CONSERVATION PLAN

April 2009

1. INTRODUCTION AND OBJECTIVES

Water supply has always been a key issue in the development of Texas. In recent years, the growing population and economic development of North Central Texas has led to increasing demands for water supplies. At the same time, local and less expensive sources of water supply are largely developed. Additional supplies to meet higher demands will be expensive and difficult to develop. It is therefore important that NTMWD and its Member Cities and Customers make the most efficient use of existing supplies. This will delay the need for new supplies, minimize the environmental impacts associated with developing new supplies, and delay the high cost of additional water supply development.

Recognizing the need for efficient use of existing water supplies, the Texas Commission on Environmental Quality (TCEQ) has developed guidelines and requirements governing the development of water conservation and drought contingency plans for public water suppliers. The best management practices established by the Water Conservation Implementation Task Force, established pursuant to SB1094 by the 78th Legislature, were also considered in the development of the water conservation measures. The North Texas Municipal Water District (NTMWD) also developed a model water conservation plan for its Member Cities and Customers following TCEQ guidelines and requirements. Fairview's water conservation plan was developed in concert with that model and with the NTMWD's own water conservation plan.

This plan includes measures that are intended to result in ongoing, long-term water savings. The objectives of this model water conservation plan are as follows:

- To reduce water consumption from the levels that would prevail without conservation efforts;
- To reduce the loss and waste of water;
- To improve efficiency in the use of water;
- To document the level of recycling and reuse in the water supply; and
- To extend the life of current water supplies by reducing the rate of growth in demand.

2. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES

Conservation Plans

The TCEQ rules governing development of water conservation plans for public water suppliers are contained in Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2 of the Texas Administrative Code. For the purpose of these 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a water conservation plan is defined as "A strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water." The elements in the TCEQ water conservation rules covered in this conservation plan are listed below.

Minimum Conservation Plan Requirements

The minimum requirements in the Texas Administrative Code for Water Conservation Plans for Public Water Suppliers are covered in this report as follows:

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

Conservation Additional Requirements (Population over 5,000)

The Texas Administrative Code includes additional requirements for water conservation plans for drinking water supplies serving a population over 5,000:

- 288.2(a)(2)(A) – Leak Detection, Repair, and Water Loss Accounting
- 288.2(a)(2)(B) – Record Management System
- 288.2(a)(2)(C) – Requirement for Water Conservation Plans by Wholesale Customers

Additional Conservation Strategies

The TCEQ requires that a water conservation implementation report be completed and submitted on an annual basis. This report is included in Appendix I.

In addition to the TCEQ required water conservation strategies, the NTMWD also requires the following strategy:

- 288.2(a)(3)(F) – Considerations for Landscape Water Management Regulations

TCEQ rules also include optional, but not required, conservation strategies, which may be adopted by suppliers. The NTMWD recommends that the following strategies:

- 288.2(a)(3)(A) – Conservation Oriented Water Rates
- 288.2(a)(3)(B) – Ordinances, Plumbing Codes or Rules on Water-Conserving Fixtures
- 288.2(a)(3)(C) – Replacement or Retrofit of Water-Conserving Plumbing Fixtures
- 288.2(a)(3)(D) – Reuse and Recycling of Wastewater
- 288.2(a)(3)(F) – Considerations for Landscape Water Management Regulations
- 288.2(a)(3)(G) – Monitoring Method
- 288.2(a)(3)(H) – Additional Conservation Ordinance Provisions

3. WATER UTILITY PROFILE

Appendix A to this water conservation plan is a based on the format recommended by the TCEQ for a water utility profile. Prior to adopting this plan, the town will provide a draft utility profile to NTMWD for review and comment. A final water utility profile will be provided to NTMWD upon adoption of and any updates to this plan.

4. SPECIFICATION OF WATER CONSERVATION GOALS

TCEQ rules require the adoption of specific water conservation goals for a water conservation plan. The goals for this water conservation plan include the following:

- Maintain the per capita municipal water use below the specified amount in gallons per capita per day in a dry year, as shown in the completed Table 4.1.
- Maintain the level of unaccounted water in the system below twelve percent annually in 2008 and subsequent years.
- Implement and maintain a program of universal metering and meter replacement and repair.
- Increase efficient water usage through a water conservation ordinance, order or resolution. (This ordinance is required by the NTMWD.)
- Decrease waste in lawn irrigation by implementation and enforcement of landscape water management regulations.
- Raise public awareness of water conservation and encourage responsible public behavior by a public education and information program.
- Develop a system specific strategy to conserve water during peak demands, thereby reducing the peak use.

Table 4.1
Five-Year and Ten-Year Municipal Per Capita Water Use Goals (gpcd)

Description	Current Average (gpcd)	5-Year Goal (gpcd)	10-Year Goal (gpcd)
Current 5-Year Average Per Capita Municipal Use with Credit for Reuse	254	242	230
Expected Reduction due to Low-Flow Plumbing Fixtures	-	4	4
Projected Reduction Due to Elements in this Plan	-	8	8
Water Conservation Goals (with credit for reuse)	**-**	**12**	**12**

5. METERING, WATER USE RECORDS, CONTROL OF UNACCOUNTED WATER, AND LEAK DETECTION AND REPAIR

One of the key elements of water conservation is tracking water use and controlling losses through illegal diversions and leaks. It is important to carefully meter water use, detect and repair leaks in the distribution system and provide regular monitoring of unaccounted water.

5.1 Accurate Metering of Treated Water Deliveries from NTMWD

Water deliveries from NTMWD are metered by NTMWD using meters with accuracy of ±2%. These meters are calibrated on a monthly basis by NTMWD to maintain the required accuracy.

5.2 Metering of Customer and Public Uses and Meter Testing, Repair, and Replacement

The provision of water to all customers, including public and governmental users, should be metered. The town already meters all residential, retail, and wholesale water users. Beginning in January 2012, the town shall also have in place to meter all internal water uses, including parks, town facilities, special uses, firefighting and training, (where practical), line testing, etc.

The town recently completed replacement of a large percentage of its meters. Going forward, all customer meters should be replaced at least every fifteen years, and the town shall maintain all records necessary to ensure said replacements are completed in a timely manner.

5.3 Record Management System

As required by TAC Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2(a)(2)(B), the town's record management system allows for the separation of water sales and uses into residential, commercial, public/institutional, and industrial categories. This information shall be included in an annual water conservation report.

5.4 Determination and Control of Unaccounted Water

Unaccounted water is the difference between water delivered to the town from NTMWD (and other supplies, if applicable) and metered water sales to customers plus authorized but unmetered uses. (Authorized but unmetered uses include use for fire fighting, releases for flushing of lines, uses associated with new construction, etc.) Unaccounted water can include several categories:

- Inaccuracies in customer meters.
- Accounts that are being used but have not yet been added to the billing system.
- Losses due to water main breaks and leaks in the water distribution system.
- Losses due to illegal connections and theft.
- Other.

Measures to control unaccounted water shall be a part of the routine operations of the town's utility department. Maintenance crews and personnel shall look for and report evidence of leaks in the

water distribution system. Meter readers shall watch for and report signs of illegal connections, so they can be quickly addressed.

Unaccounted water should be calculated in accordance with the provisions of Appendix A. With the measures described in this plan, the town hopes to maintain unaccounted water below twelve percent. If unaccounted water exceeds this goal, the town shall consider implementing a more intensive audit to determine the source(s) of and reduce the unaccounted water. The annual conservation report is the primary tool that shall be used to monitor unaccounted water.

5.5 Leak Detection and Repair

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

5.6 Monitoring of Effectiveness and Efficiency - Annual Water Conservation Report

Appendix B shall be used in the development of an annual water conservation report by the town. This form shall be completed by March 31 of each year and used to monitor the effectiveness and efficiency of the water conservation program and to plan conservation-related activities for the next year. The form records the water use by category, per capita municipal use, and unaccounted water for the current year, and compares them to historical values. The annual water conservation report shall be sent to NTMWD, which will monitor water conservation trends.

5.7 Water Conservation Implementation Report

Appendix E includes the TCEQ-required water conservation implementation report. The report is due to the TCEQ by May 1 of each year, beginning in 2010. This report lists the various water conservation strategies that have been implemented, including the date the strategy was implemented. The report also updates the status of the five-year and ten-year per capita water use goals from the previous water conservation plan.

6. CONTINUING PUBLIC EDUCATION AND INFORMATION CAMPAIGN

The town's continuing public education and information campaign on water conservation includes the following elements:

- Utilize the "Water IQ: Know Your Water" and other public education materials produced by the NTMWD.
- Insert water conservation information with water bills. Inserts will include material developed by town staff and material obtained from the TWDB, the TCEQ, and other sources.
- Encourage local media coverage of water conservation issues and the importance of water conservation.
- Notify local organizations, schools, and civic groups that town staff and staff of the NTMWD are available to make presentations on the importance of water conservation and ways to save water.
- Promote the *Texas Smartscape* web site (www.txsmartscape.com) and provide water conservation brochures and other water conservation materials available to the public at town hall and other public places.
- Make information on water conservation available on the town website and include links to the "Water IQ: Know Your Water" website, *Texas Smartscape* website, and to information on water conservation on the TWDB and TCEQ web sites and other resources.

7. WATER RATE STRUCTURE

The town utilizes, an increasing block rate water structure intended to encourage water conservation and discourage excessive use and waste of water.

Current rates are as follows:

Residential

First 2,000 gallons	$11.00
2,001-10,000 gallons	$2.40 per 1,000 gallons
10,001-20,000 gallons	$2.80 per 1,000 gallons
20,001-30,000 gallons	$3.05 per 1,000 gallons
30,001-40,000 gallons	$3.80 per 1,000 gallons
40,001 and up gallons	$6.00 per 1,000 gallons

Commercial/Industrial

First 1,000 gallons	$13.20
1,001-30,000 gallons	$3.00 per 1,000 gallons
30,001 and up gallons	$3.80 per 1,000 gallons

In addition, the town charges a surcharge of $2.20 per 1,000 gallons for all water usage in excess of 40,000 gallons in a single month.

8. OTHER WATER CONSERVATION MEASURES

8.1 NTMWD System Operation Plan

The town purchases treated water from NTMWD and does not have surface water supplies for which to implement a system operation plan. NTMWD's permits do allow some coordinated operation of its water supply sources, and NTMWD is seeking additional water rights for coordinated operation to optimize its available water supplies.

8.2 Reuse and Recycling of Wastewater

The town neither owns nor operates a wastewater treatment plant. Wastewater is treated by NTMWD, which has the largest wastewater reuse program in the state. NTMWD has water rights allowing reuse of up to 71,882 acre-feet per year of this treated wastewater through Lake Lavon for municipal purposes. In addition, NTMWD has also developed the East Fork Raw Water Supply Project which can divert up to 157,393 acre-feet per year based on treated wastewater discharges by the NTMWD. When fully developed, these two reuse projects will provide up to 44 percent of the NTMWD's currently permitted water supplies. NTMWD also provides treated effluent from its wastewater treatment plants available for direct reuse for landscape irrigation and industrial use.

8.3 Ordinances, Plumbing Codes, or Rules on Water-Conserving Fixtures

The state has required water-conserving fixtures in new construction and renovations since 1992. The state standards call for flows of no more than 2.5 gallons per minute (gpm) for faucets, 3.0 gpm for showerheads, and 1.6 gallons per flush for toilets. Similar standards are now required nationally under federal law. These state and federal standards assure that all new construction and renovations will use water-conserving fixtures.

8.4 Landscape Water Management Measures

The following landscape water management measures are required by the NTMWD. These minimal measures are hereby adopted as part of the town's plan in order to appropriately irrigate landscaping.

- Time of day restrictions prohibiting lawn irrigation watering from 9:00 a.m. to 7:00 p.m. from April 1 to October 31 of each year.
- Prohibition of watering of impervious surfaces.
- Prohibition of outdoor watering during precipitation or freeze events.
- Lawn and landscape irrigation limited to twice per week.
- Prohibiting the use of treated water to fill or refill residential, amenity, and any other natural or manmade ponds. A pond is considered to be a still body of water with a surface area of 500 square feet or more.
- Rain and freeze sensors and/or ET or Smart controllers required on all new irrigation systems. Rain and freeze sensors and/or ET or Smart controllers must be maintained to function properly.

- Home car washing can be done only when using a water hose with a shut-off nozzle.
- Prohibition of watering areas that have been over-seeded with cool season grasses (such as rye grass or other similar grasses), except for golf courses and public athletic fields.

8.5 Additional Water Conservation Measures

The following water conservation measures shall also be used by the town to encourage water conservation:

- Use of xeriscaping in all municipal landscape projects.
- Rebates for use of rain barrels.
- Rebates for the installation of pressure reducing valves for irrigation systems.
- Rebates for retrofitting irrigation systems with rain and freeze sensors and/or ET or Smart controllers capable of multiple programming.
- Require all new irrigation systems to be in compliance with state design and installation regulations (TAC Title 30, Part 1, Chapter 344).
- Native, drought tolerant, or adaptive plants shall be encouraged.
- Drip irrigation systems shall be promoted.
- Evapotranspiration (ET) / Smart controllers that only allow sprinkler systems to irrigate when necessary shall be promoted.
- Rebates for water efficient clothes washers.
- Other water conservation incentive programs.

8.6 Requirement for Water Conservation Plans by Wholesale Customers

Every contract for the wholesale sale of water by Member Cities and/or Customers that is entered into, renewed, or extended after the adoption of this water conservation plan will include a requirement that the wholesale customer and any wholesale customers of that wholesale customer develop and implement a water conservation plan meeting the requirements of Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2 of the Texas Administrative Code. The requirement will also extend to each successive wholesale customer in the resale of the water.

9. MEANS OF IMPLEMENTATION AND ENFORCEMENT

Town shall enact all ordinances necessary to enforce and execute this plan. The town manager, public works manager, town engineer, and their designees shall be authorized to take all measures necessary to ensure compliance.

10. REVIEW AND UPDATE OF WATER CONSERVATION PLAN

Following adoption, this water conservation plan shall be updated every five years as required by TCEQ or as appropriate based on new and/or updated information.