WATER CONSERVATION

AND

DROUGHT CONTINGENCY PLAN

FOR THE

CITY OF MINERAL WELLS, TEXAS

December 1999

(Adopted: January 18, 2000)

Amendments

Adopted: December 5, 2000

Adopted: April 19, 2005

Adopted: June 16, 2009

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1.0 INTRODUCTION

The adoption of a water conservation plan is required by the Texas Commission on Environmental Quality (TCEQ) and the requirements set forth in Senate Bill (1) One, 75th Texas Legislature and for any project to be funded by the Texas Water Development Board pursuant to the statutes adopted by the 69th Legislature during the 1985 regular special called sessions. Sections 15.001 8 (A) and (B) VTCA state that "Conservation means:

A. The development of water resources; and

B. those practices, techniques, and technologies that will reduce the consumption of water, improve the efficiency in the use of water, or increase the recycling and reuse of water so that a water supply is made available for future or alternative uses."

The purpose of the Water Conservation and Drought Contingency Plan is to establish short-term and long-term goals for conserving water and to determine the procedures and steps necessary to achieve these goals.

To achieve the goals of the City of Mineral Wells Water Conservation Plan, the City proposes to:

1. Perform an official utility evaluation of factors, which affect water use;

    a. Release only water needed for treatment.
    b. Finds ways to conserve treated water in the treatment process.
    c. Backwash water sent back to pre-sedimentation reservoir.
    d. Decant lagoon water back to pre-sedimentation reservoir.

2. Determine attainable goals for a water conservation program and ways in which to measure those goals;

    a. Daily average per capita water use for calendar year 2013 was 128.14 gallons.
    b. The City met its goal to reduce the per capita consumption for the last five (5) year's. This was accomplished by quantifying water loss and leak detection
    c. The City's next goal is to reduce this per capita consumption by .325 gallons per year for the next five (5) and ten (10) year targets.

3. Outline implementation guidelines for additional water conservation programs;

    a. Inform the customer about conservation through pamphlets and brochures.
    b. Monitor irrigation at businesses and ask for adjustments when needed.
    c. Water main projects to eliminate old leaking mains

4. Ultimately, to conserve water.

To achieve goals of the Drought Contingency Plan, the City will:

1. Establish procedures to be implemented at certain stages of a drought;

2. Identify voluntary and mandatory actions to reduce the demand placed on the water supply system during a water shortage emergency.

2.0 SYSTEM EVALUATION

2.1 EXISTING WATER SUPPLIES

The City of Mineral Wells, located in the north-central section of the State, is approximately 50 miles west of Fort Worth and has a service area of roughly 15 square miles. According to the TCEQ Annual Inspection Report, the City's population is 17,295.

The City obtains its water from Lake Palo Pinto which is owned by the Palo Pinto County Municipal Water District No.1 (PPCMWD.No.1). The reservoir has a permitted capacity of 44,100 acre-feet, however, a 2007 volumetric survey indicates it's capacity as of that date to be approximately 27,200 acre feet. The City of Mineral Wells owns Lake Mineral Wells, which has a permitted capacity of 7,065 acre-feet but is not used as a raw water source. A volumetric Survey is to be done on Lake Mineral Wells by the TWDB in 2016.

The City operates one water treatment plant: Hilltop Water Treatment Plant. The water purchased from PPCMWD.No.1 is pumped to the Hilltop WTP.

The City's water distribution system consists of approximately 508 miles of mains, ranging in size from 6 to 36-inches in diameter. The system has a total storage capacity of 6.55 million gallons in both ground and elevated storage facilities. There are currently 6,907 connections to the system: 5,968 residential, 939 commercial, and 10 wholesale. All connections to the system are metered.

2.2 HISTORICAL AND PROJECTED WATER USE

The City's average annual water production for the past five years has been about 1,276,936,240 gallons per year (106,411,353 gallons per month). The historical peak daily use is 7,500,000 gallons. The average peak to average daily use is 2.0:1.

In addition to supplying treated water to residents and businesses of Mineral Wells, the City sells treated water to six water supply corporations (WSC's), and one municipality. These include Parker County Special Utility District, Palo Pinto WSC, Sturdivant-Progress WSC, North Rural WSC, Millsap WSC, Santo Special Utility District, and the City of Graford. The six WSC's and the City of Graford have approximately 5,477 connections and serve some 16,431 persons.

The 2013 monthly water use, by category, is given in Table 2.2. Table 2.3 gives Mineral Wells' projected population, average daily use and peak daily use, based on TWDB projections.

2.3 FIVE-YEAR AND TEN-YEAR TARGETS FOR WATER SAVINGS

Quantified Five-Year and Ten-Year Targets for Water Savings for the City of Mineral Wells

A. .25% per capita reduction per year for the first 5-year target.

B. Additional .25% per capita reduction per year for the 10-year target.

TABLE 2.2

City of Mineral Wells 2013 Water Use (gallons)
By Category

Month	Residential	Commercial	Water Districts	Institutional	Yard Meters	TOTAL
Jan-13	28,024,100	7,068,300	27,203,400	11,251,600	964,400	**74,511,800**
Feb-13	21,271,200	6,105,200	24,294,500	9,157,000	766,800	**61,594,700**
Mar-13	20,846,700	6,141,200	28,512,800	8,272,900	860,800	**64,634,400**
Apr-13	28,591,800	8,148,200	29,012,300	9,495,700	1,185,500	**76,433,500**
May-13	27,584,000	6,472,500	35,648,500	7,967,600	1,909,100	**79,581,700**
Jun-13	30,225,100	6,906,000	43,344,000	6,754,200	2,291,000	**89,520,300**
Jul-13	50,536,500	9,565,200	47,936,200	7,994,800	3,882,900	**119,915,600**
Aug-13	38,472,600	8,381,500	46,379,300	4,588,700	3,326,600	**101,148,700**
Sep-13	47,800,400	9,700,800	44,790,000	4,803,800	4,482,000	**111,577,000**
Oct-13	28,974,200	7,395,700	37,049,900	3,764,600	3,085,100	**80,269,500**
Nov-13	23,000,100	6,350,200	0	2,079,000	1,740,300	**33,169,600**
Dec-13	28,410,900	7,937,000	62,574,800	5,547,600	1,065,300	**105,535,600**
TOTAL	**373,737,600**	**90,171,800**	**426,745,700**	**81,677,500**	**25,559,800**	**997,892,400**

TABLE 2.3

City of Mineral Wells Projected Population and Water Use

(Based on TWDB Projections)

Year	Population Potential	Daily Average (mgd)	Daily Maximum (mgd)
2010	28,895	4.39	5.12
2020	31,147	4.63	5.25
2030	33,048	4.83	5.32
2040	34,897	5.00	5.42
2050	37,074	5.27	5.56
2060	39,589	5.61	6.23

2.4 WASTEWATER INFORMATION

The City of Mineral Wells owns and operates two wastewater treatment facilities, which have a combined permitted daily capacity of 3.61 mgd: Willow Creek Wastewater Treatment Plant and Pollard Creek Wastewater Treatment Plant. The average volume of wastewater treated at the plants is 1.50 mgd. The peak daily wastewater volume is 7.42 mgd.

Approximately 94% of the City's water customers are on the City's wastewater treatment system. The remaining 6% are served by private on-site sewage facilities. Sales to customers with on-site sewage facilities are about 5% of the City's total water sales.

The estimated percent of wastewater flow from various sources are as follows:

Residential	54.35%
Commercial	45.65%

2.5 FINANCIAL INFORMATION

The City of Mineral Wells has a conservation-oriented rate structure for water and wastewater services. The rates are given in Appendix C.

Operating revenues for the year ended September 30, 2012 derived from rates are $8,280,667. Non-rate sources provide an additional $253,212 for an annual revenue total of $8,533,879.

Operating expenses for the year ended September 30, 2012 were $6,558,846.

3.0 TEXAS COMMISSION ON ENVIRONMAENTAL QUALITY REQUIREMENTS

The TCEQ requires that a municipal water provider file a Water Conservation and Drought Contingency Plan pursuant to 30 TAC 288.2 and 30 TAC 288.20, respectively.

3.1 WATER CONSERVATION PLAN

Pursuant to TCEQ rules, a Water Conservation Plan is defined as "a strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing and recycling and reuse of water, and for preventing the pollution of water." The topics addressed in the City of Mineral Wells Water Conservation Plan are in accordance with TCEQ guidelines, as provided below.

- 30 TAC 288.2 (1A) A utility profile – This plan includes population and customer data, water use data, and water supply data. An updated profile is being provided.
- 30 TAC 288.2 (1C) Specific, quantified 5-year and 10-year water saving targets – This plan includes per capita target goals for municipal use and maximum acceptable unaccounted for water and goal, and basis for development of goals.
- 30 TAC 288.2 (1D) Metering device(s), within 5% plus or minus accuracy. – The plan includes calibration and accuracy of metering devices.
- 30 TAC 288.2 (1E) This plan has a program for universal metering, meter testing and meter replacement.
- 30 TAC 288.2 (1F) Unaccounted for water use – This plan includes leak detection, water audits, and system evacuation.
- 30 TAC 288.2 (1G) Continuing public education and information. – This plan includes a program such as information on water bill and hand out brochures.
- 30 TAC 288.2 (1H) Non-promotional water rate structure. – This plan includes a non-declining block rate, which encourages water conservation.
- 30 TAC 288.2 (1I) Reservoir systems operations plan. – The City of Mineral Wells obtains its water from Lake Palo Pinto, which is owned by the Palo Pinto County Municipal Water District No. 1, which both evaluates and monitor levels and pumpage and coordinates with each other on the operation of the reservoir.
- 30 TAC 288.2 (1J) Means of implementation and enforcement of the plan. – The plan has been adopted by ordinance.
- 30 TAC 288.2 (1K) Coordination with regional water planning groups for consistency with approved regional water plans.
- 30 TAC 288.2 (2A) This plan includes a program for leak detection, repair and water losses accounting.
- 30 TAC 288.2 (2B) This plan includes record management on water pumped, delivered, sales, and losses, which allows for the desegregation of water sales and uses into the following user classes residential; commercial; public and institutional; and industrial.
- 30 TAC 288.2 (2C) This plan requires wholesale water supply customers to have an approved conservation and drought plan, and must officially adopt applicable provisions of the City of Mineral Wells Water Conservation and Drought Contingency Plan.
- 30 TAC 288.2 (3) Additional water conservation strategies – This plan documents additional water conservation strategies pursued by the City of Mineral Wells, including reuse and recycling programs. Adoption of plumbing codes. A program for the replacement or retrofit of water conserving plumbing fixtures. A program for landscape water management on approved subdivision plan and building permits.
- 30 TAC 288.2 (3B.) A water conservation plan prepared in accordance with 31 TAC 363.15. – The plan substantially meets the requirement.
- 30 TAC 288.2 (3C) Review and update of water conservation plan (on at least a 5-year basis).

3.2 DROUGHT CONTINGENCY PLAN

The TCEQ has developed rules for development of Drought Contingency Plans for municipal uses by public water suppliers in Title 30, Texas Administrative Code 288.20. A Drought Contingency Plan is defined by TCEQ as "a strategy or combination of strategies for temporary supply and demand management responses to temporary and potentially recurring water supply shortage and other water supply emergencies." The topics addressed in the City of Mineral Wells Drought Contingency Plan are in accordance with the TCEQ guidelines, as provided below.

- 30 TAC 288.20 (1A) Provisions to inform the public and wholesale customers regarding preparation of the plan.
- 30 TAC 288.20 (1B) Program of continuing public education and information regarding the Drought Contingency Plan.
- 30 TAC 288.20 (1C) Coordination with regional water planning groups.
- 30 TAC 288.20 (1D) Monitoring for initiation and termination of drought response stages.
- 30 TAC 288.20 (1Ei) Reduction in available water – This plan has set triggering criteria on amount of water that is available.
- 30 TAC 288.20 (1Eii) Water production or distribution system limitations – This plan includes demand operating capacities.
- 30 TAC 288.20 (1Eiii & iv) Supply source contamination or system outage due to the failure or damage of major water system components. This plan includes failure due to pumping, demand limitations and contamination.
- 30 TAC 288.20 (1F) Specific, quantified targets for water use reductions during periods of water shortage and drought.
- 30 TAC 288.20 (1Gi & ii) Specific water supply or demand management measures to be implemented during each stage of the plan including curtailment and the use of a secondary water supply.
- 30 TAC 288.20 (1H) Procedures for the initiation and termination of each drought response stage, including procedures for notification of the public.
- 30 TAC 288.20 (1I) Procedures for granting variances to the plan.
- 30 TAC 288.20 (1J) Procedures for enforcement of mandatory water use restrictions including specification of penalties.
- 30 TAC 288.20 (3b) Notification of Executive Director of implementation of mandatory provisions of the Drought Contingency Plan.
- 30 TAC 288.20 (3C) Review and update of the Drought Contingency Plan.

4.0 WATER CONSERVATION PLAN

The applicable methods of water conservation for the City of Mineral Wells as listed in Section 363.85 (b) of the Texas Water Development Board Rules relating to "Financial Programs" are as follows:

a. Education and information programs;
b. Conservation-oriented water rate structure;
c. Universal metering and meter repair and replacement;
d. Leak detection and repair;
e. Plumbing codes or ordinances for water-conserving devices in new construction;
f. Retrofit programs to improve water-use efficiency in existing buildings;
g. Water recycling and reuse;
h. Water conserving landscaping;
i. Enforcement
j. Annual field trips from schools, Chamber of Commerce, etc.

4.1 EDUCATION AND INFORMATION

The City of Mineral Wells will inform City users of various recommended methods for implementing a reduction in water consumption. Generally, a majority of water consumption in a city is consumed by residential customers. Therefore, the target area for educational information is to be the majority user and also contract customers.

a. A fact sheet explaining the Conservation Plan will be developed and distributed.

b. Each new customer will be provided with "Homeowner's Guide to Water Use and Water Conservation".

The long-term program will consist of five activities:

a. New brochures emphasizing new or innovative means for conserving water will be made available at City Hall.

b. A statement will be printed on the water bill advising water customers that the brochures are available at City Hall.

c. A newspaper article targeting one particular household water using utility or item (dishwasher, shower, toilet, and laundry) will be published with methods for conserving water.

d. A brochure will be mailed out which correlates weather predictions to outside household use, car washing, lawn watering, and time of day.

e. Homeowner's Guide will be distributed to customers.

New customers will be advised of the City of Mineral Wells' Conservation Program and will be provided with a copy of the Homeowner's Guide.

The City will make resource materials available from the Texas Water Development Board and other agencies or organizations, which develop desirable pertinent information or data.

4.2 PLUMBING CODES

The City of Mineral Wells has adopted the 2012 Edition of the International Plumbing Code in its entirety and the International Residential Code of 2012.

4.3 WATER CONSERVATION REROFIT PROGRAM

Title V of the Health and Safety Code, Subsection E, Chapter 421 requires that businesses stock and sell only plumbing fixtures, which conform to water saving performance standards. This will ensure that plumbing fixtures installed during new construction and remodeling will be of the conservation-oriented type.

4.4 CONSERVATION

The City has a non-declining block rate, which encourages water conservation. See Appendix C for the water rate structure.

4.5 UNIVERSAL METERING AND METER REPAIR AND REPLACEMENT

The water treatment plant's Raw and Finished water master meters are calibrated once a year by an outside source to be within (plus or minus) 5% accuracy. Universal metering will be continued after adoption of this plan. Production (master) meters larger than one inch (1") will be tested, and subsequently retested each year. A testing program will be initiated for all meters 1" and smaller. Replacement will begin in areas with poor classification rated by meter readers. All meters 1" and smaller will be tested or replaced every ten years.

4.6 WATER CONSERVATION LANDSCAPING

Educational material will include information relating to low water use landscaping. The City reviews and approves subdivision plans. Subdividers and builders are provided with literature pertaining to low water demand landscaping items at the time building permits are acquired. Area nurseries will also be provided with mentioned literature.

4.7 WATER AUDITS AND LEAK DECTECTION

Unaccounted for water losses have historically been approximately 10% of annual water production. Losses of this size are not uncommon in municipal water systems. The City's unaccounted for water losses are primarily due to distribution main breaks, small leaks that go unnoticed, inaccurate meters, and connections which bypass the City's meters. The City recently repaired the finished meter at the Hilltop Water Treatment Plant. The City has requested that all WSC's test their meters and repair or replace any that are found to be inaccurate. The City is conducting and will continue to conduct audits to identify connections which bypass city meters and correct those that are found. In addition to water audits, the City will continue to do the following:

a. The City will evaluate the City's distribution system.

b. Target replacement of water mains that are known to rupture.

The City of Mineral Wells will continue to monitor monthly consumption. Classification of meter condition as proposed in this plan will provide a reliable and effective leak detection program. The City is aware that assistance in leak detection surveys can be obtained from the Texas Water Development Board staff. The agency has portable leak detection equipment available for loan to cities and can provide personnel for demonstration of equipment and assist in planning survey programs.

Meter classification and aggressive enactment of a current detection program will enable the City staff to determine the need for seeking further assistance from use of electronic equipment. The current detection program consists of the following observations and activities:

a. Beginning with fiscal year 2000/2001, the City established a leak detection crew to trace out and repair un-noticeable leaks. Updates are as follows:

    1. Found and repaired two major leaks in remote areas.

    2. Over 200 fire hydrants have been repaired.

    3. Found isolation valves, which were previously covered.

    4. Found and repaired several small to medium size leaks that had never surfaced.

b. Repaired leaks reported by citizens.

c. Repaired leak detected by meter readers.

d. Continual checking and servicing of production, pumping, and storage facilities.

e. Quick response by the Maintenance Department and staff to reported problems.

In order to be within the allowable limits, the City's goal is to reduce the annual water loss by .25% per year for the next five (5) years.

4.8 MEANS OF IMPLEMENTATION AND ENFORCEMENT

The City Manager, through his staff, will implement the plan in accordance with City Council adoption of the plan, adoption of Plumbing Codes and revisions thereof as set out in this plan. Enforcement will be provided by:

a. Refusing to provide water service for customers who do not meet requirements for Water Conservation fixtures as established by S.B. 587.

b. Prompt discontinuation of service for non-payment of water bills.

c. Analysis/adjustments of water rates to eliminate Conservation Plan abuse.

4.9 RECYCLING AND REUSE

The City uses effluent at both wastewater plants for in plant use, examples; chemical injections and wash down of clarifiers. The City will investigate other reuse and recycling programs where legally possible and economically feasible.

4.10 CONTRACT WITH OTHER POLITICAL SUBDIVISIONS

Any political subdivision and/or wholesale customer contracting for water from the City of Mineral Wells must have; (1) an approved Texas Water Development Board Conservation and Drought Contingency Plan in effect or (2) must officially adopt applicable provisions of the City of Mineral Wells Water Conservation and Drought Contingency Plan. Upon each threshold condition, wholesale customers will be notified to implement their plan.

4.11 COORDINATE WITH REGIONAL WATER PLANNING GROUPS

The water service area of the City of Mineral Wells is located within the Brazos (G) and Region (C) Regional Water Planning areas and the City of Mineral Wells has provided a copy of this Water Conservation Plan to the Brazos (G) and Region (C) Planning Groups.

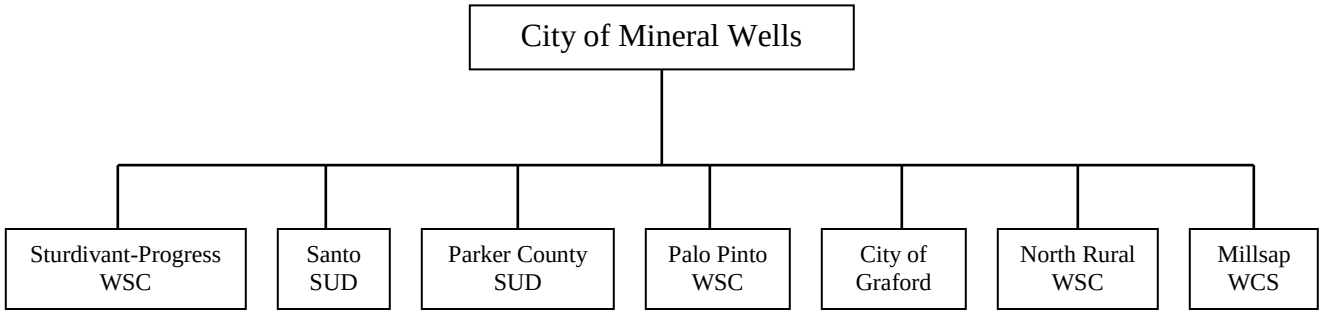
4.12 ADDITIONAL CONSERVATION STRATEGIES

The City of Mineral Wells encourages its customers to conserve water and implement additional conservation strategies to meet targets and goals identified in the Water Conservation Plan. The City of Mineral Wells supports the implementation of water conservation strategies, including:

a. Education and information programs;
b. Promoting retrofit programs to improve water use efficiency in existing buildings;
c. Promoting water recycling and reuse;
d. Promoting water conserving landscaping; and
e. Other water conservation practices identified by the customer.

4.13 REVIEW AND UPDATE OF WATER CONVERSATION PLAN

The City of Mineral Wells will review and update its Water Conservation Plan, as appropriate, at least every 5-years from May 1, 2014. The update will include an assessment of previous 5-year and 10-year targets and any other new or updated information.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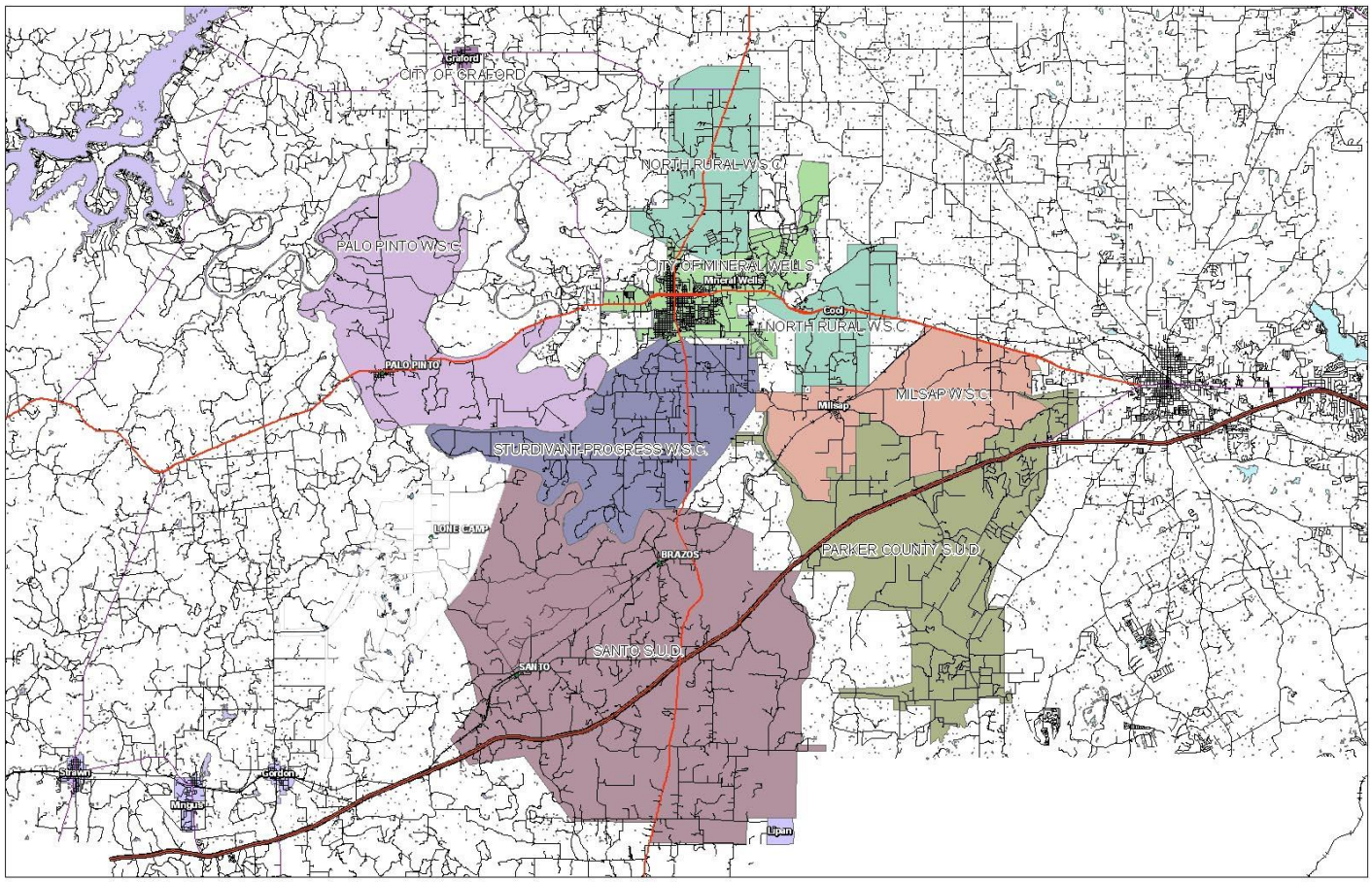
Santo SUD
Parker County SUD
Palo Pinto WSC
City of Graford
North Rural WSC
Millsap WCS


CITY OF GRAFORD
NORTH RURAL W.S.C.
PALO PINTO W.S.C.
CITY OF MINERAL WELLS
NORTH RURAL W.S.C.
MILSAP W.S.C.
STURDIVANT-PROGRESS W.S.C.
PARKER COUNTY S.U.D.
SANTO S.U.D.

5.0 DROUGHT CONTINGENCY PLAN

Drought and Contingency Measures

5.1 DECLARATION OF POLICY, PURPOSE, AND INTENT

The TCEQ requires that municipal public water suppliers file a Drought Contingency Plan pursuant to 30 TAC 288.20. In order to conserve the available water supply and/or to 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 storage or other water supply emergency conditions, the City of Mineral Wells adopts the following Drought Contingency Plan in accordance with the TCEQ guidelines (the Plan).

5.2 PUBLIC INVOLMENT

Continuing public education regarding the Drought Contingency Plan by means of media and water bills. The City of Mineral Wells, by means of the news media, provided an opportunity on November 28, 2000 for the public and wholesale water customers to offer input into the preparation of the Plan. The Plan was adopted at the December 5, 2000 City Council meeting, which was advertised accordingly, 72 hours prior to the meeting. The provisions of this Drought Contingency Plan shall apply to all customers utilizing water provided by the City of Mineral Wells.

5.3 WHOLESALE WATER CUSTOMER EDUCATION

The City of Mineral Wells will periodically provide wholesale water customers with information about the Plan, including information about the conditions under which each stage of the Plan 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 providing a copy of the Plan or periodically including information about the Plan with invoices for water sales.

5.4 COORDINATION WITH REGIONAL WATER PLANNING GROUPS

The water service area of the City of Mineral Wells is located within the Brazos (G) and Region (C) Regional Water Planning areas and the City of Mineral Wells has provided a copy of the Drought Contingency Plan to the Brazos (G) and Region (C) Planning Groups.

5.5 AUTHORIZATION

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

5.6 APPLICATION

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

5.7 TRIGGERING CRITERIA FOR INITIATION AND TERMINATION OF DROUGHT RESPONSE STAGES

The City Manager, or his/her designee(s), shall monitor water supply and/or demand conditions on a weekly basis and shall determine when conditions warrant initiation or termination of each stage of the Plan. Customer notification of the initiation or termination of drought response stages will be made by mail or telephone. The news media will also be informed.

The triggering criteria described below are based on a statistical analysis of the vulnerability of the water source under drought conditions. Weather conditions are to be considered in drought classification determination. Predicted long, cold or dry periods are to be considered in impact analysis.

5.7 A. Stage 0 – No Water Shortage Conditions

The City of Mineral Wells will recognize that no water shortage condition exists when:

1. Water stored in Lake Palo Pinto is more than 13,780 acre-feet or 860 ft. MSL (50% of storage capacity).

5.7 B. Stage I – Mild Water Shortage Conditions

The City of Mineral Wells will recognize that a mild water shortage condition exists when:

1. Water stored in Lake Palo Pinto is equal to or less than 13,780 acre-feet or 860 ft. MSL (50% of storage capacity) and more than 6,279 acre feet or 854 ft. MSL.

2. When total daily water demand equals or exceeds 90% of the safe operating capacity of the system for three consecutive days or 95% of system capacity on a single day.

3. Any mechanical failure of pumping equipment which will require more than 24 hours to repair when no water shortage conditions exist.

Requirements for termination – Stage I of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of 10 consecutive days. Upon termination of Stage I, Stage 0 becomes operative. The City of Mineral Wells will notify its customers and the news media of the termination of Stage I.

5.7 C. Stage II – Moderate Water Shortage Conditions

The City of Mineral Wells will recognize that a moderate water shortage condition exists when:

1. Water stored in Lake Palo Pinto is equal to or less than 6,279 acre-feet or 854 ft. MSL (25% of storage capacity) and more than 3,392 acre feet or 849 ft. MSL.

2. Average daily water consumption reaches 100% of the safe operating capacity of the system for three consecutive days.

3. Average daily water consumption will not enable storage levels to be maintained.

4. System demand exceeds available high service pump capacity.

5. Any mechanical failure of pumping equipment, which will require more than 12 hours to repair if a mild drought is in progress.

Requirements for termination – Stage II of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of 10 consecutive days. Upon termination of Stage II, Stage I becomes operative. The City of Mineral Wells will notify its customers and the news media of the termination of Stage II in the same manner as the notification of initiation of Stage I of the Plan.

5.7 D. Stage III – Severe Water Shortage Conditions

The City of Mineral Wells will recognize that a severe water shortage condition exists when:

1. Water stored in Lake Palo Pinto is equal to or less than 3,392 acre-feet or 849 ft. MSL (12.5% of storage capacity).

2. Average daily water consumption reaches 110% of production capacity for a 24-hour period.

3. Any mechanical failure of pumping equipment, which will require more than 12 hours to repair if a moderate drought is in progress.

Requirements for termination – Stage III of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of 10 consecutive days. Upon termination of Stage III, Stage II becomes operative. The City of Mineral Wells will notify its customers and the news media of the termination of Stage III in the same manner as the notification of initiation of Stage II of the Plan.

5.7 E. Stage IV – Emergency Water Shortage Conditions

The City of Mineral Wells will recognize that an emergency water shortage condition exists when:

1. Water system is contaminated either accidentally or intentionally. Emergency condition is reached immediately upon detection.

2. Water system failure from acts of God (tornadoes, hurricanes) or man. Emergency condition is reached immediately upon detection.

3. Any interruption of water service through main water supply lines for more than 12-hours. Emergency condition is reached immediately upon detection.

4. Notification to the customers will be enacted at once and periodic updates will be conveyed through the news media on progress of emergency water conditions.

Requirements for termination – After the emergency situation has been resolved, the City of Mineral Wells will notify its customers and the news media of the termination of Stage IV.

5.8 SPECIFIED, QUANIFIED TARGETS FOR WATER USE REDUCTION DURING PERIODS OF WATER SHORTAGE AND DROUGHT

5.8 A. Stage 0 – No Water Shortage Conditions
Goal: Achieve a voluntary 10% reduction in total use.

5.8 B. Stage I – Mild water shortage conditions
Goal: Achieve a 20% reduction in total use.

5.8 C. Stage II – Moderate water shortage conditions
Goal: Achieve a 25% reduction in total use.

5.8 D. Stage III – Severe water shortage conditions
Goal: Achieve a 30% reduction in total use.

5.9 DROUGHT RESPONSE STAGES

The City Manager, or his/her designee(s), shall monitor water supply and/or demand conditions and, in accordance with the triggering criteria set forth in Section 5.7, shall determine that mild, moderate, or severe water shortage conditions exist or that an emergency condition exists and shall implement the following actions:

5.9 A. Stage 0 – No Water Shortage Conditions

1. Goal:
   a. Achieve a voluntary 10% reduction in total water use.

2. Supply Management Measures:
   a. Monitor Lake Palo Pinto levels.
   b. Release water only needed for treatment and TCEQ permit compliance.

3. Demand Management Measures:
   a. The City Manager, or his/her designee(s), will contact wholesale water customers to discuss water supply and/or demand conditions and will direct all wholesale water customers to initiate mandatory measures to reduce water use.
   b. Listed action is compulsory on users and is intended to restrict water use. Unattended landscape watering will be permitted on odd and even days. Other outside use will be permitted on any day of the week.
      - Addresses ending with an odd number can water on odd numbered days.
      - Addresses ending with an even number can water on even numbered days.
   c. No landscape watering on any day between the hours of 10:00 a.m. and 6:00 p.m.
   d. Hand watering of landscape, shrubs, gardens, and grass is permissible on any day, subject to time of day restrictions.
   e. Encourage voluntary reduction of water use.

5.9 B. Stage I – Mild Water Shortage Conditions

1. Goal:
   a. Achieve an additional 10% reduction in total water use. (20% total)

2. Supply Management Measures:
   a. Monitor Lake Palo Pinto levels.
   b. Release water only needed for treatment and TCEQ permit compliance.
   c. Begin blending Brazos River water when water stored in Lake Palo Pinto is equal to or less than 13,780 acre feet or 860 feet MSL (50% of storage capacity).

3. Demand Management Measures:

The City Manager, or his/her designee(s), on identifying mild water shortage conditions, shall initiate Stage I curtailment. Listed action is compulsory on users and is intended to restrict water use.

   a. Unattended landscape watering and maintaining swimming pool levels will be permitted one (1) day per week. Other outdoor water use will be permitted on any day of the week.
      - East of US Hwy. 281 on Saturdays
      - West of US Hwy. 281 on Sundays
   b. No landscape watering on any day between the hours of 10:00 a.m. and 6:00 p.m.
   c. Hand watering of landscape, shrubs, gardens, and grass is permissible on any day, subject to time of day restrictions.
   d. Draining and refilling of swimming pools will not be allowed.
   e. The City Manager, or his/her designee(s), will monitor system function and if necessary adjust hours for outside water use, depending upon system performance.
   f. Develop information center and designate an information person.
   g. The information center and publicity elements shall keep the public advised of curtailment status.
   h. Commercial users will be visited to insure conservation has been initiated.

i. The City Manager, or his/her designee(s), will initiate weekly contact with wholesale water customers to discuss water supply and/or demand conditions and the possibility of pro rata curtailment of water diversions and/or deliveries.

j. The City Manager, or his/her designee(s), will instruct wholesale water customers to initiate mandatory measures to reduce water use and implement Stage I of the customer's drought contingency plan.

k. The City Manager, or his/her designee(s), will initiate preparations for implementation of pro rata curtailment of water diversion and/or delivery by preparing a monthly water usage allocation baseline for each wholesale customer according to the procedures specified in Section 5.10 of the Plan.

l. The City Manager, or his/her designee(s), will provide a weekly report to news media with information regarding current water supply and/or demand conditions, projected water supply and demand conditions if drought conditions persist, and customer information on water conservation measures and practices.

5.9 C. Stage II – <u>Moderate</u> Water Shortage Conditions

1. Goal:
   a. Achieve a 25% reduction in total water use.

2. Supply Management Measures:
   a. Monitor Lake Palo Pinto levels.
   b. Release water only needed for treatment and TCEQ permit compliance.
   c. Begin planning to use Brazos River water for reverse osmosis treatment if conditions worsen.

3. Demand Management Measures:

The City Manager, or his/her designee(s), shall initiate stage II curtailment upon existence of moderate conditions as determined.

a. No outside water use permitted.
b. The only outside water use exception is for animals.
c. Construction projects shall use reuse water.
d. Commercial uses not listed will be controlled to the extent directed by the City Manager.

Businesses requiring water as a basic function of the business, such as nurseries, commercial car washes, laundromats, high-pressure water cleaning services, etc., will obtain written permission from the City Manager for intended water use.

The <u>System Priority</u> for water service shall be made on the following basis:

1.	Hospitals	3.	Schools	5.	Commercial
2.	Residential	4.	Industrial	6.	Recreational

e. The City Manager, or his/her designee(s), will contact wholesale water customers to discuss water supply and/or demand conditions and will instruct that wholesale water customers initiate additional mandatory measures to reduce water use and implement Stage II of customer's drought contingency plan.

f. The City Manager, or his/her designee(s), will initiate pro rata curtailment of water diversion and/or deliveries for each wholesale customer according to the procedures specified in Section 5.10 of the Plan.

g. The City Manager, or his/her designee(s), will provide a weekly report to news media with information regarding current water supply and/or demand conditions, projected water supply and demand conditions if drought conditions persist, and consumer information on water conservation measures and practices.

5.9 D. Stage III – Severe Water Shortage Conditions

1. Goal:
   a. Achieve a 30% reduction in total water use.

2. Supply Management Measures:
   a. Bring RO units online.

3. Demand Management Measures:
   a. All conditions of Stage II apply.

5.9 E. Stage IV – Emergency Water Shortage Conditions

Whenever emergency water shortage conditions exist as defined in Section 5.7 of the Plan, the City Manager, or his/her designee(s), shall:

1. Assess the severity of the problem and identify the actions needed and time required to solve the problem.

2. Inform the utility director or other responsible official of each wholesale water customer by telephone or in person and suggest actions, as appropriate, to alleviate problems and notification to the public to reduce water use until service is restored.

3. If appropriate, notify city, county, and/or state emergency response officials for assistance.

4. Undertake necessary actions, including repairs and/or clean up as needed.

5. Prepare a post-event assessment report on the incident and critique of emergency response procedures and actions.

5.10 PRO RATA WATER ALLOCATION

In the event that the triggering criteria specified in Section 5.7 of the Plan for Stage III – Severe Water Shortage Conditions have been met, the City Manager, or his/her designee(s), is hereby authorized to initiate allocation of water supplies on a pro rata basis in accordance with Texas Water Code Section 11.039 and according to the following water allocation policies and procedures:

1 A wholesale customer's monthly allocation shall be a percentage of the customer's water usage baseline. The percentage will be set by resolution of the City Council based on the City Manager's, or his/her designee(s), assessment of the severity of the water shortage condition and the need to curtail water diversions and/or deliveries and may be adjusted periodically by resolution of the City Council, as conditions warrant. Once pro rata allocation is in effect, water diversions by or deliveries to each wholesale customer shall be limited to the allocation established for each month.

2. A monthly water usage allocation shall be established by the City Manager, or his/her designee(s), for each wholesale customer. The wholesale customer's water usage baseline will be computed on the average water usage by month for the 5-year period as shown in the example given below. If the wholesale water customer's billing history is less than 5-years, the monthly average for the period for which there is a record shall be used for any monthly period for which no billing history exist.

3. The City Manager, or his/her designee(s), shall provide notice, by certified mail, to each wholesale customer informing them of their monthly water usage allocations and shall notify the news media and the executive director of the Texas Commission on Environmental Quality upon initiation of pro rata allocation.

4. Upon request of the customer or at the initiative of the City Manager, or his/her designee(s), the allocation may be reduced or increased, if, (1) the designated period does not accurately reflect the wholesale customer's normal water usage; (2) the customer agrees to transfer part of its allocation to another wholesale customer; or (3) other objective evidence demonstrates that the designated allocation is inaccurate under present conditions. A customer may appeal an allocation established hereunder to the City Council of the City of Mineral Wells.

Example Calculation of Monthly Allocation for a Hypothetical Wholesale Water Customer

	2004	2005	2006	2007	2008	SUM	AVG.	Allocation Percentage	Monthly Allocation
Jan	43.335	44.638	47.571	48.222	50.829	234.269	46.919	75%	35.189
Feb	37.470	39.751	43.335	43.335	47.896	211.787	42.357	75%	31.931
Mar	42.357	48.874	47.571	48.548	51.806	239.156	47.897	75%	35.841
Apr	42.357	54.413	54.739	51.155	60.929	263.267	52.784	75%	39.751
May	52.132	49.526	58.323	59.626	55.716	275.323	55.065	75%	41.380
Jun	73.637	59.952	56.042	66.794	81.131	337.230	67.446	75%	50.503
Jul	76.569	89.276	75.592	102.309	80.153	423.900	84.715	75%	63.536
Aug	72.333	66.143	67.120	109.803	100.680	416.080	83.086	75%	62.233
Sep	64.839	52.132	63.862	74.614	64.514	319.961	63.862	75%	47.896
Oct	53.761	56.042	64.188	53.761	60.278	288.030	57.671	75%	43.335
Nov	45.290	46.267	48.548	49.851	52.784	242.740	48.548	75%	36.493
Dec	46.267	46.593	48.874	50.829	53.761	245.999	49.200	75%	36.818
Total	650.023	653.607	675.112	759.175	760.152		760.152		

* UNITS IN MILLION-GALLONS

5.11 PROVISION FOR CONTRACT REQUIREMENTS FOR SUCCESSIVE CUSTOMER

The City of Mineral Wells will include a requirement in every water supply contract entered into or renewed after official adoption of the Drought Contingency Plan, and including contract extension that each successive wholesale customer develop and implement a Drought Conservation Plan meeting the requirements of Title 30, TAC 288.2. This requirement will extend to each successive wholesale customer in the resale of water.

5.12 ENFORCEMENT

During any period when pro rata allocation of available water supplied is in effect, wholesale customers shall pay the following surcharge on excess water diversions and/or deliveries.

1. 1.5 times the normal water charge per thousand-gallon for water diversions and/or deliveries in excess of the monthly allocation up through 5% above the monthly allocation.

2. 2.0 times the normal water charge per thousand gallons for water diversions and/or deliveries in excess of the monthly allocation from 5% through 10% above the monthly allocation.

3. 2.5 times the normal water charge per thousand-gallon for water diversions and/or deliveries in excess of the monthly allocation from 10% through 15% above the monthly allocation.

4. 3.0 times the normal water charge per thousand-gallon for water diversions and/or deliveries more than 15% above the monthly allocation.

5. The above surcharge shall be cumulative.

5.13 VARIANCES

The City Manager, or his/her designee(s), may, in writing, grant a variance to the pro rata water allocation policies provided by this Plan if it is determined that failure to grant such variance would cause an emergency condition adversely affecting the public health, welfare, or safety and if one or more of the following conditions are met.

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

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

Customers requesting a variance from the provisions of this Plan shall file a petition for variance with the City Manager within 5 days after pro rata allocation has been invoked. All petitions for variance shall be reviewed by the City Manager, or his/her designee(s), and shall include the following:

a. Name and address of the petitioner(s).
b. Detailed statement with supporting data and information as to how the pro rata allocation of water under the policies and procedures established in the Plan adversely affects the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with the Ordinance.
c. Description of the relief requested.
d. Period of time for which the variance is sought.
e. Alternative measures the petitioner is taking or purpose to take to meet the intent of this Plan and the compliance date.
f. Other pertinent information.

Variance granted by the City Manager shall be subject to the following conditions, unless waived or modified by the City Council:

1. Variances granted shall include a timetable for compliance.

2. Variances granted shall expire when the Plan 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 Plan occurring prior to the issuance of the variance.

5.14 SEVERABILITY

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

5.15 INFORMATION AND EDUCATION

The public will be made aware of conservation and drought conditions by information and data transfer through the City's program. During periods of drought conditions, Stage 1 conditions will establish an information center, an information person, and utilize the most effective methods developed for information dissemination on a daily basis.

Close observation of the first year information program should develop the most effective ways to communicate with customers. Posting notices, newspaper articles, radio coverage and direct mail to customers will be used during the first year activities.

5.16 INITIATION PROCEDURES

Initiation procedures employed at any period as described in this plan. Each condition will meet with corresponding action by the City Manager and the City Manager will affect curtailment, give notice, publicize and follow with implementation of curtailment.

5.17 MODIFICATION, DELETION AND AMENDMENT

The City Manager can add, delete, and amend rules, regulations and implementation as needed/desired, and shall advise the City Council of such amendments at its regular or called meeting.

5.18 MEANS OF IMPLEMENTATION

Adoption of this Plan, Drought Contingency Ordinance, and Plumbing Code Ordinance will enable the City to implement and carry out enforcement of enacted ordinances to make the plan effective and workable.

5.19 NOTIFICATION OF EXECUTIVE DIRECTOR OF TCEQ OF IMPLEMENTATION OF MANDATORY PROVISION OF THE DROUGHT CONTINGENCY PLAN

The City of Mineral Wells shall notify the executive director of TCEQ within 5 business days of the implementation of any mandatory provisions of the Drought Contingency Plan.

5.20 REVIEW AND UPDATE OF THE DROUGHT CONTINGENCY PLAN

Per TCEQ rules, the City of Mineral Wells will review and update as appropriate, the Drought Contingency Plan, at least every 5-years, based on new or updated information, such as, adoption or revision of the Brazos G and/or Region C Regional Water Plan.

APPENDIX A

LISTING OF WATER CONSERVATION LITERATURE

TEXAS WATER DEVELOPMENT BOARD

WATER CONSERVATION LITERATURE

TITLE	PUBLISHED BY	DESCRIPTION	LENGTH
Water…Half-A-Hundred Ways to Save It*	TWDB	Pamphlet	8 pages
Water Saving Ideas For Business and Industry*	TWDB	Pamphlet	8 pages
How to Save Water Outside The Home	TWDB	Pamphlet	8 pages
How to Save Water Inside The Home*	TWDB	Pamphlet	8 pages
A Homeowner's Guide to Water Use and Water Conservation*	TWDB	Booklet	22 pages
Drip Irrigation*	TWDB	Pamphlet	6 pages
Lawn Watering Guide*	TWDB	3 ½" x 5" Plastic Card	2 sides
Toilet Tank Leak Detector Tablets*	TWDB	2 Tablets	--
Municipal and Commercial Water Conservation Services	TWDB	Pamphlet with Tear-out	8 pages
Guidelines for Municipal Water Conservation and Drought Contingency Planning and Program Development	TWDB	Loose-leaf	36 pages
How to Xeriscape	NXC	Pamphlet	10 pages

TITLE	PUBLISHED BY	DESCRIPTION	LENGTH
Texas Sesquicentennial Native Plant Landscape (Located in Austin)	TDA/TWDB	Pamphlet	8 pages
Guide for Locating and Reducing Unaccounted for Water Through the Use of The Water Audit and Leak Detection	TWDB	Guidebook	30 pages
Guide for Designing Conservation Water Rate Structures	TWDB	Guidebook	30 pages
Model Water Ordinances	TWDB	Guidebook	30 pages
Texas Water Resources and Conservation	TWDB	Paper	38 pages
Efficient Use of Water in the Garden and Landscape (B-1496)	TAEX	Booklet	20 pages
Xeriscape [2]	City of Austin	Booklet	20 pages
Water Pressure Reducing Valves [2]	Watts Regulator	Booklet	21 pages
Texas Native Tree and Plant Directory, 1986 [2]	TDA	Book	161 pages
Sources of Leak Detection Equipment and Services [2]	TWDB	List	2 pages
Sources of Water Saving Devices [2]	TWDB	List	21 pages
The Cost of Conventional Water Supply Development and Treatment [2]	TWDB	Paper	9 pages

TITLE	PUBLISHED BY	DESCRIPTION	LENGTH
Potential for Utilization of Brackish Groundwater [2]	TWDB	Paper	21 pages
Guidelines for Water Reuse EPA-600/ 8-80-036 [2]	EPA	Book	105 pages
Guidelines for Municipal Water Conservation and Drought Contingency Planning and Program Development [2]	TWDB	Loose-leaf	36 pages
Water Conservation and Drought Contingency Plan Development Procedures [2]	TWDB	Loose-leaf	58 pages
Municipal Water Conservation Workshop Notebook	TWDB	Notebook	6 sections

[2] These items are available either in single copies or in the Municipal Water Conservation Notebook. However, the Board is not able to give out the Notebook, but can loan a copy for a period of two weeks.

* Order in 1000 Lots.

Abbreviations:

AWWA	American Water Works Association
EPA	Environmental Protection Agency
HPUWCD#1	High Plains Underground Water Conservation District No. 1
NXC	National Xeriscape Council, Inc.
SCS	USDA – Soil Conservation Service
TAEX	Texas Agricultural Extension Service
TDA	Texas Department of Agriculture
TWDB	Texas Water Development Board

APPENDIX B

PUBLIC INFORMATION SUGGESTIONS

This section has been reproduced, in part, from

Texas Water Development Board Bulletin, titled

"Water…Half-A-Hundred Ways to Save It".

POSSIBLE SAVINGS WITH WATER CONSERVATION

For approximately $10.00 to $15.00 the average homeowner can install two low flow showerheads, place dams or bottles in the toilet tanks, put low-flow aerators on the faucets, and repair dripping faucets and leaking toilets. This could save from 10,000 to 25,000 gallons/year for a family of four, and would pay for itself, in less than a year. Even more water could be saved if good outdoor water conservation is practiced for lawn and gardens,

CONSERVATION TIPS

A. <u>In the Bathroom:</u>

1. Take a shower instead of filling the tub and taking a bath. Showers usually use less water than tub baths.

2. Install a low-flow showerhead, which restricts the quantity of flow at 60 psi to no more than 3.0 gallons per minute.

3. Take short showers and install a cutoff valve or turn the water off while soaping and back on again only to rinse.

4. Do not use hot water when cold will do. Water and energy can be saved by washing hands with soap and cold water; hot water should only be added when hands are especially dirty.

5. Reduce the level of water being used in a bathtub by one or two inches if a shower is not available.

6. Turn water off when brushing teeth until it is time to rinse.

7. Do not let the water run when washing hands. Instead, hands should be wet and water should be turned off while soaping and scrubbing and turned on again to rinse. A cutoff valve may also be installed on the faucet.

8. Shampoo hair in the shower. Shampooing in the shower takes only a little more water than is used to shampoo hair during a bath and much less than shampooing and bathing separately.

9. Hold hot water in the basin when shaving instead of letting the faucet continue to run.

10. Test toilets for leaks. To test for a leak, a few drops of food coloring can be added to the water in the tank. The toilet should not be flushed. The customer can then watch to see if the coloring appears in the bowl within a few minutes. If it does, the fixture needs adjustment or repair.

11. Use a toilet tank displacement device. A one-gallon plastic milk bottle can be filled with stones or with water, recapped, and placed in the toilet tank. This will reduce the amount of water in the tank, but still provide enough for flushing. (Bricks, which some people use for this purpose, are not recommended, since they crumble eventually and could damage the working mechanism, necessitating a call to the plumber). Displacement devices should never be used with low-volume flush toilets.

12. Install faucet aerators to reduce water consumption.

13. Never use toilet to dispose of cleaning tissues, cigarette butts, or other trash. This can waste a great deal of water and also place an unnecessary load on the sewage treatment plant or septic tank.

14. Install a new low-volume flush toilet that uses 3.5 gallons or less per flush when building a new home or remodeling a bathroom.

B. <u>In the Kitchen</u>

1. Use a pan of water (or place a stopper in the sink) for rinsing pots and pans and cooking implements when cooking, rather than turning on the water faucet each time a rinse is needed.

2. Never run the dishwasher without a full load. In additional to saving water, expensive detergent will last longer and a significant energy saving will appear on the utility bill.

3. Use the sink disposal sparingly, and never use it for just a few scraps.

4. Keep a container of drinking water in the refrigerator. Running water from the tap until it is cool is wasteful. Better still; keeping cold water in a plastic jug on a kitchen counter to avoid opening the refrigerator door frequently can save both water and energy.

5. Use a small pan of cold water when cleaning vegetables rather than letting the faucet run.

6. Use only a little water in the pot and put a lid on it for cooking most food. Not only does this method save water, but food is more nutritious since vitamins and mineral are not poured down the drain with the extra cooking water.

7. Use a pan of water for rinsing when hand washing dishes rather than running the faucet.

8. Always keep water conservation in mind, and think of other ways to save in the kitchen. Small kitchen savings from not making too much coffee or letting ice cubes melt in a sink can add up in a year's time.

C. <u>In the Laundry</u>

1. Wash only a full load when using an automatic washing machine (32 to 59 gallons are required per load).

2. Use the lowest water level setting on the washing machine for light loads whenever possible.

3. Use cold water as often as possible to save energy and to conserve the hot water for uses which cold water cannot serve. (This is also better for clothing made of today's synthetic fabrics.)

D. For Appliances and Plumbing

1. Check water requirement of various models and brands when considering purchasing any new appliance that uses water. Some use less water than others

2. Check all water line connections and faucets for leaks. If the cost of water is $1.00 per 1,000 gallons, one could be paying a large bill for water that simply goes down the drain because of leakage. A slow drip can waste as much as 170 gallons of water EACH DAY, or 5,000 gallons per month, and can add as much as $5.00 per month to the water bill.

3. Learn to replace faucet washers so that drips can be corrected promptly. It is easy to do, costs very little, and can represent a substantial amount saved in plumbing and water bills.

4. Check for water leakage that the customer may be entirely unaware of, such as a leak between the water meter and the house. To check, all indoor and outdoor faucets should be turned off, and the water meter should be checked. If it continues to run or turn, a leak probably exists and needs to be located.

5. Insulate all hot water pipes to avoid the delays (and wasted water) experienced while waiting for the water to "run hot".

6. Be sure the hot water heater thermostat is not set too high. Extremely hot settings waste water and energy because the water often has to be cooled with cold water before it can be used.

7. Use a moisture meter to determine when houseplants need water. More plants die from over-watering than from being on the dry side.

E. Out-of-Door Use:

1. Water lawns early in the morning during the hotter summer months. Much of the water used on the lawn can simply evaporate between the sprinkler and the grass.

2. Use a sprinkler that produces large drops of water rather than a fine mist, to avoid evaporation.

3. Turn soaker hoses so the holes are on the bottom to avoid evaporation.

4. Water slowly for better absorption, and never water in high winds.

5. Forget about watering the streets, walks or driveways. They will never grow a thing.

6. Condition the soil with compost before planting grass or flowerbeds so that water will soak in, rather than run off.

7. Fertilize lawns at least twice a year for root stimulation. Grass with a good root system makes better use of less water.

8. Learn to know when grass needs watering. If it has turned a dull gray-green or if footprints remain visible, it is time to water.

9. Do not water too frequently. Too much water can overload the soil so that air cannot get to roots and can encourage plant diseases.

10. Do not over-water. Soil can absorb so much moisture and the rest simply runs off. A timer will help, and either a kitchen timer or an alarm clock will do. An inch and one-half of water applied once a week will keep most Texas grasses alive and healthy.

11. Operate automatic sprinkler systems only when the demand on the town's water supply is lowest. Set the system to operate between 4:00 a.m. and 6:00 a.m.

12. Do not scalp lawns when mowing during hot weather. Taller grass holds moisture better. Rather, grass should be cut fairly often, so that only ½ to ¾ inch is trimmed off. A better-looking lawn will result.

13. Use a watering can or hand water with the hose in small areas of the lawn that need more frequent watering (those near walks or driveways, or in especially hot, sunny spots).

14. Learn what types of grass, shrubbery, and plants do best in the area and in which parts of the lawn, and then plant accordingly. If one has a heavily shaded yard, no amount of water will make roses bloom. In especially dry sections of the state, attractive arrangements of plants that are adapted to arid or semi-arid climates should be chosen.

15. Consider decorating areas of the lawn with rocks, gravel, wood chips, or other materials now available that require no water at all.

16. Do not "sweep" walks and driveways with the hose. Use a broom or rake instead.

17. Use a bucket of soapy water and use the hose only for rinsing when washing the car.

APPENDIX C

CITY OF MINERAL WELLS
WATER RATE STRUCTURE

MONTHLY WATER RATES

The table below summarizes the monthly water rates charged by the City of Mineral Wells. All rates are subject to revision by the Mineral Wells City Council.

Minimum charge:

Tap Size	Charge
¾" or smaller	$ 14.81
1"	$ 24.26
1 ½"	$ 47.63
2"	$ 80.38
3"	$ 173.98
4"	$ 304.95
6"	$ 679.37
8"	$1,203.41

All water use each month shall be charged and billed at the following rates:

Volume charge per 1,000 gallons	***Residential***	***Irrigation***	***General Service***
0 - 5,000 gallons	$3.92	$4.35	$4.35
5,001 – 10,000 gallons	$4.35	$4.35	$4.35
10,001 – 20,000 gallons	$4.79	$4.79	$4.35
20,000 – 30,000 gallons	$5.23	$5.23	$4.35
All over 30,000 gallons	$5.65	$5.65	$4.35

MONTHLY SEWER RATES

Minimum bill……..…$ 10.14

Volume charge for every 1,000 gallons of water used…..…..……$ 5.65

Residential – maximum bill…… $ 78.00
Commercial – maximum bill……..no limit

Residential charges subject to December, January, and February averaging.