CITY OF LLANO, TEXAS

WATER CONSERVATION
AND
DROUGHT CONTINGENCY PLAN
ORDINANCE NO. 1035

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WATER CONSERVATION PLAN

INTRODUCTION

The City of Llano (the "City" or "Llano") has prepared and adopted this Water Conservation and Drought Contingency Plan (WCDC Plan Ordinance No. 1035) pursuant to the requirements of Texas Administrative Code Chapter 288, Water Conservation Plans, Guidelines, and Requirements. This WCDC Plan 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 WCDC Plan may be amended in the future as required by State law and/or by the City.

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 10 % per capita over the next ten years;
- Reductions in the magnitude of seasonal water demands by 5% per capita over the next five years; and
- Reductions in wastewater flow volumes by 1% per capita over the next five years.

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 reusing wastewater for suitable non-potable uses (i.e., irrigation of public green space and private landscaping).

WATER CONSERVATION GOALS:

2005 Goals Update	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**%Change**
Average / capita (gpcd)	221	187	185	183	181	179	176	5%
Seasonal / capita (gpcd)	369	337	334	331	327	323	320	5%
Wastewater / capita (gpcd)	77	88	88	87	87	86	86	2%
Water loss (percent)	25	16	15.5	15	14.5	14	13.5	

UTILITY PROFILE

The City of Llano gets it 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 3MGD 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 3,350 people. See Appendix A for service area map.

The estimated population growth for Llano is expected to be slow according to studies performed by various groups. For example, the Senate Bill 1 Planning Group estimates the population in Llano will not exceed 3,500 people until the year 2040. However, this region of the State of Texas is growing faster than had been expected and the City is planning for a faster growth rate. The City is using a population of 4,000 people by the year 2010 for its projected growth.

CURRENT WATER AND WASTEWATER STATISTICS

Total Unaccounted for Water

Year	Amount (gal.)	%
1995	53,235,000	20
1996	46,619,000	17
1997	183,801,000	48
1998	105,310,000	32
1999	90,216,000	27
2000	35,381,500	13
2001	15,121,300	6
2002	55,089,300	21
2003	68,678,880	25
2004	36,639,600	16

Municipal Water Average Per Capita (gpcd)

Year	Total Diverted	Population	Per Capita Use
1995	265,506,000	3,203	227
1996	269,520,000	3,242	228
1997	384,751,000	3,282	321
1998	333,753,000	3,348	273
1999	333,430,000	3,377	271
2000	283,504,000	3,200	243
2001	254,253,000	3,225	216
2002	263,808,000	3,275	221
2003	268,297,000	3,330	221
2004	229,045,000	3,350	187

Summer Water Average (gpcd)

Year	Summer Total Diverted	Population	Summer Per Capita Use
1995		3,203	299
1996		3,242	324
1997		3,282	480
1998		3,348	392
1999		3,377	385
2000	145,913,000	3,200	490
2001	130,205,000	3,225	434
2002	114,829,000	3,275	377
2003	113,335,000	3,300	369
2004	104,931,000	3,350	337

Winter Water Average (gpcd)

Year	Winter Total Diverted	Population	Winter Per Capita Use
2000	44,299,000	3,200	154
2001	38,047,000	3,225	131
2002	40,917,000	3,275	139
2003	40,386,000	3,300	136
2004	45,690,000	3,350	152

Annual Peak-to-Average Daily Use Ratio

Year	Average MGD	Peak MGD
1995	0.7274	1.837
1996	0.7384	2.247
1997	1.0541	2.191
1998	0.9144	1.591
1999	0.9135	2.011
2000	0.7767	1.840
2001	0.6966	1.703
2002	0.7228	1.625
2003	0.7351	1.782
2004	0.6275	1.937

Municipal Wastewater Average Per Capita (gpcd)

Year	Total Diverted	Population	Per Capita Use
2003	93,012,315	3,300	77
2004	107,951,380	3,350	88

Summer Wastewater Average (gpcd)

Year	Summer Total Diverted	Population	Summer Per Capita Use
2003	24,496,749	3,300	80
2004	27,949,490	3,350	90

Winter Wastewater Average (gpcd)

Year	Winter Total Diverted	Population	Winter Per Capita Use
2003	23,021,933	3,300	78
2004	23,414,147	3,350	78

WATER SYSTEM UTILITY PROFILE

In 2004, the per capita per day usage was 187 gallons per day. In 2004, the winter per capita per day use was 152 gallons per day. In 2004, the summer per capita per day use was 337 gallons per day. Residential meters represent 82% of the City of Llano's active water connections. Commercial connections represent 18% of the total 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 .400 million gallons are considered elevated storage. In 2004, average daily water demand for the City was .6275 mgd. The peak daily water demand for 2004 was 1.937 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 are installed on homes where service pressure is greater than 80 psi.

WASTEWATER SYSTEM PROFILE

Eighty-eight percent (88%) of the City's water customers are also served by the City's wastewater system. The remaining twelve percent (12%) utilizes private on-site wastewater disposal systems (i.e., septic tank systems). The City operates its IM Hoff sludge wastewater treatment facility at the current permitted capacity 0.5 mgd, with a final permitted capacity of 0.6 mgd. The average daily flow for 2004 was 0.248 mgd. The peak monthly wastewater flow for the 2004 period was 0.900 mgd. All of the City's wastewater effluent is applied to irrigation for hay field production.

PUBLIC EDUCATION

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 will be available upon request;
- 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 1997 Uniform 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

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

The City will continue to provide a water meter preventive maintenance and replacement program for testing, repairs, and replacement of water meters to be performed in accordance with AWWA standards.

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:

A. The use of low water consuming plants and grasses for landscaping new homes and commercial areas.

B. The use of drip irrigation systems when possible or other water conserving irrigation systems that utilize efficient sprinklers and considerations given to prevailing winds.

C. 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.

RATE STRUCTURES OF WATER AND WASTEWATER

Water Rates:

A. Water rates for all residential customers served by the City shall be as follows:

$22.50 per first 3,000 gallons of water consumed per month
$ 1.36 per 1,000 gallons for the next 3,000-8,000 gallons consumed per month
$ 1.63 per 1,000 gallons for the next 8,000-25,000 gallons consumed per month
$ 1.85 per 1,000 gallons for the next 25,000-50,000 gallons consumed per month
$ 2.07 per 1,000 gallons for the next 50,000-100,000 gallons consumed per month
$ 2.29 per 1,000 gallons consumed over 100,000 gallons consumed per month

B. Water rates for apartment units that have individual water meters shall be the same as Section A above.

C. Water rates for apartment complexes that are metered as one customer shall be calculated as follows:

$22.50 times the number of apartment units, plus
$ 1.36 per 1,000 gallons for the next 3,000-8,000 gallons consumed per month
$ 1.63 per 1,000 gallons for the next 8,000-25,000 gallons consumed per month
$ 1.85 per 1,000 gallons for the next 25,000-50,000 gallons consumed per month
$ 2.07 per 1,000 gallons for the next 50,000-100,000 gallons consumed per month
$ 2.29 per 1,000 gallons consumed over 100,000 gallons consumed per month

The minimum allowance is determined by multiplying 3,000 gallons times the number of apartment units.

D. Water rates for all commercial and industrial customers served by the City shall be as follows:

$29.50 per first 3,000 gallons of water consumed per month.
$ 1.36 per 1,000 gallons for the next 3,000-8,000 gallons consumed per month
$ 1.63 per 1,000 gallons for the next 8,000-25,000 gallons consumed per month
$ 1.85 per 1,000 gallons for the next 25,000-50,000 gallons consumed per month
$ 2.07 per 1,000 gallons for the next 50,000-100,000 gallons consumed per month
$ 2.29 per 1,000 gallons consumed over 100,000 gallons consumed per month

E. Water rates for residents outside the city limits shall be double the minimum rate charged to in-the-city residential customers.

F. Water rates for commercial and industrial customer outside the city limits shall be double the minimum rate charged to in-the-city commercial and industrial customers.

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:

$23.00 per first 2,000 gallons of water consumed per month
$01.17 per 1,000 gallons for the next 2,001-25,000 gallons consumed per month
$01.40 per 1,000 gallons for the next 25,001-50,000 gallons consumed per month
$01.64 per 1,000 gallons for the next 50,001-100,000 gallons consumed per month
$01.87 per 1,000 gallons for the next 100,001-200,000 gallons consumed per month
$02.11 per 1,000 gallons for the next 200,001-300,000 gallons consumed per month
$02.34 per 1,000 gallons consumed over 300,000 gallons consumer per month.

B. Wastewater rates for apartment complexes that are metered as one customer shall be calculated as follows:

$23.00 times the number of apartment units, plus
$01.17 per 1,000 gallons for the next 2,001-25,000 gallons consumed per month
$01.40 per 1,000 gallons for the next 25,001-50,000 gallons consumed per month
$01.64 per 1,000 gallons for the next 50,001-100,000 gallons consumed per month
$01.87 per 1,000 gallons for the next 100,001-200,000 gallons consumed per month
$02.11 per 1,000 gallons for the next 200,001-300,000 gallons consumed per month
$02.34 per 1,000 gallons consumed over 300,000 gallons consumed per month.

C. For apartments which have individual water meters, billing for wastewater service shall be the same as for single family residence units described in Section B above.

D. 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 $39.00
(minimum per first 2,000 gallons)

$01.17 per 1,000 gallons for the next 2,001-25,000 gallons consumed per month
$01.40 per 1,000 gallons for the next 25,001-50,000 gallons consumed per month
$01.64 per 1,000 gallons for the next 50,001-100,000 gallons consumed per month
$01.87 per 1,000 gallons for the next 100,001-200,000 gallons consumed per month
$02.11 per 1,000 gallons for the next 200,001-300,000 gallons consumed per month
$02.34 per 1,000 gallons consumed over 300,000 gallons consumed per month.

E. Wastewater rates for residents outside the city limits shall be double the minimum rate charged to in-the-city residential customers.

F. Wastewater rates for commercial and industrial customers outside the city limits shall be double the minimum rate charged to in-the-city commercial and industrial customers.

LEAK DETECTION AND WATER AUDITS

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 maintains an annual unaccountable rate of equal to or less than sixteen percent (16%) of the purchased water.

IMPLEMENTATION AND ENFORCEMENT

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 20th day of March, 2006.

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).

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 August 2000 and March 2006, including system profile and goal updates. Next revision will be made May 2010.

DROUGHT CONTINGENCY PLAN

INTRODUCTION

It is necessary for the City of Llano to have in place a plan that will deal with emergency water demand situations. There are a number of scenarios where the public water supply could be adversely affected and the public's health jeopardized. Normal service can be interrupted by such uncontrollable circumstances as drought, hurricanes, tornadoes, vandalism, floods, or equipment failure. This Ordinance also has been developed to be initiated when the water demand is significantly higher than normal conditions due to persistent drought periods leading to higher than normal stress on the City's water system and supply. This Ordinance is in compliance with the Texas Commission on Environmental Quality regulations and LCRA's Drought Management Plan rules as adopted April 2005.

This Ordinance will provide the necessary indicators and control measures to temporarily abate water demand in emergency situations. These provisions are designed to be in place only as long as an emergency situation exists. To be effective the plan must have the following elements:

- Trigger conditions that will signal the existence of an emergency situation;
- Emergency control measures;
- Methods to relay information and notify the public;
- Enforcement procedures;
- Method of implementation of plan; and
- Procedure for plan termination notification.

SYSTEM DESCRIPTION

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 .400 million gallons are considered elevated storage. In 2004, average daily water demand for the City was .6275 mgd. The peak daily water demand for 2004 was 1.937 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 are installed on homes where service pressure is greater than 80 psi.

TRIGGER CONDITIONS

Section I: Declaration of Policy, Purpose and Intent

In order to conserve the available water supply and protect the integrity of water supply facilities, with particular regard for domestic water use, sanitation, and fire protection, and to protect and preserve public health, welfare, and safety and minimize the adverse impacts of water supply shortage or other water supply emergency conditions, the City of Llano hereby adopts the following regulations and restrictions on the delivery and consumption of water.

Water uses regulated or prohibited under this Drought Contingency Plan (the Plan) are considered to be non-essential and continuation of such uses during times of water shortage or other emergency water supply conditions are deemed to constitute a waste of water which subjects the offender(s) to penalties as defined in Section XI of this Ordinance.

Section II: Public Involvement

Opportunity for the public to provide input into the preparation of the Ordinance was provided by the City of Llano by means of a public hearing.

Section III: Public Education

The City of Llano will annually provide the public with information about the Ordinance, including information about the conditions under which each state of the Ordinance is to be initiated or terminated and the drought response measures to be implemented in each stage. This information will be provided by means of press releases in local newspaper, public events, and utility bill inserts.

Section IV: Coordination with Regional Water Planning Group

The service area of the City of Llano is located within the boundaries of the Lower Colorado River Authority and the City of Llano has provided a copy of this Ordinance to the LCRA.

Section V: Authorization

The Mayor or City Manager is hereby authorized and directed to implement the applicable provisions of this Ordinance upon determination that such implementation is necessary to protect public health, safety and welfare. The Mayor or City Manager shall have the authority to initiate or terminate drought or other water supply emergency response measures as described in this Ordinance.

Section VI: Application

The provisions of this Ordinance shall apply to all persons, customers, and property utilizing water provided by the City of Llano. The terms "person" and "customer" as used in the Ordinance include individuals, corporations, partnerships, associations, and all other legal entities.

Section VII: Definitions

For the purposes of this Ordinance, the following definitions shall apply:

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

Commercial and institutional water use: water use that is integral to the operations of commercial and non-profit establishments and governmental entities such as retail establishments, hotels and motels, restaurants, and office buildings.

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

Customer: any person, company, or organization using water supplied by City of Llano.

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

Even number address: street addresses or rural postal route numbers ending in 0, 2, 4, 6 or 8 and locations without addresses.

Industrial water use: the use of water in processes designed to convert materials of lower value into forms having greater usability and value.

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

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

1. Irrigation of landscape areas including parks, athletic fields and golf courses, except otherwise provided under this Ordinance;
2. Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle;
3. Use of water to wash down any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;
4. Use of water to wash down buildings or structures for purposes other than immediate fire protection;
5. Flushing gutters or permitting water to run or accumulate in any gutter or street;

6. Use of water to fill, refill, or add to any indoor or outdoor swimming pools or Jacuzzi-type pools;
7. Use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life;
8. Failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s); and
9. Use of water from hydrants for construction purposes or any other purposes other than fire fighting.

Odd numbered address: street addresses or rural postal route numbers ending in 1, 3, 5, 7 or 9.

Section VIII: Criteria for Initiation, Response and Termination of Drought Response States

The flow of the Llano River is greatly dependent on baseflow from springs. During periods of low baseflow, the Llano River is capable of great fluctuations, even on a daily basis. Setting and implementing drought trigger levels with such fluctuation can be difficult and confusing to all parties involved. Using a 7 consecutive day moving average of discharge helps smooth the fluctuations of the River and facilitates the operation of the Drought Plan. State agencies such as TCEQ and Texas Parks and Wildlife utilize such a moving average.

In addition, during periods of low baseflow, large rainfall events may increase discharge rapidly, only to fall back to low levels in a short period. In 1955, the flow of the Llano River at Llano was 23,900 cfs on May 19th, and 28 cfs on May 30th. As a result, criteria for terminating drought stages are set at levels above the criteria for implementing drought stages.

The trigger criteria are based on an evaluation of average daily discharge records for the Llano River at Llano for the period 1939-2004. These selected criteria attempt to limit the frequency of movement between stages, reduce the occurrence of more severe stages, and limit increased costs associated with treating source water diminished in quality by lower flows.

The triggering criteria described below are based on the flow of water in the Llano River, water consumption rates, and water pressure within the system. The City of Llano's Water Conservation and Drought Contingency Plan is segmented into 5 stages. Stage 1 Mild Water Shortage Conditions will be a voluntary conservation plan from June 1 through September 30. The remaining 4 stages shall be mandatory and triggered based on any one or a combination of high consumption rates, low water pressure in system, low flow in Llano River, and/or any situation deemed an emergency by the City Manager.

The City Manager, or his/her designee, shall monitor water supply and/or demand conditions on a daily basis and, in accordance with the triggering criteria set forth in Section VIII of this Ordinance, shall determine that a mild, moderate, severe, critical, emergency or water shortage condition exists and shall implement the following notification procedures:

Stage 1 Triggers – Mild Water Shortage Conditions

Requirements for initiation:
Customers shall be requested to voluntarily conserve water and adhere to the prescribed restrictions on non-essential water use, defined in Section VII – Definitions of this Ordinance, annually beginning on June 1 through September 30. However, the Mayor or City Manager may implement

Stage 1 of the Ordinance at any time if conditions prior to June 1st warrant concerns for the City of Llano water supply.

Requirements for termination:
The Mayor or City Manager may rescind Stage 1 of the Ordinance at any time.

Stage 1 Response – Mild Water Shortage Conditions

Goal: Limit the daily pumpage at the water treatment plant to 1.2 million gallons per day.

Voluntary Water Use Restrictions:

1. Water customers are requested to voluntarily limit the irrigation of landscaped areas with automatic irrigation systems and hose-end sprinklers to twice per week on the designated water day during the hours of 12 Midnight to 10 AM and 7 PM to 12 Midnight.

Designated Watering Days	
Odd Numbered Addresses	Wednesday and/or Saturday
Even Numbered Addresses	Thursday and/or Sunday
Commercial, Multi-family	Tuesday and/or Friday

The schedule for Designated Watering Days follows the same schedule presented on Austin, Texas news broadcasts.

Irrigation of landscaped areas is permitted at any time if it is by means of a hand-held hose, a faucet filled bucket or water can of five (5) gallons or less, or drip irrigation system.

Stage 2 Triggers – Moderate Water Shortage Conditions

Requirements for initiation:
Customers shall be required to comply with the requirements and restrictions on non-essential water use, defined in Section VII – Definitions of this Ordinance when:

1. The 7-day moving average daily discharge of the Llano River as measured at Rio Llano subdivision is equal to or less than 40 cubic feet per second (cfs). The trigger level of 40 cfs is based on the 7Q2 calculation for the Llano River at Llano from 1939-2004. The minimum 7-day, 2-year discharge (based on a moving 30 year average) is used by the State of Texas to analyze permit applications for water allocation, water supply planning, aquatic maintenance (instream flow) requirements, and waste-load allocation for point and non-point source discharges. For purposes of this drought planning exercise, the 7Q2 value for the period of record (1939-2004) was utilized to characterize the drought of record in the 1950s.

   (The 7Q2 calculation is obtained by determining the lowest 7-day running average for each hydrologic year (October 1st-September 30th). The median of all of these annual values is the 7Q2 value.)

Requirements for termination:

Stage 2 of the Ordinance may be rescinded after September 30th or when average daily discharge of the Llano River at Llano exceeds 150 cfs for five (5) consecutive days. The Mayor or City Manager may rescind Stage 2 of this Ordinance at any time. Upon termination of Stage 2, Stage 1 becomes operative.

Stage 2 Response – Moderate Water Shortage Conditions

Goal: Limit the daily pumpage at the water treatment plant to 1.0 million gallons per day.

Water Use Restrictions: Under threat of penalty for violation, the following water use restrictions shall apply to all persons:

1: Water customers shall limit the irrigation of landscaped areas with automatic irrigation systems or hose-end sprinklers to twice per week on the designated water day during the hours of 12 Midnight to 10 AM and 7 PM to 12 Midnight.

Designated Watering Days	
Odd Numbered Addresses	Wednesday and/or Saturday
Even Numbered Addresses	Thursday and/or Sunday
Commercial, Multi-family	Tuesday and/or Friday

The schedule for Designated Watering Days follows the same schedule presented on Austin, Texas news broadcasts.

2. Irrigation of landscape is permitted at any time if by means of hand-held hose, a faucet-filled bucket or water can of five (5) gallons or less, or drip irrigation system.

3. Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited except on designated watering days between the hours of 12:00 Midnight and 10:00 AM and between 8:00 PM and 12:00 Midnight. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shutoff. Vehicle washing may be done at any time on the immediate premises of a commercial car wash or commercial service station. Further, such washing may be exempted from these regulations if the health, safety, and welfare of the public are contingent upon frequent vehicle cleansing, such as garbage trucks and vehicles used to transport food and perishables.

4. Use of water to fill, refill, or add to any indoor or outdoor swimming pools, wading pools, or Jacuzzi-type pools is prohibited except on designated watering days between the hours of 12:00 Midnight and 10:00 AM and between 8:00 PM and 12:00 Midnight.

5. Operation of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life or where such fountains or ponds are equipped with a recirculation system.

6. Use of water from hydrants shall be limited to fire fighting, related activities, or other activities necessary to maintain public health, safety, and welfare, except that use of water from designated fire hydrants for construction purposes or those purposes mandated by

public health programs or the State of Texas may be allowed under special permit from the City of Llano.

7. Use of water for the irrigation of golf course tees and fairways is prohibited except on designated watering days between the hours of 12:00 Midnight and 10:00 AM and between 8:00 PM and 12:00 Midnight. However, if the golf course utilizes a water source other than that provided by the City of Llano, the facility shall not be subject to these regulations.

8. The following uses of water are defined as non-essential and are prohibited:

    a. Wash down of any sidewalks, driveways, parking lots, tennis courts, or other hard-surfaced areas;
    b. Use of water to wash down buildings or structures for purposes other than immediate fire protection;
    c. Use of water for dust control;
    d. Flushing gutters or permitting water to run or accumulate in any gutter or street; and
    e. Failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s).

Stage 3 Triggers – Severe Water Shortage Conditions

Discharge information for the Llano River at Junction and the Llano River at Mason can be utilized to predict in March that the City of Llano is very likely to reach at least Stage 3 in this Drought Plan. Based on an analysis of historical monthly flow data for the Junction and Mason gauges, the following guidelines can be used to predict Stage 3 drought conditions: If 1) the average February monthly flow for Junction is 75 cfs or less; or 2) the average of the monthly flows from August to February at Junction is 85 cfs or less; or 3) the average February monthly flow for Mason is 130 cfs or less, the 7-day moving average daily discharge of the Llano River at Llano will be 21 cfs or less during the coming summer. NOTE: The USGS releases discharge information as preliminary data, subject to revision. USGS (San Angelo) should be contacted in March to confirm the accuracy of these preliminary data.

The utilization these guidelines since 1940 would have correctly predicted 17 of 19 low-flow (21 cfs or less) events for the Llano River at Llano, with no false predictions. The low-flow conditions of 1985 would not have been predicted due to high flows in December. It is not determined why the low-flow conditions of 1967 would not have been predicted.

If it becomes apparent from this predictive scenario, or from other observations, that Severe Water Shortage Conditions are likely to occur, the following is recommended:

LCRA or USGS be requested to calibrate the Llano River at Llano, Texas streamflow gauge to ensure its accuracy.

The Emergency Water Shortage Plan (to be prepared) be evaluated to ensure that all planning options are available as needed.

<u>Requirements for initiation:</u>

Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses for Stage 3 of this Ordinance when:

1. The 7-day moving average daily discharge of the Llano River as measured at Rio Llano subdivision is equal to or less than 21 cubic feet per second (cfs).

Requirements for termination:
Stage 3 of the Ordinance may be rescinded when the average daily discharge of the Llano River at Llano exceeds 75 cfs for seven (7) consecutive days or 150 cfs for five (5) consecutive days. The Mayor or City Manager may rescind Stage 3 of this Ordinance at any time. Upon termination of Stage 3, Stage 2 becomes operative. *Important Note*: Care should be exercised not to move from Stage 3 to Stage 1, just because the discharge of the River exceeds 150 cfs for 5 days. Discharge data should be evaluated to ensure that discharge levels are stabilizing or increasing before Stage 2 is repealed. When baseflows are low, the River can quickly return to Stage 3 levels, even after a significant rainfall event that produces large discharge volumes.

Stage 3 Response – Severe Water Shortage Conditions

Goal: Limit the daily pumpage at the water treatment plant to 0.8 million gallons per day.

Water Use Restrictions: All requirements of Stage 2 shall remain in effect during Stage 3 except:

1. Irrigation of landscaped areas shall be limited to twice per week on designated watering days between the hours of 6:00 AM and 10:00 AM and between 8:00 PM and 12:00 Midnight, and shall be by means of a hand-held hose, a faucet-filled bucket or drip irrigation system only. The use of hose-end sprinklers or permanently installed automatic sprinkler systems are allowed once per week according to the following schedule:

	Hand-held/Drip Irrigation		Sprinklers
Even Addresses	Thursday	and/or	Sunday
Odd Addresses	Wednesday	and/or	Saturday
Commercial, Recreational, Multi-Family	Tuesday	and/or	Friday

2. The watering of golf course fairways is allowed once per week on designated days.

3. The use of water for construction purposes from designated fire hydrants under special permit is to be discontinued.

4. Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle not occurring on the premises of a commercial car wash and commercial service stations and not in the immediate interest of public health, safety, and welfare is prohibited. Further such vehicle washing at commercial car washes and commercial service stations shall occur only between the hours of 6:00 AM and 10:00 AM and between 8:00 PM and 12:00 Midnight.

5. The refilling, or adding of water to swimming pools, wading pools, and Jacuzzi-type pools is allowed only on designated days..

6. The operation of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life or where such fountains or ponds are equipped with a recirculation system.

Stage 4 Triggers – Critical Water Shortage

The effects of low-flow on the biological and chemical processes of the Llano River have an impact on the water needs of the citizens of Llano. While water restrictions are certainly a burden to citizens, they are necessary to limit additional strain on the Llano River and the associated treatment facilities. As the flow of the Llano River decreases to very low levels, the temperature of the water increases and the amount of dissolved oxygen in the water decreases. Lower levels of dissolved oxygen result in increased costs associated with treatment of higher levels of nitrates and resulting changes in water taste. These higher temperatures and reduced dissolved oxygen can also have a significant negative impact on the aquatic habitat of the River.

Currently, the Stage 4 Trigger level is recommended at 8 cfs. Should it be found that critical biological and chemical processes of the River could be maintained at lower flows, a lower trigger level can be considered. Should it be found that higher flows are necessary to maintain these critical processes, higher trigger levels can be considered.

Requirements for initiation:
Customers shall be required to comply with the requirements and restrictions on non-essential water uses for Stage 4 of this Ordinance when:

1. The average daily discharge of the Llano River as measured at the Rio Llano subdivision is *less* than 8 cubic feet per second (cfs).

Requirements for termination:
Stage 4 of the Ordinance may be rescinded when the average daily discharge of the Llano River at Llano is at least 8 cfs *and* the 7-day moving average daily discharge of the Llano River at Llano is at least 8 cfs. The Mayor or City Manager may rescind Stage 4 of this Ordinance at any time. Upon termination of Stage 4, Stage 3 becomes operative.

Stage 4 Response-Critical Water Shortage

Goal: Limit the daily pumpage at the water treatment plant to .6 million gallons per day.

Water use restrictions: All requirements for Stage 3 shall remain in effect during Stage 4 except:

1. Residents shall be allowed to hand water trees, gardens and foundations twice per week, on designated watering days by use of hand held hose only.
2. Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is absolutely prohibited.
3. Filling or refilling of any pools and/or hot tubs is absolutely prohibited.
4. If pumping goals cannot be maintained, the Mayor or his/her designate shall have the authority to further limit irrigation.
5. No application for new, additional, expanded, or increased-in-size water service connections, meters, service lines, pipeline extensions, mains, or water service facilities of any kind shall be approved, and time limits for approval of such applications are hereby

suspended for such time as this drought response stage or a higher-numbered stage shaoll be in effect.

Stage 5 Triggers-Water Allocation

The trigger levels established in this Ordinance are based on the condition that the Llano River is the only source of supply for the City of Llano. Should an additional backup source become established, the water allocations set in this section might need to be re-evaluated.

Requirements for initiation:
Customers shall be required to comply with the water allocation plan prescribed below and comply with the requirements and restrictions for Stage 5 of this Ordinance when:

1. Water ceases to naturally flow over the Llano Lake Dam in Llano, Texas.
2. Water system fails from acts of God or man.
3. Any mechanical failure of pumping equipment which will require more than twelve (12) hours to repair which causes unprecedented loss of capability to provide water service.

Requirements for termination:
Stage 5 of the Ordinance may be rescinded when all of the conditions listed as triggering events have ceased to exist. The Mayor or City Manager may rescind Stage 5 of this Ordinance at any time. Upon termination of Stage 5, Stage 4 becomes operative.

Stage 5 Response –

Water use restrictions: All requirements for Stage 4 shall remain in effect during Stage 5**.**

Single-Family Residential Customers

Water rates for all residential customers served by the City shall, for gallons consumed in excess of 8,000 gallons, be charged at 5 (five) times the regular rate for the first billing after Stage V is implemented and ten (10) times the regular rate for the second billing after Stage V is implemented. If Stage 5 of the Water Conservation and Drought Contingency Plan has been in effect for the majority of days during any billing cycle (the 15th of each month through the 14th of the following month), Stage 5 rates will be charged for the entire billing cycle.

Master-Metered Multi-Family Residential Customers

Water rates for all residential water customers residing in a master-metered multi-family residence served by the City shall, for gallons consumed in excess of 8,000 gallons, be charged at 5 (five) times the regular rate for the first billing after Stage V is implemented and ten (10) times the regular rate for the second billing after Stage V is implemented. If Stage 5 of the Water Conservation and Drought Contingency Plan has been in effect for the majority of days during any billing cycle (the 15th of each month through the 14th of the following month), Stage 5 rates will be charged for the entire billing cycle.

Notification

Notification of the Public Regarding Initiation or Termination of Drought Response Stage:
The Mayor or City Manager shall notify the public by means of:

1. Publication in a newspaper of general circulation
2. Direct mail to each customer
3. Public service announcements
4. Signs posted in public places
5. Take-home fliers at schools

Additional Notification:
The Mayor or City Manager shall notify directly, or cause to be notified directly, the following individuals and entities:

Mayor / Chairman and members of the City Council / Utility Board
Fire Chief(s)
City and/or County Emergency Management Coordinator(s)
County Judge and Commissioner(s)
State Disaster District / Department of Public Safety
TNRCC (required when mandatory restrictions are imposed)
Major water users
Critical water users, i.e. hospitals
Parks / Street Superintendents & Public Facilities Managers

Section IX: Enforcement

1. No person shall knowingly or intentionally allow the use of water from the City of Llano for residential, commercial, industrial, agricultural, governmental or any other purpose in a manner contrary to any provision of this Ordinance, or in an amount in excess of that permitted by the drought response stage in effect at the time pursuant to action taken by the City Manager, or his/her designee, in accordance with provisions of this Ordinance.

2. Any person who violates this Ordinance is guilty of a misdemeanor and, upon conviction shall be punished by a fine of not less than fifty dollars ($50.00) and not more than five hundred dollars ($500.00). Each day that one or more of the provisions in this Ordinance is violated shall constitute a separate offense. If a person is convicted of three or more distinct violations of this Ordinance, the Chief of Police or his/her designee shall, upon due notice to the customer, be authorized to discontinue water service to the premises where such violations occur. Services discontinued under such circumstances shall be restored only upon payment of a re-connection charge, hereby established at $25.00, and any other costs incurred by the City of Llano in discontinuing service. In addition, suitable assurance must be given to the Mayor that the same action shall not be repeated while the Ordinance is in effect. Compliance with this Ordinance may also be sought through injunctive relief in the District Court.

3. Any person, including a person classified as a water customer of the City of Llano, in apparent control of the property where a violation occurs or originates shall be presumed to be the violator, and proof that the violation occurred on the person's property shall constitute a presumption that the person in apparent control of the property committed the violation, but any such person shall have the right to show that he/she did not commit the

violation. Parents shall be presumed to be responsible for violations of their minor children and proof that a violation, committed by a child, occurred on property within the parents' control shall constitute a presumption that the parent committed the violation, but any such parent may be excused if he/she proves that he/she had previously directed the child not to use the water as it was used in violation of this Ordinance and that the parent could not have reasonably known of the violation.

4. Any employee of the City of Llano, Police Department, or other City employee designated by the Mayor, may issue a citation to a person he/she reasonably believes to be in violation of this Ordinance. The citation shall be prepared in duplicate and shall contain the name and address of the alleged violator, if known, the offense charged, and shall direct him/her to appear in the Municipal Court on the date shown on the citation for which the date shall not be less than three (3) days nor more than five (5) days from the date the citation was issued. The alleged violator shall be served a copy of the citation. Service of the citation shall be complete upon delivery of the citation to the alleged violator. The alleged violator shall appear in Municipal Court to enter a plea of guilty or not guilty for the violation of this Ordinance. If the alleged violator fails to appear in Municipal Court, a warrant for his/her arrest may be issued. A summons to appear may be issued in lieu of an arrest warrant. These cases shall be expedited and given preferential setting in Municipal Court before all other cases.

Section X: Variances

The Mayor, or City Manager, may in writing, grant temporary variance for existing water uses otherwise prohibited under this Ordinance if it is determined that failure to grant such variance would cause an emergency condition adversely affecting the health, sanitation, or fire protection for the public or the person requesting such variance and if one or more of the following conditions are met:

1. Compliance with this Ordinance cannot be technically accomplished during the duration of the water supply shortage or other condition for which the Ordinance is in effect.

2. Alternative methods can be implemented which will achieve the same level of reduction in water use.

Persons requesting an exemption from the provisions of this Ordinance shall file a petition for variance within the City of Llano within five (5) days after the Ordinance or a particular drought response stage has been invoked. All petitions for variances shall be reviewed by the Mayor, or City Manager, and shall include the following:

1. Name and address of the petitioner(s);
2. Purpose of water use;
3. Specific provision(s) of the Ordinance from which the petitioner is requesting relief;
4. Detailed statement as to how the specific provision of the Ordinance adversely affects the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with this Ordinance;
5. Description of the relief requested;
6. Period of time for which the variance is sought;

7. Alternative water use restrictions or other measures the petitioner is taking or proposes to take to meet the intent of this Ordinance and the compliance date; and
8. Other pertinent information.

Variances granted by the City of Llano shall be subject to the following conditions, unless waived or modified by the Mayor or City Manager:

1. Variances granted shall include a timetable for compliance; and
2. Variances granted shall expire when the Ordinance is no longer in effect, unless the petitioner has failed to meet specified requirements.

No variance shall be retroactive or otherwise justify any violation of this Ordinance occurring prior to the issuance of the variance.

ANNUAL EVALUATION AND REVISIONS

The trigger conditions shall be re-evaluated at least once a year for overall effectiveness and trigger conditions will be revised if necessary. This Ordinance will be revised at least every five years to provide updates and changes as appropriately required.

Revisions were made in March 2006, including system profile and trigger conditions. The next revision will be no later than 2010.

_____
Mike Reagor, Mayor

ATTEST:

_____
Toni Milam, City Secretary