2024

Water Conservation and Emergency Water Management Plan

Katelyn Hearon
City of Lewisville
4/22/2024

Table of Contents

WATER CONSERVATION AND EMERGENCY WATER MANAGEMENT PLAN 2024

Introduction

This document outlines the Water Conservation and Emergency Water Management Plan for the City of Lewisville, Texas, as approved by the Lewisville City Council on August 30, 1999, and as revised in 2002, 2005, 2009, 2014, and 2019. This plan is divided into two sections: Water Conservation and Emergency Water Management. The objective of the conservation program is to identify strategies for controlling the consumption of water, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water. The emergency water management section addresses procedures for voluntary and mandatory actions to be put into effect to temporarily reduce the demand placed upon the City's water supply system during a water shortage due to drought or other water supply emergency. Water emergency procedures include conservation measures but may also include the prohibition of certain water uses.

This plan has been developed to meet the requirements of Texas Administrative Code §288.2 Water Conservation Plans for Municipal uses by Public Water Suppliers. The Texas Commission on Environment Quality (TCEQ) requires plans to include the following elements at minimum:

(A) a utility profile in accordance with the Texas Water Use Methodology, 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 for residential, single family, multi-family, commercial, institutional, industrial, agricultural, and 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;

(D) metering devices within an accuracy of plus or minus 5%;

(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 such as periodic visual inspections along distribution lines; annual or monthly audit of the water system to determine illegal connections, or abandoned services;

(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;

(J) a means of implementation and enforcement which shall be evidenced by a copy of the Ordinance, 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.

Additional Water Conservation Plan content includes (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 that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements. A combination of conservation strategies may be selected by water suppliers, or the Commission may require that specific strategies be implemented, if the commission determines that the strategy is necessary to achieve the goals of the water conservation plan. These strategies include:

(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) the 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) the reuse and/or recycling of wastewater and/or gray water;

(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.

The water conservation plan must be prepared in accordance with 31 TAC §363.15 (relating to Required Water Conservation Plan) of the Texas Water Development Board and must substantially meet the requirements of this section and other applicable commission rules in accordance with a memorandum of understanding between the Commission and the Texas Water Development Board. The public water supplier for

municipal use must 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 must review and update the next revision of its water conservation plan every five years to coincide with the regional water planning group.

The City of Lewisville's 2021 Water Distribution System Master Plan found that additional water supplies would be needed to satisfy projected growth. Past water conservation efforts have focused on public awareness initiatives in addition to internal investigations of infrastructure failures and water losses and will continue to do so in the future. The Five-Year Strategic Plan on Water Conservation defines water conservation goals for Calendar Years 2024 – 2029 and presents recommended measures and budgetary efforts to achieve these goals.

Planning Area and Project Description

The planning area is the total area within the current city limits of Lewisville, which is approximately 42.3 square miles. In 2021, the City of Lewisville annexed Castle Hills, a development in its ETJ. Denton County Fresh Water District-1A, which previously served Castle Hills, was dissolved and the area incorporated into Lewisville's public water system. These efforts include the total water system owned and operated by the City of Lewisville,

which distributes potable water to all water customers within the city limits. Currently, the residential population of Lewisville is approximately 134,231.

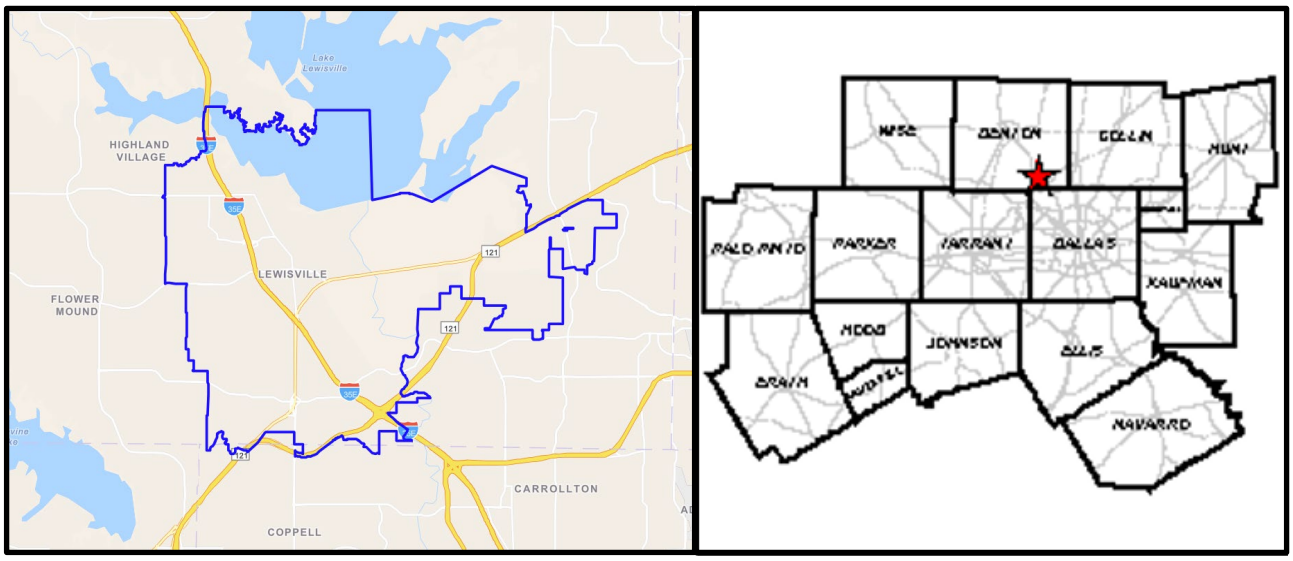

Figure 1: City of Lewisville Location Map

Lewisville GIS & NTCOG

Program Goals

Many communities throughout the United States use conservation measures to successfully manage water emergencies or shortages. These efforts manage water supplies and capital-intensive needs for infrastructure by seeking methods to conserve the municipal water supply. This plan defines the methods the City of Lewisville intends to use to fulfill this obligation. The Water Conservation Plan is a combination of strategies for reducing the consumption of water, reducing water loss or waste of water improving or maintaining the efficiency in the use of water or increasing recycling and reuse of water.

The Water Conservation Plan includes:

- **Water Conservation Utility Profile 10218:** The regulation requires specific information regarding population and customer data, water use date, water supply system data, and wastewater system data.

.

- **Inclusion of 5-year and 10-year Targets and Goals:** Beginning May 1, 2024, the updated Water Conservation Plan contains specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal use, in Gallons per Capita Day (GPCD) and residential GPCD.

- **Conservation Plan Schedule:** The Water Conservation Plan includes a schedule for implementing the plan to achieve the identified targets and goals.

- **Methodology for Tracking the Implementation and Effectiveness of the Conservation Plan**: Annual water use will be tracked to provide sufficient information for evaluation of the implementation of the conservation measures. The progress will be evaluated annually towards meeting the targets and goals of the plan.

- **Accurate Metering Devices:** The Texas Commission on Environmental Quality (TCEQ) requires master metering devices with an accuracy of plus or minus 5 percent for measuring water diverted from source supply.

- **Universal Metering, Testing, Repair, and Replacement:** The TCEQ requires that there be a program for universal metering of both customer and public uses of water, for meter testing and repair, and for periodic meter replacement.

- **Leak Detection, Repair, and Control of Unaccounted for Water:** Measures to determine and control unaccounted for water are required. These measures may include periodic visual inspections along distribution lines

and monthly and/or annual audits of the water system for illegal connections or abandoned services.

- **Continuing Public Education Program:** TCEQ requires a continuing public education and information program for water conservation.

- **Non-Promotional Rate Structure:** Chapter 288 requires a water rate structure that is not "promotional," such as increasing block rates, which do not provide volume discounts and do not encourage excessive uses of water.

- **A Means for Implementation and Enforcement:** A means to implement and enforce the water conservation plan, evidenced by an ordinance, resolution, or tariff and a description of the authority by which the conservation plan is enforced is required in the regulations.

- **Coordination with Regional Water Planning Groups:** The water conservation plan should document the coordination with the Regional Water Planning Group for the service area of the public water supplier to demonstrate consistency with the appropriate approved regional water plan.

- **Additional Conservation Strategies:** Strategies not previously referred to include adoption of ordinances, plumbing codes or rules requiring water-conserving fixtures in existing structures; reuse and/or recycling of wastewater and/or gray water; a program for pressure control and/or reduction in distribution system and/or customer connections; a program and/or ordinance(s) for landscape water management; a method for monitoring the effectiveness and efficiency of the water conservation plan.

- **Update of the Plan:** The public water supplier must review and update its water conservation plan, as necessary, based on an assessment of previous five-year and ten-year targets and any other new or updated information.

Conservation Plan Process

The Water Conservation Plan was developed through a comprehensive approach that included review of numerous water conservation programs, data, literature, state regulations, the Upper Trinity Regional Water District (UTRWD) Conservation Plan, and the Dallas Water Utilities (DWU) Conservation Plan. As a wholesale customer city of DWU and UTRWD, it is appropriate that many of the goals and measures supported by them be incorporated into the City of Lewisville's plan per their Conservation Plans in alignment with 30 Texas Administrative Code § 288.2(a)(2)(B). Development of the Water Conservation Plan was also coordinated with other water conservation planning efforts, including the Region C Water Planning Group. Water usage data was reviewed to identify areas to apply conservation efforts. Numerous water conservation strategies were reviewed and evaluated based on their effectiveness and feasibility to implement during the next five-year period.

Plan Elements

Water conservation methods are typically divided into two categories: demand management methods and supply management methods. Demand management methods deal with water use on the downstream side of the customer meter and provide education and incentives to manage water use by the customer. This method of conservation may result in a decrease in water revenues due to decreases in purchased water. Supply management methods deal with the water system upstream of the customer meter and seek to improve efficiency and reduce waste within the production, treatment, and

distribution system. Supply management results in decreased costs to the City as water losses in the system are reduced. The City of Lewisville uses a combination of these methods in its Water Conservation Plan.

Element 1: City of Lewisville Water Profile

Please refer to Appendix B: Utility Profile and Water Conservation Plan Requirements for Municipal Water Use by Retail Public Water Supplier (TCEQ Report 10218).

Element 2: Conservation Goals

Information on future population and water demand forecasts, as well as the present and anticipated capacity of the City of Lewisville's water supply, treatment and distribution systems were reviewed as part of this planning process. The most recent long-term population forecasts by the Region C Water Plan projected sustained growth and water demand. Approximately 25 percent of Texas' population resided in Region C in the year 2010. By 2070, the population of the region is projected to grow over 100 percent to 14,684,790. Municipal demands are projected to increase by 74 percent by 2070 and will account for 88 percent of the total projected Region C demands. To meet the future water demands in Region C by 2070, it is estimated that 31% of the Total Supply for future needs will come from Conservation and Reuse.

A basic conservation package, including education, pricing structure, water waste prohibitions, water system audits, and plumbing code changes, was recommended for all

municipal water user groups in Region C; expanded conservation packages, include additional strategies such as landscape irrigation restrictions and residential water audits. TWDB provides water demand projections for regional planning efforts based on historical per capita consumption projection. These projections can be found in Table 5E.114 below.

Projected Population and Demand, Current Supplies, and Water Management Strategies for the City of Lewisville

Table 5E.114 Summary of Water User Group – City of Lewisville

(Values in Ac-Ft/Yr)	2020	2030	2040	2050	2060	2070
Projected Population	**107,326**	**121,923**	**139,367**	**158,855**	**177,354**	**177,354**
Projected Demands						
Municipal Demand	20,142	22,440	25,329	28,688	31,973	31,969
Denton County FWSD 1-A	*1,207*	*2,143*	*2,566*	*2,565*	*2,564*	*2,564*
Total Projected Demands	***21,349***	***24,583***	***27,895***	***31,253***	***34,537***	***34,533***
Currently Available Supplies						
DWU	20,491	21,523	21,523	21,523	21,523	21,523
Total Currently Available Supplies	***20,491***	***21,523***	***21,523***	***21,523***	***21,523***	***21,523***
Need (Demand - Supply)	***858***	***3,060***	***6,372***	***9,730***	***13,014***	***13,010***
Water Management Strategies						
Water Conservation	924	1,267	1,397	1,669	1,957	2,071
DWU	0	1,793	4,975	8,061	11,057	10,939
6 MGD WTP Expansion – 1		*896*	*3,363*	*3,363*	*3,363*	*3,363*
6 MGD WTP Expansion – 2			*715*	*3,363*	*3,363*	*3,363*
6.5 MGD WTP Expansion				*438*	*3,434*	*3,316*
Total Supplies from Strategies	***924***	***3,060***	***6,372***	***9,730***	***13,014***	***13,010***
Reserve (Shortage)	**66**	**0**	**0**	**0**	**0**	**0**

In 2023, the City of Lewisville provided over 6.2 billion gallons of water to approximately 57,075 City of Lewisville accounts. Of these accounts, over forty-six percent were classified as Residential; forty-eight percent were Multi-Family, over five percent were Commercial, and both Institutional and Industrial were less than one percent.

The Texas Legislature's Water Conservation Implementation Task Force recommended standard methodologies for calculating Total Gallons per Capita per Day (GPCD). The Total Gallons per Capita per Day (GPCD) has been used to measure water demands specific to the population. The Total GPCD is the total amount of water diverted and/or pumped for potable use divided by the total population.

$$\textbf{Total GPCD} = \frac{\textbf{Annual total treated water pumped - Annual unbilled water}}{\textbf{365 x Population}}$$

Table 1: City of Lewisville Total Gallons per Capita Day

Calendar Year	Population	Total GPCD
2019	105,640	144
2020	107,120	142
2021	109,270	140
2022	132,620	156
2023	134,231	158

The 2019 Conservation Plan set the goal for the City of Lewisville Gallons Per Capita Day (GPCD) at 140. As can be seen in the table above, water consumption had stayed at or slightly above that goal for from 2019-2021, however in 2022-2023 it far exceeded the goal. Besides drought conditions that hit during the summers of 2022 and 2023, in November of 2021, the City of Lewisville annexed the Castle Hills area. This area had

historically higher GPCD use than Lewisville. The Gallons Per Capita Day goal set for this new 5-year period is 145 GPCD, and the new 10-year goal is 140 GPCD, concomitant with the regional and state goals. Table 2 details the new 5-year and 10-year goals as submitted to the Texas Water Development Board.

Table 2: 5-year and 10-year goals

	Historic 5-Year Average	Baseline 2023	5-Year Goal for 2029	10-Year Goal for 2034
Total GPCD	148	158	145	140
Residential GPCD	82	88	75	70
Water Loss (GPCD)	22	28	15	10
Water Loss Percentage	15%	18%	10%	7%

The Total GPCD averaged 166 for the period 2009-2013, which is 18.5% higher than the Region C goal of 140 GPCD base water use. The 2014-2018 period averaged 133 GPCD, which is 5% lower than the Region C goal of 140 GPCD base water use. The current period of 2019-2023 averaged 148 GPCD, which is 6% higher than the Region C goal. During this period, Lewisville, as well as much of Texas experienced drought conditions. The effect of the drought can be seen in the peak in customer usage in the 2022-23 calendar years. In addition to drought, the City annexed its ETJ in November 2021 which has traditionally had higher per capita water use. The City of Lewisville has implemented voluntary water restrictions throughout the year and implemented mandatory restriction for three summer months since 2013. From 2014-2021, Lewisville saw an average of 136

GPCD; well below the 140 GPCD baseline. This can be attributed to mandatory watering restrictions being implemented during those peak summer months within this time frame. The same mandatory watering restrictions were in place in 2022 and 2023, but more education and enforcement are needed with new residents and commercial entities.

Long Range Water Planning Efforts

The City of Lewisville regularly conducts water master planning efforts to evaluate and plan for future water service needs. The 2021 Water Distribution Master Plan concluded that additional sources of water must be procured to meet future water needs. Capital Improvement Plans developed based on the City's master plan include the procurement of additional treated water supply.

Future Water Supply Sources

The total population of Lewisville projected at build-out in the 2021 Master Plan was 163,162, not including the Castle Hills area. When factoring in the additional demand from Castle Hills, the total estimated future build-out demand value increased from 58 million gallons per day (MGD) in the 2018 study to 61 MGD. This demand change, in addition to the updated 2023 Land Use Assumptions showing estimated population build-out at 179,914, has increased the need for expansion of the Feaster Water Treatment Plant as a future source for supply. The plan also shows a need for incremental purchases of additional treated water supplies to meet the increased demands of the system. Effective conservation measures may reduce the necessity or postpone the need to

provide this capacity. Educational efforts and evaluation of rates will be considered to reduce the gallons per capita day usage in order to meet conservation goals.

Element 3: Accurate Metering Devices:

As per Texas Commission on Environmental Quality (TCEQ) requirements metering devices are tested and calibrated for accuracy. Raw water meters and treated water meters from the point of delivery from DWU and UTRWD are calibrated semi-annually to within +/-5% accuracy. In addition, Dallas Water Utilities and Upper Trinity maintain meters in close proximity to the City of Lewisville meters, providing redundant flow recordings that allow comparison of flow readings, early detection of errant recordings, leaks, and/or meter inaccuracies.

Element 4: Universal Metering, Testing, Repair, and Replacement:

The City of Lewisville's current meter program provides universal metering of both customer and public uses of water and a regularly scheduled maintenance program of meter testing, repair, and replacement. Starting in 2017, the City moved toward an aggressive meter replacement plan. These change-outs have taken place over the last 7-years and will be completed in 2024. Additionally, in FY2023-24, the City Council approved an upgrade of the meter registers to an Automated Metering Infrastructure (AMI) from manual reads. This effort will be completed by the end of 2024 and is anticipated to provide greater data to find leaks in the system and discourage water use

outside of permitted times. Temporary meters are required on all construction projects including City projects. Nearly all of the 1 1/2-inch meters are now high efficiency single jet meters. There remain a few high-volume irrigation lines that are still multi-jet meters.

Element 5: Leak Detection, Repair, and Control of Unaccounted for Water:

The City of Lewisville's leak detection, location, and repair programs have been employed for several years to identify distribution system losses and control unaccounted for water loss. The City employs periodic visual inspections along distribution lines, including routine aerial inspections. The City has purchased leak detection equipment used routinely with periodic audits of the water system for detection of water loss within the distribution system, as well as for illegal connections or abandoned services. Water losses from hydrant flushing, construction, system maintenance, and main breaks are estimated and recorded to reconcile disparities in unaccounted for water. The City currently has practices in place to control system pressure. Pressure checks are made on fire hydrants during flushing and routine exercising. Additionally, booster pump station and elevated tank pressures are continuously monitored via telemetry throughout the city.

Element 6: Continuing Public Education Program:

The City recognizes that water conservation significantly benefits individuals and communities in terms of long-term availability and costs. The most readily available and

lowest cost method of promoting water conservation is to inform retail water users about ways to save water in homes and businesses, in landscaping and lawn uses, and in recreational uses. The City currently provides water conservation information to retail customers in the following manner:

- Water conservation pamphlets, containing information on the *Water Conservation and Emergency Water Management Plan* are mailed out to all water customers. Additionally, this information is available at kiosks throughout City facilities, including the atrium of City Hall Annex, City Hall and in the Public Library.

- Conservation information is distributed at City events and environmental program functions that involve the general public. These events are attended by the City's mascot, Willie Water.

- Public media campaigns that broadcast conservation tips on the City cable channel, radio station, website, YouTube, Instagram, and Facebook.

- Conservation tips and information on the *Water Conservation and Emergency Water Management Plan* are available on the City web page and in newsletters.

- Educational events throughout the year provide a forum to promote attention and awareness of conservation measures through these events.

- The City promotes conservation awareness as part of its participation in annual National Drinking Water Awareness Week programs by hosting poster contests and creating informational display boards.

Element 7: Non-Promotional Rate Structure:

The City of Lewisville currently has an inclining block rate structure comprised of a monthly minimum based on the meter size and then incremental increases based on usage for residential. Commercial in Lewisville has a set base rate per meter size and a flat rate for 2,000+, though the Castle Hills commercial has an inclining block structure. The rates are shown in the table below. The City annually reviews water rate structures to ensure that the prevailing rates encourage water conservation while covering the total cost of service and minimizing adverse impacts.

Table 3.1: City of Lewisville Water Rates

City of Lewisville 2023 Water Rates	
Meter Size	Base cost for first 2,000 gallons
3/4-inch	$ 24.18
1-inch	$ 24.18
1 1/2-inch	$ 80.52
2-inch	$ 128.88
3-inch	$ 241.80
4-inch	$ 403.09
6-inch	$ 805.92
8-inch	$ 1,289.52
10-inch	$ 1,853.88
Residential Volumetric Charge	
2001-15,000	$ 3.57
15,001-35,000	$ 3.78
35,001-50,000	$ 4.53
50,001+	$ 5.36
Commercial/Industrial Volumetric Charge	
2,001+	$ 3.57

Table 3.2: Castle Hills Area Water Rates

Castle Hills Area 2023 Water Rates	
Meter Size	Base cost for first 2,000 gallons
3/4-inch	$ 34.75
1-inch	$ 34.75
1 1/2-inch	$ 115.72
2-inch	$ 185.22
3-inch	$ 405.33
4-inch	$ 729.75
6-inch	$ 1,621.78
8-inch	$ 2,780.00
10-inch	$ 4,401.78
Residential Volumetric Charge	
2001-15,000	$ 3.74
15,001-25,000	$ 4.24
25,001-35,000	$ 5.06
35,001-45,000	$ 6.06
45,001-55,000	$ 7.06
55,001+	$ 8.06
Commercial/Industrial Volumetric Charge	
2001-15,000	$ 4.00
15,001-25,000	$ 4.50
25,001-35,000	$ 5.71
35,001-45,000	$ 6.71
45,001-55,000	$ 7.71
55,001+	$ 8.71

Element 8: Reservoir Systems Operation Plan

The City of Lewisville does not own a reservoir; therefore, this requirement is not applicable.

Element 9: Implementation and Enforcement

The Mayor, Mayor Pro Tem, City Manager, or City Manager's duly appointed representative will act as the Administrator of the Water Conservation and Emergency Water Management Plan. The Administrator will oversee the execution and implementation of all elements of the Plan and will be responsible for seeing that adequate records are kept for program verification. A copy of the City of Lewisville's Ordinance is included in Appendix A.

Element 10: Coordination with Regional Water Planning Groups:

The City of Lewisville is located in both Dallas and Denton Counties and is part of the Region C Water Planning Group. Lewisville receives the majority of its water from Dallas Water Utilities and also Upper Trinity Regional Water District, both of which are among the seven major water providers identified in the Region C Plan. A copy of the City of Lewisville's Water Conservation and Emergency Water Management Plan will be submitted to Dallas Water Utilities, Upper Trinity Regional Water District, and the Region C Water Planning Group.

Element 11: Water Conservation Strategies

Various water conservation strategies were examined and considered during this process. These strategies were the result of numerous resources, including state agency directives, regional water planning groups, water conservation literature, water conservation programs used by other municipalities, and the city's existing water conservation plan.

The City of Lewisville has had a water conservation program since 1999. Prior to that time a drought contingency plan was in place. The City's current conservation program consists of public awareness and education programs; leak detection and repair; evaluation of unaccounted for water; meter testing, repair and replacement program, Water Conservation and Drought Contingency Management Ordinance, and enforcement capabilities.

Water conservation measures currently employed include the following:

- Utility water conservation workforce
- Universal meter testing, repair and replacement
- Leak detection, repair, and control of unaccounted for water
- Public awareness and education campaign
- Means of implementation and enforcement of water conservation ordinances
- Coordination with regional water planning groups
- Record Management system
- Reuse Water Planning
- Adoption of updated plumbing code
- Distribution system pressure control program

As part of an ongoing effort, the Texas Water Development Board and the Texas Commission on Environmental Quality continue to work closely with the Water Conservation Advisory Council and interested stakeholders to review and update water conservation best management practices. The best management practices identified in the guides are offered to the state's regional water planning groups, water providers, and water users as a tool for planning and designing effective water conservation programs. During the regional water planning process these practices can be evaluated for potential water savings and cost effectiveness. The objectives of these best management practices are to identify information about the elements of successful conservation programs, good cost estimates, and reliable water savings estimates for use in water resource planning. These best management practices (BMP's) are divided into various user groups: Municipal, Agricultural, Commercial & Institutional, Industrial, and Wholesale Water Providers. Municipal BMPs include:

- Conservation Analysis and Planning
    - Conservation Coordinator
    - Cost Effective Analysis
    - Water Survey for Single-Family and Multi-Family Customers

- Financial
    - Water Conservation Pricing
    - Wholesale Agency Assistance Programs

- System Operations
    - Metering of All New Connections and Retrofit of Existing Connections
    - System Water Audit and Water Loss Control

- Landscaping
    - Athletic Field Conservation
    - Golf Course Conservation
    - Landscape Irrigation Conservation and Incentives
    - Park Conservation
    - Residential Landscape Irrigation Evaluation

- Education & Public Awareness
    - Public Information
    - School Education
    - Small Utility Outreach and Education
    - Partnerships with Nonprofit Organizations

- Rebate, Retrofit, and Incentive Programs
    - Conservation Programs for ICI Accounts
    - Residential Clothes Washer Incentive Program
    - Residential Toilet Replacement Programs
    - Showerhead, Aerator, and Toilet Flapper Retrofit
    - Water Wise Landscape Design and Conversion Programs

- Conservation Technology
    - New Construction Gray water
    - Rainwater Harvesting and Condensate Reuse
    - Water Reuse

- Regulatory & Enforcement
    - Prohibition on Wasting Water
    - Conservation Ordinance Planning and Development

Municipal water consumption is driven by a wide variety of domestic, commercial, industrial and institutional needs. These Best Management Practices were developed to both improve water use efficiency of the Utility operation and to improve the efficiency of the water customers. A utility can reduce water loss through careful and regular monitoring of its water delivery systems through the System Water Audit and Water Loss BMP. In addition, the Water Conservation Pricing BMP can provide an effective method of encouraging water efficiency by the customer through feedback from the cost of the water to the user. The Prohibition on Water Wasting BMP can help send a message to users about the value of water as well as educate the general public about simple steps to save water. The City of Lewisville evaluated these conservation strategies for implementation during the next five-year period.

The following were considered for implementation during the 2024-2029 Period.

- Expanded water conservation pricing
- Expanded school and public education programs
- Water surveys for single-family and multi-family customers
- Landscape irrigation conservation and incentives
- Park and athletic field conservation
- Golf course conservation
- Expanded reuse programs
- Industrial water audits
- Industrial water waste reductions
- Industrial water conservation/pollution prevention programs (P2)
- Industrial alternative sources and reuse of process water

Benefits of implementing identified strategies exist beyond meeting mandated water conservation requirements. Conservation strategies will extend the life of the distribution system, delay capital improvements for future water needs, postpone the need to procure additional treated water sources, and lower the operating cost of the distribution system and peak demands. Water conservation strategies were collected from various sources that included DWU, UTRWD, literature, planning groups and other municipalities. Strategies were reviewed based on the ability to implement the strategies and the benefit in reduced water consumption produced.

Recommended Water Conservation Strategies

The Water Conservation Plan, currently in effect, recommends continued conservation efforts. Conservation strategies presently used by Lewisville and those that are recommended for implementation over the five-year planning period are shown in the table below, Table 4: Water Conservation Strategies. Other strategies that may be implemented after 2024 are also included within this table.

Table 4: City of Lewisville Water Conservation Strategies

Strategy	Implemented	Recommended
Water conservation staff	✓	✓
Universal meter testing, repair and replacement	✓	✓
Leak detection, repair, and control of unaccounted for water	✓	✓
Public awareness and education campaign	✓	✓
Means of implementation and enforcement of water conservation ordinances	✓	✓
Coordination with regional water planning groups	✓	✓
Record Management system	✓	✓
Reuse Water Planning	✓	✓
Adoption of updated plumbing code	✓	✓
Distribution system pressure control program	✓	✓
Water surveys for single and multi-family customers	✓	✓
Landscape irrigation conservation and incentives	✓	✓
Water wise landscape design program	✓	✓
Park conservation	✓	✓
System Water audit	✓	✓
Reuse options	✓	✓
Single family irrigation audits	✓	✓
Multi-family irrigation audits	✓	✓
Commercial irrigation audits	✓	✓
Seasonal water rates		✓
Audit of metering/billing practices	✓	✓
Enhanced water loss auditing	✓	✓
Increase Water Treatment Plant Reclaim		

Recommended Actions

Recommendation 1: Continued Funding of Conservation Programs and Resources

Continued support of Water Conservation Programs and efforts will allow the coordination of conservation efforts and targeted programs to enhance existing educational efforts, special partnerships and audits. New public awareness and education efforts will be implemented over the next five-year period.

Water Conservation Committee

Made up of City staff from various departments, a committee could come together to continue to find ways to develop new programs or find innovative ways of implementing existing ones.

Public Awareness and School Education Programs

The City of Lewisville currently provides conservation materials through water bill inserts, posts information on various forms of social media, and provides conservation information through the City's website. Expanding the awareness and educational programs could produce between 1 to 5 percent savings. It is estimated that water savings from expanding this program will increase water savings by 2% of total water use.

Recommendation 2: Continue Annual Evaluation of Current Water Loss

Further evaluation of the current water losses will include the review and enhancement of the following programs:

- metering programs to measure and account for the amount of water diverted and customer sales;
- meter testing, repair, and replacement programs;
- leak detection programs, repair, and water loss accounting for the water transmission, delivery, and distribution system in order to control unaccounted-for uses of water, and
- measures to determine and control unaccounted-for uses of water.

Additional information and records will be reviewed to evaluate current water use practices for residential, commercial and industrial users.

Customer Water Use Audits

A customer water use audit could be combined with the current resident survey to provide information on customer seasonal water usage and (normal) practices. In addition, targeting of high water use customers would provide further information on their irrigation practices. This provides the opportunity to introduce landscape irrigation conservation and water conservation awareness programs to multi-family complexes, which constitute the largest water users within the City of Lewisville.

Additional information on industrial and commercial water usage could be obtained through separate surveys or other instruments. This information could be combined with current Pollution Prevention (P2) efforts and existing programs that obtain information from industrial and commercial users. This could provide the opportunity to introduce landscape irrigation conservation and water conservation awareness programs to more than one third of the current water users.

Recommendation 3: Continue to Promote "WaterWise" Landscapes

City-hosted environmental and conservation events often provide literature and resources on the use of "*WaterWise*" landscapes that promote the use of native and heat tolerant plantings. The introduction of Xeriscape principles using native vegetation or replacing grass turf with native turf can be expanded to additional city owned locations such as libraries, fire stations, parks, and other city facilities. These areas may be used as demonstration sites in addition to parks and other city properties with high public visibility.

Recommendation 4: Review and revise current Water Rates, City Ordinances, Enforcement, Codes and Standards to ensure water conservation is promoted.

The review and revision of current city ordinances, rates and standards are conducted annually. The addition of ordinances and possibly seasonal water rates that discourage wasteful water use will be proposed during periods of drought.

Water Conservation Pricing

Introduction of water conservation pricing could decrease residential water usage by as much as 2% or 110 acre-feet with a 10% increase in seasonal water rates. This measure will require consideration and rate analysis during the five-year planning period. The goal of water conservation pricing is to send the appropriate signal to customers to reduce discretionary water use. With the annexation of Castle Hills and the expected increased demands for outdoor use, evaluation and consideration will be given to seasonal rate structures, rates based on individual water budgets, and tiered residential rate structures. Additionally, considering the introduction of water conservation pricing on irrigation meters could also aid in the conservation of water. The revenue reduced would be in direct proportion to the amount of water saved. Consideration will also be given to installing separate meters for industrial and commercial customers and high water use single and multi-family residential accounts to separate indoor and outdoor uses.

Prohibition of Wasting Water / Lawn and Landscape Irrigation Ordinance

Implementation of this water conservation strategy would be combined with public information efforts to discourage inefficient water use and reduce water waste. Estimated water savings from this strategy could be as much as 5% of summer outdoor usage. This measure would require some administrative and enforcement costs initially pending consumer awareness of the new program.

Recommendation 5: Evaluate other incentives for Residential, Industrial, Commercial, and Institutional customers.

Residential Customers

The City currently offers a conservation credit program to its customers who take advantage of various credit options. These include implementation of low flow toilets, showerheads, high efficiency washing machines, rain barrels, temperature/moisture irrigation sensors, irrigation controllers, and irrigation inspections. Further evaluation is needed to see the impacts these credit options have.

Industrial, Commercial, and Institutional Customers

Methods for educating and/or incentivizing ICI customers will need to be looked at. Leaders of businesses that are top water users should be the focus of this outreach.

Leverage Multi-Family Inspection program and add checklist item to inspect irrigation controllers. The need for more proactive outreach to apartments and HOAs was identified in preparation of the conservation plan.

Recommended Five-Year Implementation Schedule

An implementation schedule for the water goals, described in this plan are proposed to be initiated over the five-year period for 2024 through 2029. These proposed or revised programs are listed below.

2024

Action 1: Continued Funding of Conservation Programs and Resources

Existing Efforts:

Maintain conservation programs and resources.

New Efforts

- Evaluate current programs.

Action 2: Continue Evaluation of Current Water Loss

Existing Efforts:

- Collect and evaluate water data.

New Efforts

- Evaluate water data to assess the accuracy of current water records and water conservation programs.

Action 3: Continue to Promote "WaterWise" Landscapes

Existing Efforts:

- Promote "*WaterWise"* Landscapes at Environmental and City events.

New Efforts

- On-going educational efforts

Action 4: Review/revise current Water Rates, City Ordinances,

Enforcement, Codes and Standards, to ensure water conservation is promoted.

Existing Efforts:

- Review current Conservation Plan and Ordinance for necessary revisions.

New Efforts

- Consideration of inclining block rates for irrigation.
- Consideration of stronger triggering mechanisms in Ordinance so conditions effecting the City of Lewisville can trigger stages 2 and 3, not solely DWU.
- Work with Multi-Family Inspection team to add landscape irrigation checklist item to inspection form.

Action 5: Evaluate other incentives for Residential, Industrial, Commercial, and Institutional customers.

Existing Efforts:

- Evaluate existing efforts.

New Efforts

- Identify ICI customers that use the most water resources.
- Add landscape irrigation inspection service free for residents.

2025

Action 1: Continued Funding of Conservation Programs and Resources

Existing Efforts:

- Maintain conservation programs and resources.

- Evaluation of current program effectiveness.

New Efforts

- Develop new conservation educational programs and resources.
- Enhance partnerships to promote Conservation Awareness

Action 2: Continue Evaluation of Current Water Loss

Existing Efforts:

- Collect and evaluate water data.
- Assess the effectiveness of water conservation programs.

New Efforts

- Evaluate leak detection, metering and replacement programs to assess the program effectiveness and accuracy.

Action 3: Continue to Promote "WaterWise" Landscapes

Existing Efforts:

- Promote "*WaterWise"* Landscapes at Environmental and City events.

New Efforts

- Coordinate with Parks Department and Community Development to identify existing and proposed landscapes for conversion to "*WaterWise*" landscapes.

Action 4: Review/revise current Water Rates, City Ordinances, Enforcement, Codes and Standards, to ensure water conservation is promoted.

Existing Efforts:

- Continue to review current Conservation Plan and Ordinance for necessary revisions. Consider stronger triggering mechanisms in Ordinance so conditions effecting the City of Lewisville can trigger stages 2 and 3, not solely DWU.
- Continue to evaluate ordinances, codes and standards.

New Efforts

- Modify City Ordinances, Rates, Codes and Standards to promote conservation efforts and adequate enforcement.

Action 5: Evaluate other incentives for Residential, Industrial, Commercial, and Institutional customers.

Existing Efforts:

- Evaluate existing projects.
- Identify ICI customers that use the most water resources.

New Efforts:

- Develop ways to reach out, educate, and/or incentivize ICI customers initially identified.
- Add landscape irrigation inspection service free for residents.

2026

Action 1: Continued Funding of Conservation Programs and Resources

Existing Efforts:

- Maintain conservation programs and resources.
- Continue conservation educational programs.
- Continue to enhance partnerships to promote Conservation Awareness

New Efforts

- Develop Water Conservation Awards programs.

Action 2: Continue Evaluation of Current Water Loss

Existing Efforts:

- Collect and evaluate water data.
- Assess the effectiveness of water conservation programs.
- Continue to evaluate leak detection, metering and replacement programs to assess the program effectiveness and accuracy.

New Efforts

- Conduct Customer Water Use Audits.
- Evaluate metering and billing methodologies.

Action 3: Continue to Promote "WaterWise" Landscapes

Existing Efforts:

- Promote "*WaterWise*" Landscapes at Environmental and City events.
- Continue to identify existing and proposed landscapes for conversion to "*WaterWise*" landscapes.

New Efforts

- Enhance partnerships to promote "*WaterWise*" landscapes.

Action 4: Review/revise current Water Rates, City Ordinances, Enforcement, Codes and Standards, to ensure water conservation is promoted.

Existing Efforts:

- Continue to review current Conservation Plan and Ordinance for necessary revisions.
- Continue to evaluate ordinances, codes and standards.

New Efforts

- Increase enforcement efforts.

Action 5: Evaluate other incentives for Residential, Industrial, Commercial, and Institutional customers.

Existing Efforts:

- Evaluate existing projects Identify ICI customers that use the most water resources.
- Develop ways to reach out, educate, and/or incentivize ICI customers initially identified.

New Efforts

- Establish business partner task force.

2027

Action 1: Continued Funding of Conservation Programs and Resources

Existing Efforts:

- Maintain conservation programs and resources.
- Continue conservation educational programs.
- Enhance partnerships to promote Conservation Awareness.
- Continue water conservation awards programs.

New Efforts

- Develop Industrial/Commercial Conservation Awareness

Program

- Evaluate on-going programs for effectiveness.

Action 2: Continue Evaluation of Current Water Loss

Existing Efforts:

- Collect and evaluate water data.
- Assess the effectiveness of water conservation programs.
- Continue to assess leak detection, metering and replacement programs.

New Efforts

- Conduct Water System Analysis.

Action 3: Continue to Promote "WaterWise" Landscapes

Existing Efforts:

- Promote "*WaterWise*" Landscapes at Environmental and City events.
- Continue to identify proposed landscapes for conversion to "*WaterWise*" landscapes.
- Continue to enhance partnerships to promote "*WaterWise*" landscapes.

New Efforts

- Develop General Development Ordinance that promotes "*WaterWise*" landscapes.

Action 4: Review/revise current Water Rates, City Ordinances, Enforcement, Codes and Standards, to ensure water conservation is promoted.

Existing Efforts:

- Continue to review current Conservation Plan and Ordinance for necessary revisions.
- Continue to evaluate ordinances, codes and standards.
- Continue enforcement efforts.

New Efforts

- Consider additional ordinances, codes that promote water conservation.

Action 5: Evaluate other incentives for Residential, Industrial, Commercial, and Institutional customers:

- Continue building task force to promote the Lewisville Water Conservation Plan within the ICI community.

2028

Action 1: Continued Funding of Conservation Programs and Resources

Existing Efforts:

- Maintain conservation programs and resources.
- Continue conservation educational programs.
- Continue partnerships to promote Conservation Awareness
- Continue water conservation awards programs.
- Continue Industrial/Commercial Conservation Awareness Program

New Efforts

- Evaluate on-going programs for effectiveness.

- Develop water conservation awards programs.

Action 2: Continue Evaluation of Current Water Loss

Existing Efforts:

- Collect and evaluate water data.
- Assess the effectiveness of water conservation programs.
- Continue to assess leak detection, metering and replacement programs.

New Efforts

- Implement actions identified in Water System Analysis

Action 3: Continue to Promote "WaterWise" Landscapes

Existing Efforts:

- Promote "*WaterWise*" Landscapes at Environmental and City events.
- Continue to identify proposed landscapes for conversion to "*WaterWise*" landscapes.
- Continue to enhance partnerships to promote "*WaterWise*" landscapes.

New Efforts

- *None*

Action 4: Review/revise current Water Rates, City Ordinances, Enforcement, Codes and Standards, to ensure water conservation is promoted.

Existing Efforts:

- Continue to review current Conservation Plan and Ordinance

for necessary revisions.

- Continue to evaluate ordinances, codes and standards.
- Continue enforcement efforts.

New Efforts

- Consider additional ordinances, codes that promote water conservation.

Action 5: Evaluate other incentives for Residential, Industrial, Commercial, and Institutional customers.

- Continue building task force to promote the Lewisville Water Conservation Plan within the ICI community.

Element 12: Update of the Plan:

The City of Lewisville will review and update its Water Conservation Plan, as necessary, based on an assessment of previous five-year and ten-year targets and any other new or updated information. New strategies that are identified for potential implementation during the five-year and ten-year target periods may be added to the existing conservation strategies, or modification of existing strategies may be performed based on the evaluation and assessment of the outcome of these strategies.

EMERGENCY WATER MANAGEMENT PLAN

The amended Title 30 Chapter 288 of the Texas Administrative Code (TAC) became effective on December 6, 2012; Subchapter B requires the submission and implementation of a drought contingency plan that meets the following minimum requirements for retail public water suppliers:

- **Public Participation:** Preparation of the plan should include provisions for continuing public informing the public and providing opportunity for public input.
- **Public Education:** The plan should include provisions for continuing public education and information regarding the drought contingency plan.
- **Coordination with Regional Planning Groups:** Coordination with the Regional Water Planning Group must be documented to ensure consistency with the appropriate regional water plans.
- **Information to Monitor:** A description of the information to be monitored, criteria for initiation and termination of drought response stages, and an explanation of the rationale for triggering such criteria must be included in the plan.
- **Triggers:** The plan must include specific triggers to begin and end each stage of the plan.
- **Drought or Emergency Stages:** The plan must respond to a reduction in available water supply up to the drought of record, water production or distribution system limitations, supply source contamination, or system outage due to the failure or damage of major water system components.
- **Targets:** The plan should include specific, quantified targets for water use reductions to be achieved during periods of water shortage or drought.

- **Water Supply or Water Demand Management Measures:** Measures should include at a minimum; the curtailment of non-essential water uses and utilization of alternative water sources.
- **Procedures:** The plan must include procedures for initiation and termination of drought response stages and notification to the public.
- **Variances:** The plan must include procedures for granting variances to the plan.
- **Notification:** The plan must include provisions for notification of the public of the various drought response stages.
- **Enforcement:** The plan must include procedures for enforcement of mandatory water use restrictions, including specification of penalties
- **Update of Plan:** The plan shall be reviewed and updated at least every five years.

EMERGENCY WATER MANAGEMENT PLAN

Program Goal

Drought or a number of other uncontrollable circumstances can disrupt normal availability of the City's water supply. Even though the city may have an adequate water supply; the supply could become contaminated; a disaster could destroy the supply; or system treatment, storage, or distribution failures could present the City with an emergency demand management situation. The Emergency Water Management Plan is designed to provide procedures to respond to these emergencies.

Plan Elements

Fundamental differences distinguish emergency water demand management planning from water conservation planning. While water conservation involves implementing permanent water use efficiency or reuse practices, water emergency plans establish temporary methods or techniques to be used only as long as an emergency exists. The drought contingency measures included in the Plan may be implemented as precautionary measures to assist in providing a means to improve water efficiencies, and to avoid or minimize the impact of drought-related water shortages or other emergencies. The City of Lewisville's emergency plan includes the following elements:

- Triggering conditions signaling the start of an emergency period
- Demand management response stages
- Initiation, implementation, and termination procedures
- Public information and education procedures
- Enforcement process
- Alternative water sources
- Coordination with Regional Water Planning Groups

Triggering Conditions

The City of Lewisville purchases water from Dallas Water Utilities (DWU) through raw and treated water contracts and Upper Trinity Regional Water District (UTRWD) through a treated water contract. Provisions within these contracts require the City of Lewisville to implement the Emergency Water Management Plan when Dallas implements

similar measures. The City of Lewisville will coordinate with DWU to establish appropriate water restrictions when the water supply will be affected. The conditions, which can trigger implementation of demand management measures, include diminished raw water supplies in the Dallas Water Utilities connected reservoirs, depletion of potable water storage, and equipment failures which affect the ability of the system to maintain required water pressure.

Demand Management Responses

Contingent upon the severity of the triggering conditions, the Water Management Plan calls for three phases of response to emergency demand situations. These responses follow the demand reduction targets from the City of Dallas. The first stage is identified as a "Stage 1: Water Watch" and calls for measures intended to reduce loss and waste of water, improve the efficiency in the use of water and to protect water as a valuable resource on a continuous basis. The Target for this first stage is to achieve a 5 percent reduction in total gallons per capita per day (GPCD). Stage 1 of the Water Management Plan restricts outdoor watering by hose-end sprinklers or automatic irrigation systems to twice per week. May 1st through September 30th of each year, outdoor irrigating is permitted only between the designated hours of 6 p.m. and 10 a.m., year-round. "Stage 2: Water Emergency" limits outdoor watering by hose-end sprinklers or automatic irrigation systems to once per week, only between the designated hours of 6 p.m. and 10 a.m., year-round. Additionally, this stage imposes restrictions that prohibit certain water uses and provides for a temporary increase in retail residential water rates for water use in excess

of 6,000 gallons per month. Target for the second stage of this plan is to achieve a 15 percent reduction in total gallons per capita per day (GPCD). If "Stage 3: Water Crisis" is declared, additional restrictions are imposed that prohibit all landscape watering, and allow the City Manager to require reduced consumption by commercial water users and provide for a temporary increase in retail residential water rates for water use in excess of 6,000 gallons per month. The Target for the third stage of this plan is to achieve a 20 percent reduction in total gallons per capita per day (GPCD).

Initiation, Implementation, and Termination Procedures

The Mayor, Mayor Pro Tem, City Manager, or City Manager's duly appointed representative serves as Administrator of this plan and is authorized to declare an emergency exists and require the implementation of measures prescribed in this plan. The Public Services Director shall advise the Administrator that urgent water conditions exist, and the Administrator shall order implementation of the appropriate stage of the plan. The order will be immediately communicated to the public by way of media news release, the city cable channel, web site, or other means available and appropriate for the response required.

Declaration of any stage of the Emergency Water Management Plan can be effective for up to sixty (60) days from the date of announcement. Upon recommendation of the Public Services Director, the Administrator may upgrade or downgrade the stage of emergency when conditions triggering the emergency change. The City Council may

extend the duration of the emergency order for an additional length of time not to exceed one hundred twenty (120) days at each stage of emergency. When conditions triggering the emergency no longer exist, the Administrator may terminate the order through public announcement by way of media news release, the city cable channel, web site, or other means available and appropriate by the Administrator.

The Texas Commission on Environmental Quality shall be notified of the current stage of the Drought Contingency Plan as required for implementation of Stage 2 or Stage 3 mandatory provisions of the Emergency Water Management Plan.

Public Information and Education Procedures

As indicated in the previous section, public notification of implementation of the Emergency Water Management Plan will be made through all media outlets available to the City of Lewisville; these include media news releases, the city cable channel, website, emergency notification system, or other means deemed appropriate by the Administrator. During the emergency response period, the public will receive regular updates through local newspapers and cable channel regarding the status of the water emergency. Additionally, as a component of the Water Conservation Plan, the purpose and stages of the Emergency Water Management Plan will be communicated to the public through the distribution of various printed materials.

Enforcement

All water users are expected to comply with the restrictions imposed by implementation of this Plan. A person commits an offense if he or she knowingly makes, causes, or permits use of water contrary to the demand management measures implemented. Any person who violates or fails to comply with any provision of the emergency measures shall be guilty of a misdemeanor, and upon conviction thereof in the Municipal Court of Lewisville, Texas, shall be subject to a fine of not more than $2000 for each offense. Each day such offense is continued, shall constitute a new and separate offense. During the period that the Plan is operative, the Administrator may grant exemptions in special cases where a water user can demonstrate extreme hardship or need relating to his/her health, safety, welfare or other merited exemption.

All City employees shall assist as needed in notification and enforcement of the Emergency Water Management Plan. The Neighborhood and Inspection Services, Public Services and Police Departments shall be authorized to enforce penalties upon violation.

Alternative Water Source

The City of Lewisville, by contract with DWU, has access to an unlimited amount of untreated water from Lewisville Lake with the only restriction being availability. In the event of a drought that would deplete Lewisville Lake, the City of Lewisville would make necessary arrangements for transporting water, concomitant with demand management measures.

Coordination with Regional Water Planning Groups

The City of Lewisville is located in both Dallas and Denton Counties and is part of the Region C Water Planning Group. Lewisville receives the majority of its water from Dallas Water Utilities as well as Upper Trinity Regional Water District, both of which are among the seven major water providers identified in the Region C Plan. A copy of the City of Lewisville's Water Conservation and Emergency Water Management Plan will be submitted to Dallas Water Utilities, Upper Trinity Regional Water District, and the Region C Water Planning Group.

APPENDIX A – CITY ORDINANCE

APPENDIX B – UTILITY PROFILE AND WATER CONSERVATION PLAN REQUIREMENTS FOR MUNICIPAL WATER USE BY RETAIL PUBLIC WATER SUPPLIER TCEQ FORM 10218

Texas Commission on Environmental Quality

Water Availability Division
MC-160, P.O. Box 13087 Austin, Texas 78711-3087
Telephone (512) 239-4600, FAX (512) 239-2214

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 assistance in completing this form or in developing your plan, please contact the Conservation staff of the Resource Protection Team in the Water Availability Division at (512) 239-4600.

Water users can find best management practices (BMPs) at the Texas Water Development Board's website http://www.twdb.texas.gov/conservation/BMPs/index.asp. The practices are broken out into sectors such as Agriculture, Commercial and Institutional, Industrial, Municipal and Wholesale. BMPs are voluntary measures that water users use to develop the required components of Title 30, Texas Administrative Code, Chapter 288. BMPs can also be implemented in addition to the rule requirements to achieve water conservation goals.

Contact Information

Name of Water Supplier:	City of Lewisville
Address:	PO Box 299002, Lewisville, TX 75029
Telephone Number:	(972) 219-3510 Fax: ( )
Water Right No.(s):	192
Regional Water Planning Group:	C
Water Conservation Coordinator (or person responsible for implementing conservation program):	Katelyn Hearon Phone: (972) 219-3509
Form Completed by:	Katelyn Hearon
Title:	Utilities Manager
Signature:	Katelyn Hearon Date: 4/22/2024

A water conservation plan for municipal use by retail public water suppliers must include the following requirements (as detailed in 30 TAC Section 288.2). If the plan does not provide information for each requirement, you must include in the plan 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 and, if applicable, a copy of your Certificate of Convenience and Necessity (CCN).

2. Service area size (in square miles): 41

   (Please attach a copy of service-area map)

3. Current population of service area: 134,231

4. Current population served for:

   a. Water 134,241

   b. Wastewater 134,231

5. Population served for previous five years:

Year	*Population*
2019	121,712
2020	122,726
2021	129,320
2022	132,620
2023	134,231

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

Year	*Population*
2020	122,726
2030	146,559
2040	164,166
2050	169,415
2060	174,664

7. List source or method for the calculation of current and projected population size.

   2021 Region C Texas Water Development Board Plan, 2023 Land Use Assumptions Update

B. Customer 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. More guidance can be found at: http://www.twdb.texas.gov/conservation/doc/SB181Guidance.pdf

1. Quantified 5-year and 10-year goals for water savings:

	Historic 5-year Average	*Baseline*	*5-year goal for year 2024*	*10-year goal for year 2029*
Total GPCD	143	158	140	135
Residential GPCD	82	88	70	68
Water Loss GPCD	27	28	10	8
Water Loss Percentage	14	17.55	7.14	5.93

Notes:
Total GPCD = (Total Gallons in System ÷ Permanent Population) ÷ 365
Residential GPCD = (Gallons Used for Residential Use ÷ Residential Population) ÷ 365
Water Loss GPCD = (Total Water Loss ÷ Permanent Population) ÷ 365
Water Loss Percentage = (Total Water Loss ÷ Total Gallons in System) x 100; or (Water Loss GPCD ÷ Total GPCD) x 100

2. Current number of active connections. Check whether multi-family service is counted as ☐ Residential or ☒ Commercial?

Treated Water Users	*Metered*	*Non-Metered*	*Totals*
Residential	53,723	0	53,723
Single-Family	26,375	0	26,375
Multi-Family	27,348	0	27,348
Commercial	2,815	0	2,815
Industrial/Mining	29	0	29
Institutional	508	0	508
Agriculture	0	0	0
Other/Wholesale	0	0	0

3. List the number of new connections per year for most recent three years.

Year	2021	2022	2023
Treated Water Users			
Residential	593	8461	-2389
Single-Family	241	4779	360
Multi-Family	352	3685	-2749
Commercial	62	294	-14
Industrial/Mining	-1	4	0
Institutional	13	96	-28
Agriculture	0	0	0
Other/Wholesale	0	0	0

4. List of annual water use for the five highest volume customers.

Customer	*Use (1,000 gal/year)*	*Treated or Raw Water*
Digital Lewisville	46,752	Treated
Mary Kay Inc.	24,775	Treated
Lily of the Desert - Lewisville	19,712	Treated
Sysco Food Service	14,728	Treated
Hoya Vision Care - Dallas	13,337	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	2019	2020	2021	2022	2023
Month					
January	356,689	365,003	420,995	448,458	482,079
February	316,322	334,851	415,887	402,231	418,018
March	365,664	375,147	425,660	477,040	459,402
April	391,681	399,026	462,763	533,082	544,464
May	420,239	489,726	443,326	622,502	615,732
June	444,952	616,274	520,487	719,215	684,412
July	599,002	700,664	635,790	954,382	854,466
August	680,809	741,641	656,704	870,901	1,010,123
September	674,904	559,682	663,332	762,520	843,519
October	596,317	594,514	596,860	716,262	722,620
November	401,028	494,201	494,587	504,184	546,412
December	380,125	450,535	487,397	478,123	504,709
Totals	5,627,732	6,121,264	6,223,788	7,488,900	7,685,956

1. 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 enters the treatment plant, or from water sales). **Master meter located where raw water enters the treatment plant.**

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

Year	2019	2020	2021	2022	2023
Account Types					
Residential	2,946,915	3,154,688	3,109,191	4,224,921	4,297,443
Single-Family	1,742,617	1,869,162	1,825,206	2,762,818	2,814,514
Multi-Family	1,204,298	1,285,526	1,283,985	1,462,103	1,482,929
Commercial	1,614,318	1,307,252	1,229,039	1,567,449	1,600,769
Industrial/Mining	38,767	59,030	64,422	57,995	56,315
Institutional	264,730	264,730	242,391	299,497	302,154
Agriculture	0	0	0	0	0
Other/Wholesale	463,984	636,645	636,166	0	0

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 %*
2023	1,362,291,019	17.5
2022	1,271,504,545	16.8
2021	1,884,886,899	14.6
2020	616,561,876	12
2019	760,494,674	7

B. Projected Water Demands

1. 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.

III. WATER SUPPLY SYSTEM DATA

A. Water Supply Sources

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

Water Type	*Source*	*Amount Authorized*
Raw Water	Dallas Water Utilities	75.5543 acre feet/day
Purchased Water	Dallas Water Utilities	38.6985 acre feet/day
Purchased Water	Upper Trinity Regional Water District	14.7423 acre feet/day

B. Treatment and Distribution System (if providing treated water)

1. Design daily capacity of system (MGD): 53.89 MGD
2. Storage capacity (MGD):
   a. Elevated 10 MG
   b. Ground 16.5 MG
3. If surface water, do you recycle filter backwash to the head of the plant?

   ☒ Yes ☐ No If yes, approximate amount (MGD): 104.271

IV. WASTEWATER SYSTEM DATA

A. Wastewater System Data (if applicable)

1. Design capacity of wastewater treatment plant(s) (MGD): 12 MGD AAF
2. Treated effluent is used for ☐ on-site irrigation, ☒ off-site irrigation, for ☒ plant wash-down, and/or for ☒ chlorination/dechlorination.

   If yes, approximate amount (in gallons per month): 22,028,417
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.

   The City of Lewisville owns and operates the Prairie Creek Wastewater Treatment Plant under TPDES Permit Number 10662-001. The wastewater treatment plant services the City of Lewisville with a design capacity of 12 MGD. It contains five Fine Screen Units, which remove primary solids, followed by two Grit Units, which remove sand, silt and sediment from the incoming flow. Flow from the Grit Units divide into separate smaller plants made up of six conventional Activate Sludge trains and two Trickling Filter/Solids Contact trains and eight Final Clarifiers. Flows recombine after secondary treatment and proceed through five sand filters, followed by disinfection and dechlorination. Final discharge form the treatment plant enters Prairie Creek, which then flows to the Elm Fork Trinity River, below Lewisville Lake in Segment Number 0822 of the Trinity River Basin. Sludge from the WWTP is processed through Aerobic Digestion, solids dewatering and final disposal; more than 3000 dry tons of sludge are disposed of annually in the Camelot Landfill, a local Type I landfill.

B. Wastewater Data for Service Area (if applicable)

1. Percent of water service area served by wastewater system: 100%

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

Year	2019	2020	2021	2022	2023
Month					
January	334,336	309,337	303,450	299,988	313,924
February	267,226	297,633	300,649	278,288	324,136
March	295,105	353,256	308,118	294,384	326,746
April	305,749	301,439	293,117	286,986	284,471
May	355,291	310,756	335,456	276,629	295,270
June	317,359	296,135	327,183	280,828	286,336
July	269,954	273,681	307,606	257,024	275,733
August	276,537	271,919	315,561	294,275	273,882
September	252,548	299,737	270,014	283,314	276,085
October	286,184	282,178	281,385	301,996	325,523
November	278,484	278,561	286,904	330,278	310,478
December	276,313	305,974	287,379	341,997	330,904
Totals	3,508,086	3,580,606	3,616,822	3,525,987	3,623,488

Water Conservation Plan

In addition to the utility profile, please attach the following as required by Title 30, Texas Administrative Code, §288.2. Note: If the water conservation plan does not provide information for each requirement, an explanation must be included as to why the requirement is not applicable.

A. Record Management System

The water conservation plan must include a record management system which allows for the classification of water sales and uses in to the most detailed level of water use data currently available to it, including if possible, the following sectors: residential (single and multi-family), commercial.

B. Specific, Quantified 5 & 10-Year Targets

The water conservation plan must include specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal use in gallons per capita per day. Note that the goals established by a public water supplier under this subparagraph are not enforceable. These goals must be updated during the five-year review and submittal.

C. Measuring and Accounting for Diversions

The water conservation plan must include a statement about the water suppliers 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.

D. Universal Metering

The water conservation plan must include and a program for universal metering of both customer and public uses of water, for meter testing and repair, and for periodic meter replacement.

E. Measures to Determine and Control Water Loss

The water conservation plan must include 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.).

F. Continuing Public Education & Information

The water conservation plan must include a description of the program of continuing public education and information regarding water conservation by the water supplier.

G. Non-Promotional Water Rate Structure

The water supplier must have 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. This rate structure must be listed in the water conservation plan.

H. Reservoir Systems Operations Plan

The water conservation plan must include 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.

I. Enforcement Procedure and Plan Adoption

The water conservation plan must include 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.

J. Coordination with the Regional Water Planning Group(s)

The water conservation plan must include 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.

K. Plan Review and Update

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 not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. The revised plan must also include an implementation report.

VI. ADDITIONAL REQUIREMENTS FOR LARGE SUPPLIERS

Required of suppliers serving population of 5,000 or more or a projected population of 5,000 or more within the next ten years:

A. Leak Detection and Repair

The plan must include a description of the program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system in order to control unaccounted for uses of water.

B. Contract Requirements

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.

VII. ADDITIONAL CONSERVATION STRATEGIES

Any combination of the following strategies shall be selected by the water supplier, in addition to the minimum requirements of 30 TAC §288.2(1), 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:

1. 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;

2. 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;

3. A program for the replacement or retrofit of water-conserving plumbing fixtures in existing structures;

4. A program for reuse and/or recycling of wastewater and/or graywater;

5. A program for pressure control and/or reduction in the distribution system and/or for customer connections;

6. A program and/or ordinance(s) for landscape water management;

7. A method for monitoring the effectiveness and efficiency of the water conservation plan; and

8. 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.

VIII. WATER CONSERVATION PLANS SUBMITTED WITH A WATER RIGHT APPLICATION FOR NEW OR ADDITIONAL STATE WATER

Water Conservation Plans submitted with a water right application for New or Additional State Water must include data and information which:

1. support the applicant's proposed use of water with consideration of the water conservation goals of the water conservation plan;

2. evaluates conservation as an alternative to the proposed appropriation; and

3. evaluates any other feasible alternative to new water development including, but not limited to, waste prevention, recycling and reuse, water transfer and marketing, regionalization, and optimum water management practices and procedures.

Additionally, it shall be the burden of proof of the applicant to demonstrate that no feasible alternative to the proposed appropriation exists and that the requested amount of appropriation is necessary and reasonable for the proposed use.