Town of Little Elm

2024 Water Conservation and Water Resource and Emergency Management Plan

Adopted on 4/16/2024

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DEFINITIONS

AQUATIC LIFE means a vertebrate organism dependent upon an aquatic environment to sustain its life.

ATHLETIC FIELD means a public sports competition field, the essential feature of which is turf grass, used primarily for organized sports practice, competition or exhibition events for schools, professional sports and league play sanctioned by the utility providing retail water supply.

BEST MANAGEMENT PRACTICES (BMPs) are voluntary efficiency measures that save a quantifiable amount of water, either directly or indirectly, and that can be implemented within a specific time frame.

COMMERCIAL VEHICLE WASH FACILITY means 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.

COMMERCIAL FACILITY means business or industrial buildings and the associated landscaping, but does not include the fairways, greens, or tees of a golf course.

CONSERVATION includes 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.

COOL SEASON GRASSES are varieties of turf grass that grow best in cool climates primarily in northern and central regions of the U.S. Cool season grasses include but are not limited to perennial and annual rye grass, Kentucky blue grass and fescues.

CUSTOMERS include those entities to whom NTMWD provides wholesale water that are not member cities of NTMWD.

DESIGNATED OUTDOOR WATER USE DAY means a day prescribed by a rule on which a person is permitted to irrigate outdoors.

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

DROUGHT, for the purposes of this report, means an extended period of time when an area receives insufficient amounts of rainfall to replenish the water supply, causing water supply sources (in this case reservoirs) to be depleted.

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

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

EXECUTIVE DIRECTOR means the Executive Director of NTMWD and includes a person the Executive Director has designated to administer or perform any task, duty, function, role, or action related to this Plan or on behalf of the Executive Director.

FOUNDATION WATERING means an application of water to the soils directly abutting (within 2 feet of) the foundation of a building or structure.

INTERACTIVE WATER FEATURES means water sprays, dancing water jets, waterfalls, dumping buckets, shooting water cannons, inflatable pools, temporary splash toys or pools, slip-n-slides, or splash pads that are maintained for recreation.

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

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

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

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

NEW LANDSCAPE means: (a) vegetation installed at the time of the construction of a residential or commercial facility; (b) installed as part of a governmental entity's capital improvement project; or (c) installed to stabilize an area disturbed by construction.

ORNAMENTAL FOUNTAIN means an artificially created structure from which a jet, stream, or flow of treated water emanates and is not typically utilized for the preservation of aquatic life.

POND is considered to be a still body of water with a surface area of 500 square feet or more. This does not include recreational swimming pools.

PUBLIC WATER SUPPLIER is an individual or entity that supplies water to the public for human consumption.

REGIONAL WATER PLANNING GROUP is a group established by the Texas Water Development Board to prepare a regional water plan under Texas Water Code, §16.053.

REGULATED IRRIGATION PROPERTY means any property of a designated customer class (i.e., commercial) that uses one million gallons of water or more for irrigation purposes in a single calendar year or is greater than one acre in size.

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

RETAIL CUSTOMERS include those customers to whom the utility provides retail water from a water meter.

REUSE is 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.

SOAKER HOSE means a perforated or permeable garden-type hose or pipe that is laid above ground that provides irrigation at a slow and constant rate.

SPRINKLER/SPRAY IRRIGATION is the method of applying water in a controlled manner that is similar to rainfall. The water is distributed through a network that may consist of pumps, valves, pipes, and sprinklers.

SPRINKLER means an above-ground water distribution device that may be attached to a garden hose.

RECREATIONAL/SWIMMING POOL is defined as a body of water that involves contact recreation. This includes activities that are presumed to involve a significant risk of ingestion of water (e.g. wading by children, swimming, water skiing, diving, tubing, surfing, etc.)

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

WATER CONSERVATION COORDINATOR is the person designated by a retail public water supplier that is responsible for implementing a water conservation plan.

WATER CONSERVATION PLAN means a plan for preserving water supplies for essential uses and the protection of public health required by Texas Administrative Code Title 30, Chapter 288, Subchapter A.

WATER RESOURCE AND EMERGENCY MANAGEMENT PLAN means a plan for temporary supply management and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies required by Texas Administrative Code Title 30, Chapter 288, Subchapter B. This is sometimes called a drought contingency plan.

ABBREVIATIONS

Ac-Ft/Yr ..... Acre-Feet per Year
BMP ..... Best Management Practices
E&O ..... Education and Outreach
ED ..... Executive Director
EPA ..... Environmental Protection Agency
ET ..... Evapotranspiration
FNI ..... Freese and Nichols, Inc.
gpf ..... Gallons per Flush
gpm ..... Gallons per Minute
GPCD ..... Gallons per Capita per Day
ICIM ..... Industrial, Commercial, Institutional and Multifamily
MGD ..... Million Gallons per Day
MUD ..... Municipal Utility District
NCTCOG ..... North Central Texas Council of Governments
NTMWD ..... North Texas Municipal Water District
SUD ..... Special Utility District
TCEQ ..... Texas Commission on Environmental Quality
TRWD ..... Tarrant Regional Water District
TWDB ..... Texas Water Development Board
WCAC ..... Water Conservation Advisory Council
WCP ..... Water Conservation Plan
WREMP ..... Water Resource and Emergency Management Plan
WSC ..... Water Supply Corporation
WENNT ..... Water Efficiency Network of North Texas
WTP ..... Water Treatment Plant
WWTP ..... Wastewater Treatment Plant

2024 Water Conservation Plan

This Water Conservation Plan has been developed in accordance with the requirements of 30 Texas Administrative Code (TAC) Chapter 288. A copy of the version of 30 TAC Chapter 288 in place at the time of this Plan preparation is included in Appendix B.

1.00 INTRODUCTION

The Town of Little Elm (Little Elm or Town) is a Customer of the North Texas Municipal Water District (NTMWD). This Plan was developed following TCEQ guidelines and requirements governing the development of water conservation plans.

The goal of the Water Conservation Plan is to serve as good stewards of water resources by preserving water supplies for essential uses and the protection of public health. The objectives to achieve this goal are as follows:

- To reduce the loss and waste of water.
- To improve efficiency in both indoor and outdoor water use.
- To maximize the level of recycling and reuse.
- To protect and preserve environmental resources.
- To extend the life of current water supplies.
- To raise public awareness of water conservation and encourage responsible personal behavior through public education programs.

1.01 MINIMUM REGULATORY REQUIREMENTS CHECKLIST

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". Recognizing the need for efficient use of existing water supplies, the TCEQ has developed guidelines and requirements governing the development of water conservation and drought contingency plans. The minimum TCEQ requirements and where they are addressed within this document are included in **Appendix B**.

1.02 ADDITIONAL REQUIREMENTS AND GUIDANCE

In addition to TCEQ rules regarding water conservation, this Plan also incorporates both minimum requirements as required from NTMWD and elements from several conservation initiatives.

- **2024 NTMWD Water Conservation Plan** – Member Cities and Customers of the NTMWD are required to implement water conservation strategies as designated in the NTMWD Water Conservation Plan. These strategies represent minimum measures to

be implemented and enforced to promote water conservation and are to remain in effect on a permanent basis.

- **Guidance and Methodology for Reporting on Water Conservation and Water Use** - Developed by TWDB and TCEQ in consultation with the Water Conservation Advisory Council (the Guidance). The Guidance was developed in response to a charge by the 82nd Texas Legislature to develop water use and calculation methodology and guidance for preparation of water use reports and water conservation plans in accordance with TCEQ rules.
- **North Texas Regional Landscape Initiative –** The North Texas regional water providers (NTMWD, DWU and TRWD) collaborated to create the Regional Landscape Initiatives. This document was developed as a resource of best management practices for municipal staff to help reduce water waste and encourage long-term water conservation in the North Texas region. Information consists of the background, importance, and benefits of each BMP and key talking points to consider when implementing the strategy. Several of the optional water management measures included in this Plan are from this collaborative initiative.

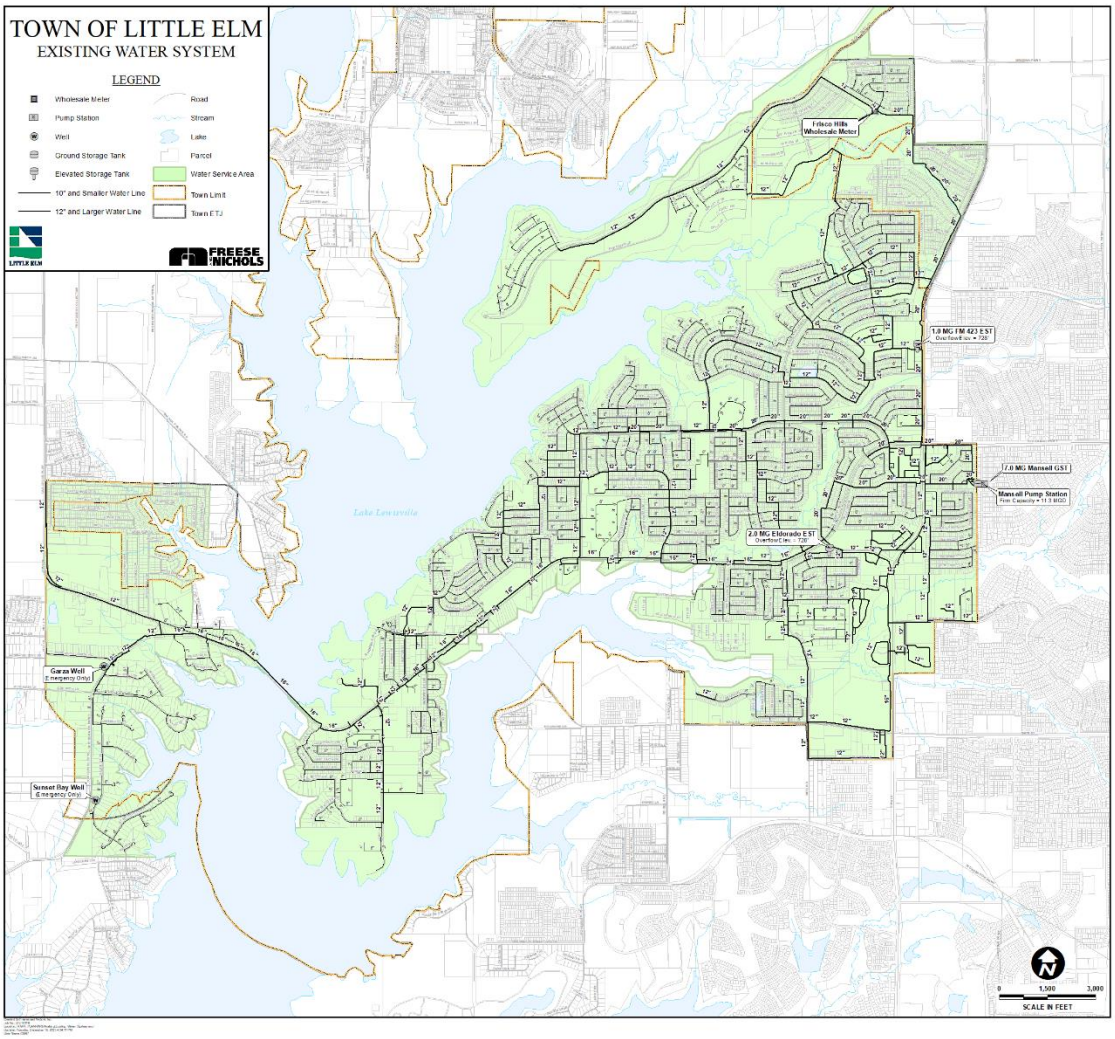
2.00 WATER UTILITY PROFILE

This section contains a description of Little Elm's service area and water system. This information can also be reviewed in **Appendix C**, which contains a completed TCEQ Water Utility Profile.

2.01 DESCRIPTION OF THE SERVICE AREA

Little Elm's water service area covers an area of 9.45 square miles and currently serves a population of 40,269 which is less than the population of the town. Little Elm provides water on a wholesale basis to two systems: Hilltown Addition and Frisco West Water Control and Improvement District of Denton County. This plan adheres to all requirements of wholesalers outlined in TAC Subchapter 288.5. A map of the existing water system with the service area is shown in **Figure 1**.

Figure 1: Existing Water Service Area and System



2.02 WATER UTILITY PROFILE

Little Elm's existing water supply is composed of the following sources.

- Purchased Treated Water from NTMWD

3.00 WATER CONSERVATION GOALS

TCEQ rules require the adoption of specific 5-year and 10-year water conservation goals for a water conservation plan. In addition to the 5-year and 10-year water conservation goals specified below, Little Elm has established the following goals for this water conservation plan:

- Maintain the total and residential per capita water use below the specified amount in gallons per capita per day in a dry year, as shown in the completed **Table**.
- Maintain the water loss percentage in the system below the specified percentages in **Table 2** and as discussed in Section 4.03.
- Implement and maintain a program of universal metering and meter replacement and repair, as discussed in Section 4.01.
- Prohibit activities that waste water through a water conservation ordinance, order, or resolution as discussed in Section 8.02 Subsection I. (This ordinance is required by NTMWD).
- Raise public awareness of water conservation and encourage responsible public behavior by a public education and information program, as discussed in Section 8.01.
- Develop a system specific strategy to conserve water during peak demands, thereby reducing the peak use.

3.01 5- AND 10-YEAR GOALS

Per capita water use varies from year to year based on several factors including weather conditions, changing demographics and other variables. The TWDB requires specific 5- and 10-year goals which are summarized in **Table 1.**

Little Elm's gallons per capita per day (GPCD) for total usage, residential single family, and Industrial, Commercial, Institutional and Multi-Family (ICIM) is below peer and NTMWD member and customer city average. For this reason, this plan assumes a 0.5 percent annual reduction in total GPCD. Water loss is also below peer and NTMWD member and customer city average. For this reason, this plan assumes maintaining water loss at or below 5.7% and 6.2 GPCD.

Table 1: Five- and 10-Year Per Capita Water Use Goals

	Historic 5-Year Average	Baseline	5-Year Goal 2029	10-Year Goal 2034
Total (GPCD)[1]	112.9	112.9	109.0	106.3
Residential (GPCD)[2]	73.5	73.5	71.0	69.3
ICIM (GPCD)[3]	18.5	18.5	17.8	17.4
Water Loss (GPCD)[4]	6.2	6.2	6.2	6.2
Water Loss (Percentage)[5]	5.7%	5.7%	5.7%	5.7%

[1]Total GPCD = (Total Gallons in System / Permanent Population) / 365

[2]Residential GPCD = (Gallons Used for Residential Use / Residential Population) / 365

[3]ICIM GPCD = (Gallons Used for Industrial, Commercial, Institutional and Multi-family Use / Permanent Population) / 365

[4]Water Loss GPCD = (Total Water Loss / Permanent Population) / 365

[5]Water Loss Percentage = (Total Water Loss / Total Gallons in System) x 100; or (Water Loss GPCD / Total GPCD) x 100

3.02 METHOD FOR TRACKING

NTMWD requires Member Cities and Customers to complete annual conservation reports by March 31 of the following year and submit them to NTMWD. A copy of the form is included as **Appendix D**.

The completion of this Annual Water Conservation Report allows Little Elm to track the effectiveness of its water conservation programs over time and reassess those programs that are not providing water savings, ensuring maximum water use efficiency and greater levels of conservation.

4.00 METERING, RECORDS AND WATER LOSS CONTROL

4.01 METERING PROGRAM

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

ACCURATE METERING OF TREATED WATER DELIVERIES FROM NTMWD

Accurate metering of water diversions and deliveries, detection, and repair of leaks in the raw water transmission and potable water distribution systems and regular monitoring of nonrevenue water are important elements of NTMWD's program to control losses. Water deliveries from NTMWD are metered by NTMWD using meters with accuracy of ±2%. These meters are calibrated on an annual basis by NTMWD to maintain the required accuracy.

METERING OF CUSTOMER AND PUBLIC USES

Little Elm currently meters the water to all customers, including public and governmental users. Little Elm already meters retail and wholesale water users. Through a central data base system, Little Elm maintains a record of the installation and or calibration date of all meters, regardless of size or class of customer served. Meters range in size from 5/8" to 8". The meter size distribution is included in **Table 2** below. As of 2022, there were a total of 12,507 active retail customers in Little Elm.

Table 2: Meter Size Distribution

Meter Size	Total Number
5/8"	11,957
1"	221
1.5"	75
2"	215
3"	8
4"	9
6"	8
8"	14
Total	**12,507**

METER TESTING, REPAIR AND REPLACEMENT

Little Elm tests and replaces their customer meters on a regular basis, through the use of a meter flow tester. All customer meters should be replaced on a minimum of a 15-year cycle.

4.02 MONITORING AND RECORD MANAGEMENT PROGRAM

As required by TAC Title 30, Chapter 288, a record management system should allow for the separation of water sales and uses into residential, commercial, public/institutional, and industrial categories. This information is included in the NTMWD annual water conservation report that is included in **Appendix D**.

4.03 WATER LOSS CONTROL PROGRAM

DETERMINATION AND CONTROL OF WATER LOSS

Total water loss is the difference between treated water pumped and authorized consumption or metered deliveries to customers. Authorized consumption includes billed metered uses, unbilled metered uses, and unbilled unmetered uses such as firefighting and releases for flushing of lines.

Water losses include two categories:

- Apparent losses such as inaccuracies in customer meters. (Customer meters tend to run more slowly as they age and under-report actual use). Unauthorized consumption due to illegal connections and theft.
- Real losses due to water main breaks and leaks in the water distribution system and unreported losses.

Measures to control water loss are part of the routine operations of Little Elm's water system. Maintenance crews and personnel should look for and report evidence of leaks in the water distribution system. A leak detection and repair program is described below. Meter readers should watch for and report signs of illegal connections so that they can be quickly addressed. With the measures described in this plan, Little Elm's goal is to maintain a water loss percentage below 14 percent by 2029, and below 13 percent by 2034 (see **Table 2**). If total water loss exceeds these goals, Little Elm will implement a more intensive audit to determine the source(s) of loss and to reduce the water loss. The annual conservation report (**Appendix D**) is the primary tool that should be used to monitor water loss, along with the annual Water Loss Audits.

LEAK DETECTION AND REPAIR

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

5.00 CONTRACT REQUIREMENTS FOR WHOLESALE CUSTOMERS

Every water supply contract entered into or renewed after official adoption of this water conservation plan, including any contract extension, will include a requirement that each wholesale customer of Little Elm must develop and implement a water conservation plan and water conservation measures. If the customer intends to resell the water, then the contract between the initial supplier and customer must specify 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 Title 30 TAC Chapter 288.

6.00 RESERVOIR SYSTEM OPERATIONS PLAN

Little Elm purchases treated water from NTMWD and does not have surface water supplies for which to implement a reservoir system operations plan. NTMWD operates multiple sources of water supply as a system. The operation of the reservoir system is intended to optimize the

use of the District's sources (within the constraints of existing water rights) while minimizing energy use cost for pumping, maintaining water quality, minimizing potential impacts on recreational users of the reservoirs and fish and wildlife.

7.00 CONSERVATION PLAN ADOPTION AND ENFORCEMENT

7.01 MEANS OF IMPLEMENTATION AND ENFORCEMENT

Staff will implement the Plan in accordance with adoption of the Plan. **Appendix F** contains a copy of the ordinance adopted regarding this Plan. The document designates responsible officials to implement and enforce the Plan. **Appendix H**, the considerations for landscape water management regulations, also includes information about enforcement. **Appendix G** includes a copy of an ordinance, order, or resolution that may be adopted related to illegal connections and water theft.

The proposed ordinance adopting this Water Conservation and Water Resource and Emergency Management Plan establishes how conservation violations will be enforced. Any customer failing to comply with the provisions of this Plan shall be subject to a fine not to exceed Two Thousand Dollars ($2,000) and/or discontinuance of water service by the Town. For violations of the Water Resource and Emergency Management Plan, enforcement is outlined in Section 2.06 of that Plan.

7.02 REVIEW AND UPDATE OF WATER CONSERVATION PLAN

TCEQ requires that the water conservation plan be updated every five years. This Plan will be updated as required and as appropriate based on new or updated information.

7.03 REGIONAL WATER PLANNING GROUP AND NTMWD NOTIFICATION

In accordance with TCEQ regulations, a copy of this water conservation plan was provided to the Region C Water Planning Group. In accordance with NTMWD contractual requirements, a copy of this water conservation plan was also sent to NTMWD. **Appendix E** includes a copy of the letters sent.

8.00 WATER CONSERVATION PROGRAM

8.01 PUBLIC EDUCATION PROGRAM

A. NTMWD PUBLIC EDUCATION PROGRAM AND TECHNICAL ASSISTANCE

Little Elm obtains water conservation support from the NTMWD. This includes several public education and outreach efforts such as:

- Beginning in 2006 and continuing through 2018, NTMWD invested in the development and implementation of the "Water IQ: Know Your Water" campaign, including newspaper ads, radio spots, billboards, a website, and other forms of communication all intended to educate the public regarding water use and water conservation. During the 2017 campaign, over a quarter of a million people were reached by the program through media relations, outreach and interactive media. The total audience reached through the campaign in 2017 was over 88 million impressions.

- In 2013, NTMWD initiated the "Water My Yard" program to install weather stations throughout its service area to provide consumers with a weekly email or text message and information through the Water My Yard website recommending the adequate amount of supplemental water that is needed to maintain healthy grass in specific locations. This service represents the largest network of weather stations providing ET-based irrigation recommendations in the state of Texas and provides the public with advanced information regarding outdoor irrigation needs, thereby reducing water use. Through a series of selections on the type of irrigation system a consumer has, a weekly email or text message is provided that will recommend how long (in minutes) that an irrigation system needs to run based on the past seven days of weather. This recommendation provides the actual amount of supplemental water that is required for a healthy lawn based on research of the Texas A&M Agrilife Extension Service and proven technologies.
- "Water4Otter" is a water conservation campaign for kids launched by NTMWD in 2014. It is based on the insight that most parents agree they would listen if their kids asked them to conserve water. The TWDB awarded the NTMWD a conservation grant to develop Water4Otter as a model program that could be used throughout the state. The 2023 program included 22 performances at 11 schools in eight different ISDs including stops at elementary schools in Wylie, Garland, Mesquite, Plano, Princeton, Richardson, and Royse City.

- "Love Lavon Lake" is a water conservation campaign designed to help North Texans know their primary water source. The campaign launched in 2018 with a call to action to, "Conserve your water source. Love Lavon Lake". The campaign was based on market research showing the more people know the source of their drinking water, the more likely they are to use it wisely and efficiently.

- NTMWD implemented the "#PledgetoPlantSmart" initiative that seeks to inspire positive change in water conservation by encouraging North Texas residents to do their part and plant smart by selecting native or adapted plants for their garden and landscaping.

NTMWD also participates in a regional outreach campaign called "Water is Awesome" partnering with the City of Dallas and Tarrant Regional Water District. NTMWD Member Cities and Customers have access to the campaign materials which include:

- In 2019, an additional tagline, "Keep Texas Water on Tap", was incorporated to promote the Water is Awesome brand and direct traffic to waterisawesome.com.
- In 2020, a "customer city toolkit" provided customizable resources allowing cities to incorporate their logos with the campaign brand for their website, social media, and print. Cities are encouraged to use campaign resources to advance conservation efforts.
- In 2021, the regional water providers collaborated to create the Regional Landscape Initiatives. This document was developed as a resource of best management practices for municipal staff to help reduce water waste and encourage long-term water conservation in the North Texas region. Information consists of the background, importance, and benefits of each BMP and key talking points to consider when implementing the strategy. Several of the optional water management measures included in this Plan are from this collaborative initiative.
- The 2023 campaign will include a focus on short HGTV-style web series about converting yards into drought-resistant, water-conservative yardscapes.

Conservation materials and more are made available to Member Cities and Customers through an online portal that is hosted by NTMWD. In addition to the portal the NTMWD actively provides technical assistance through the following:

- NTMWD holds **Regularly Scheduled Meetings** with Member Cities and Customers for water supply updates, public campaign strategies, and legislative activities related to water and water conservation.
- NTMWD purchases **American Water Works Association Research Foundation Publications** for use by Member Cities and Customers to further enhance resources for water efficiency, water rate structures, etc. Additionally, NTMWD pays for Member City and Customer membership to the **Alliance for Water Efficiency**.
- Since 2003, NTMWD has held **Water Conservation Workshops** for staff of its Member Cities and Customers. These workshops have covered several conservation-related topics, including TCEQ requirements for water conservation and drought contingency plans, advanced water conservation strategies, current NTMWD water conservation efforts, water conservation programs of the cities, current drought status, progress on future water supplies, and related topics. These workshops also provide training and education regarding water use accounting, irrigation evaluations, industrial, commercial, and institutional audits, and other procedures. Additional examples include workshops

on Water Loss Audit Training as well as on the TWDB Water Conservation Planning Tool.

- Based on the annual reporting data collected from Member Cities and Customers from 2022, approximately 24% of the District's treated water sales went to supply ICIM users within their service area. To target programs for this customer base, the District hired Plummer Associates, Inc. to create the **Industrial, Commercial, Institutional and Multifamily Program**. The ICIM program provides NTMWD Member City and Customer staff with the knowledge and tools necessary to identify ICIM customers with high water usage. This program was created to categorize water use data to find outliers and identify areas to concentrate water conservation efforts. This program can help Member Cities and Customers' ICIM water customers develop targeted methods for increasing water efficiency as an alternative to a traditional voluntary approach for water consumption improvement.
- As part of the ICIM program, the District is currently engaging with the Member and Customer Cities to encourage their ICIM customers to participate in **Water Efficiency Opportunity Surveys**. These surveys encompass a building audit that recommends various water conservation measures that can be implemented to save both money and water. Items addressed include toilet retrofits, urinal retrofits, showerhead retrofits, lavatory retrofits, non-lavatory faucet retrofits, leak repair, water cooled ice machine retrofit, commercial disposer, food steam, cooling tower efficiency and irrigation system efficiency. As of June 2023, NTMWD has utilized the ICIM program to audit four buildings resulting in an estimated annual water savings of 87.4 million gallons.
- NTMWD encourages its Member Cities and Customers to develop and implement **Rebate and Bulk Purchasing Programs** that help the Member Cities and Customers achieve overall water savings. Further, NTMWD provides technical assistance to those Member Cities and Customers who wish to implement rebate and bulk purchasing programs.

B. LITTLE ELM PUBLIC EDUCATION PROGRAM

In addition to utilizing public education resources shared by North Texas Municipal Water District, Little Elm has developed its own public education program. On its Public Works webpage, Water Conservation Guidelines are available for Town citizens, providing links to helpful conservation resources.

8.02 REQUIRED CONSERVATION STRATEGIES

The following water conservation strategies are required. These strategies represent minimum measures to be implemented and enforced to promote water conservation and are to remain in effect on a permanent basis.

A. TCEQ CONSERVATION PLAN REQUIREMENTS

The preceding sections cover the regulatory requirements identified in TAC Title 30, Part 1, Chapter 288, Subchapter B, Rule 288. These rules are included in **Appendix B**.

B. CONSERVATION COORDINATOR

The designation of a Conservation Coordinator is required by House Bill 1648, effective September 1, 2017 for all retail public water utilities with 3,300 service connections or more. The NTMWD requires that all Member Cities and Customers, regardless of number of connections, appoint a Conservation Coordinator who will serve as the primary point of contact between the entity and the District on conservation matters.

The duties of the Conservation Coordinator are as follows:

- Submit an annual conservation report to NTMWD by March 31. This is referred to as the 'Appendix D Report'. NTMWD will provide a blank workbook for each Member City and Customer to fill out prior to the deadline.
- Submit an adopted water conservation and water resource and emergency management plan by May 1, 2024 (and every five years afterwards). These plans must be submitted to NTMWD, the applicable Regional Water Planning Group, TCEQ and TWDB. The conservation coordinator is also responsible for submitting a copy of the Plan if it is updated after initial adoption and submission.

Little Elm's Conservation Coordinator is identified below. Little Elm will notify NTMWD if this changes at any point before the water conservation plan is updated.

Cody Collier, Assistant Public Works Director
972-377-5556
Publicworksinfo@littleelm.org

C. WATER CONSERVATION PRICING

Little Elm has adopted an increasing block rate water structure that is intended to encourage water conservation and to discourage excessive use and waste of water. Little Elm will continue to analyze and adjust its increasing block rate structure during its next rate study or within five years. For any updates to water rates that might occur subsequent to the public of this plan, please visit https://www.littleelm.org/1498/Rates-General-Information.

Little Elm's water rate structure is as follows:

Residential Water Rates

From and after the effective date hereof, the monthly minimum base charges for water up to 2,000 gallons for water utility services for all residential customers of the Town of Little Elm, Texas shall be as set forth below until amended by ordinance of Town Council:

Water Base Rates (up to 2,000 gallons) by Meter Size	**Effective Oct 1, 2020**	**Effective Oct 1, 2021**	**Effective Oct 1, 2022**	**Effective Oct 1, 2023**	**Effective Oct 1, 2024**
5/8"	$24.08	$24.56	$25.05	$25.55	$26.06
1"	$39.35	$40.15	$40.95	$41.75	$42.60
1.5"	$72.08	$73.52	$74.98	$76.48	$78.02
2"	$120.39	$122.80	$125.25	$127.76	$130.31
3"	$240.83	$245.65	$250.56	$255.57	$260.68
4"	$787.37	$803.12	$819.18	$835.56	$852.27
6"	$1,576.82	$1,608.36	$1,640.52	$1,673.33	$1,706.80

All residential customers will pay monthly volumetric usage charges with respect to each 1,000 gallons of metered water after the first 2,000 gallons as follows:

Volumetric Rate per each 1,000 gallons used above Base Rate (all meter sizes)	**Effective Oct 1, 2020**	**Effective Oct 1, 2021**	**Effective Oct 1, 2022**	**Effective Oct 1, 2023**	**Effective Oct 1, 2024**
2,000 - 10,000 gal	$6.39	$6.52	$6.65	$6.78	$6.92
10,001 - 20,000 gal	$6.69	$6.82	$6.95	$7.08	$7.22
20,001 gal & above	$6.99	$7.12	$7.25	$7.38	$7.52

Commercial Water Rates: Businesses, Schools, Apartments, Manufactured Home Parks, and other multi-family units:

From and after the effective date hereof, the monthly minimum base charges for water up to 2,000 gallons for water utility services for all businesses, schools shall be as set forth below.

All apartments and manufactured home park consumers shall be assessed a base minimum charge for each unit in each complex with a credit of 2,000 gallons for each unit (dwelling) as follows:

Water Base Rates (up to 2,000 gallons) by Meter Size	**Effective Oct 1, 2020**	**Effective Oct 1, 2021**	**Effective Oct 1, 2022**	**Effective Oct 1, 2023**	**Effective Oct 1, 2024**
5/8"	$24.08	$24.56	$25.05	$25.55	$26.06
1"	$39.35	$40.15	$40.95	$41.75	$42.60
1.5"	$72.08	$73.52	$74.98	$76.48	$78.02
2"	$120.39	$122.80	$125.25	$127.76	$130.31
3"	$240.83	$245.65	$250.56	$255.57	$260.68
4"	$787.37	$803.12	$819.18	$835.56	$852.27
6"	$1,576.82	$1,608.36	$1,640.52	$1,673.33	$1,706.80
8"	$1,908.04	$1,946.20	$1,985.12	$2,024.83	$2,065.32

All businesses and school customers will pay a monthly volumetric usage charge in addition to the base rate with respect to each 1,000 gallons of metered water after the first 2,000 gallons as follows:

Volumetric Rate per each 1,000 gallons used above Base Rate (all meter sizes)	**Effective Oct 1, 2020**	**Effective Oct 1, 2021**	**Effective Oct 1, 2022**	**Effective Oct 1, 2023**	**Effective Oct 1, 2024**
2,000 gallons and greater	$7.07	$7.21	$7.36	$7.50	$7.65

All apartments and manufactured home park customers will pay a monthly volumetric usage charge in addition to the base rate with respect to each 1,000 gallons of metered water after the first 2,000 gallons as follows:

Volumetric Rate per each 1,000 gallons used above Base Rate (all meter sizes)	**Effective Oct 1, 2020**	**Effective Oct 1, 2021**	**Effective Oct 1, 2022**	**Effective Oct 1, 2023**	**Effective Oct 1, 2024**
2,000 gallons and greater	$8.16	$8.32	$8.49	$8.66	$8.80

D. ORDINANCES, PLUMBING CODES, OR RULES ON WATER-CONSERVING FIXTURES

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

E. REUSE AND RECYCLING OF WASTEWATER

Little Elm owns and operates their own wastewater treatment plants and currently is utilizing reuse of treated effluent for wash-down processes, belt press operations and for irrigation purposes at the plant site. Little Elm continues to seek other alternatives for reuse of recycled wastewater effluent.

F. YEAR-ROUND OUTDOOR WATERING SCHEDULES

A mandatory weekly watering schedule has been gradually gaining acceptance in the region and the state. NTMWD requires all Member Cities and Customers to adhere to a permanent outdoor watering schedule.

- **Summer (April 1 – October 31)** –Spray irrigation with sprinklers or irrigation systems at each service address must be limited to no more than **two days per week**. Additionally, prohibit lawn irrigation watering from **10 a.m. to 6 p.m.** Education should be provided that irrigation **should only be used when needed**, which is often less than twice per week, even in the heat of summer.

  For residential water customers, watering days are defined as the assigned trash/recycle pickup day for the property address associated with the irrigation system, plus three days subsequent.

- **Winter (November 1 – March 31)** – Spray irrigation with sprinklers or irrigation systems at each service address must be limited to no more than ***one day per week*** with education that less than once per week (or not at all) is usually adequate.

  For residential water customers, watering day is defined as the assigned trash/recycle pickup day for the property address associated with the irrigation system.

Additional irrigation may be provided by hand-held hose with shutoff nozzle, use of dedicated irrigation drip zones, and/or soaker hose provided no runoff occurs. Many North Texas horticulturists have endorsed twice-weekly watering as more than sufficient for landscapes in the region, even in the heat of summer. Town citizens are encouraged to enroll in the Weekly Watering Advice service offered by the Water Is Awesome campaign that is supported by North Texas Municipal Water District, Tarrant Regional Water District, and Dallas Water Utilities. This can be accessed at https://waterisawesome.com/weekly-watering-advice.

G. TIME OF DAY WATERING SCHEDULE

NTMWD requires that during the summer months (April 1 – October 31) under normal conditions, spray irrigation with an irrigation system or sprinkler is only permitted on authorized watering days, before 10 a.m. or after 6 p.m. The primary purpose of this measure is to reduce wind drift and evaporation losses during the active growing season. The time-of-day watering schedule requirement increases watering efficiency by eliminating outdoor irrigation use when climatic factors negatively impact irrigation system efficiencies. Midday irrigation is not an optimal time to irrigate because evapotranspiration rates are higher, and plants are more susceptible to stress associated with factors such as higher temperatures and lower relative humidity.

H. IRRIGATION SYSTEM REQUIREMENTS FOR NEW AND COMMERCIAL SYSTEMS

In 2007, the 80th Texas Legislature passed House Bill 1656, Senate Bill 3, and House Bill 4 related to regulating irrigation systems and irrigators by adopting minimum standards and

specifications for designing, installing, and operating irrigation systems. The Texas legislation required cities with a population over 20,000 to develop a landscape irrigation program that includes permitting, inspection, and enforcement of water conservation for new irrigation systems.

NTMWD ***requires*** all Member Cities and Customers adhere to a minimum set of irrigation standards:

1) Require that all new irrigation systems be in compliance with state design and installation regulations (Texas Administrative Code Title 30, Chapter 344).
2) Require operational rain and freeze sensors and/or ET or Smart controllers on all new irrigation systems. Rain and freeze sensors and/or ET or Smart controllers must be properly maintained to function properly.
3) Require that irrigation systems be inspected at the same time as initial backflow preventer inspection.
4) Require the owner of a regulated irrigation property to obtain an evaluation of any permanently installed irrigation system on a 5-year basis. The irrigation evaluation shall be conducted by a licensed irrigator in the state of Texas and be submitted to the local water provider (i.e., city, water supply corporation).

I. WATER WASTE PROVISIONS

NTMWD requires all Member Cities and Customers prohibit activities that waste water. The main purpose of a water waste ordinance is to provide for a means to enforce that water waste is prevented during lawn and landscape irrigation, that water resources are conserved for their most beneficial and vital uses, and that public health is protected. It provides a defined enforcement mechanism for exceptional neglect related to the proper maintenance and efficient use of water fixtures, pipes, and irrigation systems. The ordinance can provide additional assistance or enforcement actions if no corrective action has been taken after a certain number of correspondences.

NTMWD ***requires*** that the following water waste ordinance offenses include:

1) The use of irrigation systems that water impervious surfaces. (Wind-driven water drift will be taken into consideration.)
2) Outdoor watering during precipitation or freeze events.
3) The use of poorly maintained sprinkler systems that waste water.
4) Excess water runoff or other obvious waste.

5) Overseeding, sodding, sprigging, broadcasting or plugging with cool season grasses or watering cool season grasses, except for golf courses and athletic fields.

6) The use of potable water to fill or refill residential, amenity, and any other natural or manmade ponds. A pond is considered to be a still body of water with a surface area of 500 square feet or more. This does not include recreational swimming pools.

7) Non-commercial car washing that does not use a water hose with an automatic shut-off valve.

8) Hotels and motels that do not offer a linen reuse water conservation option to customers.

9) Restaurants, bars, and other commercial food or beverage establishments that provide drinking water to customers unless a specific request is made by the customer for drinking water.

   The Town's water conservation requirements are set forth in the Little Elm Municipal Code, Chapter 102, "Utilities," Article VI, "Water Conservation." A violation of such requirements constitutes a Class C misdemeanor punishable by fine as set forth in Section 1-10 of the Little Elm Municipal Code.

J. USE OF ET-BASED WEEKLY WATERING ADVICE/RECOMMENDATIONS

NTMWD requires that Member Cities and Customers adhere to a year-round outdoor watering schedule. However, this conservation practice can be improved with the use of ET-based weekly watering advice and recommendations. Landscapes frequently require less watering than the year-round water schedule allows. This measure can be particularly useful for entities with a significant percentage of customers using automated landscape irrigation systems.

Water providers in the Dallas-Fort Worth area (including NTMWD) sponsor weather stations to collect daily weather data and provide the most accurate watering recommendations. Many cities in the DFW area can already take advantage of these ET-based recommendations and incorporate them into their water conservation programs, at no cost to the city. Examples of such a service are shown below.

- **Water My Yard** – An online platform where homeowners can sign up to receive weekly watering recommendations based on their location and a few specifications about their sprinkler system. Users can then choose to accept the recommendations by email, text, or both. Recommendations are available for select cities in Collin, Dallas, Denton, Fannin, Hunt, Kaufman and Rockwall Counties. Sponsored by NTMWD and Texas A&M AgriLife Extension Service. (WaterMyYard.org).

- **Water Is Awesome Weekly Watering Advice** – Weekly watering recommendations for most of North Texas based on data from weather stations scattered throughout the DFW area. The recommendations are distributed by email and text every week and are provided in inches of water needed and the number of minutes necessary to apply that amount of water for spray, rotor, and multi-stream sprinklers. Advice service is available for all of North Central Texas and sponsored by DWU and TRWD. (https://waterisawesome.com/weekly-watering-advice).
- **WaterWise Newsletter and Hotline** – The City of Frisco provides weekly lawn watering advice on the city's website and through the WaterWise Newsletter distributed to subscribers every Monday. Frisco also has a "Weekly Watering Advice Hotline" you can into weekly to get this information. Frisco has a weather station that is used to determine how much water is needed each particular week.

Providing evapotranspiration (ET)-based weekly watering recommendations can reduce the amount of water applied for outdoor watering if customers follow the guidance. A drawback with this BMP is the adoption rate. Since these recommendations may change every week, it requires customers to adjust their controllers more often.

K. WATER EFFICIENT LANDSCAPE INITIATIVES

NTMWD recommends that Member Cities and Customers include water efficient landscape initiatives in their water conservation plans. A water efficient landscape is a landscape that is designed and maintained according to basic good horticultural principles that allow for a beautiful healthy landscape with minimal or no supplemental irrigation and no adverse runoff from the landscape property. Water efficient landscapes limit or exclude non-functional turf where possible. Examples of nonfunctional turf include streetscape turf and turf that is purely ornamental. As an alternative to non-functional turf grasses, water efficient landscapes use appropriate plants or other landscaping materials that require little or no supplemental irrigation. Appropriate plants are those selected based on their adaptability to the region's soil and climate. NTMWD's #PledgeToPlantSmart initiative seeks to inspire positive change in water conservation by encouraging North Texas residents to do their part and plant smart by selecting native or adaptive plants for their garden and landscaping. Member Cities and Customers should adopt a native and adaptive recommended plant list for water efficient landscaping. Water efficient landscapes can be an alternative to non-functional turf grasses and may be appropriate for application in new development or retrofits of existing landscapes for both commercial and residential areas.

Water efficient landscape initiatives can be encouraged through financial incentives or required through ordinance. Member cities and customers should also consider review of their existing requirements and removal of current codes that may impede or limit the application of water

efficient landscapes. Property code 202.007 may be a helpful resource for language for removing potential barriers to water efficient landscapes.

In lieu of an ordinance, water efficient landscapes can be encouraged through rebates for landscape conversion or installation or award programs. Good examples of water efficient landscapes should also be encouraged through public outreach, demonstration gardens, and/or used in public landscapes and rights-of-way. NTMWD has a great example of the implementation of native plants and xeriscaping at the Bois d'Arc Lake Operations Center.

There are several programs available that offer a wealth of information on designing and implementing water efficient landscape.

- Water Wise (http://urbanlandscapeguide.tamu.edu/waterwise.html)
- Texas SmartScape™ (http://www.txsmartscape.com/)
- EARTH-KIND™ (https://aggie-horticulture.tamu.edu/earthkind/publications/#water)

8.03 POTENTIAL FUTURE CONSERVATION STRATEGIES

NTMWD recommends but does not require implementation of this conservation practice in Member Cities and Customers' own water conservation plans.

A. ADDITIONAL WATER SAVING MEASURES FOR NEW IRRIGATION SYSTEM REQUIREMENTS

NTMWD requires certain irrigation system requirements for new and commercial systems. However, this conservation practice can be improved with additional water savings measures. As discussed previously, the Texas legislation regulates irrigation systems and irrigators by adopting minimum standards and specifications for designing, installing, and operating irrigation systems.

Many cities within Region C have adopted irrigation system standards above the minimum state requirements. Some of these standards include:

- Require property owners who install their irrigation system to also comply with the adopted Town ordinance.
- Require submission of the irrigation plan in conjunction with the permit application to the applicable Town official/department.

- Require all new irrigation systems to not utilize above-ground spray in landscapes that are less than 48 inches in either length or width and which contain impervious pedestrian or vehicular traffic surfaces along two or more perimeters. The use of subsurface or drip irrigation and pressure compensating tubing is permitted if the qualifying area will be irrigated.
- Require all non-turf landscape areas included in the irrigation plan to be designed with subsurface irrigation, drip irrigation, and/or pressure compensating tubing. If the irrigation plan includes a foundation watering system, require a separate zone to be dedicated for drip irrigation for the purpose of watering a structure's foundation.
- When provided, a master valve shall be installed on the discharge side of the backflow prevention device on all new installations.
- Require check valves where elevation differences may result in low head drainage. Check valves may be located at the sprinkler head(s) or on the lateral line.
- Require that pop-up heads shall be installed at grade level and operated to extend above all landscape turfgrass.
- Require that all new irrigation systems must include an automatic controller capable of providing the following features:
    - Multiple irrigation programs with at least three start times per program
    - Limiting the irrigation frequency to once every 7 days and once every 14 days
    - Water budgeting feature
- Require additional information and description for the required "walk-through". This may include but is not limited to a checklist of things to cover on the "walk-through" with the homeowner or educational leave behind materials.
- Require the signed maintenance checklist be submitted to the applicable Town official/department. Require the irrigator's name, license number, company name, telephone number, and the dates of the warranty period to be on the maintenance checklist.
- Require the irrigation plan indicating the actual installation of the system and the associated seasonal watering schedule be submitted to the applicable Town official/department.

- Require the irrigation plan and maintenance checklist be transferred from the new home builder to the first home buyer with documentation confirming the transaction provided to the applicable Town official/department.

It is important to note that, at a minimum, Member Cities and Customers must adhere to the irrigation system requirements set by NTMWD.

B. ADDITIONAL WATER WASTE PROVISIONS

NTMWD requires certain water waste provisions. However, this conservation practice can be improved with the inclusion of additional water waste provisions suited for your entity. As discussed previously, the main purpose of a water waste ordinance is to provide a means for enforcement that water waste is prevented during lawn and landscape irrigation, that water resources are conserved for their most beneficial and vital uses, and that public health is protected. It provides a defined enforcement mechanism for exceptional neglect related to the proper maintenance and efficient use of water fixtures, pipes, and irrigation systems. The ordinance can provide additional assistance or enforcement actions if no corrective action has been taken after a certain number of correspondences.

NTMWD **recommends, but does not require**, the following additional water waste ordinance offenses:

1) Sprinkler runoff from a property greater than 50 feet.
2) Operating an irrigation system or other lawn watering device during any form of precipitation or when temperatures are below 32 degrees Fahrenheit.
3) Irrigation to pond in a street or parking lot to a depth greater than 1/4 inch.
4) Failure to repair a controllable leak, including but not limited to a broken sprinkler head, a leaking valve, leaking or broken pipes, or a leaking faucet.
5) Operating a permanently installed irrigation system with a broken head or a head that is out of adjustment where the arc of the spray head is over a street or parking lot.
6) Washing of driveways, sidewalks, parking lots or other impervious surface areas with an open hose or spray nozzle attached to an open hose, except when required to eliminate conditions that threaten public health, safety or welfare.
7) Installation of splash pads that use a flow-through system instead of a cycle tank.

   All splash pads should follow the manufacturer's recommendations and health agency guidance for the operation and management of splash pads and have standard operating procedures that help ensure water quality and promote conservation.

Standard operating procedures should be tailored to the type of splash-pad (flow-through or cycle tank). Regardless of splash pad type or configuration, consideration should be given towards conservation efforts. For example, operating hours could be adjusted often based on frequency and duration of public use or the runoff can be diverted to serve a functional purpose, such as maintaining native and adapted vegetation.

It is important to note that, at a minimum, Member Cities and Customers must adhere to the water waste provisions set by NTMWD.

C. PARK/ATHLETIC FIELD CONSERVATION

NTMWD recommends that Member Cities and Customers consider the implementation of this conservation practice if there are parks and/or athletic fields within their system that are heavy water users. This conservation practice is intended to address park and athletic field conservation if the water provider manages and/or serves customers with irrigated parks and/or athletic fields. These facilities often face scrutiny by the public for using large amounts of water or being perceived as using excessive amounts. Athletic field and park irrigation conservation practices and the careful use of water in the operation and maintenance of park facilities can effectively reduce water demands. Once a water provider or customer adopts this practice, it should be followed closely to achieve maximum water efficiency benefits. With the dedication of an athletic field manager, athletic field conservation can effectively reduce system water demand. A manager can implement a watering regimen that only uses the amount of water necessary to maintain the viability of the turf and health of its users.

All park facilities should be metered, and water use billed to reinforce the importance of water efficiency. Before developing an efficient watering program, the water provider should consider meeting with parks irrigation personnel, management, and authorized landscape manager. This discussion should focus on water conservation issues and developing an adequate scope of action for efficiency. The first key is to understand the performance and capabilities of your irrigation system at these facilities. Requiring automatic irrigation systems and controllers at all facilities is recommended. It is essential to have training in soil management, proper aeration methods, nutrient management, mowing, soil testing, and irrigation management.

Achieving conservation can be voluntary or regulatory, based on the needs of the city. Cities may also consider if there is an opportunity to use reclaimed, reused, or recycled water for parks to conserve potable water. However, specific uses must meet TCEQ water quality standards for reclaimed water and human contact, and they must be appropriate for the particular use of the park. Reclaimed water should be applied based on the appropriate water budget. When developing athletic field conservation practices, identify the various

stakeholders, including the school district staff, nonprofit athletic associations, private sports complex managers, and Town staff. Meeting with them will help achieve long-term results.

NTMWD recommends but does not require implementation of this conservation practice in Member Cities and Customers' own water conservation plans.

D. WATER EFFICIENCY OUTREACH PROGRAM

NTMWD provides a wealth of technical assistance and outreach. Wholesale and retail water providers benefit from a consistent water conservation message across multiple cities and can enhance their reputation in the community. Utilizing resources and programs from NTMWD's conservation portal allows Member Cities and Customers to save money by not producing the resources or operating the programs themselves and amplifies a common message. Outreach assistance from NTMWD accomplishes public outreach and education elements in both the wholesale and retail water providers respective water conservation plans.

However, it is recommended that each member city and customer develop their own water efficiency outreach program as well. Perhaps one of the most important actions a utility can take in increasing water use efficiency among its customers is through public education and outreach programs (E&O). The goal of E&O programs is to influence behavioral change for short and long-term water savings. Regular and consistent messaging in customer education will provide an overall picture of water resources in the community. Communicating the need for conservation helps manage existing water supplies and avoids or delays the need for expanded or new infrastructure to meet increased water demands. Customer education also provides valuable information on specific actions they can take in their home or business to meet these community goals while also benefiting from them personally (i.e., managing their water bill).

Each utility should develop an education and outreach plan suited to their community that is adaptable over time. Understanding which messages need to be conveyed regularly and identifying the target audience(s) is key to a successful program. An effective public education program will help develop trust between the community and the utility as relevant, timely, and fact-based information is provided, and customer service is enhanced.

Many cities have dedicated water conservation web pages located within the main city or utility website that provide tips and other resources. The TWDB is one source that provides publications and other materials that can be placed online or made available in city/utility buildings. NTMWD's online conservation portal is another. The various education and outreach tools also allow cities to promote other programs offered, such as rebates or events, and to communicate other important messages, such as drought conditions or water service outages.

Some customers prefer to learn in a classroom setting or to tour facilities or demonstration areas to better understand certain conservation techniques. Offering in-person or virtual classes or workshops provides an opportunity to connect with these customers, provides hands-on experience, and allows questions on a range of conservation issues to be answered. NTMWD offers several programs such as these described in **Section 8.02.**

NTMWD recommends but does not require implementation of this conservation practice in Member Cities and Customers' own water conservation plans.

2024 Water Resource and Emergency Management Plan

Under Texas Water Code Chapter 11 and Title 30 Texas Administrative Code Chapter 288, Retail, Irrigation and Wholesale Public Water Suppliers are required to develop, implement and submit updated Drought Contingency Plans to the TCEQ every five years.

1.00 INTRODUCTION

The Town of Little Elm (Little Elm or Town) is a Customer of the North Texas Municipal Water District (NTMWD). This Plan was developed following TCEQ guidelines and requirements governing the development of drought contingency plans.

The goal of the water resource and emergency management plan is to prepare for potential water shortages and to preserve water for essential uses and the protection of public health. The objectives to achieve this goal are as follows:

- To save water during droughts, water shortages, and emergencies.
- To save water for domestic use, sanitation, and fire protection.
- To protect and preserve public health, welfare, and safety.
- To reduce the adverse impacts of shortages.
- To reduce the adverse impacts of emergency water supply conditions.

Note: NTMWD and Little Elm refer to their drought contingency plan (DCP) as the water resource and emergency management plan (WREMP) and should be considered synonymous with a DCP.

1.01 MINIMUM REGULATORY REQUIREMENTS

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”. Recognizing the need for efficient use of existing water supplies, the TCEQ has developed guidelines and requirements governing the development of water conservation and drought contingency plans.

The minimum TCEQ requirements and where they are addressed within this document are described in **Appendix B.**

2.00 IMPLEMENTATION AND ENFORCEMENT

2.01 PROVISIONS TO INFORM THE PUBLIC AND OPPORTUNITY FOR INPUT

Little Elm provided opportunity for public input in the development of this Plan by the following means:

- Providing written notice of the proposed Plan and the opportunity to comment on the Plan by newspaper and posted notice.
- Posting the draft Plan on the community website and/or social media.

- Providing the draft Plan to anyone requesting a copy.
- Holding a public meeting regarding the Plan on 4/16/2024 Public notice of this meeting was provided on the community website and in local newspapers.
- Approving the Plan at a public Council meeting on 4/16/2024. Public notices of this meeting were provided on the community website and live audio was available during the meeting.

2.02 PROGRAM FOR CONTINUING PUBLIC EDUCATION AND INFORMATION

Little Elm informs and educates the public about the Plan by the following means:

- Preparing a bulletin describing the plan and making it available at Town Hall and/or other appropriate locations.
- Including information and making the Plan available to the public through the Town's website and/or social media.
- Notifying local organizations, schools, and civic groups that utility staff are available to make presentations on the Plan (usually in conjunction with presentations on water conservation programs).
- At any time that the Plan is activated or changes, Little Elm will notify local media of the issues, the water resource management stage (if applicable), and the specific actions required of the public. The information will also be publicized on the community website and/or social media. Billing inserts will also be used as appropriate.

2.03 COORDINATION WITH THE REGIONAL WATER PLANNING GROUPS AND NTMWD

Appendix E of this Plan includes copies of letters sent to the Region C water planning group as well as NTMWD.

2.04 INITIATION AND TERMINATION OF WATER RESOURCE MANAGEMENT STATGES

A. INITITATION OF A WATER RESOURCE MANAGEMENT STAGE

The Town Manager or his/her designee may order the implementation of a water resource management stage when one or more of the trigger conditions for that stage is met.

- NTMWD has initiated a water resource management stage. (Stages imposed by NTMWD action ***must*** be initiated by Member Cities and Customers.)

- Other trigger conditions internal to Little Elm specified for each drought stage. For these types of internal conditions, the official designee may decide not to order the implementation of a stage even though one or more of the trigger criteria for the stage are met. Factors which could influence such a decision could 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. The reason for this decision should be documented.

The following actions will be taken when a water resource management stage is initiated:

- The public will be notified through local media and the supplier's website.
- Wholesale customers and NTMWD will be notified by email that provides details of the reasons for initiation of the water resource management stage.
- If any mandatory provisions of the Plan are activated, Little Elm will notify the TCEQ and the NTMWD Executive Director within five business days. Instructions can be accessed on the NTMWD portal online at https://www.ntmwd.com/login/portal/.

B. TERMINATION OF A WATER RESOURCE MANAGEMENT STAGE

Water resource management stages initiated by NTMWD may be terminated after NTMWD has terminated the stage. For stages initiated by the Town Manager or his/her designee, they may order the termination of a water resource management stage when the conditions for termination are met or at their discretion.

The following actions will be taken when a water resource management stage is terminated:

- The public will be notified through local media and Little Elm's website.
- Wholesale customers and NTMWD will be notified by email.

If any mandatory provisions of the Plan that have been activated are terminated, Little Elm will notify TCEQ Executive Director and the NTMWD Executive Director within five business days. Instructions to report drought contingency plan water use restrictions to TCEQ is available online at https://www.tceq.texas.gov/drinkingwater/homeland_security/security_pws. The Town Manager or his/her designee may decide not to order the termination of a water resource management stage even though the conditions for termination of the stage are met. Factors which could influence such a decision include, but are not limited to, the time of the year, weather conditions, or the anticipation of potentially changed conditions that warrant the continuation of the water resource management stage. The reason for this decision should be documented.

2.05 PROCEDURE FOR GRANTING VARIANCES TO THE PLAN

The Town Manager or his/her designee may grant temporary variances for existing water uses otherwise prohibited under this 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 or entity 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 Town Manager or his/her designee. All petitions for variances should be in writing and should include the following information:

- Name and address of the petitioners.
- 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 and the level of water use reduction.
- Other pertinent information.

2.06 PROCEDURES FOR ENFORCING MANDATORY WATER USE RESTRICTIONS

Mandatory water use restrictions may be imposed in Stage 1, Stage 2 and Stage 3. The penalties associated with the mandatory water use restrictions are explained below and included in the [ordinance or resolution] enacting this plan.

Stage 1:

- Violations must be observed by the Town Manager or his or her designee. Violations will be documented by electronic photographs and filed for review.

- First-time violations will be notified of their violation and be warned of the actions that will be imposed after additional violations.
- For the second violation, a $100.00 administrative fee will be included on the next available water bill. The $100.00 administrative fee will be waived or credited after the completion of a free irrigation check-up of the violating system, performed by a licensed irrigator contracted with the Town.
- For additional violations, the sprinkler system will be disconnected, with a $200.00 administrative fee included on the next available water bill after the third violation, followed by a $300.00 administrative fee after the fourth and any subsequent violations. All administrative fees will be waived or credited after completion of a free irrigation check-up of the violating system, performed by a licensed irrigator contracted with the Town.
- Unpaid assessed administrative fees related to violations of water use restrictions shall incur late payment penalties and may result in termination of water service.

Stage 2:

- Violations must be observed by the Town Manager or his or her designee. Violations will be documented by electronic photographs and filed for review.
- First-time violations will have the sprinkler system disconnected and a $100.00 administrative fee included on the next available water bill. The $100.00 administrative fee will be waived or credited after the completion of a free irrigation check-up of the violating system, performed by a licensed irrigator contracted with the Town.
- For the second violation, a $200.00 administrative fee will be included on the next available water bill. For additional violations, the sprinkler system will be disconnected, with a $200.00 administrative fee included on the next available water bill after the third violation, followed by a $300.00 administrative fee after the fourth and any subsequent violations.
- Unpaid assessed administrative fees related to violations of water use restrictions shall incur late payment penalties and may result in termination of water service.

Stage 3:

- Violations must be observed by the Town Manager or his or her designee. Violations will be documented by electronic photographs and filed for review.

- First-time violations will have the sprinkler system disconnected and a $100.00 administrative fee included on the next available water bill. The $100.00 administrative fee will be waived or credited after the completion of a free irrigation check-up of the violating system.
- For the second violation, a $200.00 administrative fee will be included on the next available water bill. For additional violations, the sprinkler system will be disconnected, with a $200.00 administrative fee included on the next available water bill after the third violation, followed by a $300.00 administrative fee after the fourth and any subsequent violations.
- Unpaid assessed administrative fees related to violations of water use restrictions shall incur late payment penalties and may result in termination of water service.

  OPTIONAL ADMINISTRATIVE REMEDIES

  Contesting Administrative Fees

  A customer may appeal the assessment of an administrative fee be requesting in writing to the Town Manager or his or her designee that the fee to be waived, providing all information to support the removal of the fee. The customer shall bear the burden of proof to show why the administrative fee should not be assessed. The Town Manager or his or her designee shall send written notice within three business days after receiving the first packet of information, and that decision shall be final and binding.

2.07 REVIEW AND UPDATE OF WATER RESOURCE AND EMERGENCY MANAGEMENT PLAN

As required by TCEQ rules, Little Elm must review their respective Plan every five years. The plan will be updated as appropriate based on new or updated information.

3.00 WATER RESOURCE AND EMERGENCY MANAGEMENT PLAN

Initiation and termination criteria for water management stages include general, demand, supply, and emergency criteria. One of the major indicators of approaching or ongoing drought conditions is NTMWD's combined reservoir storage, defined as storage at Lavon Lake plus storage in Bois d'Arc Lake. Percent storage is determined by dividing the current storage by the total conservation storage when the lakes are full. **Table 3** summarizes the water management stages by triggers based on percent combined storage and associated demand reduction goals and outdoor watering restrictions. The following sections go into more detail on the three water management stages.

TCEQ requires notification when mandatory restrictions are placed on a customer. NTMWD must notify TCEQ when they impose mandatory restrictions on Member Cities and Customers. Member Cities and Customers must likewise notify TCEQ when they impose mandatory restrictions on their customers (wholesale or retail). Measures that impose mandatory requirements on customers are denoted with **"requires notification to TCEQ"**. NTMWD and the utilities must notify TCEQ within five business days if these measures are implemented (https://www.tceq.texas.gov/response/drought/drought-and-public-water-systems).

Table 3: Water Management Plan Stages Summary

Drought Stage		April to October	November to March	Demand Reduction Goal	Outdoor Watering Restrictions
		Percent Combined Storage			
Stage 1	Initiation	70%	60%	2%	2X per week (Apr-Oct) 1X per week (Nov-Mar)
	Termination	75%	65%		
Stage 2	Initiation	55%	45%	5%	1X per week (Apr-Oct) 1X every other week (Nov-Mar)
	Termination	70%	60%		
Stage 3	Initiation	30%	20%	30%	No outdoor watering
	Termination	55%	45%		

3.01 WATER RESOURCE MANAGEMENT – STAGE 1

A. INITIATION AND TERMINATION CRITERIA FOR STAGE 1

Initiation

NTMWD has initiated Stage 1, which may be initiated when one or more of the following criteria is met:

- **General Criteria**
    - The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the declaration of Stage 1.
    - One or more source(s) is interrupted, unavailable, or limited due to contamination, invasive species, equipment failure or other cause.
    - The water supply system is unable to deliver needed supplies due to the failure or damage of major water system components.

  - Part of the system has a shortage of supply or damage to equipment. (NTMWD may implement measures for only that portion of the system impacted.)
  - A portion of the service area is experiencing an extreme weather event or power grid/supply disruptions.
  - The Town of Little Elm may implement restrictions at any time as required due to emergencies experienced with the water system operations when storage of water for pumping capacity is restricted such that normal demand cannot be met.
  - The Town of Little Elm may implement restrictions at any time if the Texas State Governor has issued a drought disaster declaration for Denton, or the neighboring counties.

- **Demand Criteria**
  - Water demand has exceeded or is expected to exceed 90% of maximum sustainable production or delivery capacity for an extended period.
- **Supply Criteria**
  - The combined storage in Lavon and Bois d'Arc Lake, as published by the TWDB, is less than:
    - 70% of the combined conservation pool capacity during any of the months of April through October
    - 60% of the combined conservation pool capacity during any of the months of November through March
  - The Sabine River Authority (SRA) has indicated that its Upper Basin water supplies used by NTMWD (Lake Tawakoni and/or Lake Fork) are in a Stage 1 drought.
  - NTMWD is concerned that Lake Texoma, Jim Chapman Lake, the East Fork Water Reuse Project, Main Stem Pump Station, and/or some other NTMWD water source may be limited in availability within the next six months.

In addition to NTMWD triggers, listed below are internal triggers that may cause Little Elm to initiate Stage 1 restrictions:

- The Town's water demand has exceeded 90% of the amount that can be delivered to customers for two consecutive days.
- The Town's water demand for all or part of the delivery system equals delivery capacity because delivery capacity is inadequate.

- The Town's water system is unable to deliver water due to the failure or damage of major water system components.
- The Town Manager or his/her designee determines that it is appropriate to initiate Stage 1.

Termination

Stage 1 may terminate when one or more of the following criteria is met:

- **General Criteria**
    - The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the termination of Stage 1.
    - The circumstances that caused the NTMWD initiation of Stage 1 no longer prevail.
    - The circumstances that caused the internal Little Elm initiation of Stage 1 no longer prevail.
- **Supply Criteria**
    - The combined storage in Lavon and Bois d'Arc Lakes, as published by the TWDB, is greater than:
        - 75% of the combined conservation pool capacity during any of the months of April through October
        - 65% of the combined conservation pool capacity during any of the months of November through March

In situations in which NTMWD is not in any stages, listed below are internal triggers that may cause Little Elm to terminate Stage 1 restrictions:

- The circumstances that caused Little Elm to initiate Stage 1 no longer prevail.

B. GOAL FOR USE REDUCTION UNDER STAGE 1

The goal for water use reduction under Stage 1 is an annual reduction of 2% in the use that would have occurred in the absence of water management measures. Because discretionary water use is highly concentrated in the summer months, savings should be higher than 5% in summer to achieve an annual savings goal of 2%. **If circumstances warrant, or if required by NTMWD, the Town Manager can set a goal for greater or less water use reduction.**

C. WATER MANAGEMENT MEASURES AVAILABLE UNDER STAGE 1

The actions listed below are provided as potential measures to reduce water demand. The Town Manager or his/her designee may choose to implement any or all of the available restrictions in Stage 1.

- Continue actions described in the water conservation plan.
- Notify wholesale customers of actions being taken and request that they implement similar procedures.
- Increase enforcement of landscape watering restrictions from the water conservation plan, as described in Section 8.02(F) of that plan.
- Initiate engineering studies to evaluate alternative actions that can be implemented if conditions worsen.
- Accelerate public education efforts on ways to reduce water use.
- Halt non-essential town government water use.
- Encourage the public to wait until the current drought or water emergency situation has passed before establishing new landscaping.
- Encourage all users to reduce the frequency of draining and refilling swimming pools.
- **Requires notification to TCEQ.** Initiate a rate surcharge for all water use over a certain level.
- **Requires notification to TCEQ.** Parks, golf courses, and athletic fields using potable water for landscape watering are required to meet the same reduction goals and measures outlined in this stage. As an exception, golf course greens and tee boxes may be hand watered as needed.

3.02 WATER RESOURCE MANAGEMENT – STAGE 2

A. INITIATION AND TERMINATION CRITERIA FOR STAGE 2

Initiation

NTMWD has initiated Stage 2, which may be initiated due to one or more of the following criteria is met:

- **General Criteria**
    - The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the declaration of Stage 2.
    - One or more supply source(s) is interrupted, unavailable, or limited due to contamination, invasive species, equipment failure or other cause.
    - The water supply system is unable to deliver needed supplies due to the failure or damage of major water system components.
    - Part of the system has a shortage of supply or damage to equipment. (NTMWD may implement measures for only that portion of the system impacted.)

  - A portion of the service area is experiencing an extreme weather event or power grid/supply disruptions.

- **Demand Criteria**
  - Water demand has exceeded or is expected to exceed 95% of maximum sustainable production or delivery capacity for an extended period.
- **Supply Criteria**
  - The combined storage in Lavon and Bois d'Arc Lake, as published by the TWDB, is less than
    - 55% of the combined conservation pool capacity during any of the months of April through October
    - 45% of the combined conservation pool capacity during any of the months of November through March
  - SRA has indicated that its Upper Basin water supplies used by NTMWD (Lake Tawakoni and/or Lake Fork) are in a Stage 2 drought.
  - NTMWD is concerned that Lake Texoma, Jim Chapman Lake, the East Fork Water Reuse Project, the Main Stem Pump Station, and/or some other NTMWD water source may be limited in availability within the next three months.

In addition to NTMWD triggers, listed below are internal triggers that may cause Little Elm to initiate Stage 2 restrictions:

- The Town's water demand has exceeded 95% of the amount that can be delivered to customers for two consecutive days.
- The Town's water demand for all or part of the delivery system equals delivery capacity because delivery capacity is inadequate.
- The Town's water system is unable to deliver water due to the failure or damage of major water system components.
- The Town Manager or his/her designee determines that it is appropriate to initiate Stage 2.

Termination

Stage 2 may terminate when one or more of the following criteria is met:

- **General Criteria**
  - The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the termination of Stage 2.

  - The circumstances that caused the NTMWD initiation of Stage 2 no longer prevail.
  - The circumstances that caused the internal Little Elm initiation of Stage 2 no longer prevail.

- **Supply Criteria**
  - The combined storage in Lavon and Bois d'Arc Lake, as published by the TWDB, is greater than
    - 70% of the combined conservation pool capacity during any of the months of April through October
    - 60% of the combined conservation pool capacity during any of the months of November through March

In situations in which NTMWD is in Stage 1 or not in any stages, listed below are internal triggers that may cause Little Elm to terminate Stage 2 restrictions:

- The circumstances that caused Little Elm to initiate Stage 2 no longer prevail.

B. GOAL FOR USE REDUCTION UNDER STAGE 2

The goal for water use reduction under Stage 2 is an annual reduction of 5% in the use that would have occurred in the absence of water resource management measures. Because discretionary water use is highly concentrated in the summer months, savings should be higher than 5% in summer to achieve an annual savings goal of 5%. **If circumstances warrant, or if required by NTMWD, the Town Manager can set a goal for greater or less water use reduction.**

C. WATER MANAGEMENT MEASURES AVAILABLE UNDER STAGE 2

The actions listed below are provided as potential measures to reduce water demand. The Town Manager may choose to implement any or all of the available restrictions in Stage 2.

- Continue or initiate any actions available under the water conservation plan and Stage 1.
- Implement viable alternative water supply strategies.

  Requires notification to TCEQ. Limit landscape watering with sprinklers or irrigation systems at each service address to once per week on designated days between April 1 and October 31. Limit landscape watering with sprinklers or irrigation systems at each service address to once every other week on designated days between November 1 and March 31. For residential water customers, watering day is defined as the assigned trash/recycle pickup day for the property address associated with the irrigation system. If there is no street address associated with the property, or there is more than one

street address associated with a single contiguous property, the watering day is defined as Wednesday. For industrial, commercial, and institutional water customers, watering day is defined as Wednesday.

- Exceptions are as follows:
    - New construction may be watered as necessary for 30 days from the installation of new landscape features.
    - Foundation watering (within 2 feet), watering of new plantings (first year) of shrubs, and watering of trees (within a 10-foot radius of its trunk) for up to two hours on any day by a hand-held hose, a soaker hose, or a dedicated zone using a drip irrigation system, provided no runoff occurs.
    - Athletic fields may be watered twice per week.
    - Locations using alternative sources of water supply only for irrigation may irrigate without day-of-the-week restrictions provided proper signage is employed to notify the public of the alternative water source(s) being used. However, irrigation using alternative sources of supply is subject to all other restrictions applicable to this stage. If the alternative supply source is a well, proper proof of well registration with your local water supplier (e.g., city, water supply corporation) is required. Other sources of water supply may not include imported treated water.
    - An exemption is for drip irrigation systems from the designated outdoor water use day limited to no more than one day per week. Drip irrigation systems are, however, subject to all other restrictions applicable under this stage.
- **Requires notification to TCEQ.** Prohibit overseeding, sodding, sprigging, broadcasting or plugging with or watering, except for golf courses and athletic fields.
- **Requires notification to TCEQ.** If NTMWD has imposed a reduction in water available to Member Cities and Customers, impose the same percent reduction on any wholesale customers.
- **Requires notification to TCEQ.** Initiate a rate surcharge for all water use over a certain level.
- **Requires notification to TCEQ.** Parks and golf courses using potable water for landscape watering are required to meet the same reduction goals and measures outlined in this stage. As an exception, golf course greens and tee boxes may be hand watered as needed.

3.03 WATER RESOURCE MANAGEMENT – STAGE 3

A. INITIATION AND TERMINATION CRITERIA FOR STAGE 3

Initiation

NTMWD has initiated Stage 3, which may be initiated due to one or more of the following criteria is met:

- **General Criteria**
    - The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the declaration of Stage 3.
    - One or more supply source(s) is interrupted, unavailable, or limited due to contamination, invasive species, equipment failure, or other cause.
    - The water supply system is unable to deliver needed supplies due to the failure or damage of major water system components.
    - Part of the system has a shortage of supply or damage to equipment. (NTMWD may implement measures for only that portion of the system impacted.)
    - A portion of the service area is experiencing an extreme weather event or power grid/supply disruptions.
- **Demand Criteria**
    - Water demand has exceeded or is expected to exceed maximum sustainable production or delivery capacity for an extended period.
- **Supply Criteria**
    - The combined storage in Lavon and Bois d'Arc Lake, as published by the TWDB, is less than
        - 30% of the combined conservation pool capacity during any of the months of April through October
        - 20% of the combined conservation pool capacity during any of the months of November through March
- SRA has indicated that its Upper Basin water supplies used by NTMWD (Lake Tawakoni and/or Lake Fork) are in a drought and have significantly reduced supplies available to NTMWD.
- The supply from Lake Texoma, Jim Chapman Lake, the East Fork Water Reuse Project, the Main Stem Pump Station, and/or some other NTMWD water source has become limited in availability.

In addition to NTMWD triggers, listed below are internal triggers that may cause Little Elm to initiate Stage 3 restrictions:

- The Town's water demand has exceeded or is expected to exceed maximum sustainable production or delivery capacity for two consecutive days.
- The Town's water demand for all or part of the delivery system equals delivery capacity because delivery capacity is inadequate.
- The Town's water system is unable to deliver water due to the failure or damage of major water system components.
- The Town Manager or his/her designee determines that it is appropriate to initiate Stage 3.

Termination

Stage 3 may terminate when one or more of the following criteria is met:

- **General Criteria**
    - The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the termination of Stage 3.
    - The circumstances that caused the NTMWD initiation of Stage 3 no longer prevail.
    - The circumstances that caused the internal Little Elm initiation of Stage 3 no longer prevail.
- **Supply Criteria**
    - The combined storage in Lavon and Bois d'Arc Lake, as published by the TWDB, is greater than:
        - 55% of the combined conservation pool capacity during any of the months of April through October
        - 45% of the combined conservation pool capacity during any of the months of November through March

In situations in which NTMWD is in Stage 2, Stage 1 or not in any stages, listed below are internal triggers that may cause Little Elm to terminate Stage 3 restrictions:

- The circumstances that caused Little Elm to initiate Stage 3 no longer prevail.

B. GOAL FOR USE REDUCTION UNDER STAGE 3

The goal for water use reduction under Stage 3 is an annual reduction of 30% in the use that would have occurred in the absence of water resource management measures, or the goal for water use reduction is whatever reduction is necessary. Because discretionary water use is

highly concentrated in the summer months, savings should be higher than 30% in summer to achieve an annual savings goal of 30%. **If circumstances warrant, or if required by NTMWD, the Town Manager can set a goal for greater or less water use reduction.**

C. WATER MANAGEMENT MEASURES AVAILABLE UNDER STAGE 3

The actions listed below are provided as potential measures to reduce water demand. The Town Manager may choose to implement any or all of the available restrictions in Stage 3.

- Continue or initiate any actions available under the water conservation plan and Stages 1 and 2.
- Implement viable alternative water supply strategies.
- **Requires notification to TCEQ.** Require Little Elm wholesale customers to initiate Stage 3 restrictions in their respective, independently adopted water resource management plans.
- **Requires notification to TCEQ.** Initiate mandatory water use restrictions as follows:
    - 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.
    - Prohibit operation of ornamental fountains or ponds that use potable water except where supporting aquatic life.
- **Requires notification to TCEQ.** Prohibit new sod, overseeding, sodding, sprigging, broadcasting or plugging with or watering.
- **Requires notification to TCEQ.** Prohibit the use of potable water for the irrigation of new landscape.
- **Requires notification to TCEQ.** Prohibit all commercial and residential landscape watering, except foundations (within 2 feet) and trees (within a 10-foot radius of its trunk) may be watered for two hours one day per week with a hand-held hose, a soaker hose, or a dedicated zone using a drip irrigation system provided no runoff occurs. Drip irrigation systems are <u>not</u> exempt from this requirement.
- **Requires notification to TCEQ.** Prohibit washing of vehicles except at a commercial vehicle wash facility.
- **Requires notification to TCEQ.** Landscape watering of parks, golf courses, and athletic fields with potable water is prohibited. As an exception, golf course greens and tee boxes may be hand watered as needed. Variances may be granted by the water provider under special circumstances.

- **Requires notification to TCEQ.** Prohibit the filling, draining, and/or refilling of existing swimming pools, wading pools, Jacuzzi and hot tubs except to maintain structural integrity, proper operation and maintenance or to alleviate a public safety risk. Existing pools may add water to replace losses from normal use and evaporation. Permitting of new swimming pools, wading pools, Jacuzzi and hot tubs is prohibited.
- **Requires notification to TCEQ.** Prohibit the operation of interactive water features such as water sprays, dancing water jets, waterfalls, dumping buckets, shooting water cannons, inflatable pools, temporary splash toys or pools, slip-n-slides, or splash pads that are maintained for recreation.
- **Requires notification to TCEQ.** Require all commercial water users to reduce water use by a set percentage.
- **Requires notification to TCEQ.** If NTMWD has imposed a reduction in water available to Member Cities and Customers, impose the same percent reduction on any wholesale customers.
- **Requires notification to TCEQ.** Initiate a rate surcharge over normal rates for all water use or for water use over a certain level

Appendix A

List of References

The following appendix contains a list of references used throughout the plans.

APPENDIX A

LIST OF REFERENCES

1. Texas Commission on Environmental Quality Water Conservation Implementation Report. https://www.tceq.texas.gov/assets/public/permitting/forms/20645.pdf

2. Title 30 of the Texas Administrative Code, Part 1, Chapter 288, Subchapter A, Rules 288.1 and 288.5, and Subchapter B, Rule 288.22, downloaded from http://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=288, April 2023.

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

4. Texas Water Development Board, Texas Commission on Environmental Quality, Water Conservation Advisory Council: Guidance and Methodology for Reporting on Water Conservation and Water Use, December 2012

5. Freese and Nichols, Inc.: Model Water Conservation Plan for NTMWD Members Cities and Customers, prepared for the North Texas Municipal Water District, Fort Worth, January 2024.

6. Freese and Nichols, Inc.: Model Water Resource and Emergency Management Plan for NTMWD Members Cities and Customers, prepared for the North Texas Municipal Water District, Fort Worth, January 2024.

7. Freese and Nichols Inc, Alan Plummer Associates, Inc., CP & Y Inc., Cooksey Communications. "2021 Region C Water Plan"

Appendix B

Texas Administrative Code Title 30 Chapter 288

The following appendix contains the Texas Administrative Code that regulates both water conservation and drought contingency plans. Prior to the code, a summary is given that outlines where each requirement is fulfilled within the plans.

APPENDIX B

TEXAS ADMINISTRATIVE CODE TITLE 30 CHAPTER 288

The TCEQ rules governing development of water conservation plans are contained in Title 30, Chapter 288, Subchapter A of the Texas Administrative Code.

The water conservation plan elements required by the TCEQ rules that are covered in this water conservation plan are listed below.

Minimum Conservation Plan Requirements for Public Water Suppliers

- 288.2(a)(1)(A) – Utility Profile – Section 2
- 288.2(a)(1)(B) – Record Management System – Section 4
- 288.2(a)(1)(C) – Specific, Quantified Goals – Section 3
- 288.2(a)(1)(D) – Accurate Metering – Section 4
- 288.2(a)(1)(E) – Universal Metering – Section 4
- 288.2(a)(1)(F) – Determination and Control of Water Loss – Section 4
- 288.2(a)(1)(G) – Public Education and Information Program – Section 8
- 288.2(a)(1)(H) – Non-Promotional Water Rate Structure – Section 8
- 288.2(a)(1)(I) – Reservoir System Operation Plan – Section 6
- 288.2(a)(1)(J) – Means of Implementation and Enforcement – Section 7
- 288.2(a)(1)(K) – Coordination with Regional Water Planning Group – Section 7
- 288.2(c) – Review and Update of Plan – Section 7

Additional Requirements for Public Water Suppliers (Population over 5,000)

- 288.2(a)(2)(A) – Leak Detection, Repair, and Water Loss Accounting – Section 4
- 288.2(a)(2)(B) – Requirement for Water Conservation Plans by Wholesale Customers – Section 5

Minimum Conservation Plan Requirements for Wholesale Water Suppliers

- 288.5(1)(A) – Description of Service Area – Section 2
- 288.5(1)(B) – Specific, Quantified Goals – Section 3
- 288.5(1)(C) – Measure and Account for Water Diverted – Section 4

- 288.5(1)(D) – Monitoring and Record Management Program – Section 4
- 288.5(1)(E) – Program of Metering and Leak Detection and Repair – Section 4
- 288.5(1)(F) – Requirement for Water Conservation Plans by Wholesale Customers – Section 5
- 288.5(1)(G) – Reservoir System Operation Plan – Section 6
- 288.5(1)(H) – Means of Implementation and Enforcement – Section 7
- 288.5(1)(I) – Documentation of Coordination with Regional Water Planning Group – Section 7
- 288.5(3) – Review and Update of Plan – Section 7

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) 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.

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

(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 coordinator--The person designated by a retail public water supplier that is responsible for implementing a water conservation plan.

(24) 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).

(25) 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.

(26) 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; amended to be effective August 16, 2018, 43 TexReg 5218

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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

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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 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 device(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 in 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 of 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

TEXAS ADMINISTRATIVE CODE TITLE 30 CHAPTER 288

The TCEQ rules governing development of drought contingency plans are contained in Title 30, Chapter 288, Subchapter B of the Texas Administrative Code.

The drought contingency plan elements required by the TCEQ rules that are covered in this drought contingency plan are listed below.

Minimum Drought Contingency Plan Requirements for Public Water Suppliers

- **288.20(a)(1)(A)** – Provisions to Inform Public and Provide Opportunity for Public Input - Section 2
- **288.20(a)(1)(B)** – Program for Continuing Public Education and Information – Section 2
- **288.20(a)(1)(C)** –Coordination with Regional Water Planning Groups – Section 2
- **288.20(a)(1)(D)** – Description of Information to Be Monitored and Criteria for the Initiation and Termination of Water Resource Management Stages – Sections 2
- **288.20(a)(1)(E)** – Stages for Implementation of Measures in Response to Situations – Section 3
- **288.20(a)(1)(F)** – Specific, Quantified Targets for Water Use Reductions During Water Shortages – Section 3
- **288.20(a)(1)(G)** – Specific Water Supply or Water Demand Measures to Be Implemented at Each Stage of the Plan – Section 3
- **288.20(a)(1)(H)** – Procedures for Initiation and Termination of Drought Contingency and Water Emergency Response Stages – Section 2
- **288.20(a)(1)(I)** – Description of Procedures to Be Followed for Granting Variances to the Plan – Section 2
- **288.20(a)(1)(J)** – Procedures for Enforcement of Mandatory Water Use Restrictions – Section 2
- **288.20(b)** – TCEQ Notification of Implementation of Mandatory Provisions – Sections 2 and 3
- **288.20(c)** – Review of Drought Contingency and Water Emergency Response Plan Every Five (5) Years – Section 2

Minimum Drought Contingency Plan Requirements for Wholesale Water Suppliers

- **288.22(a)(1)** – Provisions to Inform the Public and Provide Opportunity for Public Input – Section 2

- **288.22(a)(2)** – Coordination with the Regional Water Planning Groups – Section 2
- **288.22(a)(3)** – Criteria for Initiation and Termination of Drought Stages – Section 3
- **288.22(a)(4)** – Drought and Emergency Response Stages – Section 3
- **288.22(a)(5)** – Procedures for Initiation and Termination of Drought Stages – Section 2
- **288.22(a)(6)** – Specific, Quantified Targets for Water Use Reductions During Water Shortages – Section 3
- **288.22(a)(7)** – Specific Water Supply or Water Demand Management Measures to be Implemented during Each Drought Stage – Section 3
- **288.22(a)(8)** – Provision in Wholesale Contracts to Require Water Distribution According to Texas Water Code Section §11.039 – Sections 2 and 3
- **288.22(a)(9)** – Procedures for Granting Variances to the Plan - Section 2
- **288.22(a)(10)** - Procedures for Enforcement of Mandatory Restrictions – Section 2
- **288.22(b)** – TCEQ Notification of Implementation of Mandatory Measures – Sections 2 and 3
- **288.22(c)** – Review and Update of the Plan – Section 2

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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

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CHAPTER 288	WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS
SUBCHAPTER B	DROUGHT CONTINGENCY PLANS
RULE §288.22	**Drought Contingency Plans for Wholesale Water Suppliers**

(a) A drought contingency plan for a wholesale water supplier must include the following minimum elements.

(1) Preparation of the plan shall include provisions to actively inform the public and to affirmatively provide opportunity for user input in the preparation of the plan and for informing wholesale customers about the plan. 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.

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

(3) 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.

(4) The drought contingency plan must include a minimum of three drought or emergency response stages providing for the implementation of measures in response to water supply conditions during a repeat of the drought-of-record.

(5) The drought contingency plan must include the procedures to be followed for the initiation or termination of drought response stages, including procedures for notification of wholesale customers regarding the initiation or termination of drought response stages.

(6) 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 paragraph are not enforceable.

(7) 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:

(A) pro rata curtailment of water deliveries to or diversions by wholesale water customers as provided in Texas Water Code, §11.039; and

(B) utilization of alternative water sources 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.).

(8) The drought contingency plan must include a provision in every wholesale water contract entered into or renewed after adoption of the plan, including contract extensions, that in case of a shortage of water resulting from drought, the water to be distributed shall be divided in accordance with Texas Water Code, §11.039.

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

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

(b) The wholesale public 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 wholesale 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 adoption or revision of the regional water plan.

Source Note: The provisions of this §288.22 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

TCEQ Water Utility Profile

The following appendix contains the form TCEQ-10218 and/or TCEQ-20162.

Texas Commission on Environmental Quality

UTILITY PROFILE AND WATER CONSERVATION PLAN REQUIREMENTS FOR MUNICIPAL WATER USE BY RETAIL PUBLIC WATER SUPPLIERS

This form is provided to assist retail public water suppliers in water conservation plan development. If you need assistance in completing this form or in developing your plan, please contact the conservation staff of the Resources Protection Team in the Water Availability Division at (512)239-4691.

Town of Little Elm - Utility Profile Based on TCEQ Format

Name:	Town of Little Elm
Address:	1600 Mark Tree Lane
	Little Elm, TX 75068
Telephone Number:	(972)377-5556
Water Right No.(s):	--
Regional Water Planning Group:	Region C
Form Completed by:	Adam Conner
Title:	Freese and Nichols
Person responsible for implementing conservation program:	Cody Collier
Signature:	Date: 2/15/2024

NOTE: If the plan does not provide information for each requirement, include an explanation of why the requirement is not applicable.

UTILITY PROFILE

I. POPULATION AND CUSTOMER DATA

A. Population and Service Area Data

1. Attach a copy of your service-area map.
   See figure of service area in WCP

2. Service area size (square miles): 9.45

3. Current population of service area: 40,269

4. Current population served for:
   a. water: 40,269
   b. wastewater: 40,269

5. Population served by utility for the previous five years:

Year	*Population*
2018	32,277
2019	33,624
2020	33,480
2021	40,284
2022	40,269

6. Projected population for service area in the following decades:

Year	*Population*
2030	44,322
2040	42,372
2050	44,739
2060	46,710
2070	48,000

7. List source or method for the calculation of current and projected population size.
   Historical populations reflect the total served retail population by the Town of Little Elm. This is not the same as what was reported in historic WUSs, as that includes wholesale population. Projected populations are from the draft 2026 Region C Water Plan (1.0 migration).

B. Customers Data

Senate Bill 181 requires that uniform consistent methodologies for calculating water use and conservation be developed and available to retail water providers and certain other water use sectors as a guide for preparation of water use reports, water conservation plans, and reports on water conservation efforts. A water system must provide the most detailed level of customer and water use data available to it, however, any new billing system purchased must be capable of reporting data for each of the sectors listed below. http://www.tceq.texas.gov/assets/public/permitting/watersupply/water_rights/sb181_guidance.pdf

1. Current number of active connections. Check whether multi-family service is counted as
Residential ☑ or Commercial? ☐
Note: This represents retail connection count in 2022

Treated Water Users	*Metered*	*Non-Metered*	**Totals**
Residential - Single Family	11,994		11,994
Residental - Multi Family	19		19
Institutional	52		52
Commerical	220		220
Industrial	0		0
Agriculture	179		179
Reuse	5		5
Total Unmetered	0	80	80
TOTAL	**12,464**	**80**	**12,549**

2. List the number of new connections per year for most recent three years.
Note: The large reduction in MF accounts in 2020 is due to the fact that the City went from counting every MF unit to acc

Year	*2020*	*2021*	*2022*
Treated Water Users			
Residential - Single Family	164	481	229
Residential - Multi Family	-1,711	0	2
Institutional	15	-126	9
Commerical	19	19	10
Industrial	0	0	0
Agriculture	17	16	-3
Reuse	0	3	1
Total Unmetered	0	87	-8
TOTAL	**-1,496**	**480**	**240**

3. List of annual water use for the five highest volume customers.
Note: This represents highest retail customers in 2023

	Customer	*Use (1,000 gal/year)*	*Treated or Raw Water*
1.	Zipps Car Wash LLC	7,675	Treated
2.	El Dorado Parkway, LLC	3,224	Treated
3.	Five Dragonflies Management LLC	2,151	Treated
4.	NWC 423 & El Dorado Pkwy Ltd	1,922	Treated
5.	Apple Texas Restaurants	1,912	Treated

II. WATER USE DATA FOR SERVICE AREA

A. Water Accounting Data

1. List the amount of water use for the previous five years (in 1,000 gallons.)
   Indicate whether this is ☐ diverted or ☑ treated water.

Year / *Month*	*2018*	*2019*	*2020*	*2021*	*2022*
January	89,222	79,587	85,818	85,886	99,444
February	83,108	75,627	70,527	98,543	87,710
March	83,400	93,867	79,081	98,267	103,104
April	95,045	95,623	109,520	116,906	115,288
May	135,206	107,146	105,094	104,398	131,295
June	126,543	102,864	150,318	118,878	163,413
July	209,088	146,264	166,589	153,496	228,261
August	183,378	179,924	181,047	195,109	211,739
September	122,512	151,309	153,183	180,653	172,237
October	110,361	134,548	149,834	148,642	154,631
November	104,500	86,930	96,791	113,311	102,913
December	83,150	74,570	101,322	109,065	99,738
Totals	**1,425,512**	**1,328,259**	**1,449,124**	**1,523,155**	**1,669,772**

Describe how the above figures were determined (e.g, from a master meter located at the point of a diversion from the source, or located at a point where raw water enteres the treatment plant, or from water sales).

Treated surface water is delivered by North Texas Municipal Water District to Little Elm, at their Mansell Pump Station. Master meter is used to read delivery amounts.

2. Amount of water (in 1,000 gallons) delivered/sold as recorded by the following account types for the past five years.

Year / *Account Types*	*2018*	*2019*	*2020*	*2021*	*2022*
Residential	1,027,163	948,982	1,075,565	1,079,133	1,220,793
Single-Family	*943,000*	*860,734*	*958,806*	*954,546*	*1,093,359*
Multi-Family	*84,163*	*88,248*	*116,759*	*124,587*	*127,434*
Commercial	166,384	100,872	54,774	64,610	59,656
Industrial/Mining	0	0	0	0	0
Institutional	51,499	43,136	43,199	29,050	39,248
Agriculture	78,567	69,041	68,489	79,356	107,381
TOTAL	**1,323,613**	**1,162,031**	**1,242,027**	**1,252,149**	**1,427,078**

3. List the previous records for water loss for the past five years (the difference between water diverted or treated and water delivered or sold).

Year	*Amount (gallons)*	*Percent*
2018	930,349	0.1%
2019	65,504,938	4.9%
2020	106,158,495	7.3%
2021	171,023,642	11.1%
2022	65,103,335	3.9%

B. Projected Water Demands

If applicable, attach or cite projected water supply demands from the applicable Regional Water Planning Group for the next ten years using information such as population trends, historical water use, and economic growth in the service area over the next ten years and any additional water supply requirements from such growth.

Year	**Projected Demand of Served Population (AF/Y)**	**Source of data**
2022	4,380	*Actual Demand*
2023	4,571	*Interpolated*
2024	4,763	*Interpolated*
2025	4,955	*Interpolated*
2026	5,147	*Interpolated*
2027	5,339	*Interpolated*
2028	5,531	*Interpolated*
2029	5,723	*Interpolated*
2030	5,915	*2026 Region C Plan*
2031	5,886	*Interpolated*

Note: Projections for 2022-2030 are calculated by taking the 2022 actual demand and interpolating to the 2030 projection from the draft 2026 Region C Plan. Projections for 2030-2040 are calculated by interpolating between the 2030 and 2040 projections from the 2026 Region C Plan. Projections include TWDB estimated reductions for plumbing fixtures.

III. WATER SUPPLY SYSTEM DATA

A. Water Supply Sources

List all current water supply sources and the amounts authorized (in acre feet) with each.

Water Type	*Source*	*Amount Authorized*
Surface Water	-	-
Groundwater	-	-
Contracts	North Texas Municipal Water District	Up to 2.5X daily average
Other	-	-
Total	-	0

B. Treatment and Distribution System

1. Design daily capacity of system: 13.6 MGD

Treatment Plant	Design Well Pumping Capacity (MGD)	Firm Well Pumping Capacity (MGD)
TOTAL		

2. Storage capacity: 10.6 MG
   a. Elevated 3.6 MG
   b. Ground 7.1 MG

3. If surface water, do you recycle filter backwash to the head of the plant?
   ☐ Yes ☑ No If yes, approximate amount (MGD):

IV. WASTEWATER SYSTEM DATA

A. Wastewater System Data (if applicable)

1. Design capacity of wastewater treatment plant(s) (MGD): 4 MGD daily average (permitted), 12 MGD 2-hou

2. Treated effluent is used for:
   ☐ on-site irrigation,
   ☑ off-site irrigation,
   ☑ plant wash-down, and or
   ☐ chlorination/dechlorination.

   If yes, approximate amount (in gallons per month):

3. Briefly describe the wastewater system(s) of the area serviced by the water utility. Describe how treated wastewater is disposed. Where applicable, identify treatment plant(s) with the TCEQ name and number, the operator, owner, and the receiving stream if wastewater is discharged.

Treatment Plant Name	TCEQ Number	Permitted Discharge (MGD)*	Operator	Owner	Receiving Stream
Little Elm WWTP	WQ0011600001	4.0	Town of Little Elm	Town of Little Elm	Unnamed tributary; thence to Lewisville Lake in Segment No. 0823 of the Trinity River Basin

**Note: Permitted discharges listed respresent the current and build-out facility design capacities (MGD).*

B. Wastewater Data for Service Area (if applicable)

1. Percent of water service area served by wastewater system: 95%

2. Monthly volume treated for previous five years (in 1,000 gallons):

Year	*2019*	*2020*	*2021*	*2022*
Month				
January	96,420	76,770	76,050	63,810
February	90,030	82,050	79,440	67,230
March	88,590	89,520	76,530	66,450
April	96,480	77,100	77,340	70,200
May	105,060	81,720	89,550	75,420
June	97,590	82,830	85,170	70,830
July	8,715	78,960	77,850	63,780
August	85,890	74,910	76,890	70,740
September	85,050	80,670	68,640	68,100
October	84,960	71,580	69,780	67,200
November	76,110	71,790	72,810	76,050
December	69,240	73,800	66,630	76,860
Totals	**984,135**	**941,700**	**916,680**	**836,670**

Appendix D

Town of Little Elm 2022 Annual Water Conservation Report

Texas Water Development Board

Water Conservation Plan Annual Report
Retail Water Supplier

CONTACT INFORMATION

Name of Utility: TOWN OF LITTLE ELM

Public Water Supply Identification Number (PWS ID): TX0610035

Certification of Convenience and Necessity (CCN) Number: 11202

Surface Water Right ID Number:

Wastewater ID Number: 20931

Check all that apply:

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

Address: 100 W. Eldorado Parkway City: Little Elm Zip Code: 75068

Email: ccollier@littleelm.org Telephone Number: 9723775557

Regional Water Planning Group: C

Groundwater Conservation District:

Contact: First Name: Cody Last Name: Collier

Title: Assistant Director Of Public Works

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

Regional Water Planning Group: C

Groundwater Conservation District:

Reporting Period (Calendar year):

Period Begin (mm/yyyy): 01/2022 Period End (mm/yyyy): 12/2022

Check all that apply:

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

SYSTEM DATA

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

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

Retail Customers Categories*

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

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

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

Retail Customer Category	Number of Connections	Gallons Metered
Residential - Single Family	11,994	1,093,359,000
Residential - Multi-family	19	127,434,000
Industrial	0	0
Commercial	220	59,656,000
Institutional	52	39,248,000
Agricultural	179	107,381,000
Total Retail Water Metered[1]	12,464	1,427,078,000

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

Texas Water Development Board

Water Use Accounting

	Total Gallons During the Reporting Period
1. Corrected Input Volume: The volume of treated water input to the distribution system from own production facilities. Same as line 13b of the Water Loss Audit for reporting periods >= 2015. Same as line 14 of the Water Loss Audit for reporting periods <= 2014.	**0**
2. Corrected Treated Purchased Water Volume: The amount of treated purchased wholesale water transfered into the utility's distribution system from other water suppliers system. Same as line 14b of the Water Loss Audit for reporting periods >= 2015. Same as line 15 of the Water Loss Audit for reporting periods <= 2014.	**1,828,848,485**
3. Corrected Treated Wholesale Water Sales Volume: The amount of treated wholesale water transfered out of the utility's distribution system, although it may be in the system for a brief time for conveyance reasons. Same as line 15b of the Water Loss Audit for reporting periods >= 2015. Same as line 16 of the Water Loss Audit for reporting periods <= 2014.	**142,210,089**
4. Total System Input Volume: This is the sum of the corrected input volume plus corrected treated purchased water volume minus corrected treated wholesale water sales volume. Same as line 16 of the Water Loss Audit for reporting periods >= 2015. Same as line 17 of the Water Loss Audit for reporting periods <= 2014. Produced + Imported - Exported = Total System Input Volume	**1,686,638,396**
5. Billed Metered: All retail water sold and metered. Same as line 17 of the Water Loss Audit for reporting periods >= 2015. Same as line 18 of the Water Loss Audit for reporting periods <= 2014.	**1,427,078,000**
6. Other Authorized Consumption: Water that is authorized for other uses such as back flushing, line flushing, storage tank cleaning, fire department use, municipal government offices or municipal golf courses/parks. This water may be metered or unmetered. Same as lines 18, 19, and 20 of the Water Loss Audit for reporting periods >= 2015. Same as lines 19, 20, and 21 of the Water Loss Audit for reporting periods <= 2014.	**194,457,061**
7. Total Authorized Consumption: All water that has been authorized for use. Same as Line 21 of the Water Loss Audit for reporting periods >= 2015. Same as line 22 of the Water Loss Audit for reporting periods <= 2014. Total Billed and Metered Retail Water + Other Authorized Consumption = Total Authorized Consumption	**1,621,535,061**
8. Total Apparent Losses: Water that has been consumed but not properly measured or billed (losses due to customer meter inaccuracy, systematic data handling discrepancy and/or unauthorized consumption such as theft). Same as line 27 of the Water Loss Audit for reporting periods >= 2015. Same as line 28 of the Water Loss Audit for reporting periods <= 2014.	**21,550,319**

9. Total Real Loss: Physical losses from the distribution system prior to reaching the customer destination (losses due to reported breaks and leaks, physical losses from the system or mains and/or storage overflow). Same as line 30 of the Water Loss Audit for reporting periods >= 2015. Same as line 31 of the Water Loss Audit for reporting periods <= 2014.	**43,553,016**
10. Total Water Loss: Apparent + Real = Total Water Loss	**65,103,335**

Programs and Activities

1. What year did your entity adopt or revise their most recent Water Conservation Plan? 2019

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

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

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

Best Management Practice	Check if Implemented	Estimated Gallons Saved	Estimated Gallons Reused
Conservation Analysis and Planning			
Conservation Coordinator	☐		
Cost Effective Analysis	☐		
Water Survey for Single Family and Multi-family Customers	☐		
Customer Characterization	☐		
Financial			
Wholesale Agency Assistance Programs	☐		
Water Conservation Pricing	☐		
System Operations			
Metering New Connections and Retrofitting Existing Connections	☑	15,000,000	
Utility Water Audit and Water Loss	☐		
Landscaping			
Landscape Irrigation Conservation and Incentives	☐		
Athletic Fields Conservation	☐		
Golf Course Conservation	☐		

Park Conservation	☐		
Residential Landscape Irrigation Evaluation	☐		
Outdoor Watering Schedule	✓	30,000,000	
Education and Public Awareness			
School Education	✓	1,000,000	
Public Information	✓	1,000,000	
Public Outreach and Education	✓	1,000,000	
Partnerships with Nonprofit Organizations	☐		
Rebate, Retrofit, and Incentive Programs			
Conservation Programs for ICI Accounts	☐		
Residential Clothes Washer Incentive Program	☐		
Water Wise Landscape Design and Conversion Programs	☐		
Showerhead, Aerator, and Toilet Flapper Retrofit	☐		
Residential Toilet Replacement Programs	☐		
Custom Conservation Rebates	☐		
Plumbing Assistance for Economically Disadvantaged Customers	☐		
Conservation Technology & Reuse			
New Construction Graywater	☐		
Rainwater Harvesting and Condensate Reuse	☐		
Water Reuse BMP Categories			
Reuse for On-site Irrigation	✓		5,000,000
Reuse for Plant Washdown	✓		105,000,000
Reuse for Chlorination/Dechlorination	☐		
Reuse for Industry	☐		
Reuse for Agriculture	☐		
Regulatory and Enforcement			
Prohibition on Wasting Water	☐		
Conservation Ordinance Planning and Development	✓	4,000,000	
Enforcement of Irrigation Standards	✓	1,000,000	
Retail			
Other	☐		
Totals		**53,000,000**	**110,000,000**

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

Gallons Saved/Conserved	Gallons Recycled/Reused	Total Volume of Water Saved[1]	Dollar Value of Water Saved[2]
53,000,000	110,000,000	163,000,000	

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

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

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

6. During this reporting period, did your rates or rate structure change? ○ Yes ◉ No

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

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

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

Name	Implemented This Year	Number Of Times This Year	Total Population Reached this Year
Brochures Distributed	☐		
Messages Provided on Utility Bills	☑	2	48,000
Press Releases	☐		
TV Public Service Announcements	☐		
Radio Public Service Announcements	☐		
Educational School Programs	☐		
Displays, Exhibits, and Presentations	☑	3	10,000
Community Events	☐		
Social Media campaign - Facebook	☑	2	20,000
Social Media campaign - Twitter	☐		
Social Media campaign - Instagram	☐		
Social Media campaign - YouTube	☐		
Facility Tours	☐		
Other	☐		
Total		7	78,000

Leak Detection and Water Loss

1. During this reporting period, how many leaks were repaired in the system or at service connections? 40

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

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

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

flushing, service line repairs

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

Total Length of Main Lines (miles)	Total Length Repaired (feet)	Total Length Replaced (feet)
151		

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

Type of Meter	Total Number	Total Tested	Total Repaired	Total Replaced
Production Meters				
Meters larger than 1 1/2 inches	307	0	0	42
Meters 1 1/2 inches or smaller	12408	0	509	10

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

Program Effectiveness

1. Program Effectiveness

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

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

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

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

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

Texas Water Development Board

Water Loss, Target and Goals

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

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

Total System Input in Gallons Water Produced + Wholesale Imported - Wholesale Exported	Retail Population[1]	Total GPCD (System Input / Retail Population) / 365
1,686,638,396	48,600	95

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

Residential Use in Gallons (Single Family + Multi-family)	Residential Population[2]	Residential GPCD (Residential Use / Residential Population) / 365
1,220,793,000	48,600	69

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

Total Water Loss in Gallons Apparent + Real = Total Water Loss	Retail Population	Water Loss GPCD[3]	Water Loss Percent
65,103,335	48,600	4	3.86%

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

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

Achieve Date	Target for Total GPCD	Current Total GPCD	Target for Residential GPCD	Current Residential GPCD	Target for Water Loss GPCD	Current Water Loss GPCD	Target for Water Loss Percentage	Current Water Loss Percentage
Five-year Target Date 2024	94	95	64	69	7	4	7.45 %	3.86 %
Ten-year Target Date 2029	94	95	64	69	7	4	7.45 %	3.86 %

Appendix E

Letters to Regional Water Planning Group and NTMWD

[Enter Date]

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

Dear Chair:

Enclosed please find a copy of the Water Conservation and Water Resource and Emergency Management Plan for the Town of Little Elm. I am submitting a copy of this plan to the Region C Water Planning Group in accordance with the Texas Water Development Board and Texas Commission on Environmental Quality rules. The plans were adopted on 4/16/2024.

Sincerely,

Jason Shroyer, Public Works Director

Town of Little Elm

[Enter Date]

North Texas Municipal Water District
501 East Brown St.
P.O. Box 2408
Wylie, TX 75098
Attention: Kathy Fonnville
Cc: Bobbi Bryan

Dear Ms. Fonnville:

Enclosed please find a copy of the Water Conservation and Water Resource and Emergency Management Plan for the Town of Little Elm. I am submitting a copy of this plan to the North Texas Municipal Water District in accordance with the Texas Water Development Board and Texas Commission on Environmental Quality rules. The plans were adopted on 4/16/2024.

Sincerely,

Jason Shroyer, Public Works Director

Town of Little Elm

Appendix F

Adoption of Plans

Municipal Ordinance
Adopting Water Conservation Plan

Ordinance No. [Enter Ordinance Number]

AN ORDINANCE ADOPTING A WATER CONSERVATION PLAN FOR THE TOWN OF [Entity Name] TO PROMOTE RESPONSIBLE USE OF WATER AND TO PROVIDE FOR PENALTIES AND/OR THE DISCONNECTION OF WATER SERVICE FOR NONCOMPLIANCE WITH THE PROVISIONS OF THE WATER CONSERVATION PLAN.

WHEREAS, the Town of **[Entity Name]**, Texas (the "Town"), recognizes that the amount of water available to its water customers is limited; and

WHEREAS, the Town recognizes that due to natural limitations, drought conditions, system failures and other acts of God which may occur, the Town cannot guarantee an uninterrupted water supply for all purposes at all times; and

WHEREAS, the Water Code and the regulations of the Texas Commission on Environmental Quality (the "Commission") require that the Town adopt a Water Conservation Plan; and

WHEREAS, the Town has determined an urgent need in the best interest of the public to adopt a Water Conservation Plan; and

WHEREAS, pursuant to Chapter 54 of the Local Government Code, the Town is authorized to adopt such Ordinances necessary to preserve and conserve its water resources; and

WHEREAS, the Town Council of the Town of **[Entity Name]** desires to adopt the North Texas Municipal Water District (the "NTMWD") Model Water Conservation Plan as official Town policy for the conservation of water.

NOW THEREFORE, BE IT ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF [Entity Name] THAT:

Section 1. The Town Council hereby approves and adopts the NTMWD Model Water Conservation Plan (the "Plan"), attached hereto as Addendum A, as if recited verbatim herein. The Town commits to implement the requirements and procedures set forth in the adopted Plan.

Section 2. Any customer, defined pursuant to 30 Tex. Admin. Code Chapter 291, failing to comply with the provisions of the Plan shall be subject to a fine of up to two thousand dollars

($2,000.00) and/or discontinuance of water service by the Town. Proof of a culpable mental state is not required for a conviction of an offense under this section. Each day a customer fails to comply with the Plan is a separate violation. The Town's authority to seek injunctive or other civil relief available under the law is not limited by this section.

Section 3. The Town Council does hereby find and declare that sufficient written notice of the date, hour, place and subject of the meeting adopting this Ordinance was posted at a designated place convenient to the public for the time required by law preceding the meeting, that such place of posting was readily accessible at all times to the general public, and that all of the foregoing was done as required by law at all times during which this Ordinance and the subject matter thereof has been discussed, considered and formally acted upon. The Town Council further ratifies, approves and confirms such written notice and the posting thereof.

Section 4. Should any paragraph, sentence, clause, phrase or word of this Ordinance be declared unconstitutional or invalid for any reason, the remainder of this Ordinance shall not be affected.

Section 5. The Town Manager or his/her designee is hereby directed to file a copy of the Plan and this Ordinance with the Commission in accordance with Title 30, Chapter 288 of the Texas Administrative Code.

Section 6. The Town Secretary is hereby authorized and directed to cause publication of the descriptive caption of this ordinance as an alternative method of publication provided by law.

Section 7. Ordinance No. [Enter Ordinance Number], adopted on [Date of Ordinance], is hereby repealed.

Passed by the Town Council on this [Day] day of [Month], [Year].

_____

Mayor

Attest:

_____

Town Secretary

Appendix G

Illegal Water Connections and Theft of Water

APPENDIX G

ILLEGAL WATER CONNECTIONS AND THEFT OF WATER

MUNICIPAL ORDINANCE

PERTAINING TO ILLEGAL WATER CONNECTIONS AND THEFT OF WATER

Ordinance No. _____

AN ORDINANCE PERTAINING TO ILLEGAL WATER CONNECTIONS AND/OR THE THEFT OF WATER RELATED TO THE WATER SUPPLY FOR THE TOWN OF _____.

WHEREAS, the Town of ____, Texas (the "Town") recognizes that the amount of water available to its water customers is limited; and

WHEREAS, pursuant to Chapter 54 of the Local Government Code, the Town is authorized to adopt such policies necessary to preserve and conserve available water supplies; and

WHEREAS, the Town seeks to adopt an ordinance pertaining to illegal water connections and theft of water.

NOW THEREFORE, BE IT ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF _____ THAT:

Section 1. The Town Council hereby approves and adopts this Ordinance as described herein.

Section 2. A person commits an offense of theft of water by any of the following actions:

(a) A person may not knowingly tamper, connect to, or alter any component of the Town's water system including valves, meters, meter boxes, lids, hydrants, lines, pump stations, ground storage tanks, and elevated storage tanks. This shall include direct or indirect efforts to initiate or restore water service without the approval of the Town.

(b) If, without the written consent of the Town Manager or the Town Manager's designee, the person knowingly causes, suffers or allows the initiation or restoration of water service to the property after termination of service(s). For purposes of this section, it shall be assumed that the owner, occupant, or person in control of the property caused, suffered, or allowed the unlawful initiation or restoration of service(s).

(c) A person may not knowingly make or cause a false report to be made to the Town of a reading of a water meter installed for metered billing.

(d) A person commits a separate offense each day that the person performs an act prohibited by this section or fails to perform an act required by this section.

Section 3. An offense under this Ordinance is a Class C misdemeanor punishable by a fine of up to two thousand dollars ($2,000.00) and/or discontinuance of water service by the Town.

Section 4. The Town Council does hereby find and declare that sufficient written notice of the date, hour, place and subject of the meeting considering this Ordinance was posted at a designated place convenient to the public for the time required by law preceding the meeting, that such place of posting was readily accessible at all times to the general public, and that all of the foregoing was done as required by law at all times during which this Ordinance, and the subject matter thereof, has been discussed, considered and formally acted upon. The Town Council further ratifies, approves and confirms such written notice and the posting thereof.

Section 5. Should any paragraph, sentence, clause, phrase or word of this Ordinance be declared unconstitutional or invalid for any reason, the remainder of this Ordinance shall not be affected.

Section 6. The Town Secretary is hereby authorized and directed to cause publication of the descriptive caption of this ordinance as an alternative method of publication provided by law.

Section 7. {If Applicable} Ordinance No. _____, adopted on _____, is hereby repealed.

Passed by the Town Council on this ___ day of _____, ____.

_____

Mayor

Attest:

_____

Town Secretary

Appendix H
Landscape Ordinance

This is an example of a basic landscape ordinance which can be adopted or modified for adoption by municipalities or other jurisdictions. Landscape ordinances with a wide variety of formats and levels of complexity have been adopted by the governments of NTMWD Member Cities and Customers to date.

ARTICLE IX. LANDSCAPE IRRIGATION

Sec. 102-436. Definitions.

The following words and terms, when used in this article, have the following meanings, unless the context clearly indicates otherwise:

Air gap. A complete physical separation between the free flowing discharge end of a potable water supply pipeline and an open or nonpressure receiving vessel.

Atmospheric vacuum breaker. An assembly containing an air inlet valve, a check seat, and an air inlet port. The flow of water into the body causes the air inlet valve to close the air inlet port. When the flow of water stops the air inlet valve falls and forms a check against back-siphonage. At the same time it opens the air inlet port allowing air to enter and satisfy the vacuum. Also known as an atmospheric vacuum breaker back-siphonage prevention assembly.

Backflow prevention. The mechanical prevention of reverse flow, or back siphonage, of nonpotable water from an irrigation system into the potable water source.

Backflow prevention assembly. Any assembly used to prevent backflow into a potable water system. The type of assembly used is based on the existing or potential degree of health hazard and backflow condition.

Completion of irrigation system installation. When the landscape irrigation system has been installed, all minimum standards met, all tests performed, and the irrigator is satisfied that the system is operating correctly.

Consulting. The act of providing advice, guidance, review or recommendations related to landscape irrigation systems.

Cross-connection. An actual or potential connection between a potable water source and an irrigation system that may contain contaminates or pollutants or any source of water that has been treated to a lesser degree in the treatment process.

Design. The act of determining the various elements of a landscape irrigation system that will include, but not be limited to, elements such as collecting site specific information, defining the scope of the project, defining plant watering needs, selecting and laying out emission devices, locating system components, conducting hydraulics calculations, identifying any local regulatory requirements, or scheduling irrigation work at a site. Completion of the various components will result in an irrigation plan.

Design pressure. The pressure that is required for an emission device to operate properly. Design pressure is calculated by adding the operating pressure necessary at an emission device to the total of all pressure losses accumulated from an emission device to the water source.

Double check valve. An assembly that is composed of two independently acting, approved check valves, including tightly closed resilient seated shutoff valves attached at each end of the assembly and fitted with properly located resilient seated test cocks. Also known as a double check valve backflow prevention assembly.

Emission device. Any device that is contained within an irrigation system and that is used to apply water. Common emission devices in an irrigation system include, but are not limited to, spray and rotary sprinkler heads, and drip irrigation emitters.

Employed. Engaged or hired to provide consulting services or perform any activity relating to the sale, design, installation, maintenance, alteration, repair, or service to irrigation systems. A person is employed if that person is

in an employer-employee relationship as defined by Internal Revenue Code, 26 United States Code Service, § 3212(d) based on the behavioral control, financial control, and the type of relationship involved in performing employment related tasks.

Head-to-head spacing. The spacing of spray or rotary heads equal to the manufacturer's published radius of the head.

Health hazard. A cross-connection or potential cross-connection with an irrigation system that involves any substance that may, if introduced into the potable water supply, cause death or illness, spread disease, or have a high probability of causing such effects.

Hydraulics. The science of dynamic and static water; the mathematical computation of determining pressure losses and pressure requirements of an irrigation system.

Inspector. A licensed plumbing inspector, water district operator, other governmental entity, or irrigation inspector who inspects irrigation systems and performs other enforcement duties for a municipality or water district as an employee or as a contractor.

Installer. A person who actually connects an irrigation system to a private or public raw or potable water supply system or any water supply, who is licensed according to Title 30, Texas Administrative Code, Chapter 30 (relating to occupational licenses and registrations).

Irrigation inspector. A person who inspects irrigation systems and performs other enforcement duties for a municipality or water district as an employee or as a contractor and is required to be licensed under Title 30, Texas Administrative Code, Chapter 30 (relating to occupational licenses and registrations).

Irrigation plan. A scaled drawing of a landscape irrigation system which lists required information, the scope of the project, and represents the changes made in the installation of the irrigation system.

Irrigation services. Selling, designing, installing, maintaining, altering, repairing, servicing, permitting, providing consulting services regarding, or connecting an irrigation system to a water supply.

Irrigation system. An assembly of component parts that is permanently installed for the controlled distribution and conservation of water to irrigate any type of landscape vegetation in any location, and/or to reduce dust or control erosion. This term does not include a system that is used on or by an agricultural operation as defined by V.T.C.A., Agricultural Code, § 251.002.

Irrigation technician. A person who works under the supervision of a licensed irrigator to install, maintain, alter, repair, service or supervise installation of an irrigation system, including the connection of such system in or to a private or public, raw or potable water supply system or any water supply, and who is required to be licensed under Title 30, Texas Administrative Code, Chapter 30 (relating to occupational licenses and registrations).

Irrigation zone. A subdivision of an irrigation system with a matched precipitation rate based on plant material type (such as turf, shrubs, or trees), microclimate factors (such as sun/shade ratio), topographic features (such as slope) and soil conditions (such as sand, loam, clay, or combination) or for hydrological control.

Irrigator. A person who sells, designs, offers consultations regarding, installs, maintains, alters, repairs, services or supervises the installation of an irrigation system, including the connection of such system to a private or public, raw or potable water supply system or any water supply, and who is required to be licensed under Title 30, Texas Administrative Code, Chapter 30.

Irrigator-in-charge. The irrigator responsible for all irrigation work performed by an exempt business owner, including, but not limited to obtaining permits, developing design plans, supervising the work of other irrigators or irrigation technicians, and installing, selling, maintaining, altering, repairing, or servicing a landscape irrigation system.

Landscape irrigation. The science of applying the necessary amount of water to promote or sustain healthy growth of plant material or turf.

License. An occupational license that is issued by the Texas Commission on Environmental Quality under Title 30, Texas Administrative Code, Chapter 30 to an individual that authorizes the individual to engage in an activity that is covered by Title 30, Texas Administrative Code, Chapter 30.

Mainline. A pipe within an irrigation system that delivers water from the water source to the individual zone valves.

Maintenance checklist. A document made available to the irrigation system's owner or owner's representative that contains information regarding the operation and maintenance of the irrigation system, including, but not limited to: Checking and repairing the irrigation system, setting the automatic controller, checking the rain or moisture sensor, cleaning filters, pruning grass and plants away from irrigation emitters, using and operating the irrigation system, the precipitation rates of each irrigation zone within the system, any water conservation measures currently in effect from the water purveyor, the name of the water purveyor, a suggested seasonal or monthly watering schedule based on current evapotranspiration data for the geographic region, and the minimum water requirements for the plant material in each zone based on the soil type and plant material where the system is installed.

Major maintenance, alteration, repair or service. Any activity that involves opening to the atmosphere the irrigation mainline at any point prior to the discharge side of any irrigation zone control valve. This includes, but is not limited to, repairing or connecting into a main supply pipe, replacing a zone control valve, or repairing a zone control valve in a manner that opens the system to the atmosphere.

Master valve. A remote control valve located after the backflow prevention device that controls the flow of water to the irrigation system mainline.

Matched precipitation rate. The condition in which all sprinkler heads within an irrigation zone apply water at the same rate.

New installation. An irrigation system installed at a location where one did not previously exist.

Nonhealth hazard. A cross-connection or potential cross-connection from a landscape irrigation system that involves any substance that generally would not be a health hazard but would constitute a nuisance or be aesthetically objectionable if introduced into the potable water supply.

Nonpotable water. Water that is not suitable for human consumption. Nonpotable water sources include, but are not limited to, irrigation systems, lakes, ponds, streams, gray water that is discharged from washing machines, dishwashers or other appliances, water vapor condensate from cooling towers, reclaimed water, and harvested rainwater.

Pass-through contract. A written contract between a contractor or builder and a licensed irrigator or exempt business owner to perform part or all of the irrigation services relating to an irrigation system.

Potable water. Water that is suitable for human consumption.

Pressure vacuum breaker. An assembly containing an independently operating internally loaded check valve and an independently operating loaded air inlet valve located on the discharge side of the check valve. Also known as a pressure vacuum breaker back-siphonage prevention assembly.

Reclaimed water. Domestic or municipal wastewater which has been treated to a quality suitable for beneficial use, such as landscape irrigation.

Records of landscape irrigation activities. The irrigation plans, contracts, warranty information, invoices, copies of permits, and other documents that relate to the installation, maintenance, alteration, repair, or service of a landscape irrigation system.

Reduced pressure principle backflow prevention assembly. An assembly containing two independently acting approved check valves together with a hydraulically operating mechanically independent pressure differential relief valve located between the two check valves and below the first check valve.

Static water pressure. The pressure of water when it is not moving.

Supervision. The on-the-job oversight and direction by a licensed irrigator who is fulfilling his or her professional responsibility to the client and/or employer in compliance with local or state requirements. Also a licensed installer working under the direction of a licensed irrigator or beginning January 1, 2009, an irrigation technician who is working under the direction of a licensed irrigator to install, maintain, alter, repair or service an irrigation system.

Water conservation. The design, installation, service, and operation of an irrigation system in a manner that prevents the waste of water, promotes the most efficient use of water, and applies the least amount of water that is required to maintain healthy individual plant material or turf, reduce dust, and control erosion.

Zone flow. A measurement, in gallons per minute or gallons per hour, of the actual flow of water through a zone valve, calculated by individually opening each zone valve and obtaining a valid reading after the pressure has stabilized. For design purposes, the zone flow is the total flow of all nozzles in the zone at a specific pressure.

Zone valve. An automatic valve that controls a single zone of a landscape irrigation system.

(Ord. No. 1030, § 2, 12-21-2010)

Sec. 102-437. Valid license required.

Any person who connects an irrigation system to the water supply within the town or the town's extraterritorial jurisdiction, commonly referred to as the ETJ, must hold a valid license, as defined by Title 30, Texas Administrative Code, Chapter 30 and required by V.T.C.A., Occupations Code ch. 1903, or as defined by Chapter 365, Title 22 of the Texas Administrative Code and required by V.T.C.A., Occupations Code ch. 1301.

Exemptions. A property owner is not required to be licensed in accordance with V.T.C.A., Occupations Code tit. 12, § 1903.002(c)(1) if he or she is performing irrigation work in a building or on a premises owned or occupied by the person as the person's home. A home or property owner who installs an irrigation system must meet the standards contained in Title 30, Texas Administrative Code, Chapter 344 regarding spacing, water pressure, spraying water over impervious materials, rain or moisture shut-off devices or other technology, backflow prevention and isolation valves. The town may, at any point, adopt more stringent requirements for a home or property owner who installs an irrigation system. See V.T.C.A., Occupations Code § 1903.002 for other exemptions to the licensing requirement.

(Ord. No. 1030, § 2, 12-21-2010)

Sec. 102-438. Permit required.

Any person installing an irrigation system within the territorial limits or extraterritorial jurisdiction of the town is required to obtain a permit from the town's building safety division of the community development department. Any plan approved for a permit must be in compliance with the requirements of this chapter.

Exemptions.

(1) An irrigation system that is that an on-site sewage disposal system, as defined by V.T.C.A., Health and Safety Code § 355.002; or

(2) An irrigation system used on or by an agricultural operation as defined by V.T.C.A., Agriculture Code § 251.002.

(Ord. No. 1030, § 2, 12-21-2010)

Sec. 102-439. Backflow prevention methods and devices.

(a) Any irrigation system that is connected to the potable water supply must be connected through a backflow prevention method approved by the Texas Commission on Environmental Quality (TCEQ). The backflow prevention device must be approved by the American Society of Sanitary Engineers; or the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California; or the Uniform Plumbing Code; or any other laboratory that has equivalent capabilities for both the laboratory and field evaluation of backflow prevention assemblies. The backflow prevention device must be installed in accordance with the laboratory approval standards or if the approval does not include specific installation information, the manufacturer's current published recommendations.

(b) If conditions that present a health hazard exist, one of the following methods must be used to prevent backflow:

(1) An air gap may be used if:

a. There is an unobstructed physical separation; and

b. The distance from the lowest point of the water supply outlet to the flood rim of the fixture or assembly into which the outlet discharges is at least one inch or twice the diameter of the water supply outlet, whichever is greater.

(2) Reduced pressure principle backflow prevention assemblies may be used if:

a. The device is installed at a minimum of 12 inches above ground in a location that will ensure that the assembly will not be submerged; and

b. Drainage is provided for any water that may be discharged through the assembly relief valve.

(3) Pressure vacuum breakers may be used if:

a. No back-pressure condition will occur; and

b. The device is installed at a minimum of 12 inches above any downstream piping and the highest downstream opening. Pop-up sprinklers are measured from the retracted position from the top of the sprinkler.

(4) Atmospheric vacuum breakers may be used if:

a. No back-pressure will be present;

b. There are no shutoff valves downstream from the atmospheric vacuum breaker;

c. The device is installed at a minimum of six inches above any downstream piping and the highest downstream opening. Pop-up sprinklers are measured from the retracted position from the top of the sprinkler;

d. There is no continuous pressure on the supply side of the atmospheric vacuum breaker for more than 12 hours in any 24-hour period; and

e. A separate atmospheric vacuum breaker is installed on the discharge side of each irrigation control valve, between the valve and all the emission devices that the valve controls.

(c) Backflow prevention devices used in applications designated as health hazards must be tested upon installation and annually thereafter.

(d) If there are no conditions that present a health hazard, double check valve backflow prevention assemblies may be used to prevent backflow if the device is tested upon installation and test cocks are used for testing only.

(e) If a double check valve is installed below ground:

(1) Test cocks must be plugged, except when the double check valve is being tested;

(2) Test cock plugs must be threaded, watertight, and made of nonferrous material;

(3) A y-type strainer is installed on the inlet side of the double check valve;

(4) There must be a clearance between any fill material and the bottom of the double check valve to allow space for testing and repair; and

(5) There must be space on the side of the double check valve to test and repair the double check valve.

(f) If an existing irrigation system without a backflow-prevention assembly requires major maintenance, alteration, repair, or service, the system must be connected to the potable water supply through an approved, properly installed backflow prevention method before any major maintenance, alteration, repair, or service is performed.

(g) If an irrigation system is connected to a potable water supply through a double check valve, pressure vacuum breaker, or reduced pressure principle backflow assembly and includes an automatic master valve on the system, the automatic master valve must be installed on the discharge side of the backflow prevention assembly.

(h) The irrigator shall ensure the backflow prevention device is tested by a licensed backflow prevention assembly tester prior to being placed in service and the test results provided to the local water purveyor and the irrigation system's owner or owner's representative within ten business days of testing of the backflow prevention device.

(Ord. No. 1030, § 2, 12-21-2010)

Sec. 102-440. Specific conditions and cross-connection control.

(a) Before any chemical is added to an irrigation system connected to the potable water supply, the irrigation system must be connected through a reduced pressure principle backflow prevention assembly or air gap.

(b) Connection of any additional water source to an irrigation system that is connected to the potable water supply can only be done if the irrigation system is connected to the potable water supply through a reduced-pressure principle backflow prevention assembly or an air gap. Reduced pressure principle backflow prevention assemblies shall be tested upon installation and annually thereafter.

(c) If an irrigation system supplied by any source other than the public water supply is installed, whether connected to the public supply or not, a reduced pressure principle backflow prevention device must be installed immediately (within five feet) downstream of the public water supply point meter assembly.

(d) Irrigation system components with chemical additives induced by aspiration, injection, or emission system connected to any potable water supply must be connected through a reduced pressure principle backflow device.

(e) If an irrigation system is designed or installed on a property that is served by an on-site sewage facility, as defined in Title 30, Texas Administrative Code, Chapter 285, then:

(1) All irrigation piping and valves must meet the separation distances from the on-site sewage facilities system as required for a private water line in Title 30, Texas Administrative Code, Section 285.91(10);

(2) Any connections using a private or public potable water source that is not the town's potable water system must be connected to the water source through a reduced pressure principle backflow prevention assembly as defined in Title 30, Texas Administrative Code, Section 344.50; and

(3) Any water from the irrigation system that is applied to the surface of the area utilized by the on-site sewage facility system must be controlled on a separate irrigation zone or zones so as to allow complete control of any irrigation to that area so that there will not be excess water that would prevent the on-site sewage facilities system from operating effectively.

(Ord. No. 1030, § 2, 12-21-2010)

Sec. 102-441. Water conservation.

All irrigation systems shall be designed, installed, maintained, altered, repaired, serviced, and operated in a manner that will promote water conservation as defined in the definitions section of this article.

(Ord. No. 1030, § 2, 12-21-2010)

Sec. 102-442. Irrigation plan design: minimum standards.

(a) An irrigator shall prepare an irrigation plan for each site where a new irrigation system will be installed. A paper or electronic copy of the irrigation plan must be on the job site at all times during the installation of the irrigation system. A drawing showing the actual installation of the system is due to each irrigation system owner after all new irrigation system installations. During the installation of the irrigation system, variances from the original plan may be authorized by the licensed irrigator if the variance from the plan does not:

(1) Diminish the operational integrity of the irrigation system;

(2) Violate any requirements of this article; and

(3) Go unnoted in red on the irrigation plan.

(b) The irrigation plan must include complete coverage of the area to be irrigated. If a system does not provide complete coverage of the area to be irrigated, it must be noted on the irrigation plan.

(c) All irrigation plans used for construction must be drawn to scale. The plan must include, at a minimum, the following information:

(1) The irrigator's seal, signature, and date of signing;

(2) All major physical features and the boundaries of the areas to be watered;

(3) A north arrow;

(4) A legend;

(5) The zone flow measurement for each zone;

(6) Location and type of each:

a. Controller; and

b. Sensor (for example, but not limited to, rain, moisture, wind, flow, or freeze);

(7) Location, type, and size of each:

a. Water source, such as, but not limited to a water meter and point(s) of connection;

b. Backflow prevention device;

c. Water emission device, including, but not limited to, spray heads, rotary sprinkler heads, quick-couplers, bubblers, drip, or micro-sprays;

d. Valve, including but not limited to, zone valves, master valves, and isolation valves;

e. Pressure regulation component; and

f. Mainline and lateral piping.

(8) The scale used; and

(9) The design pressure.

(Ord. No. 1030, § 2, 12-21-2010)

Sec. 102-443. Design and installation: minimum requirements.

(a) No irrigation design or installation shall require the use of any component, including the water meter, in a way which exceeds the manufacturer's published performance limitations for the component.

(b) *Spacing.*

(1) The maximum spacing between emission devices must not exceed the manufacturer's published radius or spacing of the device(s). The radius or spacing is determined by referring to the manufacturer's published specifications for a specific emission device at a specific operating pressure.

(2) New irrigation systems shall not utilize above ground spray emission devices in landscapes that are less than 48 inches not including the impervious surfaces in either length or width and which contain impervious pedestrian or vehicular traffic surfaces along two or more perimeters. If pop-up sprays or rotary sprinkler heads are used in a new irrigation system, the sprinkler heads must direct flow away from any adjacent surface and shall not be installed closer than four inches from a hardscape, such as, but not limited to, a building foundation, fence, concrete, asphalt, pavers, or stones set with mortar.

(3) Narrow paved walkways, jogging paths, golf cart paths or other small areas located in cemeteries, parks, golf courses or other public areas may be exempted from this requirement if the runoff drains into a landscaped area.

(c) *Water pressure.* Emission devices must be installed to operate at the minimum and not above the maximum sprinkler head pressure as published by the manufacturer for the nozzle and head spacing that is used. Methods to achieve the water pressure requirements include, but are not limited to, flow control valves, a pressure regulator, or pressure compensating spray heads.

(d) *Piping.* Piping in irrigation systems must be designed and installed so that the flow of water in the pipe will not exceed a velocity of five feet per second for polyvinyl chloride (PVC) pipe.

(e) *Irrigation zones.* Irrigation systems shall have separate zones based on plant material type, microclimate factors, topographic features, soil conditions, and hydrological requirements.

(f) *Matched precipitation rate.* Zones must be designed and installed so that all of the emission devices in that zone irrigate at the same precipitation rate.

(g) Irrigation systems shall not spray water over surfaces made of concrete, asphalt, brick, wood, stones set with mortar, or any other impervious material, such as, but not limited to, walls, fences, sidewalks, streets, etc.

(h) *Master valve.* When provided, a master valve shall be installed on the discharge side of the backflow prevention device on all new installations.

(i) *PVC pipe primer solvent.* All new irrigation systems that are installed using PVC pipe and fittings shall be primed with a colored primer prior to applying the PVC cement in accordance with the International Plumbing Code (Section 605).

(j) *Rain or moisture or freeze shut-off devices or other technology.* All new automatically controlled irrigation systems must include sensors or other technology designed to inhibit or interrupt operation of the irrigation system during periods of freezing weather or moisture or rainfall. Freeze, rain or moisture shut-off technology must be installed according to the manufacturer's published recommendations. Repairs to existing automatic irrigation systems that require replacement of an existing controller must include a sensor or other technology designed to inhibit or interrupt operation of the irrigation system during periods of freezing weather or moisture or rainfall.

(k) *Isolation valve.* All new irrigation systems must include an isolation valve between the water meter and the backflow prevention device.

(l) *Depth coverage of piping.* Piping in all irrigation systems must be installed according to the manufacturer's published specifications for depth coverage of piping.

(1) If the manufacturer has not published specifications for depth coverage of piping, the piping must be installed to provide minimum depth coverage of six inches of select backfill, between the top of the pipe and the natural grade of the topsoil. All portions of the irrigation system that fail to meet this standard must be noted on the irrigation plan. If the area being irrigated has rock at a depth of six inches or less, select backfill may be mounded over the pipe. Mounding must be noted on the irrigation plan and discussed with the irrigation system owner or owner's representative to address any safety issues.

(2) If a utility, manmade structure, or roots create an unavoidable obstacle, which makes the six-inch depth coverage requirement impractical, the piping shall be installed to provide a minimum of two inches of select backfill between the top of the pipe and the natural grade of the topsoil.

(3) All trenches and holes created during installation of an irrigation system must be backfilled and compacted to the original grade.

(m) *Wiring irrigation systems.*

(1) Underground electrical wiring used to connect an automatic controller to any electrical component of the irrigation system must be listed by Underwriters Laboratories as acceptable for burial underground.

(2) Electrical wiring that connects any electrical components of an irrigation system must be sized according to the manufacturer's recommendation.

(3) Electrical wire splices which may be exposed to moisture must be waterproof as certified by the wire splice manufacturer.

(4) Underground electrical wiring that connects an automatic controller to any electrical component of the irrigation system must be buried with a minimum of six inches of select backfill.

(n) *Water contained within the piping of an irrigation system is deemed to be nonpotable.* No drinking or domestic water usage, such as, but not limited to, filling swimming pools or decorative fountains, shall be connected to an irrigation system. If a hose bib (an outdoor water faucet that has hose threads on the spout) is connected to an irrigation system for the purpose of providing supplemental water to an area, the hose bib must be installed using a quick coupler key on a quick coupler installed in a covered purple valve box and the hose bib and any hoses connected to the bib must be labeled "non potable, not safe for drinking." An isolation valve must be installed upstream of a quick coupler connecting a hose bib to an irrigation system.

(o) Beginning January 1, 2011, either a licensed irrigator or a licensed irrigation technician shall be on-site at all times while the landscape irrigation system is being installed. When an irrigator is not on-site, the irrigator shall be responsible for ensuring that a licensed irrigation technician is on-site to supervise the installation of the irrigation system.

(Ord. No. 1030, § 2, 12-21-2010)

Sec. 102-444. Completion of irrigation system installation.

Upon completion of the irrigation system, the irrigator or irrigation technician who provided supervision for the on-site installation shall be required to complete four items:

(1) A final "walk through" with the irrigation system's owner or the owner's representative to explain the operation of the system;

(2) The maintenance checklist on which the irrigator or irrigation technician shall obtain the signature of the irrigation system's owner or owner's representative and shall sign, date, and seal the checklist. If the irrigation system's owner or owner's representative is unwilling or unable to sign the maintenance checklist, the irrigator shall note the time and date of the refusal on the irrigation system's owner or owner's representative's signature line. The irrigation system owner or owner's representative will be given the original maintenance checklist and a duplicate copy of the maintenance checklist shall be maintained by the irrigator. The items on the maintenance checklist shall include but are not limited to:

   a. The manufacturer's manual for the automatic controller, if the system is automatic;

   b. The number and labeling of all zones shall be listed, and a copy of this list shall be placed within the controller;

   c. A seasonal (spring, summer, fall, winter) watering schedule based on either current/real time evapotranspiration or monthly historical reference evapotranspiration (historical ET) data, monthly effective rainfall estimates, plant landscape coefficient factors, and site factors;

   d. A list of components, such as the nozzle, or pump filters, and other such components; that require maintenance and the recommended frequency for the service; and

   e. The statement, "This irrigation system has been installed in accordance with all applicable state and local laws, ordinances, rules, regulations or orders. I have tested the system and determined that it has been installed according to the Irrigation Plan and is properly adjusted for the most efficient application of water at this time."

(3) A permanent sticker which contains the irrigator's name, license number, company name, telephone number and the dates of the warranty period shall be affixed to each automatic controller installed by the irrigator or irrigation technician. If the irrigation system is manual, the sticker shall be affixed to the original maintenance checklist. The information contained on the sticker must be printed with waterproof ink and include:

(4) The irrigation plan indicating the actual installation of the system must be provided to the irrigation system's owner or owner representative.

(Ord. No. 1030, § 2, 12-21-2010)

Sec. 102-445. Maintenance, alteration, repair, or service of irrigation systems.

(a) The licensed irrigator is responsible for all work that the irrigator performed during the maintenance, alteration, repair, or service of an irrigation system during the warranty period. The irrigator or business owner is not responsible for the professional negligence of any other irrigator who subsequently conducts any irrigation service on the same irrigation system.

(b) All trenches and holes created during the maintenance, alteration, repair, or service of an irrigation system must be returned to the original grade with compacted select backfill.

(c) Colored PVC pipe primer solvent must be used on all pipes and fittings used in the maintenance, alteration, repair, or service of an irrigation system in accordance with the Uniform Plumbing Code (Section 316) or the International Plumbing Code (Section 605).

(d) When maintenance, alteration, repair or service of an irrigation system involves excavation work at the water meter or backflow prevention device, an isolation valve shall be installed, if an isolation valve is not present.

(Ord. No. 1030, § 2, 12-21-2010)

Sec. 102-446. Reclaimed water.

Reclaimed water may be utilized in landscape irrigation systems if:

(1) There is no direct contact with edible crops, unless the crop is pasteurized before consumption;

(2) The irrigation system does not spray water across property lines that do not belong to the irrigation system's owner;

(3) The irrigation system is installed using purple components;

(4) An irrigation system supplied by reclaimed water is approved, a reduced pressure principle backflow assembly shall be installed on the domestic water supply within five feet of the meter assembly, or as approved by the water purveyor, and tested upon installation and annually thereafter;

(5) A minimum of an eight-inch by eight-inch sign, in English and Spanish, is prominently posted on/in the area that is being irrigated, that reads, "RECLAIMED WATER - DO NOT DRINK" and "AGUA DE RECUPERACION - NO BEBER"; and

(6) Backflow prevention on the reclaimed water supply line shall be in accordance with the regulations of the town's water provider.

(Ord. No. 1030, § 2, 12-21-2010)

Sec. 102-447. Advertisement requirements.

All vehicles used in the performance of irrigation installation, maintenance, alteration, repair, or service must display the irrigator's license number in the form of "LI_____" in a contrasting color of block letters at least two inches high, on both sides of the vehicle.

(Ord. No. 1030, § 2, 12-21-2010)

Sec. 102-448. Duties and responsibilities of town inspectors.

A town inspector shall enforce the ordinance of the town, and shall be responsible for:

(1) Verifying that the appropriate permits have been obtained for an irrigation system and that the irrigator and installer or irrigation technician, if applicable, are licensed;

(2) Inspecting the irrigation system;

(3) Determining that the irrigation system complies with the requirements of this chapter;

(4) Determining that the appropriate backflow prevention device was installed, tested, and test results provided to the town;

(5) Investigating complaints related to irrigation system installation, maintenance, alteration, repairs, or service of an irrigation system and advertisement of irrigation services; and

(6) Maintaining records according to this chapter.

(Ord. No. 1030, § 2, 12-21-2010)

Sec. 102-449. Items not covered by this article.

Any item not covered by this article and required by law shall be governed by the Texas Occupations Code, the Texas Water Code, Title 30 of the Texas Administrative Code, and any other applicable state statute or Texas Commission on Environmental Quality Rule.

(Ord. No. 1030, § 2, 12-21-2010)

Sec. 102-450. Fees.

The fee for this permit for each individual residential irrigation system shall be $185.00 payable to the Town of Little Elm and submitted to the building safety division at the time of application. The nonresidential fee for each individual irrigation system will be $250.00 for the first controller, an additional $175.00 for a second controller, with the total not to exceed $500.00 for any individual system and shall be submitted likewise. This fee shall include plan review and approval and inspections. Seventy-five dollars will be charged for all failed inspections. This fee may increase in the future, per the community development comprehensive fee schedule.

(Ord. No. 1030, § 2, 12-21-2010)

Sec. 102-451. Enforcement.

(a) The town shall have the power to administer and enforce the provisions of this chapter as may be required by governing law. Any person, firm, corporation or agent who shall violate a provision of this Code, or fails to comply therewith, or with any of the requirements thereof, is subject to suit for injunctive relief as well as prosecution for criminal violations. Any violation of the ordinance codified in this chapter is declared to be a nuisance.

(b) Any person violating any provision of chapter shall, upon conviction, be fined a sum not exceeding $2,000.00. Each day that a provision of this chapter is violated shall constitute a separate offense. An offense under this chapter is a class C misdemeanor, punishable by a fine of up to $2,000.00.

(c) Nothing in this chapter shall be construed as a waiver of the town's right to bring a civil action to enforce the provisions of this chapter and to seek remedies as allowed by law, including, but not limited to the following:

(1) Injunctive relief to prevent specific conduct that violates the ordinance or to require specific conduct that is necessary for compliance with the ordinance; and

(2) Other available relief.

(Ord. No. 1030, § 2, 12-21-2010)

Secs. 102-452—102-475. Reserved.