CITY OF LLANO, TEXAS

WATER CONSERVATION PLAN ORDINANCE NO. 1523

MAY 2024

TABLE OF CONTENTS

WATER CONSERVATION PLAN

INTRODUCTION

The City of Llano (the "City" or "Llano") has prepared and adopted this Water Conservation Plan (WCP Ordinance No. XXXX) pursuant to the requirements of Texas Administrative Code Chapter 288, Water Conservation Plans, Guidelines, and Requirements. This WCP will be submitted to the Texas Water Development Board (TWDB), Texas Commission on Environmental Quality (TCEQ) and the Lower Colorado River Authority (LCRA) for review and approval. This WCP may be amended in the future as required by State law and/or by the City.

MINIMUM REQUIRED WATER CONSERVATION PLAN CONTENT

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

- §288.2(a)(1)(A) – Utility Profile (Page 6)
- §288.2(a)(1)(B) – Record Management System (Page 8)
- §288.2(a)(1)(C) – Specification of Goals (Page 3)
- §288.2(a)(1)(D) – Accurate Metering (Page 10)
- §288.2(a)(1)(E) – Universal Metering (Page 10)
- §288.2(a)(1)(F) – Determination and Control of Water Loss (Page 13)
- §288.2(a)(1)(G) –Public Education and Information Program (Page 9)
- §288.2(a)(1)(H) –Non-Promotional Water Rate Structure (Page 11)
- §288.2(a)(1)(I) – Reservoir System Operation Plan (Not applicable. Llano obtains its source water from Llano River)
- §288.2(a)(1)(J) – Means of Implementing and Enforcement (Page 13)
- §288.2(a)(1)(K) – Coordination with Regional Water Planning Group (Page 13)

WATER CONSERVATION PLAN GOALS

The purpose of this water conservation plan is to comply with the requirements contained in the Texas Administrative Code Chapter 288, Water Conservation Plans, Guidelines and Requirements:

- Long-term reductions in overall water demands by 4 gallons per capita per day (GPCD) over the next ten years;
- Reductions in the magnitude of seasonal water demands by 2 GPCD over the next five years; and

Given current and projected water and wastewater service requirements and issues; specific water conservation objectives are:

- To reduce waste and promote conservation habits of the residents of City of Llano.
- To reduce seasonal water demands such that future expansions of water treatment facilities can be deferred; and

- To continue to investigate the feasibility of increasing raw water storage inside the city limits.

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

WATER CONSERVATION GOALS

Water Conservation Plan				
5- and 10-yr Goals for Water Savings				
	Historic 5yr Average	**Baseline**	**5-yr Goal For year 2029**	**10-yr goal for year 2034**
Total GPCD	180	180	178	176
Residential GPCD	96	96	95	94
Water Loss (GPCD)	21	21	21	21
Water Loss (Percent)	12%	12%	12%	12%

2019 Goals Update	2019	2020	2021	2022	2023	Average
Population	3,325	3,325	3,325	3,325	3,325	3,325
Pumping Total (million gallons)	221	220	208	221	221	218
Average / capita (GPCD)	182	181	171	182	182	180
Seasonal / capita (GPCD)	188	233	179	193	206	200
Wastewater/capita (GPCD)	75	77	82	78	82	79
Water loss (Percent)	13%	11%	14%	8%	13%	12%
Infrastructure Leakage Index (ILI) (a)	1.60	1.36	1.60	0.94	1.54	1.41
Percent Reduction Compared to Previous Year	-	-0.77%	-5.45%	6.56%	-0.31%	0.01%

Note: (a) The ILI was estimated based on an estimated average service line length of 25 feet and the ILI formula from the American Water Works Association.
https://www.awwa.org/Portals/0/AWWA/ETS/Resources/WLCiwa-awwa-method-awwa-updated.pdf?ver=2014-12-30-084849-787

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

UTILITY PROFILE

The City of Llano gets its raw water supply from the Llano River (the "River"). The Llano River originates from springs near Edwards, Sutton and Kimble Counties west of Junction, Texas, and flows east to the Colorado River. The City has two dams constructed on the River creating two lakes known as Robinson Lake and Llano Lake. The City holds two Water Rights Permits totaling 1,700 Ac-Ft/Yr.

The raw water is removed from Llano Lake and treated by a 3 MGD Water Treatment Plant placed into service in June 2000. The water is stored in one of four tanks.

- Clear Well – 500,000 gal.
- Tank #1 – 1,000,000 gal.
- Tank #2 – 300,000 gal.
- Elevated Tank #3 – 200,000 gal.
- Elevated Tank #4 – 200,000 gal.

The service area is 4.5 square miles serving approximately 3,325 people. See Appendix A for service area map.

The estimated population growth for Llano is expected to be slow according to the Region K 2021 Regional Water Plan, with an annual growth rate of less than 4% from 2020 through 2070 and a projected population of 3,943 in 2070.

CURRENT WATER AND WASTEWATER STATISTICS

Total Unaccounted for Water

Year	*Amount (gal.)*	*%*
2019	29,208,568	13%
2020	24,933,444	11%
2021	29,292,338	14%
2022	17,131,787	8%
2023	28,121,126	13%

Municipal Water Average Per Capita (gpcd)

Year	*Total Treated (gal.)*	*Population*	*Per Capita Use*
2019	221,339,321	3,325	182
2020	219,634,462	3,325	181
2021	207,661,000	3,325	171
2022	221,285,357	3,325	182
2023	220,609,000	3,325	182

Summer Water Average (gpcd)

Year	*Summer Total Treated (gal.)*	*Population*	*Summer Per Capita Use*
2019	57,158,400	3,325	188
2020	70,761,800	3,325	233
2021	54,458,900	3,325	179
2022	58,442,500	3,325	193
2023	62,386,700	3,325	206

Winter Water Average (gpcd)

Year	*Winter Total Treated (gal.)*	*Population*	*Winter Per Capita Use*
2019	28,461,200	3,325	94
2020	29,499,100	3,325	97
2021	36,950,500	3,325	122
2022	35,183,700	3,325	116
2023	33,601,100	3,325	111

Annual Peak-to-Average Daily Use Ratio

Year	*Average MGD*	*Peak MGD*	*Ratio (peak/avg)*
2019	0.61	0.62	1.02
2020	0.60	0.77	1.28
2021	0.57	0.59	1.04
2022	0.61	0.64	1.05
2023	0.60	0.68	1.12

Municipal Wastewater Average Per Capita (gpcd)

Year	*Total Treated (gal.)*	*Population*	*Per Capita Use*
2019	90,719,000	3,325	75
2020	93,504,000	3,325	77
2021	99,304,000	3,325	82
2022	95,001,000	3,325	78
2023	100,092,000	3,325	82

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

WATER SYSTEM UTILITY PROFILE

In 2023, the per capita per day usage was 182 gallons per day. In 2023, the winter per capita per day use was 111 gallons per day. In 2023, the summer per capita per day use was 206 gallons per day. Residential meters represent 79% of the City of Llano's active water connections. Commercial connections represent 17% of the City of Llano's active water connections. Institutional meters represent 4% of the City of Llano's active water connections.

The City's water treatment facilities' current capacity is rated at 2,083 gallons per minute (gpm) or 3.0 million gallons per day (MGD).

Total water storage capacity of the City is 2.2 million gallons, of which 0.500 million gallons are considered elevated storage. In 2023, average daily water demand for the City was 0.50 MGD. The peak daily water demand for 2023 was 0.68 MGD. The distribution capacity is 3,400 gpm and provides potable water to eight pressure zones within the City. In high pressure areas of the distribution system greater than 110 psi, pressure reducer valves have been installed. Pressure reducers can be installed on homes where service pressure is greater than 80 psi by a licensed plumber.

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

WASTEWATER SYSTEM PROFILE

Ninety percent (90%) of the City's water customers are also served by the City's wastewater system. The remaining ten percent (10%) utilizes private on-site wastewater disposal systems (i.e., septic tank systems). The City operates its Activated Sludge wastewater treatment facility at the current permitted capacity 0.600 MGD. The average daily flow for 2023 was 0.27 MGD. The peak monthly wastewater flow for the 2023 period was 0.33 MGD. All the City's wastewater effluent is applied to irrigation for hay field production.

PUBLIC EDUCATION (TWDB BMP 6)

Consistent with the best management practices (BMP) outlined in the Water Conservation Best Management Practices Guide provided by TWDB, the City will promote water conservation issues by informing the public in a variety of ways including:

- new customers will receive water conservation information;
- water conservation information is provided on the City Website: https://cityofllano.com/420/Water-Conservation-Tips;
- community educational program / school demonstrations and presentations;
- staff lectures and professional presentations are provided to local civic groups and organizations;
- articles are published in the City's newsletter on water conservation;
- retrofitting older homes with new plumbing; and
- lawn and garden shows will be held in early spring to promote water conservation.

The City provides customers with information from American Water Works Association, Texas Water Development Board and other sources related to water conservation and environmental issues that affect our water on the City's website and through a newsletter.

Additionally, the City provides an opportunity for customers to learn about water conservation at an annual Lawn and Garden Show held in the City. Information, conservation related prizes, and hands-on demonstrations are provided at this event.

PLUMBING CODES

The City has adopted the most current edition that is on file of the International Plumbing Code, which requires water saving fixtures to be installed in new construction and in the replacement of plumbing in existing structures.

RETROFIT PROGRAMS

The City SHALL educate the residents, plumbers, and contractors on the benefits of retrofitting existing facilities with water saving devices. This program will be included in the educational and informational programs utilized by the City. The City will contact all plumbing companies and hardware stores in the Llano area to encourage them to stock water

conserving fixtures including retrofit devices. In early spring, the City will post water conservation tips for the customers online and through newspaper articles.

UNIVERSAL METERING (TWDB BMP 4.1)

All treatment facilities, irrigation, parks, and municipal structures operated by the City of Llano are being metered.

The City has replaced all water meters with electronic radio read meters capable of reading water flow down to a tenth of a gallon.

WATER CONSERVING LANDSCAPE

The City of Llano will provide information, through the public education program, to homeowners, business owners, landscape architects, and irrigation contractors about the methods and benefits of water conserving landscaping practices and devices. The following methods will be encouraged:

- The use of low water consuming plants and grasses for landscaping new homes and commercial areas.
- The use of drip irrigation systems when possible or other water conserving irrigation systems that utilize efficient sprinklers and considerations given to prevailing winds.
- The use of ornamental fountains that recycle water and use a minimum amount of water.

In addition, the City will encourage business and nurseries to offer for sale low water consuming plants and grasses along with efficient irrigation systems and promote their use through demonstrations and advertisements.

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

RATE STRUCTURES OF WATER AND WASTEWATER (TWDB BMP 3.1)

Water Rates:

a) Water rates for all customers served by the City SHALL be as follows:

Consumption	0 to 6,000 gallons	6,001 to 20,000 gallons	> 20,001 gallons
Rate	$2.79 per 1,000 gallons	$4.89 per 1,000 gallons	$6.98 per 1,000 gallons

Minimum base charges inside City Limits	
Meter Size	**Rate**
3/4"	$45.57
1"	$57.25
1 1/2 "	$68.93
2"	$101.07
3"	$337.66
4"	$425.29
6"	$629.76

One dollar ($1.00) has been added to each customer's monthly charge for water for contributing to the Council Restricted Sinking Fund.

b) Water rates for apartment units which have individual water meters SHALL be the same as Section a) directly above.

c) Water rates for apartment complexes which are metered as one customer SHALL be calculated as follows:

THE MINIMUM BASE CHARGE FOR A ¾" METER SIZE WILL BE BILLED FOR EACH UNIT AND THE GALLONS INCLUDED IN EACH TIER WILL BE DETERMINED BY MULTIPLYING GALLONS IN THE TIER TIMES THE NUMBER OF APARTMENT UNITS.

Multi – Family units or Apartments may, with permission of the City, install City specified locking cut-offs for individual units. Rates SHALL be calculated as noted in this section with the minimum base charge calculated using the number of occupied units. Service fees for lockable cut offs SHALL be the same as if metered.

d) Water rates for customers outside the city limits SHALL calculated as the sum of the "minimum base charges inside city limits" for a ¾" meter size plus the "minimum base charges inside city limits" for the applicable meter size.

All rates are to be considered net. Gross rates are 10% higher. If the current monthly bill is not paid within ten (10) days from the date of billing, the gross rate SHALL apply.

Wastewater Rates:

a) Wastewater rates for residential customers SHALL be based on the average water consumption of individual customers for the months of December, January, and February, to be recalculated each March. Rates SHALL be:

Minimum Charge $59.74, plus

$03.51 per 1,000 gallons for 0-6,000 gallons consumed per month
$04.39 per 1,000 gallons for the next 6,001-20,000 gallons consumed per month
$05.48 per 1,000 gallons for the next 20,001 gallons and above consumed per month

b) Wastewater rates for apartment complexes which are metered as one customer SHALL be calculated as follows:

Minimum Charge $59.74 times the number of apartment units, plus

$03.51 per 1,000 gallons for 0-6,000 gallons x # of units consumed per month
$04.39 per 1,000 gallons for the next 6,001-20,000 gallons x # of units consumed per month
$05.48 per 1,000 gallons for the next 20,001 gallons and above x # of unit consumed per month

c) Commercial and Industrial wastewater rates SHALL be based on the average water consumption of individual customers for the months of December, January and February, to be recalculated each March. The average SHALL be used to define rates as follows:

Minimum Charge $76.22, plus

$03.51 per 1,000 gallons for 0-6,000 gallons consumed per month
$04.39 per 1,000 gallons for the next 6,001-20,000 gallons consumed per month
$04.39 per 1,000 gallons for the next 20,001 gallons consumed and above per month

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

LEAK DETECTION AND WATER AUDITS (TWDB BMP 4.2)

The City of Llano has aggressively pursued a leak detection and repair program and has in inventory all necessary repair materials needed to ensure prompt repairs of all leaks detected or reported.

A monthly water loss report provides an effective tracking system of metered production, metered consumption, accounted water losses, and unaccountable water loss. The City maintained an average annual unaccountable rate of equal to or less than twelve percent (12%) of the produced water in the past five years.

The Infrastructure Leakage Index (ILI) is the ratio of Current Annual Real Losses (CARL) to Unavoidable Annual Real Losses (UARL). This is developed as a unique value for every city and includes variables such as the distance from the curb stop to the meter boxes, the pressure in the system, and the number of service lines or connections per mile of water main. In 2023, the City's UARL were estimated to be approximately 50 thousand gallons per day. This is the theoretical lowest leakage currently possible with the existing infrastructure and service connection density. In 2023, the City had an ILI of approximately 1.54, which means that theoretically the leakage could be reduced by 54% before reaching the UARL. This puts the City in the efficient zone of ILIs within the United States, thus, the goals in this Plan are designed to maintain this level over an extended period.

IMPLEMENTATION AND ENFORCEMENT (TWDB BMP 9)

An Ordinance adopting the Water Conservation Plan SHALL authorize the City to implement, enforce, and administer the Ordinance. The City Council adopted the Ordinance on 6th day of May, 2024.

CONTRACTS WITH OTHER POLITICAL SUBDIVISIONS

The City will, as part of the contract to wholesale water to any other entity that will re-sell water, require that entity to adopt a water conservation and drought contingency plan in accordance to the LCRA's current water conservation and drought contingency plan rules or have a plan in effect currently adopted by the LCRA (Lower Colorado River Authority) or TCEQ (Texas Commission on Environmental Quality). In addition, as mentioned in previous section, Llano resides in the Region K planning group, and the City will provide the updated water conservation and drought contingency plan to the TWDB Region K contact.

ANNUAL EVALUATION AND REVISIONS

This Ordinance will be revised at least every five (5) years to provide updates and changes as appropriately required.

Revisions were made in May 2024. The next revision will be made in May 2029.

Marion Bishop Mayor

ATTEST:

Kim Wagner, City Secretary

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK