separation of water sales and uses into residential, commercial, public/institutional, and industrial categories. This information will be included in an annual water conservation report, as described on page 6, Section 5.6.

The City of North Richland Hills will continue to maintain a record management system that separates the monthly usage in the following customer categories; residential, commercial, public/institutional, wholesale, industrial usage and others.

5.4 Determination and Control of Water Loss

Water loss is the difference between water purchased from the City of Fort Worth and TRA and metered deliveries to North Richland Hills' customers. Authorized but

unmetered uses would include fire-fighting, flushing of water lines, and uses associated with new construction. Water loss can include several categories:

- Inaccuracies in customer meters. Customer meters tend to run more slowly or become erratic as they age and under-report actual use.
- Losses due to water main breaks and leaks in the water distribution system.
- Losses due to illegal connections and theft.

Measures to control water loss are part of the routine operations of the City. Maintenance crews and personnel are directed to look for and report evidence of leaks in the water distribution system. A leak detection and repair program is described in Section 5.5 below. Meter readers are directed to watch for and report signs of illegal connections so they can be addressed quickly.

As shown in the Water Utility Profile, water loss has varied from 7.78% to 10.87% in the last five years. With the elements described in this plan, the City of North Richland Hills intends to maintain the water loss below 6% in 2024 and subsequent years.

5.5 Leak Detection and Repair

The City of North Richland Hills monitors the water distribution system and customer service connections for water leaks. This is done by City personnel who are in the field. Any water leaks found are reported immediately and repaired as quickly as possible.

The City also conducts regular inspections throughout the City for leaks on large water transmission lines. Areas along drainage streams and limited access areas are regularly investigated for potential water leaks.

The Public Works Department is responsible for repairing water line leaks. Typically, all water leaks are repaired within 24 hours after they have been reported. Large main line water leaks require quick responses, and the department provides this quick response 24 hours a day.

The Public Works Department also has an annual program for replacing water lines that are old, deteriorated, and have had numerous water leaks. The department replaces approximately 10,000 linear feet of water lines in the City under this program. An asset management program is used to track all water line breaks. This asset management program helps the department to determine which water lines are in need of replacement.

5.6 Monitoring of Effectiveness and Efficiency Annual Water Conservation Report

Appendix B is a water utility profile that will be submitted electronically to TWDB by May 1st of 2024 and will be used to monitor the effectiveness and efficiency of the water conservation plan. This will help the City to plan conservation-related activities for the following years. The water utility profile form records the water use by category, per capita municipal use, and water loss for the current year and compares them to historical values. The modified water utility profile and annual water conservation report will be sent to the City of Fort Worth and TRA who will work with Tarrant Regional Water District (TRWD) to monitor regional water conservation trends.

6.0 CONTINUING PUBLIC EDUCATION AND INFORMATION CAMPAIGN

The City of North Richland Hills will continue to promote conservation through public education by:

- Participating in various conservation programs with TRWD.
- Making conservation information available at the public library and on the City of North Richland Hills' website. Links on the City's website will be provided to the *Texas Smartscape* website and to information on water conservation from TRWD, Texas Water Development Board (TWDB), and TCEQ websites.
- Include a water conservation message in the City's "News and Notes" publication on an annual basis. This publication is sent to North Richland Hills customers' and includes information about City activities, events, and advertisements.
- Insert water conservation information with water bills. Inserts will include material developed by North Richland Hills' staff and material obtained from TRWD, TWDB, TCEQ, and other sources.
- Encourage local media coverage of water conservation issues and the importance of water conservation.
- Make information on *Texas Smartscape* principles, water conservation brochures, and other water conservation materials available to the public at City Hall and other public places.
- In 2008 the City of North Richland Hills began a partnership with TRWD promoting an educational program called "Learning to Be Water Wise". The program is designed for educating elementary school students and their parents on water conservation. Activities include instructional manuals and activity books, supplying and installing low flow faucet fixtures, and surveys and input on water conservation techniques. The City along with TRWD funds the program annually. Presently, 5th

grade students in the City's local elementary schools are targeted for this program. The City will continue this program providing funds are available on an annual basis.

7.0 WATER RATE STRUCTURE

The City of North Richland Hills' rate structure is broken into two sections, Residential Water Rates and Commercial/Industrial Water Rates. Both rate structures contain minimum use charges/volumes and steps where rates increase as usage increases to encourage conservation efforts and discourage excessive use. The rate structure shown in Table 7.0 were effective November 1, 2019 and are subject to change as the City continues to evaluate the cost of services and the impact on water conservation. For the most up to date Water Rates, please refer to Chapter 78, Sections 121-125 Appendix A- Fee Schedule "Water Rates".

Table 7.0
Rate Structure

Residential Water Rates						
Meter Size	3/4"	1"	1.5"	2"	3"	4"
Minimum Bill	\$17.50	\$29.00	\$58.00	\$93.00	\$175.00	\$187.00
Minimum Volume Gallons	2,000	3,340	6,650	10,644	19,971	21,311
Step 1 Volume	2,001-22,440	3,341-22,440	6,651-22,440	10,645-22,440		
Step 1 Rate per 1,000 gallons	\$4.65	\$4.65	\$4.65	\$4.65		
Step 2 Volume	>22,440	>22,440	>22,440	>22,440		
Step 2 Rate per 1,000 gallons	\$4.74	\$4.74	\$4.74	\$4.74		
Commercial/Industrial Water Rates						
Meter Size	3/4"	1"	1.5"	2"	3"	4"
Minimum Bill	\$17.50	\$29.00	\$58.00	\$93.00	\$175.00	\$187.00
Minimum Volume Gallons	2,000	3,340	6,650	10,644	19,971	21,311
Step 1 Volume	2,001-9,724	3,341-9,724	6,651-9,724	>10,645	>10,645	>10,645
Step 1 Rate per 1,000 gallons	\$4.65	\$4.65	\$4.65	\$4.74	\$4.74	\$4.74
Step 2 Volume	>9,725	>9,725	>9,725			
Step 2 Rate per 1,000 gallons	\$4.74	\$4.74	\$4.74			

The rates shown in the table above were effective as of November 1, 2019, and subject to change as the City continues to refine its rate structure to improve the impact on water conservation and manage the cost of service most effectively.

8.0 OTHER WATER CONSERVATION MEASURES

8.1 Reservoir System Operation Plan

North Richland Hills purchases treated water from the City of Fort Worth and TRA Northern Region which purchases untreated surface water from TRWD. North Richland Hills does not purchase untreated surface water supplies and therefore does not have a reservoir system operation plan.

8.2 Reuse and Recycling of Wastewater

The City of North Richland Hills does not own and operate its own wastewater treatment plant. The City's wastewater is treated by TRA and the City of Fort Worth.

8.3 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 2.5 gallons per minute (gpm) for faucets, 3.0 gpm for showerheads, and 1.6 gallons per flush for toilets. Similar standards are now required nationally under federal law. These state and federal standards assure that all new construction and renovations will use water-conserving fixtures. The City of North Richland Hills follows these standards.

8.4 Water Waste Prohibition

Landscape irrigation and outdoor watering are responsible for a large portion of the water wasted in the State of Texas. The City of North Richland Hills has adopted the following water conservation measures in an effort to reduce the amount of wasted water:

- Prohibition of outdoor watering with irrigation systems from 10:00 a.m. to 6:00 p.m. every day of the year. Watering with hand-held hoses, drip irrigation and soaker hoses is allowed.
- Requirement that all irrigation systems installed on or after October 25, 1999, with the exception of those associated with agricultural and/or single family residential uses, must be equipped with rain and freeze sensors.
- Requirement that all agricultural and/or single-family residential irrigation systems installed within the City on or after August 1, 2006, must be equipped with rain and freeze sensors.
- Prohibition of irrigation systems that result in a substantial amount of water to fall upon impervious surfaces, such that a constant stream of water overflows from the lawn or landscape onto a street or other drainage area.

- Prohibition of poorly maintained irrigation systems that waste water.
- Prohibition of outdoor watering during any form of precipitation.
- Requirement for customers to repair a water service line or irrigation line leaking on private property within a designated time period as directed by the North Richland Hills Public Works Department.
- The City of Fort Worth and other regional water providers (North Texas Municipal Water District, Tarrant Regional Water District, Upper Trinity Regional Water District, the Trinity River Authority and the City of Dallas) have collaborated and agreed upon implementing a year-round no more than twice per week watering schedule. The City has a mandatory a year-round twice per week water schedule similar to Stage 1 of its drought plan. The schedule is included as Table 8.1.

Table 8.1: Year- Round Twice Per Week Watering Schedule

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
No outdoor watering	Non residential	Residential addresses ending in (0, 2, 4, 6, 8)	Residential addresses ending in (1, 3, 5, 7, 9)	Non residential	Residential addresses ending in (0, 2, 4, 6, 8)	Residential addresses ending in (1, 3, 5, 7, 9)

Failure to comply with any portion of this section will constitute a violation and may be subject to enforcement of a fine up to Two Thousand Dollars (\$2,000.00) per violation. Each day that a violation is permitted to exist shall constitute a separate offense.

8.5 Requirement for Water Conservation Plans by Wholesale Customers

The City of North Richland Hills is a wholesale water supplier for the City of Watauga. The City of Watauga must develop and implement a water conservation plan as described in this section. Every contract for the wholesale sale of water that is entered into, renewed, or extended after the adoption of this water conservation plan will include a requirement that the wholesale customer and any wholesale customers of that wholesale customer develop and implement a water conservation plan meeting the requirements of Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2 of the TAC. The requirement will also extend to each successive wholesale customer in the resale of the water.

8.6 Coordination with Regional Water Planning Organizations

Appendix D includes letters sent to the City of Fort Worth, TRA, the TRWD, TCEQ and the City of Watauga. A copy of the water conservation plan was included with each letter.

8.7 Request for Variance

The Public Works Operations Manager or his/her designee may grant a temporary variance for water use prohibited by this plan if it is determined that an emergency condition resulting in an adverse effect to health, sanitation, or fire protection of a customer, person, or entity would result if a variance is not granted. A temporary variance may also be granted if it is determined that a customer, person, or entity is caused undue hardship or financial burden if a variance is not granted.

Outdoor watering at a service address with large multi-station irrigation systems may take place in accordance with a variance granted by the Public Works Operations Manager or his/her designee if it is determined that the property cannot be adequately irrigated in a single day.

A temporary variance may also be granted to playing fields which require watering to maintain league standards.

Skinned areas of sports fields may be watered as needed for dust control without applying for a temporary variance.

In order to receive a written variance from the Public Works Operations Manager or his/her designee the customer, person, or entity must provide a written request including:

- Name and address of the person requesting the variance.
- Location of the proposed water use.
- Detailed statement of potential damage and reason for the variance.
- The volume of water needed and specific purpose of water use.
- Period of time the variance is needed.
- Detailed statement of water conservation measures that are being used.
- Any diagram or other explanation that demonstrates the need for a variance.

9.0 IMPLEMENTATION AND ENFORCEMENT OF THE WATER CONSERVATION PLAN

Appendix E includes a copy of the ordinance passed by the City Council which formally approves and adopts this water conservation plan. The ordinance includes penalties for non-compliance and designates responsible officials to implement and enforce the water conservation plan.

Appendix F includes a copy of the City's adopted Landscape Water Management Ordinance and Amendment to Outside Watering Ordinance.

APPENDIX A

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES ON MUNICIPAL WATER CONSERVATION PLANS

**Texas Commission on Environmental Quality Rules on Water Conservation
Plans for Municipal Uses by Public Water Suppliers**

TEXAS ADMINISTRATIVE CODE (TAC)

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, 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 non-soil media, who grows more than 50% of the products that the person either sells or leases, regardless of 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 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;
 - (1) Single family;
 - (2) 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 operation 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 A	Water Conservation Plans
Rule §288.5	Water Conservation Plans for Wholesale Water Suppliers

A water conservation plan for a wholesale water supplier must provide information in response to each of the following paragraphs. If the plan does not provide information for each requirement, the wholesale water supplier shall include in the plan an explanation of why the requirement is not applicable.

- (1) Minimum Requirements – All water conservation plans for the wholesale water suppliers must include the following elements:
 - (A) a description of the wholesaler's service area, including population and customer data, water use data, water supply system data, and wastewater data;
 - (B) specific, quantified five-year and ten-year targets for water savings including, where appropriate, target goals for municipal use in gallons per capita per day for the wholesaler's service area, maximum acceptable water loss, and the basis for the development of these goals. The goals established by wholesale water suppliers under this subparagraph are not enforceable;
 - (C) a description as to which practice(s) and/or devices(s) will be utilized to measure and account for the amount of water diverted from the source(s) of supply;
 - (D) a monitoring and record management program for determining water deliveries, sales, and losses;
 - (E) a program of metering and leak detection and repair for the wholesaler's water storage, delivery, and distribution system;
 - (F) a requirement of every water supply contract entered into or renewed after official adoption of the water conservation plan, 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 of this chapter. If the customer intends to resell the water, then 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 applicable provisions of this chapter;

- (G) 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. The reservoir systems operations plans shall include optimization of water supplies as one of the significant goals of the plan;
 - (H) a means for implementation and enforcement, which shall be evidenced by a copy of the ordinance, rule, resolution, or tariff, indicating official adoption of the water conservation plan by the water supplier; and a description of the authority by which the water supplier will implement and enforce the conservation plan; and
 - (I) documentation or coordination with the regional water planning groups for the service area of the wholesale water supplier in order to ensure consistency with the appropriate approved regional water plans.
- (2) Additional conservation strategies. Any combination of the following strategies shall be selected by the water wholesaler, in addition to the minimum requirements of paragraph (1) of this section, if they are necessary in order to achieve the stated water conservation goals of the plan. The commission may require by commission order that any of the following strategies be implemented by the water supplier if the commission determines that the strategies are necessary in order for the conservation plan to be achieved:
- (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) a program to assist agricultural customers in the development of conservation pollution prevention and abatement plans;
 - (C) a program for reuse and/or recycling of wastewater and/or graywater; and
 - (D) any other water conservation practice, method, or technique which the wholesaler shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

- (3) Review and update requirements. The wholesale water supplier 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. A wholesale water supplier 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 §288.5 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

APPENDIX B

NORTH RICHLAND HILLS WATER UTILITY PROFILE

CONTACT INFORMATION

Name of Utility: City of North Richland Hills

Public Water Supply Identification Number (PWS ID): TX2200063

Certificate of Convenience and Necessity (CCN) Number: 10103

Surface Water Right ID Number: _____

Contact: First Name: Tuan Last Name: Ngo

Title: Regulatory Compliance Specialist

Address: 7200 Dick Fisher Dr South City: North Richland Hills State: TX

Zip Code: 76180 Email: tngo@nrhtx.com

Telephone Number: 817-427-6457 Date: 03/19/2024

Is this person the designated Conservation Coordinator? ☒ Yes ☐ No

Regional Water Planning Group: C

Groundwater Conservation NTGCD District: _____

Our records indicate that you:

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

☒ Have 3,300 or more retail connections

☐ Have a surface water right with TCEQ

UTILITY PROFILE

A. Population and Service Area

1. Current service area size in square miles: 18.2
2. Historical service area population for the previous five years, starting with the most current year.

Year	Historical Population Served By Retail Water Service	Historical Population Served By Wholesale Water Service	Historical Population Served By Wastewater Water Service
2023	72,587	23,650	72,587
2022	71,904	23,650	71,904
2021	70,380	23,650	70,380
2020	71,508	24,402	71,508
2019	71,269	24,602	71,269

3. Projected service area population for the following decades.

Year	Projected Population Served By Retail Water Service	Projected Population Served By Wholesale Water Service	Projected Population Served By Wastewater Water Service
2030	77,480	24,525	77,480
2040	77,480	24,525	77,480
2050	77,480	24,525	77,480
2060	77,480	24,525	77,480
2070	77,480	24,252	77,480

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

Current and projected population obtained from 2021 Region C Water Plan.

B. System Input

System input data for the previous five years.

Total System Input = Self-supplied + Imported – Exported

Year	Water Produced in Gallons	Purchased/Imported Water in Gallons	Exported Water in Gallons	Total System Input	Total GPCD
2023	0	4,227,313,758	691,046,566	3,536,267,192	133
2022	0	4,346,801,190	625,715,375	3,721,085,815	141
2021	0	3,863,566,283	660,470,000	3,203,096,283	124
2020	0	4,196,620,727	794,737,003	3,401,883,724	130
2019	0	4,035,815,855	859,509,047	3,176,306,809	122
Historic Average	0	4,134,023,563	726,295,598	3,407,727,965	130

C. Water Supply System

1. Designed daily capacity of system in gallons	16,000,000
2. Storage Capacity	
2a. Elevated storage in gallons:	5,500,000
2b. Ground storage in gallons:	10,500,000

D. Projected Demands

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

Year	Population	Water Demand (gallons)
2025	73,643	4,226,995,652
2026	74,196	4,248,130,630
2027	74,752	4,269,371,284
2028	75,313	4,290,718,140
2029	75,878	4,312,171,731
2030	76,447	4,333,732,589
2031	77,020	4,355,401,252
2032	77,598	4,377,178,259
2033	78,180	4,399,064,150
2034	78,766	4,421,059,471

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

Data from 2021 Region C Water Plan.

E. High Volume Customers

1. The annual water use for the five highest volume

RETAIL customers

Customer	Water Use Category	Annual Water Use	Treated or Raw
Doskocil Food (Tyson)	Industrial	74,882,415	Treated
BISD	Institutional	32,009,191	Treated
8500 Harwood Apartments	Residential	28,309,391	Treated
Bluffs at Iron Horse Apartments	Residential	23,268,799	Treated
Silver Creek Apartments	Residential	20,047,717	Treated

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

Customer	Water Use Category	Annual Water Use	Treated or Raw
City of Watauga	Municipal	685,047,000	Treated

F. Utility Data Comment Section

Additional comments about utility data.

Data obtained from water department.

Section II: System Data

A. Retail Water Supplier Connections

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

Water Use Category Type	Total Retail Connections (Active + Inactive)	Percent of Total Connections
Residential - Single Family	21,302	66.62 %
Residential - Multi-Family	9,017	28.20 %
Industrial	11	0.03 %
Commercial	1,334	4.17 %
Institutional	312	0.98 %
Agricultural	0	0.00 %
Total	31,976	100.00 %

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

	Net Number of New Retail Connections						
Year	Residential - Single Family	Residential - Multi-Family	Industrial	Commercial I	Institutional I	Agricultural	Total
2023	171	173	15	3	0	0	362
2022	185	121	0	21	0	0	327
2021	301	822	0	9	0	0	1,132
2020	274	0	33	0	1	0	307
2019	215	119	193	0	0	0	527

B. Accounting Data

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

Year	Residential - Single Family	Residential - Multi-Family	Industrial	Commercial	Institutional	Agricultural	Total
2023	2,144,418,223	398,225,736	82,457,121	378,757,418	177,659,185	0	3,181,517,683
2022	2,204,567,083	410,551,555	72,308,779	387,214,150	164,907,801	0	3,239,549,368
2021	1,859,151,652	374,950,615	83,685,177	345,557,217	156,626,874	0	2,819,971,535
2020	1,986,543,138	382,472,190	82,852,564	350,734,794	159,332,529	0	2,961,935,215
2019	1,840,203,461	371,606,644	105,789,019	414,373,308	131,362,385	0	2,863,334,817

C. Residential Water Use

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

Year	Total Residential
2023	96
2022	100
2021	87
2020	91
2019	85
Historic Average	92

D. Annual and Seasonal Water Use

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

Month	Total Gallons of Treated Water				
	2023	2022	2021	2020	2019
January	174,202,790	172,671,305	179,993,412	169,341,944	155,902,605
February	176,594,220	165,853,128	168,873,048	161,832,945	157,142,367
March	150,438,686	167,742,888	165,848,406	145,010,576	157,191,012
April	184,164,032	198,815,156	192,568,440	156,806,738	172,837,523
May	218,268,552	245,686,139	217,205,090	225,693,748	191,502,064
June	241,139,299	294,273,061	172,185,186	238,728,539	219,151,397
July	334,784,107	405,713,584	260,619,144	325,611,387	251,874,550
August	427,839,718	467,156,669	331,707,633	391,557,202	332,793,467
September	467,520,874	349,995,885	315,642,999	367,596,537	413,665,242
October	349,569,137	337,147,836	331,073,932	299,182,564	367,956,040
November	267,100,474	255,793,939	268,799,210	282,614,014	259,446,516
December	189,895,794	178,699,777	215,455,035	197,959,021	183,872,033
Total	3,181,517,683	3,239,549	2,819,971,535	2,961,935,215	2,863,334,816

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

Month	Total Gallons of Raw Water				
	2023	2022	2021	2020	2019
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	0	0	0	0	0
May	0	0	0	0	0
June	0	0	0	0	0
July	0	0	0	0	0
August	0	0	0	0	0
September	0	0	0	0	0
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Total	0	0	0	0	0

3. Summary of seasonal and annual water use.

	Summer RETAIL (Treated + Raw)	Total RETAIL (Treated + Raw)
2023	183,872,033	183,872,033
2022	183,872,033	183,872,033
2021	183,872,033	183,872,033
2020	183,872,033	183,872,033
2019	183,872,033	183,872,033
Average in Gallons	939,026,988	3,013,261,723

E. Water Loss

Water Loss data for the previous five years.

Year	Total Water Loss in Gallons	Water Loss in GPCD	Water Loss as a Percentage
2023	183,872,033	10	7.39%
2022	183,872,033	13	10.87 %
2021	183,872,033	10	8.21 %
2020	183,872,033	10	9.23 %
2019	183,872,033	7	7.78 %
Average	260,993,931	10	9 %

F. Peak Day Use

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

Year	Average Daily Use (gal)	Peak Day Use (gal)	Ratio (peak/avg)
2023	8,716,486	10,910,468	1.2517
2022	8,875,477	12,686,340	1.4294
2021	7,725,949	8,309,912	1.0756
2020	8,114,891	10,390,186	1.2804
2019	7,844,752	8,737,167	1.1138

G. Summary of Historic Water Use

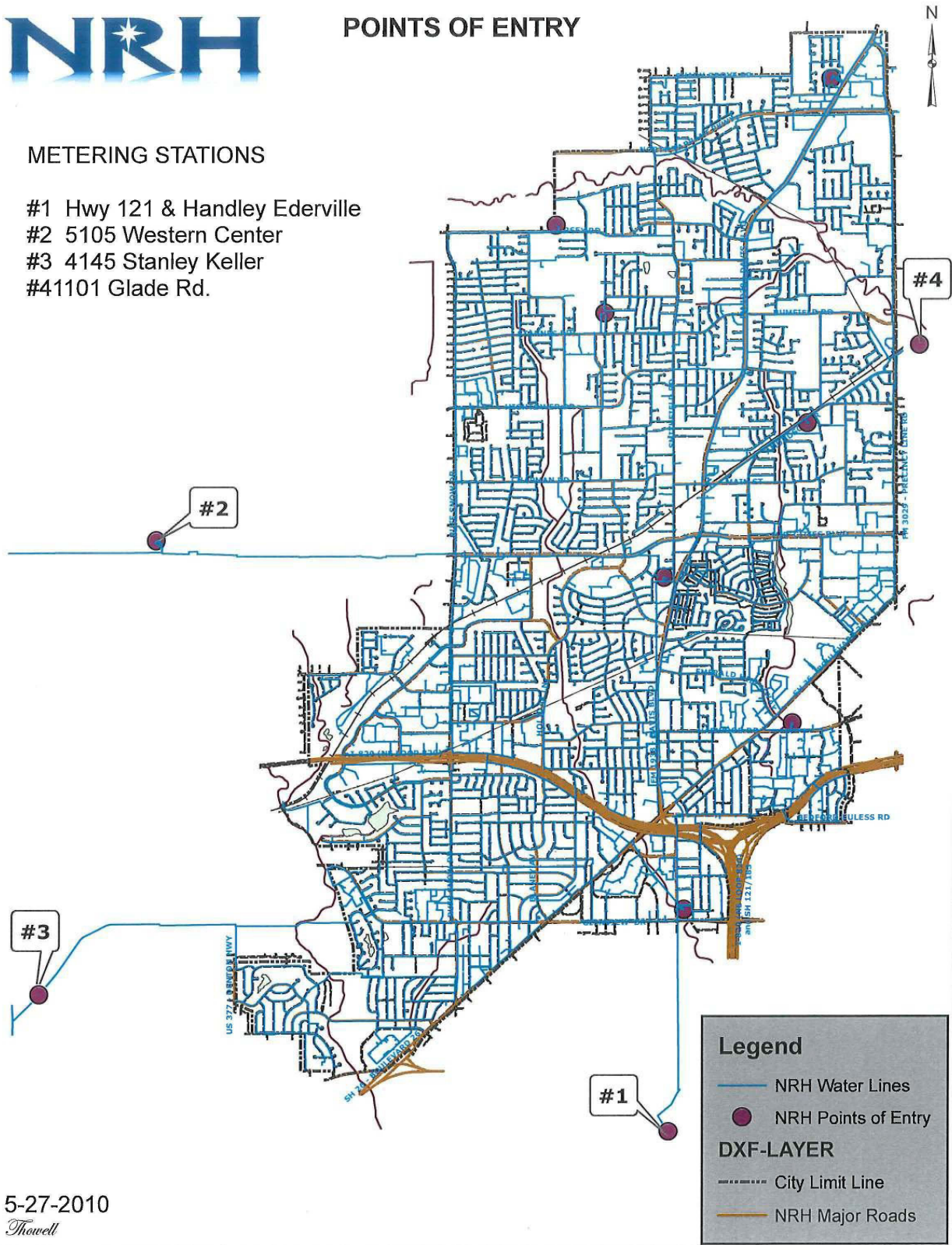
Water Use Category	Historic Average	Percent of Connections	Percent of Water Use
Residential - Single Family	2,006,976,711	66.62 %	66.60 %
Residential - Multi-Family	387,561,348	28.2 %	12.86 %
Industrial	85,418,532	0.03 %	2.833 %
Commercial	375,327,377	4.17 %	12.46 %
Institutional	157,977,754	0.89 %	5.24 %
Agricultural	0	0.00 %	0.00 %



POINTS OF ENTRY

METERING STATIONS

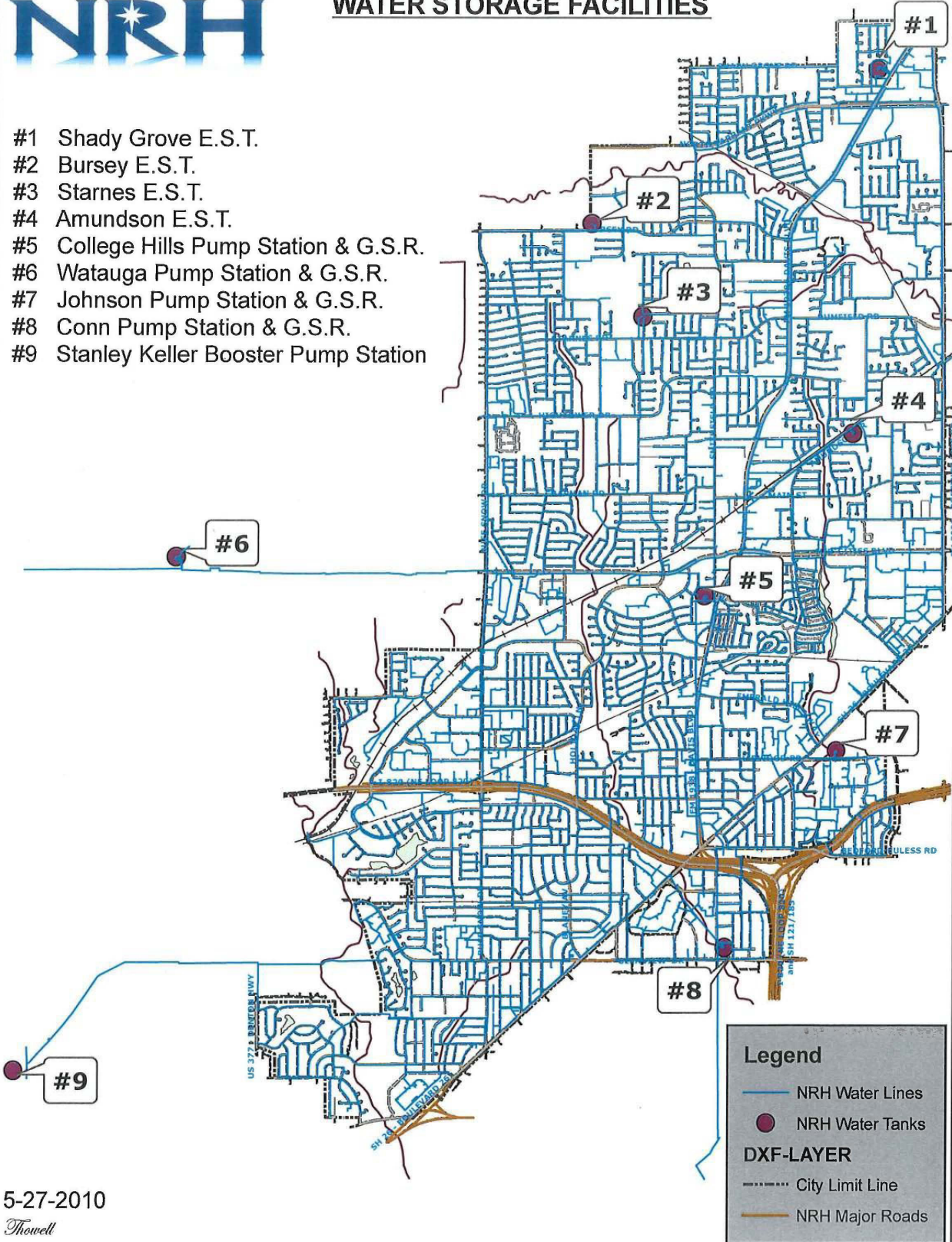
- #1 Hwy 121 & Handley Ederville
- #2 5105 Western Center
- #3 4145 Stanley Keller
- #41101 Glade Rd.





WATER STORAGE FACILITIES

- #1 Shady Grove E.S.T.
- #2 Bursey E.S.T.
- #3 Starnes E.S.T.
- #4 Amundson E.S.T.
- #5 College Hills Pump Station & G.S.R.
- #6 Watauga Pump Station & G.S.R.
- #7 Johnson Pump Station & G.S.R.
- #8 Conn Pump Station & G.S.R.
- #9 Stanley Keller Booster Pump Station



APPENDIX C

CITY OF WATAUGA'S WATER UTILITY PROFILE

**(A WHOLESALE CUSTOMER OF
THE CITY OF NORTH RICHLAND HILLS)**

CONTACT INFORMATION

Name of Utility: City of Watauga

Public Water Supply Identification Number (PWS ID): TX2200328

Certificate of Convenience and Necessity (CCN) Number: 12843

Surface Water ID Number: _____

Wastewater ID Number: 20834

Contact: First Name: Taylor Last Name: Alvarez

Title: Utility Superintendent

Address: 77800 Virgil Anthony Sr. Blvd. City: Watauga State: TX

Zip Code: 76148 Email: talvarez@wataugatx.org

Telephone Number: 817-514-5846 Date: 03/25/2024

Is this person the designated Conservation Coordinator? ☒ Yes ☐ No

Regional Water Planning Group:

Groundwater Conservation District:

C

Our records indicate that you:

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

☒ Have 3,300 or more retail connections

☐ Have a surface water right with TCEQ

A. Population and Service Area Data

1. Current service area size in square miles: 4
2. Historical service area population for the previous five years, starting with the most current year.

Year	Historical Population Served By Retail Water Service	Historical Population Served By Wholesale Water Service	Historical Population Served By Wastewater Water Service
2023	23,650	0	23,650
2022	23,650	0	23,650
2021	23,650	0	23,650
2020	24,481	0	24,481
2019	24,602	0	24,602

3. Projected service area population for the following decades.

Year	Projected Population Served By Retail Water Service	Projected Population Served By Wholesale Water Service	Projected Population Served By Wastewater Water Service
2030	24,525	0	24,525
2040	24,525	0	24,525
2050	24,525	0	24,525
2060	24,525	0	24,525
2070	24,525	0	24,525

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

2021Region C Water Plan

B. System Input

System input data for the previous five years.

Total System Input = Self-supplied + Imported – Exported

Year	Water Produced in Gallons	Purchased/Imported Water in Gallons	Exported Water in Gallons	Total System Input	Total GPCD
2023	0	691,046,566	0	691,046,566	80
2022	0	765,599,437	0	765,599,437	89
2021	0	667,209,490	0	667,209,490	77
2020	0	802,846,564	0	802,846,564	90
2019	0	859,512,720	0	859,512,720	96
Historic Average	0	757,242,955	0	757,242,955	86

C. Water Supply System

1. Designed daily capacity of system in gallons

2,500,000

2. Storage Capacity

2a. Elevated storage in gallons:

2,000,000

2b. Ground storage in gallons:

2,000,000

D. Projected Demands

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

Year	Population	Water Demand (gallons)
2025	23,700	735,292,500
2026	23,730	736,223,250
2027	23,790	738,084,750
2028	23,826	739,015,500
2029	23,890	741,187,250
2030	24,000	744,600,000
2031	24,020	745,220,500
2032	24,020	745,220,500
2033	24,050	746,151,250
2034	24,050	746,151,250

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

2021Region C Water Plan

E. High Volume Customers

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

Customer	Water Use Category	Annual Water Use	Treated or Raw
Park Vista OTN Harmony LP	Commercial	24,399,460	Treated
North Pointe Nursing and Rehab	Institutional	8,063,515	Treated
Denton Highway Laundromat	Commercial	3,643,134	Treated
Brook Crossing	Commercial	2,138,756	Treated
Watauga 5807	Commercial	2,082,806	Treated

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

Customer	Water Use Category	Annual Water Use	Treated or Raw
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F. Utility Data Comment Section

Additional comments about utility data.

Data obtained from utility billing department

Section II: System Data

A. Retail Water Supplier Connections

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

Water Use Category Type	Total Retail Connections (Active + Inactive)	Percent of Total Connections
Residential - Single Family	8,035	93.04 %
Residential - Multi-Family	3	2.48 %
Industrial	0	0.00 %
Commercial	316	3.86 %
Institutional	64	0.62 %
Agricultural	0	0.00 %
Total	8,418	100.00%

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

	Net Number of New Retail Connections						
Year	Residential - Single Family	Residential - Multi-Family	Industrial	Commercial	Institutional	Agricultural	Total
2023	49	0	0	9	0	0	58
2022	11	0	0	5	0	0	16
2021	0	0	0	3	1	0	4
2020	0	0	0	10	0	0	10
2019	2	0	0	5	0	0	7

B. Accounting Data

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

Year	Residential - Single Family	Residential - Multi-Family	Industrial	Commercial	Institutional	Agricultural	Total
2023	543,624,064	24,399,461	0	80,381,777	5,902,325	0	654,307,627
2022	543,624,065	23,272,225	0	108,907,730	17,284,949	0	693,088,969
2021	501,883,869	20,401,400	0	65,040,477	24,778,113	0	612,103,859
2020	518,241,852	17,147,451	0	99,852,869	4,690,947	0	639,933,119
2019	473,956,042	17,926,915	0	101,591,222	7,893,212	0	601,367,391

C. Residential Water Use

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

Year	Residential - Single Family
2023	66
2022	66
2021	61
2020	60
2019	55
Historic Average	62

D. Annual and Seasonal Water Use

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

Month	Total Gallons of Treated Water				
	2023	2022	2021	2020	2019
January	49,750,500	44,205,300	39,949,600	61,433,600	70,782,333
February	40,006,500	44,853,500	40,135,000	50,134,000	70,937,333
March	45,673,300	44,622,200	47,158,200	38,324,767	66,293,600
April	57,462,200	55,706,248	52,774,700	59,729,966	54,225,200
May	48,322,200	63,882,300	41,594,400	71,396,000	54,710,500
June	52,681,600	104,775,900	58,283,500	76,239,000	71,007,400
July	83,972,100	84,863,500	78,633,100	99,719,000	76,648,100
August	97,980,900	85,622,000	61,817,200	95,367,500	84,458,000
September	57,712,300	70,271,500	56,341,000	69,772,800	100,515,400
October	56,683,400	55,810,200	93,781,000	65,191,700	70,346,400
November	47,720,200	45,016,500	34,328,600	46,114,200	64,032,200
December	46,170,500	50,658,300	49,069,000	53,367,100	58,366,000
Total	684,136,100	750,287,448	653,865,300	786,789,633	842,322,466

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

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

3. Summary of seasonal and annual water use.

	Summer RETAIL (Treated + Raw)	Total RETAIL (Treated + Raw)
2023	234,634,600	684,136,100
2022	275,261,400	750,287,448
2021	198,733,800	653,865,300
2020	271,325,500	786,789,633
2019	232,113,500	842,322,466
Average in Gallons	242,413,760.00	743,480,189.40

E. Water Loss

Water Loss data for the previous five years.

Year	Total Water Loss in Gallons	Water Loss in GPCD	Water Loss as a Percentage
2023	14,309,795	2	2.09 %
2022	51,929,983	6	6.29 %
2021	32,766,769	4	5.00 %
2020	152,615,594	17	19.40 %
2019	232,401,420	26	27.59 %
Average	96,804,712	11	12.07 %

F. Peak Day Use

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

Year	Average Daily Use (gal)	Peak Day Use (gal)	Ratio (peak/avg)
2023	1,874,345	2550376	1.3607
2022	2,055,582	2991971	1.4555
2021	1,791,411	2160150	1.2058
2020	2,155,588	2949190	1.3682
2019	2,307,732	2522972	1.0933

G. Summary of Historic Water Use

Water Use Category	Historic Average	Percent of Connections	Percent of Water Use
Residential - Single Family	516,265,978	95.45 %	80.65 %
Residential - Multi-Family	20,629,490	0.04 %	3.22 %
Industrial	0	0.00 %	0.00 %
Commercial	91,154,815	3.75 %	14.24 %
Institutional	12,109,909	0.76 %	1.89 %
Agricultural	0	0.00 %	0.00 %

H. System Data Comment Section

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Section III: Wastewater System Data

A. Wastewater System Data

1. Design capacity of wastewater treatment plant(s) in gallons per day: 0
2. List of active wastewater connections by major water use category.

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

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

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

Month	Total Gallons of Treated Water				
	2023	2022	2021	2020	2019
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	0	0	0	0	0
May	0	0	0	0	0
June	0	0	0	0	0
July	0	0	0	0	0
August	0	0	0	0	0
September	0	0	0	0	0
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Total	0	0	0	0	0

5. Could treated wastewater be substituted for potable water? ☐ Yes ☒ No

B. Reuse Data

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

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

Wastewater System Data Comment

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

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APPENDIX D

LETTERS TO WHOLESALE CUSTOMERS

CITY OF FORT WORTH

CITY OF WATAUGA

TRINITY RIVER AUTHORITY

THE TEXAS WATER DEVELOPMENT BOARD

THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

APPENDIX E

CITY OF NORTH RICHLAND HILLS' ORDINANCE ADOPTING WATER CONSERVATION PLAN

Placeholder – Ordinance Page 1

Placeholder – Ordinance Page 2

Placeholder – Ordinance Page 3

APPENDIX F

CITY OF NORTH RICHLAND HILLS' LANDSCAPE WATER MANAGEMENT ORDINANCE AND AMENDMENT TO OUTSIDE WATERING ORDINANCE

ORDINANCE NO. 2893

AN ORDINANCE AMENDING CHAPTER 78 "UTILITIES", ARTICLE II "WATER", DIVISION 2 "WATER CONSERVATION AND RATIONING" OF THE NORTH RICHLAND HILLS CODE OF ORDINANCES BY ADDING SECTIONS 78-65 TO BE ENTITLED "LAWN AND LANDSCAPE IRRIGATION RESTRICTIONS", SECTION 78-66 TO BE ENTITLED "RAIN SENSING DEVICES AND FREEZE SENSORS" AND SECTION 78-67 TO BE ENTITLED "EXCEPTIONS"; AMENDING SECTION 114.71(C) OF THE CODE OF ORDINANCES TO CONFORM TO THE OTHER AMENDMENTS HEREIN; PROVIDING THAT THIS ORDINANCE SHALL BE CUMULATIVE OF ALL ORDINANCES; PROVIDING A SEVERABILITY CLAUSE; PROVIDING A PENALTY FOR VIOLATIONS HEREOF; PROVIDING FOR PUBLICATION IN THE OFFICIAL NEWSPAPER; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of North Richland Hills, Texas (the "City") is a home rule city acting under its charter adopted by the electorate pursuant to Article XI, Section 5, of the Texas Constitution and Chapter 9 of the Local Government Code; and

WHEREAS, the City Council finds that conservation of water and protection of water supplies is necessary to protect public health and sanitation as well as to provide water for fire protection; and

WHEREAS, the City Council having previously adopted a water conservation plan incorporated into the Code of Ordinances; and

WHEREAS, securing future water supplies will require proving to state permitted agencies that existing water supplies are being used efficiently.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF NORTH RICHLAND HILLS, TEXAS:

SECTION 1. That Chapter 78 "Utilities", Article II "Water", Division 2 "Water Conservation and Rationing" of the Code of Ordinances be and is hereby amended by adding Sections 78-65 through 78-67 which shall read as follows:

Sec. 78-65. Lawn and landscape irrigation restrictions

- (a) Except for hand watering and the use of soaker hoses, a person commits an offense if a person irrigates, waters, or causes or permits the irrigation of watering of any lawn or landscape located on premises owned, leased, or managed by that person between the hours of 10:00 a.m. and 6:00 p.m. during the period from June 1 through September 30 of any year.
- (b) A person commits an offense if he knowingly or recklessly irrigates, waters, or causes or permits the irrigation or watering of a lawn or landscape located on premises owned, leased or managed by the person in a manner that causes:
 - (1) a substantial amount of water to fall upon impervious areas instead of a lawn or landscape, such that a constant stream of water overflows from the lawn or landscape onto a street or other drainage area; or
 - (2) an irrigation system or other lawn or landscape watering device to operate during any form of precipitation.
- (c) A person commits an offense if, on premises owned, leased, or managed by that person, he operates a lawn or landscape irrigation system or device that:
 - (1) has any broken or missing sprinkler head; or
 - (2) has not been properly maintained in a manner that prevents the waste of water.

Sec. 78-66. Rain sensing devices and freeze sensors.

- (a) All irrigation systems installed on or after October 25, 1999 with the exception of those associated with agricultural and/or single family residential uses must be equipped with rain and freeze sensors. (See Section 114-74)
- (b) Any agricultural and/or single family residential irrigation system installed within the City on or after August 1, 2006 must be equipped with rain and freeze sensors.
- (c) The potable water supply to lawn irrigation system shall be protected against backflow in accordance with the City's Backflow and Cross-connection Control Program adopted by Article VII of Chapter 78 of the Code of Ordinances.

- (d) It shall be unlawful for any person to knowingly or recklessly install, operate, or cause, or permit the installation of or the operation of, an irrigation system in violation of subsections 78-66 (a) through (d) on premises owned, leased, or managed by that person.

Sec. 78-67. Exceptions.

- (a) The Director of Public Works or his designee may grant exceptions from the provisions of Sections 78-65 or 78-66 to persons demonstrating extreme hardship and/or need as determined by the Director of Public Works or his designee and only under the following conditions:
- (1) The applicant must sign a compliance agreement on forms provided by the Public Works Department, agreeing to irrigate or water a lawn or landscape only in the amount and manner permitted by the exception.
 - (2) Granting of an exception must not cause an immediate significant reduction in the City's water supply.

Examples of hardships that will be considered shall include such things but not be limited to such items as:

- New landscaping and/or lawns that can not be watered during the specified times
- Installation of new irrigation systems
- Repair and/or adjustments to an existing irrigation system
- Any hardship related to the health, safety and welfare of the person making the request
- Any other request determined to be a hardship as determined by the Public Works Director or his Designee

- (b) The Director of Public Works or his designee may revoke an exception granted when determined that:
- (1) the conditions of subsection (a) are not being met or are no longer applicable;
 - (2) the terms of the compliance agreement are being violated; or
 - (3) the health, safety or welfare of other persons requires revocation."

SECTION 2. That Section 114-71(c)(1) Landscaping Regulations general criteria of the Code of Ordinances be and is hereby amended to read as follows:

Sec. 114-71. Landscaping regulations

(c) General criteria.

“(1) The standards contained in this section are considered minimum standards and shall apply to all zoning districts. Agricultural uses and single-family residences and their accessory buildings shall be exempt from the requirements of this Article except as provided in subsection (c)(2) of this section and Section 78-66 of this Code.”

SECTION 3. This Ordinance shall be cumulative of all provisions of the Code of Ordinances of the City of North Richland Hills, and other applicable City ordinances, except where the provisions of this Ordinance are in direct conflict with the provisions of such ordinances, in which event the applicability of the conflicting provisions of such ordinances are hereby repealed to the extent of such conflict.

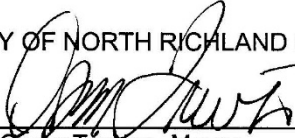
SECTION 4. It is hereby declared to be the intention of the City Council that the sections, paragraphs, sentences, clauses, and phrases of this Ordinance are severable, and if any section, paragraph, sentence, clause, or phrase of this Ordinance shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining sections, paragraphs, sentences, clauses, and phrases of this Ordinance, since the same would have been enacted by the City Council without the incorporation in this Ordinance of any such unconstitutional section, paragraph, sentence, clause or phrase.


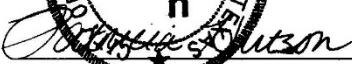
SECTION 5. Any person, firm or corporation who violates, disobeys, omits, neglects or refuses to comply with or who resists the enforcement of any of the provisions of this Ordinance shall be fined not more than Two Thousand Dollars (\$2000.00) for each offense. Each day that a violation is permitted to exist shall constitute a separate offense.

SECTION 6. The City Secretary is hereby directed to publish this ordinance or its caption and penalty in the official City newspaper one time within ten (10) days after final passage hereof.

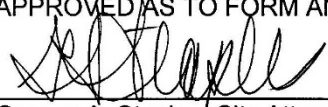
SECTION 7. This Ordinance shall be in full force and effect from and after its passage and publication as required by law, and it is so ordered.

PASSED AND APPROVED on this 10th day of July, 2006.

CITY OF NORTH RICHLAND HILLS
By: 
Oscar Trevino, Mayor

ATTEST: 

Patricia Hutson, City Secretary

APPROVED AS TO FORM AND LEGALITY:


George A. Staples, City Attorney

APPROVED AS TO CONTENT:


Mike Curtis, Public Works Director

ORDINANCE NO. 3009

AN ORDINANCE AMENDING SECTION 78-65 OF THE NORTH RICHLAND HILLS CODE OF ORDINANCES TO EXTEND OUTSIDE WATERING RESTRICTIONS TO ALL MONTHS OF THE YEAR; PROVIDING THAT THIS ORDINANCE SHALL BE CUMULATIVE OF ALL ORDINANCES; PROVIDING A SEVERABILITY CLAUSE; PROVIDING A PENALTY FOR VIOLATIONS HEREOF; PROVIDING FOR PUBLICATION IN THE OFFICIAL NEWSPAPER; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of North Richland Hills, Texas (the "City") is a home rule city acting under its charter adopted by the electorate pursuant to Article XI, Section 5, of the Texas Constitution and Chapter 9 of the Local Government Code; and

WHEREAS, the City Council finds that conservation of water and protection of water supplies is necessary to protect public health and sanitation as well as to provide water for fire protection; and

WHEREAS, the City Council having previously adopted a water conservation plan incorporated into the Code of Ordinances; and

WHEREAS, securing future water supplies will require proving to state permitted agencies that existing water supplies are being used efficiently; and,

WHEREAS, THE City has been requested by its supplier of potable water to extend the restrictions on hours for outside watering to all months of the year in order to conserve water;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF NORTH RICHLAND HILLS, TEXAS:

Section 1. That Section 78-65(a) of the North Richland Hills Code of Ordinances be amended to read as follows:

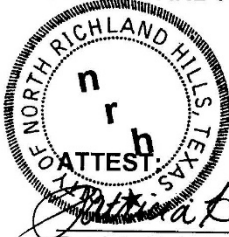
"Sec. 78-65. Lawn and landscape irrigation restrictions

- (a) Except for hand watering and the use of soaker hoses, a person commits an offense if a person irrigates, waters, or causes or permits the irrigation of watering of any lawn or landscape located on premises owned, leased, or managed by that person between the hours of 10:00 a.m. and 6:00 p.m.

..."

- Section 2. It is hereby declared to be the intention of the City Council that the sections, paragraphs, sentences, clauses, and phrases of this Ordinance are severable, and if any section, paragraph, sentence, clause, or phrase of this Ordinance shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining sections, paragraphs, sentences, clauses, and phrases of this Ordinance, since the same would have been enacted by the City Council without the incorporation in this Ordinance of any such unconstitutional section, paragraph, sentence, clause or phrase.
- Section 3. Any person, firm or corporation who violates, disobeys, omits, neglects or refuses to comply with or who resists the enforcement of any of the provisions of this Ordinance shall be fined not more than Two Thousand Dollars (\$2000.00) for each offense. Each day that a violation is permitted to exist shall constitute a separate offense.
- Section 4. The City Secretary is hereby directed to publish this ordinance or its caption and penalty in the official City newspaper one time within ten (10) days after final passage hereof.
- Section 5. This Ordinance shall be in full force and effect beginning October 1, 2008 and after its passage and publication as required by law and it is so ordered.

PASSED AND APPROVED on this 26th day of August, 2008.




Patricia Hutson, City Secretary


CITY OF NORTH RICHLAND HILLS

By: 
Oscar Trevino, Mayor

APPROVED AS TO FORM AND LEGALITY:


George A. Staples, City Attorney

APPROVED AS TO CONTENT:


Mike Curtis, P.E., Public Works Director