City of Terrell

Water Conservation Plan

Prepared for:

The City of Terrell

4/2/2019

Prepared by:

FREESE AND NICHOLS, INC.
4055 International Plaza, Suite 200
Fort Worth, Texas 76109
817-735-7300

FOREWARD

This Water Conservation Plan was prepared for the City of Terrell by Freese and Nichols, Inc., pursuant to Texas Commission on Environmental Quality rules. For the purposes of regional coordination, the Model Water Conservation Plan for the North Texas Municipal Water District (NTMWD) was consulted.

Questions regarding this water conservation plan should be addressed to the following:

Jeremy Rice
Freese and Nichols, Inc.
(817) 735-7300
jjr@freese.com

Mike Mikeska
City of Terrell
(972) 551-6600
mmikeska@cityofterrell.org

This Water Conservation Plan is based on the Texas Administrative Code in effect on January 31, 2019 and considers water conservation best management practices from Texas Water Development Board (TWDB) Report 362, *Water Conservation Best Management Practices Guide*. In 2007, the state legislature created the Water Conservation Advisory Council (WCAC) as a council with expertise in water conservation with one of their charges to regularly review existing Best Management Practices (BMPs) and add additional new BMPs as appropriate. The draft WCAC BMPs available as of January 31, 2019 have also been considered in the preparation of this plan.

None of the currently proposed BMPs will cause this plan to be obsolete. To fill out the TCEQ Water Conservation Implementation Report (Appendix E) each year, the current form should be obtained from TCEQ.[1] A copy of the annual report should be sent to the Texas Water Development Board as well as to the TCEQ.

[1] Superscripted numbers match references listed in Appendix A

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION AND OBJECTIVES

Water supply has always been a key issue in the development of Texas. In recent years, the increasing population and economic development of North Central Texas have led to growing demands for water supplies. At the same time, local and less expensive sources of water supply are largely already developed. Additional supplies to meet future demands will be expensive and difficult to secure. Severe drought conditions in recent years have highlighted the importance of efficient use of our existing supplies to make them last as long as possible. Extending current supplies 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[2]. The TCEQ guidelines and requirements are included in Appendix B. The City of Terrell has developed this Water Conservation Plan in accordance with TCEQ guidelines and requirements. To develop a regional approach, the Model Water Conservation Plan for the North Texas Municipal Water District (NTMWD), of whom the City of Terrell is a customer, was consulted. This Water Conservation Plan replaces Ordinance 2599 dated April 15, 2014.

The City of Terrell also recognizes that in order to achieve its goals of maximizing water conservation and efficiency, it is necessary to develop and implement a water conservation plan that goes beyond basic compliance with TCEQ guidelines and requirements. This plan reflects the City of Terrell's commitment to enhanced water conservation and efficiency strategies – particularly those best management practices established by the Water Conservation Implementation Task Force[3] and the Water Conservation Advisory Council (WCAC), which were incorporated, where appropriate, in the development of these water conservation measures. The Water Conservation Implementation Task Force developed the Texas Water Development Board Report 362 Water Conservation Best Management Practices Guide in partial fulfillment of the Texas Legislature's charge to the TCEQ and Texas Water Development Board (TWDB) to develop recommendations for optimum levels of water use efficiency and conservation in the State. The WCAC has furthered the efforts of the Task Force by updating existing BMPs and creating new BMPs as new technologies and programs arise.

The objectives of this 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.
- Encourage efficient outdoor water use.
- To maximize the level of recycling and reuse in the water supply.
- To extend the life of current water supplies by reducing the rate of growth in demand.

2. DEFINITIONS

1. ATHLETIC FIELD means a public sports competition field, the essential feature of which is turf grass, used primarily for organized sports practice, competition or exhibition events for schools; professional sports and league play sanctioned by the utility providing retail water supply.

2. COOL SEASON GRASSES are varieties of turf grass that grow best in cool climates primarily in northern and central regions of the U.S. Cool season grasses include perennial and annual rye grass, Kentucky blue grass and fescues.

3. CUSTOMER means any person, corporation, or organization using water supplied by the City of Terrell.

4. DRIP IRRIGATION is a type of micro-irrigation system that operates at low pressure and delivers water in slow, small drips to individual plants or groups of plants through a network of plastic conduits and emitters; also called trickle irrigation.

5. EVAPOTRANSPIRATION (ET) represents the amount of water lost from plant material to evaporation and transpiration. The amount of ET can be estimated based on the temperature, wind, and relative humidity.

6. ET/SMART CONTROLLERS are irrigation controllers that adjust their schedule and run times based on weather (ET) data. These controllers are designed to replace the amount of water lost to evapotranspiration.

7. IRRIGATION SYSTEM means a permanently installed, custom-made, site-specific system of delivering water generally for landscape irrigation via a system of pipes or other conduits installed below ground.

8. LANDSCAPE means any plant material on a property, including any tree, shrub, vine, herb, flower, succulent, ground cover, grass or turf species, that is growing or has been planted out of doors.

9. MULTI-FAMILY PROPERTY means a property containing five or more dwelling units.

10. MUNICIPAL USE means the use of potable water provided by a public water supplier as well as the use of treated sewage effluent for residential, commercial, industrial, agricultural, institutional, and wholesale uses.

11. RECLAIMED WATER means reclaimed municipal wastewater that has been treated to a quality that meets or exceeds the minimum standards of the 30 Texas Administrative Code, Chapter 210 and is used for lawn irrigation, industry, or other non-potable purposes

12. REGULATED IRRIGATION PROPERTY means any property that uses 1 million gallons of water or more for irrigation purposes in a single calendar year or is greater than 1 acre in size.

13. RESIDENTIAL GALLONS PER CAPITA PER DAY (Residential GPCD) is the total gallons sold for residential use by a public water supplier divided by the residential population served and then divided by the number of days in the year.

14. TOTAL GALLONS PER CAPITA PER DAY (Total GPCD) is the total amount of water diverted and/or pumped for potable use divided by the total permanent population divided by the number of days in the year. Diversion volumes of reuse as defined in TAC Chapter 288.1 shall be credited against total diversion volumes for the purposes of calculating GPCD for targets and goals.

15. WATER CONSERVATION PLAN means this water conservation plan approved and adopted by the City Council of Terrell on April 2, 2019.

Abbreviations

Abbreviation	Full Nomenclature
BMP	Best Management Practices
NTMWD	North Texas Municipal Water District
SUD	Special Utility District
TCEQ	Texas Commission on Environmental Quality
TWDB	Texas Water Development Board
WCAC	Water Conservation Advisory Council
WCP	Water Conservation Plan
WSC	Water Supply Corporation

3. REGULATORY BASIS FOR WATER CONSERVATION PLAN

3.1 TCEQ RULES GOVERNING 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, which is included in Appendix B. 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 – Section 4 and Appendix C
- 288.2(a)(1)(B) – Record Management System – Section 6.1.2
- 288.2(a)(1)(C) – Specific, Quantified Goals – Section 5
- 288.2(a)(1)(D) – Accurate Metering – Section 6.1
- 288.2(a)(1)(E) – Universal Metering – Section 6.1
- 288.2(a)(1)(F) – Determination and Control of Water Loss – Section 6.1
- 288.2(a)(1)(G) – Public Education and Information Program – Section 6.2
- 288.2(a)(1)(H) – Non-Promotional Water Rate Structure – Section 6.3
- 288.2(a)(1)(I) – Reservoir System Operation Plan – Section 6.5
- 288.2(a)(1)(J) – Means of Implementation and Enforcement – Section 6.6
- 288.2(a)(1)(K) – Coordination with Regional Water Planning Group – Section 6.7 and Appendix F
- 288.2(c) – Review and Update of Plan – Section 8

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 – Section 6.1.3
- 288.2(a)(2)(B) – Requirement for Water Conservation Plans by Wholesale Customers – Section 6.4

Additional Conservation Strategies

The Texas Administrative Code lists additional conservation strategies, which may be adopted by suppliers but are not required. Additional strategies adopted by the City of Terrell include the following:

- 288.2(a)(3)(A) – Conservation Oriented Water Rates – Section 6.3
- 288.2(a)(3)(B) – Ordinances, Plumbing Codes or Rules on Water-Conserving Fixtures – Section 7.3
- 288.2(a)(3)(D) – Reuse and Recycling of Wastewater – Section 7.1
- 288.2(a)(3)(F) – Considerations for Landscape Water Management Regulations – Section 7.4 and Appendix I

In addition to being a public water supplier under TCEQ rules, the City of Terrell also acts as a wholesale provider, and the TCEQ water conservation rules for wholesale providers are also addressed in this plan. The City of Terrell is a wholesale water supplier to College Mound Special Utility District (SUD), Elmo Water Supply Corporation (WSC), High Point WSC, Lawrence WSC, North Kaufman WSC, and Poetry WSC. The TCEQ rules governing development of water conservation plans for wholesale water suppliers are contained in Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.5 of the Texas Administrative Code, which is included in Appendix B. The elements in the TCEQ water conservation rules for wholesale water suppliers addressed in this Water Conservation Plan are listed below.

Minimum Conservation Plan Requirements for Wholesale Water Suppliers

The minimum requirements in the Texas Administrative Code for water conservation plans for wholesale water suppliers are covered in this Plan as follows:

- 288.5(1)(A) – Description of Service Area – Section 4 and Appendix C
- 288.5(1)BC) – Specific, Quantified Goals – Section 5
- 288.5(1)(C) – Measure and Account for Water Diverted – Section 6.1.1
- 288.5(1)(D) – Monitoring and Record Management System – Section 6.1.2
- 288.5(1)(E) – Program of Metering and Leak Detection and Repair – Section 6.1.3
- 288.5(1)(F) – Requirement for Water Conservation Plans by Wholesale Customers – Section 6.4
- 288.5(1)(G) – Reservoir System Operation Plan – Section 6.5
- 288.5(1)(H) – Means of Implementation and Enforcement – Section 6.6
- 288.5(1)(I) – Documentation of Coordination with Regional Water Planning Group – Section 6.7
- 288.5(3) – Review and Update of Plan – Section 8

Additional Conservation Strategies for Wholesale Water Suppliers

The Texas Administrative Code lists additional water conservation strategies that can be adopted by a wholesale supplier but are not required. Additional strategies adopted by the City of Terrell include the following:

- 288.5(2)(C) – Program for Reuse and/or Recycling – Section 7.1
- 288.5(2)(D) – Other Measures
  - Section 6.2 (public education), and
  - Sections 7.4 (landscape water management measures).

3.2 GUIDANCE AND METHODOLOGY FOR REPORTING ON WATER CONSERVATION AND WATER USE

In addition to TCEQ rules regarding water conservation, this plan also incorporates elements of the Guidance and Methodology for Reporting on Water Conservation and Water Use developed by TWDB and TCEQ, in consultation with the Water Conservation Advisory Council (the "Guidance").[6] The Guidance was developed in response to a charge by the 82nd Texas Legislature to develop water use and calculation methodology and guidance for preparation of water use reports and water conservation plans in accordance with TCEQ rules. The City of Terrell has considered elements of the Guidance in preparation of this Plan.

4. WATER UTILITY PROFILE AND DESCRIPTION OF THE CITY OF TERRELL SERVICE AREA

The City of Terrell is an incorporated municipality with city limits encompassing approximately 20 square miles. The City provides direct (retail) water and sewer service to its residents and wholesale water service to six area rural water supply corporations and special utility districts. **Figure 4-1** shows Terrell's retail service area.

Terrell's wholesale customers include College Mound SUD, Elmo WSC, High Point WSC, Lawrence WSC, North Kaufman WSC, and Poetry WSC. Terrell is the sole source of supply for Elmo WSC, Lawrence WSC, and Poetry WSC. **Figure 4-2** shows Terrell's wholesale customers and corresponding service areas. With the exception of the Poetry WSC system, all service provided by the City is within Kaufman County, one of the 16 counties that make up the Region C Water Planning Area. Poetry WSC is located in Kaufman, Rockwall and Hunt counties, and is located in the Region C and Region D Water Planning Areas.

Appendix C contains Terrell's most recent water utility profile presented in the format recommended by TCEQ.

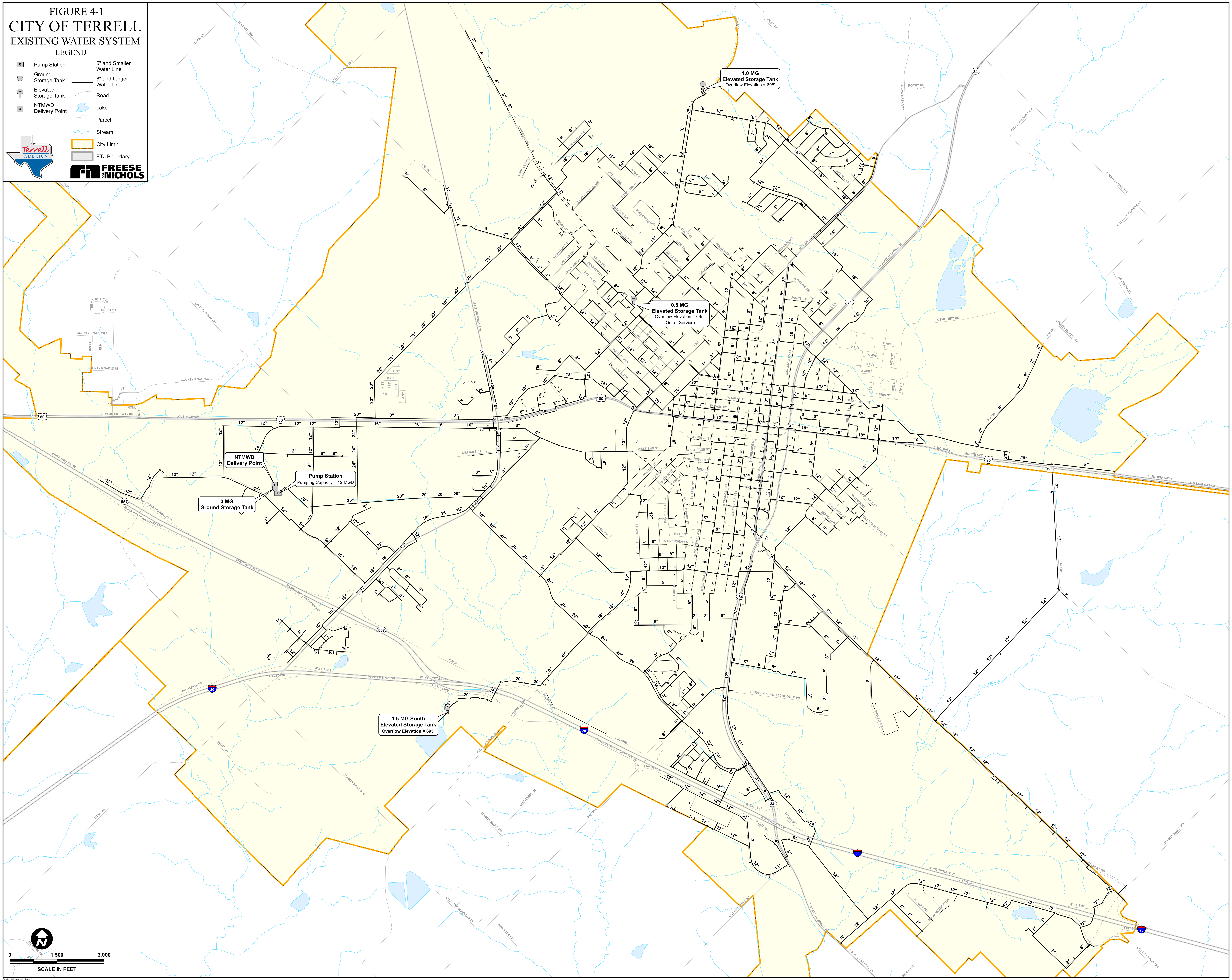


FIGURE 4-1
CITY OF TERRELL
EXISTING WATER SYSTEM
LEGEND
Pump Station
Ground Storage Tank
Elevated Storage Tank
NTMWD Delivery Point
6" and Smaller Water Line
8" and Larger Water Line
Road
Lake
Parcel
Stream
City Limit
ETJ Boundary
1.0 MG Elevated Storage Tank
Overflow Elevation = 695'
0.5 MG Elevated Storage Tank
Overflow Elevation = 695'
(Out of Service)
NTMWD Delivery Point
Pump Station
Pumping Capacity = 12 MGD
3 MG Ground Storage Tank
1.5 MG South Elevated Storage Tank
Overflow Elevation = 695'
0
1,500
3,000
SCALE IN FEET

Created By Freese and Nichols, Inc.
Job No.: TER18574
Location: H:\WR_PLANNING\Final_Exhibits\(Fig.4_1).Existing_Retail_Water_Service_Area.mxd
Updated: Monday, April 22, 2019 10:11:13 AM
User Name: JJR

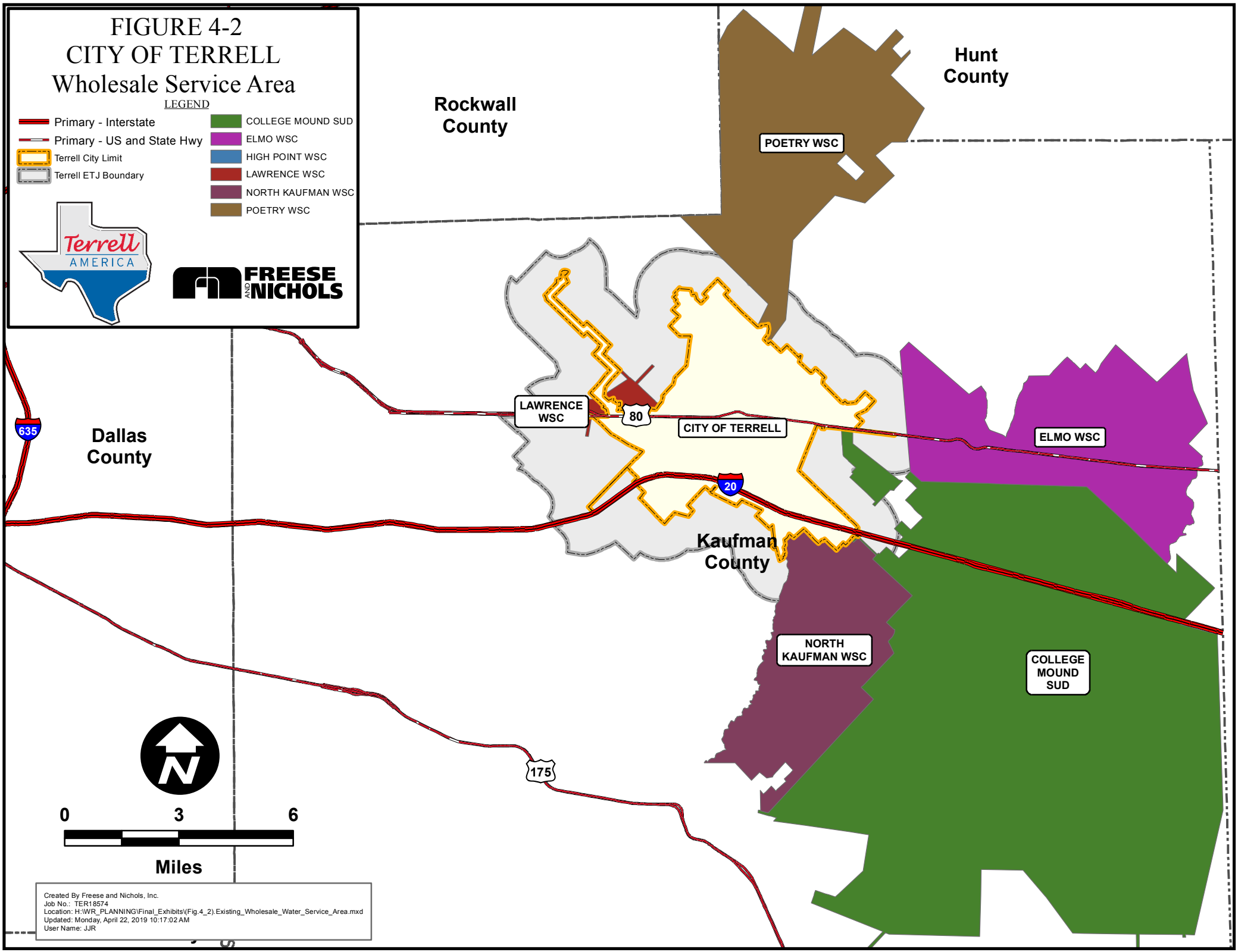


FIGURE 4-2
CITY OF TERRELL
Wholesale Service Area
LEGEND
Primary - Interstate
Primary - US and State Hwy
Terrell City Limit
Terrell ETJ Boundary
COLLEGE MOUND SUD
ELMO WSC
HIGH POINT WSC
LAWRENCE WSC
NORTH KAUFMAN WSC
POETRY WSC
Terrell AMERICA
FREESE AND NICHOLS
Rockwall County
Hunt County
Dallas County
Kaufman County
POETRY WSC
LAWRENCE WSC
CITY OF TERRELL
ELMO WSC
NORTH KAUFMAN WSC
COLLEGE MOUND SUD
635
80
20
175
N
0
3
6
Miles
Created By Freese and Nichols, Inc.
Job No.: TER18574
Location: H:\WR_PLANNING\Final_Exhibits\(Fig.4_2).Existing_Wholesale_Water_Service_Area.mxd
Updated: Monday, April 22, 2019 10:17:02 AM
User Name: JJR

5. SPECIFICATION OF WATER CONSERVATION GOALS

TCEQ rules require the adoption of specific water conservation goals for a water conservation plan. Terrell has developed 5-year and 10-year goals for municipal per capita use with credit for reuse. These goals were submitted to NTMWD for review. The goals for this water conservation plan include the following:

- Maintain the 5-year average total and residential per capita water use below the specified amount in gallons per capita per day, as shown in the completed **Table 5-1**. A 10-year average was used for setting these goals since the NTMWD and City of Terrell were in watering restrictions from 2011 through 2015 and 2015 through 2017 was wetter than normal for the region.
- Maintain the level of water loss percentage in the system below 12 percent annually in 2019 and subsequent years, as discussed in Section 6.1.2.
- Increase efficient water usage and decrease waste in lawn irrigation by enforcement of landscape water management regulations through an adopted ordinance included as Appendix I.
- Raise public awareness of water conservation and encourage responsible public behavior by a public education and information program, as discussed in Section 6.2.
- Develop a system specific strategy to conserve water during peak demands, thereby reducing the peak use.

Table 5-1 Five-Year and Ten-Year Total GPCD Goals

Description	Current Average	5-Year Goal	10-Year Goal
Total Per Capita Use (GPCD)[a]	151	144	141
Residential Per Capita Use (GPCD)[b]	69	62	60
Water Loss (GPCD)[c]	17	17	17
Water Loss (Percentage)[d]	10.7%	12%	12%

a. Total GPCD = (Total Gallons Purchased from NTMWD – Wholesale Sales ÷ Permanent Population) ÷ 365
b. Residential GPCD = (Gallons Used for Residential Use ÷ Residential Population) ÷ 365
c. Water Loss GPCD = (Total Water Loss ÷ Permanent Population) ÷ 365
d. Water Loss Percentage = (Total Water Loss ÷ Total Gallons in System) x 100; or (Water Loss GPCD ÷ Total GPCD) x 100

These goals are for a 5-year average, and therefore some years (dry years) will see higher per capita usage than these average goals. A series of dry years might lead to an average exceeding the goal.

6. BASIC WATER CONSERVATION STRATEGIES

6.1 METERING, WATER USE RECORDS, CONTROL OF WATER LOSS AND, LEAK DETECTION AND REPAIR

One of the key elements in water conservation is careful tracking of water use and control of losses. Accurate metering of water deliveries, detection and repair of leaks in the raw water delivery and potable water distribution systems and regular monitoring of water loss are important elements of the City of Terrell's program to control losses.

6.1.1 Practices to Measure and Account for the Amount of Water Delivered from NTMWD

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

6.1.2 Monitoring and Record Management Program for Determining Deliveries, Sales, and Losses

The City meters all of the connections to the distribution system. Meters range in size from 3/4" to 8". All meters met AWWA accuracy standards when installed. In 2017 there were a total of 5,610 metered connections in the city, including all customer classes.

The City maintains a program whereby smaller meters are replaced every ten years. Large meters are field tested for accuracy on a regular basis. Wholesale (rural water supply) meters are tested for proper calibration annually.

As required by TAC Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2(a)(2)(B), a record management system should allow for the separation of water sales and uses into residential, commercial, public/institutional, and industrial categories. This information is included in an annual water conservation report submitted to NTMWD, as described in Section 7.2 below. The City of Terrell's billing system allows for tracking water use according to these categories and this data is submitted to NTMWD and TWDB on an annual basis.

To track its progress in reducing water losses, the City performs a monthly water audit, comparing the amount of water purchased from NTMWD with that distributed through metered sales. A report is prepared outlining the monthly variance in percentage of water loss. The City also performs an annual audit comparing the same data on a calendar year basis.

Table 6-1 shows Terrell's annual water loss percent from 2013-2017. This Plan considers the average from 2013-2017 to be representative of current water loss conditions in Terrell. The average water loss percent during 2009-13 is approximately 10.7%, which is within the recommended percent (12 percent) for NTMWD customers.

Table 6-1 Terrell Percent Water Loss

Year	%
2013	8.80%
2014	13.51%
2015	11.56%
2016	7.01%
2017	12.70%

6.1.3 Leak Detection and Repair

The City operates two divisions that are responsible for leak detection and repair. The Utility Office is responsible for meter reading, meter replacement, and repair of meter leaks on 1.5" and smaller service connections. The Distribution Division repairs all leaks on the larger pipelines and meters in the system.

The system is under constant, routine scrutiny by all city divisions, customers, Police Department and meter readers. Leak identification and repair are the top priority for the Distribution Division.

To further reduce water losses, a main and service replacement program eliminates old and deteriorated piping from the system.

6.2 PUBLIC EDUCATION PROGRAM

The 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.
- Utilize the "Water4Otter" campaign for students.
- Insert water conservation information with water bills. Inserts will include material developed by Terrell or NTMWD 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 Terrell 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 City Hall and other public places.
- Make information on water conservation available on Terrell's website and include links to the "Water IQ: Know Your Water" website, Texas Smartscape website and information on water conservation on the TWDB and TCEQ web sites and other resources.
- NTMWD has installed weather stations throughout its service area that will provide consumers with a weekly e-mail on the amount of landscape irrigation to replace ET based on their location. This "Water My Yard" program information is available through Terrell's website. Terrell will encourage customers to subscribe to weekly watering updates through Water My Yard in an effort to reduce outdoor water consumption.
- NTMWD has prepared and presented programs to area cities, civic organizations and other groups concerning the need for water conservation and strategies that can be implemented on an individual and corporate level. Presentations have been made to Rotary Clubs, Lions Clubs, Chambers of Commerce, Leadership Training Classes, Boy Scouts, Girl Scouts, mayors, city councils, city staff, etc.

6.3 WATER RATE STRUCTURE

Terrell has an increasing block water rate structure that promotes water conservation for residential, commercial, and industrial customers. The rates are established following a cost of service study by an outside rate consultant. Rates are set to generate the revenues needed to operate and maintain the system and to meet debt service requirements. Terrell utilizes a rate structure that includes a base rate for water service and five tiers of increasing prices for increased water usage for residential customers. All other retail customers classes have a base rate for water service and four tiers of increasing prices for increased water usage.

6.4 REQUIREMENT FOR WATER CONSERVATION PLANS BY WHOLESALE CUSTOMERS

Every contract for the wholesale sale of water 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. Each customer shall submit its water conservation plan or water conservation measures to the City of Terrell for review. Each customer shall also submit any changes or amendments to its water conservation plan or water conservation measures to the City of Terrell for review.

6.5 NTMWD SYSTEM OPERATION PLAN

Terrell is a customer of North Texas Municipal Water District (NTMWD). As such, Terrell purchases treated water from NTMWD and does not have its own surface water supplies with which to implement a system operation plan. The City of Terrell owns New Terrell Lake and has a water right to use 6,000 acre-feet per year from the lake. While Terrell has secured this raw water supply, the City does not currently use this source of supply.

NTMWD has developed and implemented a system operation plan to optimize its available water supplies. The operation of the reservoir system is intended to optimize the use of the NTMWD's sources (within the constraints of existing water rights) while minimizing energy use cost for pumping, maintaining water quality, and minimizing potential impacts on recreational users of the reservoirs and fish and wildlife.

6.6 WATER CONSERVATION IMPLEMENTATION AND ENFORCEMENT

Appendix E includes the TCEQ-required water conservation implementation report. The report is due to the TCEQ by May 1 of every year The report also calls for the five-year and ten-year per capita water use goals from the previous Water Conservation Plan. The reporting entity must answer whether or not these goals have been met and if not, why not.

6.7 COORDINATION WITH REGIONAL WATER PLANNING GROUPS

Appendix F includes a letter sent to the Chairs of the Region C and Region D Water Planning Groups with this Water Conservation Plan. The adopted ordinances and the adopted water utility profile were also sent to the Chairs of the Region C and Region D Water Planning Groups.

7. ENHANCED WATER CONSERVATION STRATEGIES

The City of Terrell has implemented a number of enhanced water conservation measures which are outlined below.

7.1 REUSE AND RECYCLING OF WASTEWATER

Terrell owns and operates its wastewater treatment plant. Terrell is interested in developing a reuse supply for irrigation and industrial purposes in the future.

Since Terrell is solely supplied by NTMWD, the City is an indirect recipient of NTMWD's reuse activities. NTMWD has water rights allowing reuse of up to 71,882 acre-feet per year of treated wastewater discharges from the Wilson Creek Wastewater Treatment Plant for municipal purposes. In addition, NTMWD has also developed the East Fork Reuse Project which can divert up to 157,393 acre-feet per year based on treated wastewater discharges by NTMWD. With the addition of the Main Stem Pump Station the District will be able to increase flows through the East Fork Reuse Project up to an additional 56,100 acre-feet per year. When fully developed, these three reuse projects will provide up to 42 percent of the NTMWD's currently permitted water supplies.

7.2 ANNUAL REPORTS

The City of Terrell will complete annual conservation reports by March 31 of the following year and submit them to NTMWD. A copy of the annual report is included herewith as Appendix D. The form records the water use by category, per capita use, and water loss for the current year and compares them to historical values. The annual water conservation report will be sent to NTMWD, which will track the effectiveness of its water conservation programs over time and reevaluate those programs that are not providing water savings, ensuring maximum water use efficiency and greater levels of conservation.

7.3 ORDINANCES, PUMBING CODES, OR RULES ON WATER-CONSERVING FIXTURES

The City operates under the International Plumbing Code. This code has been formally adopted by the City Council and is included in the Code of Ordinances. The City routinely inspects new construction, remodeling, add-ons, etc., through building permits to ensure installation of fixtures adheres to current codes.

The state standards call for flows of no more than 2.5 gallons per minute (gpm) for faucets, 2.5 gpm for showerheads, and 1.28 gallons per flush for toilets and 0.5 gallons per flush for urinals. 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.

7.4 LANDSCAPE AND WATER MANGAGEMENT MEASURES

Terrell has developed landscape water management measures. Appendix I is a summary of considerations for landscape water management regulations adopted as part of the previous Water Conservation Plan. These regulations are intended to minimize waste in landscape irrigation. The following measures will be implemented and enforced in order to irrigate the landscape appropriately.

1. **Landscape Water Management Measures**

- Time of day restrictions prohibiting lawn irrigation watering from 10 AM to 6 PM year round.
- Prohibition the use of irrigation systems that water impervious surfaces. (Wind driven water drift will be taken into consideration.)
- Prohibit outdoor watering during precipitation or freeze events.
- Prohibition of use of poorly maintained sprinkler systems that waste water.
- Prohibit excess water runoff or other obvious waste. Require rain and freeze sensors and/or ET or Smart controllers on all new irrigation systems. Rain and freeze sensors and/or ET or Smart controllers must be maintained to function properly.
- Requirement that all new athletic fields be irrigated by a dedicated irrigation system separate from other open spaces.

2. **Additional Water Management Measures**

- Prohibit 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, filled with non-potable water and not a swimming pool.
- Non-commercial car washing can be done only using a water hose with a shut-off nozzle.

7.5 VOLUNTARY WATER MANAGEMENT MEASURES

1. **Landscape Water Management Regulations**

- Limit landscape watering with sprinklers or irrigation systems at each service address to no more than twice per week year round, with education that less than twice per week is usually adequate.

An exception is allowed for hand watering with shutoff nozzle, drip lines, and soaker hoses provided no runoff occurs.

- Discourage overseeding, sodding, sprigging, broadcasting or plugging with cool season grasses or watering cool season grasses, except for golf courses and competition athletic fields.
- Encourage that irrigation systems be inspected at the same time as the initial backflow preventer inspection.
- Encourage that all new irrigation systems be in compliance with state design and installation regulations (TAC Title 30, Part 1, Chapter 344).
- Encourage the owner of a regulated irrigation property to obtain an evaluation of any permanently installed irrigation system on a periodic basis. The irrigation evaluation shall be conducted by a licensed irrigator in the state of Texas and be submitted to the City.
- Native, drought tolerant or adaptive plants should be encouraged.
- Drip irrigation systems should be promoted.
- Evapotranspiration (ET) / Smart controllers that only allow sprinkler systems to irrigate when necessary should be promoted.

2. Additional Water Management Measures

- Hotels and motels are encouraged to offer a linen reuse water conservation option to customers.
- Restaurants, bars, and other commercial food or beverage establishments should consider not providing drinking water to customers unless a specific request is made by the customer for drinking water.
- Encourage commercial clothes washer to purchase and install high efficiency card- or coin - operated commercial clothes washers;

3. Industrial, Commercial, and Institutional Customers

In order to target programs towards this customer base, the NTMWD hired Alan Plummer Associates to conduct the "North Texas Municipal Water District Industrial, Commercial, and Institutional Water Use Efficiency Study." The primary scope items in the study are as follows:

- Develop ICI Customer Database
- Calculate per Capita Consumptions
- Identify, Define and Categorize

- Establish Base Use Estimates
- Identify Trends
- Select sectors for detailed analysis
- Benchmarking
- Identify Potential for Reduction
- Estimate Potential Demand Reduction by Strategy
- Program Development

The kick-off meeting was held on September 10, 2018 and was attended by City of Terrell staff. It is not anticipated that any recommended programs will be identified prior to the publication of this plan. Once the results are published, the District will develop, in cooperation with the District's Member Cities and Customers and in collaboration with ICI water users within the District's service area, a program to reduce the per unit or per capita ICI water use within the District. The City of Terrell will consider if any items in the program are appropriate.

8. ADOPTION OF WATER CONSERVATION PLAN; PERIODIC REVIEW AND UPDATE OF PLAN

Opportunity for public comment on the plan was provided at a Terrell City Council workshop on March 19, 2019. Appendix G contains a copy of the minutes of the April 2, 2019 City Council meeting at which this Water Conservation Plan was adopted. The ordinance designates responsible officials to implement and enforce the Water Conservation Plan. Appendix I, the considerations for landscape water management regulations, also includes information about enforcement. Appendix H includes an ordinance related to illegal connections and water theft.

TCEQ requires that water conservation plans be reviewed and, if necessary, updated every five years to coincide with the regional water planning process. This Water Conservation Plan will be updated as required by TCEQ, and in addition, will be continually reassessed for opportunities to improve water efficiency and conservation based on new or updated information.

Appendix A

List of References

Appendix A

List of References

1. Texas Commission on Environmental Quality Annual Report. https://www.tceq.texas.gov/assets/public/permitting/forms/20645.pdf

2. Title 30 of the Texas Administrative Code, Part 1, Chapter 288, Subchapter A, Rules 288.1 and 288.5, and Subchapter B, Rule 288.22, downloaded from http://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=288, January 2019.

3. Water Conservation Implementation Task Force: "Texas Water Development Board Report 362, Water Conservation Best Management Practices Guide," prepared for the Texas Water Development Board, Austin, November 2004.

4. Freese and Nichols, Inc.: Model Water Conservation Plan for NTMWD Members Cities and Customers, prepared for the North Texas Municipal Water District, Fort Worth, January 2019.

5. Freese and Nichols, Inc.: Model Drought Contingency and Water Emergency Response Plan for NTMWD Members Cities and Customers, prepared for the North Texas Municipal Water District, Fort Worth, January 2019.

6. Texas Water Development Board, Texas Commission on Environmental Quality, Water Conservation Advisory Council. "Guidance and Methodology for Water Conservation Reporting."

7. Freese and Nichols Inc. "2016 Region C Regional Water Plan"

Appendix B

Texas Commission of Environmental Quality Rules

Appendix B

Texas Commission of Environmental Quality Rules On Municipal Water Conservation and Drought Contingency Plans

TITLE 30 ENVIRONMENTAL QUALITY

PART 1 TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

CHAPTER 288 WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS

SUBCHAPTER A WATER CONSERVATION PLANS

RULE §288.1 **Definitions**

The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise.

(1) Agricultural or Agriculture--Any of the following activities:

(A) cultivating the soil to produce crops for human food, animal feed, or planting seed or for the production of fibers;

(B) the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or non-soil media by a nursery grower;

(C) raising, feeding, or keeping animals for breeding purposes or for the production of food or fiber, leather, pelts, or other tangible products having a commercial value;

(D) raising or keeping equine animals;

(E) wildlife management; and

(F) planting cover crops, including cover crops cultivated for transplantation, or leaving land idle for the purpose of participating in any governmental program or normal crop or livestock rotation procedure.

(2) Agricultural use--Any use or activity involving agriculture, including irrigation.

(3) Best management practices--Voluntary efficiency measures that save a quantifiable amount of water, either directly or indirectly, and that can be implemented within a specific time frame.

(4) 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 water supply is made available for future or alternative uses.

(5) Commercial use--The use of water by a place of business, such as a hotel, restaurant, or office building. This does not include multi-family residences or agricultural, industrial, or institutional users.

(6) Drought contingency plan--A strategy or combination of strategies for temporary supply and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies. A drought contingency plan may be a separate document identified as such or may be contained within another water management document(s).

(7) Industrial use--The use of water in processes designed to convert materials of a lower order of value into forms having greater usability and commercial value, and the development of power by means other than hydroelectric, but does not include agricultural use.

(8) Institutional use--The use of water by an establishment dedicated to public service, such as a school, university, church, hospital, nursing home, prison or government facility. All facilities dedicated to public service are considered institutional regardless of ownership.

(9) Irrigation--The agricultural use of water for the irrigation of crops, trees, and pastureland, including, but not limited to, golf courses and parks which do not receive water from a public water supplier.

(10) Irrigation water use efficiency--The percentage of that amount of irrigation water which is beneficially used by agriculture crops or other vegetation relative to the amount of water diverted from the source(s) of supply. Beneficial uses of water for irrigation purposes include, but are not limited to, evapotranspiration needs for vegetative maintenance and growth, salinity management, and leaching requirements associated with irrigation.

(11) Mining use--The use of water for mining processes including hydraulic use, drilling, washing sand and gravel, and oil field re-pressuring.

(12) Municipal use--The use of potable water provided by a public water supplier as well as the use of sewage effluent for residential, commercial, industrial, agricultural, institutional, and wholesale uses.

(13) Nursery grower--A person engaged in the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or nonsoil media, who grows more than 50% of the products that the person either sells or leases, regardless of the variety sold, leased, or grown. For the purpose of this definition, grow means the actual cultivation or propagation of the product beyond the mere holding or maintaining of the item prior to sale or lease, and typically includes activities associated with the production or multiplying of stock such as the development of new plants from cuttings, grafts, plugs, or seedlings.

(14) Pollution--The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property, or to the public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

(15) Public water supplier--An individual or entity that supplies water to the public for human consumption.

(16) Residential use--The use of water that is billed to single and multi-family residences, which applies to indoor and outdoor uses.

(17) Residential gallons per capita per day--The total gallons sold for residential use by a public water supplier divided by the residential population served and then divided by the number of days in the year.

(18) Regional water planning group--A group established by the Texas Water Development Board to prepare a regional water plan under Texas Water Code, §16.053.

(19) Retail public water supplier--An individual or entity that for compensation supplies water to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants when that water is not resold to or used by others.

(20) Reuse--The authorized use for one or more beneficial purposes of use of water that remains unconsumed after the water is used for the original purpose of use and before that water is either

disposed of or discharged or otherwise allowed to flow into a watercourse, lake, or other body of state-owned water.

(21) Total use--The volume of raw or potable water provided by a public water supplier to billed customer sectors or nonrevenue uses and the volume lost during conveyance, treatment, or transmission of that water.

(22) Total gallons per capita per day (GPCD)--The total amount of water diverted and/or pumped for potable use divided by the total permanent population divided by the days of the year. Diversion volumes of reuse as defined in this chapter shall be credited against total diversion volumes for the purposes of calculating GPCD for targets and goals.

(24) Water conservation plan--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. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s).

(24) Water conservation plan--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. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s).

(25) Wholesale public water supplier--An individual or entity that for compensation supplies water to another for resale to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants as an incident of that employee service or tenancy when that water is not resold to or used by others, or an individual or entity that conveys water to another individual or entity, but does not own the right to the water which is conveyed, whether or not for a delivery fee.

(26) Wholesale use--Water sold from one entity or public water supplier to other retail water purveyors for resale to individual customers.

Source Note: The provisions of this §288.1 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective August 15, 2002, 27 TexReg 7146; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective January 10, 2008, 33 TexReg 193; amended to be effective December 6, 2012, 37 TexReg 9515; amended to be effective August 16, 2018, 43 TexReg 5218

TITLE 30	ENVIRONMENTAL QUALITY
PART 1	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 288	WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS
SUBCHAPTER A	WATER CONSERVATION PLANS
RULE §288.2	**Water Conservation Plans for Municipal Uses by Public Water Suppliers**

(a) A water conservation plan for municipal water use by public water suppliers must provide information in response to the following. If the plan does not provide information for each requirement, the public water supplier shall include in the plan an explanation of why the requirement is not applicable.

(1) Minimum requirements. All water conservation plans for municipal uses by public water suppliers must include the following elements:

(A) a utility profile in accordance with the Texas Water Use Methodology, including, but not limited to, information regarding population and customer data, water use data (including total gallons per capita per day (GPCD) and residential GPCD), water supply system data, and wastewater system data;

(B) a record management system which allows for the classification of water sales and uses into the most detailed level of water use data currently available to it, including, if possible, the sectors listed in

clauses (i) - (vi) of this subparagraph. Any new billing system purchased by a public water supplier must be capable of reporting detailed water use data as described in clauses (i) - (vi) of this subparagraph:

(i) residential;

(I) single family;

(II) multi-family;

(ii) commercial;

(iii) institutional;

(iv) industrial;

(v) agricultural; and,

(vi) wholesale.

(C) specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal use in total GPCD and residential GPCD. The goals established by a public water supplier under this subparagraph are not enforceable;

(D) metering device(s), within an accuracy of plus or minus 5.0% in order to measure and account for the amount of water diverted from the source of supply;

(E) a program for universal metering of both customer and public uses of water, for meter testing and repair, and for periodic meter replacement;

(F) measures to determine and control water loss (for example, periodic visual inspections along distribution lines; annual or monthly audit of the water system to determine illegal connections; abandoned services; etc.);

(G) a program of continuing public education and information regarding water conservation;

(H) a water rate structure which is not "promotional," i.e., a rate structure which is cost-based and which does not encourage the excessive use of water;

(I) a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin in order to optimize available water supplies; and

(J) a means of implementation and enforcement which shall be evidenced by:

(i) a copy of the ordinance, resolution, or tariff indicating official adoption of the water conservation plan by the water supplier; and

(ii) a description of the authority by which the water supplier will implement and enforce the conservation plan; and

(K) documentation of coordination with the regional water planning groups for the service area of the public water supplier in order to ensure consistency with the appropriate approved regional water plans.

(2) Additional content requirements. Water conservation plans for municipal uses by public drinking water suppliers serving a current population of 5,000 or more and/or a projected population of 5,000 or more within the next ten years subsequent to the effective date of the plan must include the following elements:

(A) a program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system;

(B) a requirement in every wholesale water supply contract entered into or renewed after official adoption of the plan (by either ordinance, resolution, or tariff), and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements in this chapter. If the customer intends to resell the water, the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with the provisions of this chapter.

(3) Additional conservation strategies. Any combination of the following strategies shall be selected by the water supplier, in addition to the minimum requirements in paragraphs (1) and (2) of this subsection, if they are necessary to achieve the stated water conservation goals of the plan. The commission may

require that any of the following strategies be implemented by the water supplier if the commission determines that the strategy is necessary to achieve the goals of the water conservation plan:

(A) conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;

(B) adoption of ordinances, plumbing codes, and/or rules requiring water-conserving plumbing fixtures to be installed in new structures and existing structures undergoing substantial modification or addition;

(C) a program for the replacement or retrofit of water-conserving plumbing fixtures in existing structures;

(D) reuse and/or recycling of wastewater and/or graywater;

(E) a program for pressure control and/or reduction in the distribution system and/or for customer connections;

(F) a program and/or ordinance(s) for landscape water management;

(G) a method for monitoring the effectiveness and efficiency of the water conservation plan; and

(H) any other water conservation practice, method, or technique which the water supplier shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

(b) A water conservation plan prepared in accordance with 31 TAC §363.15 (relating to Required Water Conservation Plan) of the Texas Water Development Board and substantially meeting the requirements of this section and other applicable commission rules may be submitted to meet application requirements in accordance with a memorandum of understanding between the commission and the Texas Water Development Board.

(c) A public water supplier for municipal use shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or updated information. The public water supplier for municipal use shall review and update the next revision of its water conservation plan every five years to coincide with the regional water planning group.

Source Note: The provisions of this §288.2 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective December 6, 2012, 37 TexReg 9515

TITLE 30	ENVIRONMENTAL QUALITY
PART 1	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 288	WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS
SUBCHAPTER A	WATER CONSERVATION PLANS
RULE §288.5	**Water Conservation Plans for Wholesale Water Suppliers**

A water conservation plan for a wholesale water supplier must provide information in response to each of the following paragraphs. If the plan does not provide information for each requirement, the wholesale water supplier shall include in the plan an explanation of why the requirement is not applicable.

(1) Minimum requirements. All water conservation plans for wholesale water suppliers must include the following elements:

(A) a description of the wholesaler's service area, including population and customer data, water use data, water supply system data, and wastewater data;

(B) specific, quantified five-year and ten-year targets for water savings including, where appropriate, target goals for municipal use in gallons per capita per day for the wholesaler's service area, maximum acceptable water loss, and the basis for the development of these goals. The goals established by wholesale water suppliers under this subparagraph are not enforceable;

(C) a description as to which practice(s) and/or device(s) will be utilized to measure and account for the amount of water diverted from the source(s) of supply;

(D) a monitoring and record management program for determining water deliveries, sales, and losses;

(E) a program of metering and leak detection and repair for the wholesaler's water storage, delivery, and distribution system;

(F) a requirement in every water supply contract entered into or renewed after official adoption of the water conservation plan, and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements of this chapter. If the customer intends to resell the water, then the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with applicable provisions of this chapter;

(G) a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin. The reservoir systems operations plans shall include optimization of water supplies as one of the significant goals of the plan;

(H) a means for implementation and enforcement, which shall be evidenced by a copy of the ordinance, rule, resolution, or tariff, indicating official adoption of the water conservation plan by the water supplier; and a description of the authority by which the water supplier will implement and enforce the conservation plan; and

(I) documentation of coordination with the regional water planning groups for the service area of the wholesale water supplier in order to ensure consistency with the appropriate approved regional water plans.

(2) Additional conservation strategies. Any combination of the following strategies shall be selected by the water wholesaler, in addition to the minimum requirements of paragraph (1) of this section, if they are necessary in order to achieve the stated water conservation goals of the plan. The commission may require by commission order that any of the following strategies be implemented by the water supplier if the commission determines that the strategies are necessary in order for the conservation plan to be achieved:

(A) conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;

(B) a program to assist agricultural customers in the development of conservation pollution prevention and abatement plans;

(C) a program for reuse and/or recycling of wastewater and/or graywater; and

(D) any other water conservation practice, method, or technique which the wholesaler shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

(3) Review and update requirements. The wholesale water supplier shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or updated information. A wholesale water supplier shall review and update the next revision of its water conservation plan every five years to coincide with the regional water planning group.

Source Note: The provisions of this §288.5 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective December 6, 2012, 37 TexReg 9515

Appendix C

City of Terrell Water Utility Profile Based on TCEQ Format

City of Terrell
Water Utility Profile Based on TCEQ Format

The purpose of the Water Utility Profile is to assist an applicant with water conservation plan development and to ensure that important information and data be considered when preparing your water conservation plan and goals. You may contact the Municipal Water Conservation Unit of the TWDB at 512-936-2391 for assistance, or the Resource Protection Team at 512-239-4691 if submitted to the TCEQ.

Name of Entity: City of Terrell
Address & Zip: P.O. Box 310, Terrell, TX 75160-0310
Telephone Number: (972) 551-6609
Fax Number: (972) 551-6620
Form Completed by: Mike Mikeska
Title: Assitant City Engineer
Signature:
Date: 4/16/2019

Name and phone number of person/department responsible for implementing a water conservation program:
Name: Mike Mikeska
Phone Number: 972-551-6600

I. POPULATION AND CUSTOMER DATA

A. Population and Service Area Data

1. Please attach a copy of your service-area map and, if applicable, a copy of your Certificate of Convenience and and a service-area map. Figure 4-1 shows the retail service area for the City of Terrell.
2. Retail Service area size (square miles): 20
3. Current population of retail service area: 17,488 as of year 2017
4. Current population provided retail service by utility:
   water: 17,488
   wastewater: 17,488
5. Retail Population served by water utility for the previous five years. (Please list by year in ascending order.):

Year	Population
2013	16,500
2014	16,600
2015	16,809
2016	17,145
2017	17,488

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

Year	Population
2020	18,832
2030	24,741
2040	43,403
2050	70,000
2060	78,000
2070	90,869

7. List source/method for the calculation of current and projected population:
The current population of the retail service area was obtained from the TCEQ. Population projections through 2040 are based on an analysis that City of Terrell conducted for TWDB loan application. Population for 2050, 2060 and 2070 are from the 2021 Region C Water Plan, which the City of Terrell asserts to be unrealistic.

B. Active Connections

1. Current number of active connections.
Check whether multi-family service is counted as Residential _X__ or Commercial ___.
Current year is: 2018

Treated Water Users	Metered	Non-Metered	Total
Residential	4,627	0	4,627
Commercial	723	0	723
Industrial	14	0	14
Other	246	0	246
Total	5,610	0	5,610

2. List the net number of new connections per year for most recent three years: This information is unavailable.

Year	2015	2016	2017
Residential	N/A	N/A	N/A
Commercial	N/A	N/A	N/A
Industrial	N/A	N/A	N/A
Other	N/A	N/A	N/A
Total	N/A	N/A	N/A

C. High Volume Customers

List annual water use for the five highest volume customers.
(Please indicate if treated or raw water delivery.):

Customer	Use (1,000 gal/yr)	Treated or Raw Water?
College Mound Special Utility District	102,625	Treated
High Point Water District Water Supply Corporation	57,424	Treated
Elmo Water Supply Corporation	57,250	Treated
North Kaufman Water Supply Corporation	53,320	Treated
Poetry Water Supply Corporation	48,010	Treated

II. WATER USE DATA FOR SERVICE AREA

A. Water Accounting Data

1. Amount of water use for previous five years (in 1,000 gal):

Please indicate: Diverted Water:

Treated Water: Treated water sold

Year	2013	2014	2015	2016	2017
January	83,769	85,247	75,525	72,671	68,516
February	70,294	64,721	64,372	72,439	60,883
March	80,402	70,977	72,000	71,126	80,254
April	82,810	72,896	72,958	70,893	67,571
May	93,688	78,787	73,208	79,086	86,592
June	99,824	88,180	80,926	97,381	90,503
July	116,820	98,243	114,398	121,302	93,337
August	117,944	82,545	120,453	109,398	96,467
September	99,941	87,974	100,516	92,889	86,307
October	79,154	74,783	91,172	93,068	73,460
November	73,973	70,255	71,949	76,447	70,308
December	68,903	72,861	75,295	74,779	68,688
Total	1,067,522	947,469	1,012,772	1,031,479	942,886

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

Year	Residential	Commercial	Public/ Institutional	Industrial	Wholesale	Other	Total Sold
2013	384,140	204,705	46,320	58,813	373,544	0	1,067,522
2014	368,195	175,563	37,861	43,125	322,725	0	947,469
2015	385,032	182,203	37,898	51,895	355,744	0	1,012,772
2016	357,620	177,788	33,744	54,266	370,333	37,728	1,031,479
2017	338,926	205,718	30,069	62,638	264,018	41,517	942,886

3. List previous five years records for water loss (the difference between water diverted (or treated) and water delivered (sold).

Year	Amount (gal.)	%
2013	109,262,000	8.80%
2014	156,103,000	13.51%
2015	141,739,000	11.56%
2016	81,355,000	7.01%
2017	119,455,000	12.70%

4. Municipal water use for previous five years:

Year	Population	Total Diverted (or Treated) (1,000 gal)
2013	16,500	635,165
2014	16,600	581,619
2015	16,809	605,133
2016	17,145	606,880
2017	17,488	616,230

Note: "Municipal water" is interpreted to include residential, commercial, public/institutional, and other.

B. Projected Water Demands

If applicable, attach projected water supply demands for the next ten years using information such as population trends, historical water use, and economic growth in the service area over the next ten years and any additional water supply requirement from such growth.

Year	Projected Wholesale and Retail Demand (Ac-Ft)	Source of data	Additional Water Supply Requirements
2020	5,469	*Terrell 2020 2021 Region C Retail and Wholesale Water Plan projection*	
2030	9,240	*Terrell 2030 2021 Region C Retail and Wholesale Water Plan projection*	

III. WATER SUPPLY SYSTEM DATA

A. Water Supply Sources

List all current water supply sources and the amounts authorized with each:

Type	Source	Amount Available (AF/Y)
Surface Water	New Terrell City Lake (no longer in use)	6,000
Groundwater	None	
Contracts	NTMWD	4,603
Other	None	

B. Treatment and Distribution System

1. Design daily capacity of system: Terrell no longer operates a water treatment plant.

2. Storage capacity:

Elevated	2.5	MG
Ground	3	MG

3. If surface water, do you recycle filter backwash to the head of the plant? **Not Applicable.**
Yes ___ No ___. If yes, approximately ___ MGD.

4. Please attach a description of the water system. Include the number of treatment plants, wells, and storage tanks. If possible, include a sketch of the system layout.
Terrell no longer operates a water treatment plant. Terrell purchases treated water from the North Texas Municipal Water District.

IV. WASTEWATER SYSTEM DATA

A. Wastewater System Data

1. Design capacity of wastewater treatment plant(s): 9 MGD
Note: Whereas peak two-hour flow capacity of Terrell King's Creek WWTP is 9 MGD, the permitted average annual daily flow is 4.5 MGD.

2. Is treated effluent used for irrigation on-site ___, off-site ___, plant washdown _X_, or chlorination/dechlorination ___? If yes, approximately 100,000 gallons per month.

3. Briefly describe the wastewater system(s) of the area serviced by the water utility. Describe how treated wastewater is disposed of. Where applicable, identify treatment plant(s) with the TCEQ name and number, the operator, owner, and, if wastewater is discharged, the receiving stream. Please provide a sketch or map which located the plant(s) and discharge or disposal sites.:

The wastewater system is a mostly gravity flow system with four lift stations and located completely within the Terrell city limits. The plant consists of screening, grit removal, primary clarification, two-stage trickling biological treatment and chlorination/dechlorination. Solids are digested, dewatered and disposed of in a municipal landfill. The plant discharges to Kings Creek in the Cedar Creek Reservoir watershed, segment 818 of the Trinity River Basin.

Treatment Plant Name	TCEQ Number	Operator	Owner	Receiving Stream
Kings Creek	10747-001	Terrell	Terrell	Kings Creek

B. Wastewater Data for Service Area

1. Percent of water service area served by wastewater system: 100 %
2. Monthly wastewater volume for previous three years (in 1,000 gallons):

Year	2015	2016	2017
January	63,860	55,180	72,850
February	58,800	53,650	57,680
March	100,130	80,600	55,180
April	79,500	87,900	65,400
May	120,590	74,400	59,830
June	78,900	90,900	84,600
July	50,220	52,080	66,650
August	44,330	58,900	61,690
September	42,600	48,000	46,200
October	63,240	48,980	49,290
November	101,700	61,800	48,900
December	98,890	56,110	57,350
Total	902,760	768,500	725,620

Appendix D

City of Terrell Annual Water Conservation Report

APPENDIX D
NTMWD MEMBER CITY AND CUSTOMER WATER CONSERVATION REPORT
Due: March 31 of every year

Water Utility Reporting:	**Terrell**
Filled Out By:	**Dustin Starr**
Phone Number:	**972-551-6635**
Email:	**dstar@cityofterrell.org**
Date Completed:	
Year Covered:	**2017**
# of Connections	**7,192**
Estimated Population	**17,665**
Source:	***TCEQ***
# of Irrigation Systems	**222**

Recorded Deliveries and Sales by Month (in Million Gallons):

Month	Deliveries from NTMWD	Other Supplies	Sales by Category							
			Residential	Commercial	Public/ Institutional	Industrial	Metered Irrigation	Wholesale	Other	Total
January	100.706		25.313	11.642	3.022	4.257	0.635	23.647		68.516
February	71.304		22.480	11.042	2.733	3.405	0.963	20.260		60.883
March	86.230		28.939	12.679	2.626	4.195	1.653	30.162		80.254
April	97.079		25.890	12.351	2.007	5.467	1.540	20.316		67.571
May	93.295		29.911	23.561	2.988	6.369	3.323	20.440		86.592
June	94.660		30.842	26.558	2.091	4.867	3.811	22.334		90.503
July	128.939		29.848	16.467	2.714	4.991	6.413	32.904		93.337
August	122.644		34.911	19.169	2.906	6.977	7.659	24.845		96.467
September	107.172		28.318	25.619	2.484	6.383	5.397	18.106		86.307
October	121.559		26.559	14.859	2.500	5.558	4.439	19.545		73.460
November	108.921		27.872	14.366	2.364	5.849	3.114	16.743		70.308
December	71.936		28.043	17.405	1.634	4.320	2.570	14.716		68.688
TOTAL	**1,204.445**		**338.926**	**205.718**	**30.069**	**62.638**	**41.517**	**264.018**		**942.886**

Peak Day Usage

Peak Day (MG)	**8.660**
Average Day (MG)	3.300
Peak/Average Day Ratio	2.624

Authorized Consumption and Water Loss

Total System Input Volume:	940.427
Billed Metered:	678.868
Billed Unmetered:	
Unbilled Metered:	0.025
Unbilled Unmetered:	142.079
Total Authorized Consumption:	820.972
Water Losses:	119.455
Total Loss Percent:	12.70%
Goal for Total Loss Percent:	12.00%

Per Capita Use (Gallons per person per day)

Municipal Use (MG)	836
Residential Use (MG)	338.926
Total Per Capita Use (gpcd)	146
Municipal Per Capita Use (gpcd)	130
Residential Per Capita Use (gpcd)	53
5-year Per Capita Goal	156
10-year Per Capita Goal	153

Recorded Wholesale Sales by Month (in Million Gallons):

Month	Sales to… Elmo	Sales to… Lawrence	Sales to… High point	Sales to… College Moun	Sales to… North Kaufmar	Sales to… Poetry	Sales to…	Sales to…	Total Wholesale Sales
January	4.097	1.514	3.321	9.161	3.628	1.926			23.647
February	4.129	1.249	2.884	3.420	2.923	5.655			20.260
March	4.463	1.471	3.747	11.635	3.136	5.710			30.162
April	3.015	1.495	3.671	8.092	3.003	1.040			20.316
May	0.540	1.906	4.917	9.472	3.232	0.373			20.440
June	0.057	2.033	4.653	9.612	4.808	1.171			22.334
July	5.370	2.450	5.797	12.799	4.716	1.772			32.904
August	4.660	1.960	4.843	6.421	3.918	3.043			24.845
September	4.514	1.824	5.587	0.030	4.344	1.807			18.106
October	4.884	1.967	5.106		4.440	3.148			19.545
November	4.240	1.709	3.370		3.667	3.757			16.743
December	4.075	1.561	2.816		3.464	2.800			14.716
TOTAL	**44.044**	**21.139**	**50.712**	**70.642**	**45.279**	**32.202**			**264.018**

Information on Wholesale Customers:

Customer	Estimated Total Population
Elmo	2,260
Lawrence	750
High point	1,371
College Mound	9,390
North Kaufman	3,140
Poetry	3,195

Unusual Circumstances (use additional sheets if necessary):

Progress in Implementation of Conservation Plan (use additional sheets if necessary):

Conservation measures planned for next year (use additional sheets if necessary):

We will be budgeting for water conservation and drought contingency plan updates FY 2019 to meet the required update schedule

Assistance requested from North Texas Municipal Water District (use additional sheets if necessary):

Other (use additional sheets if necessary):

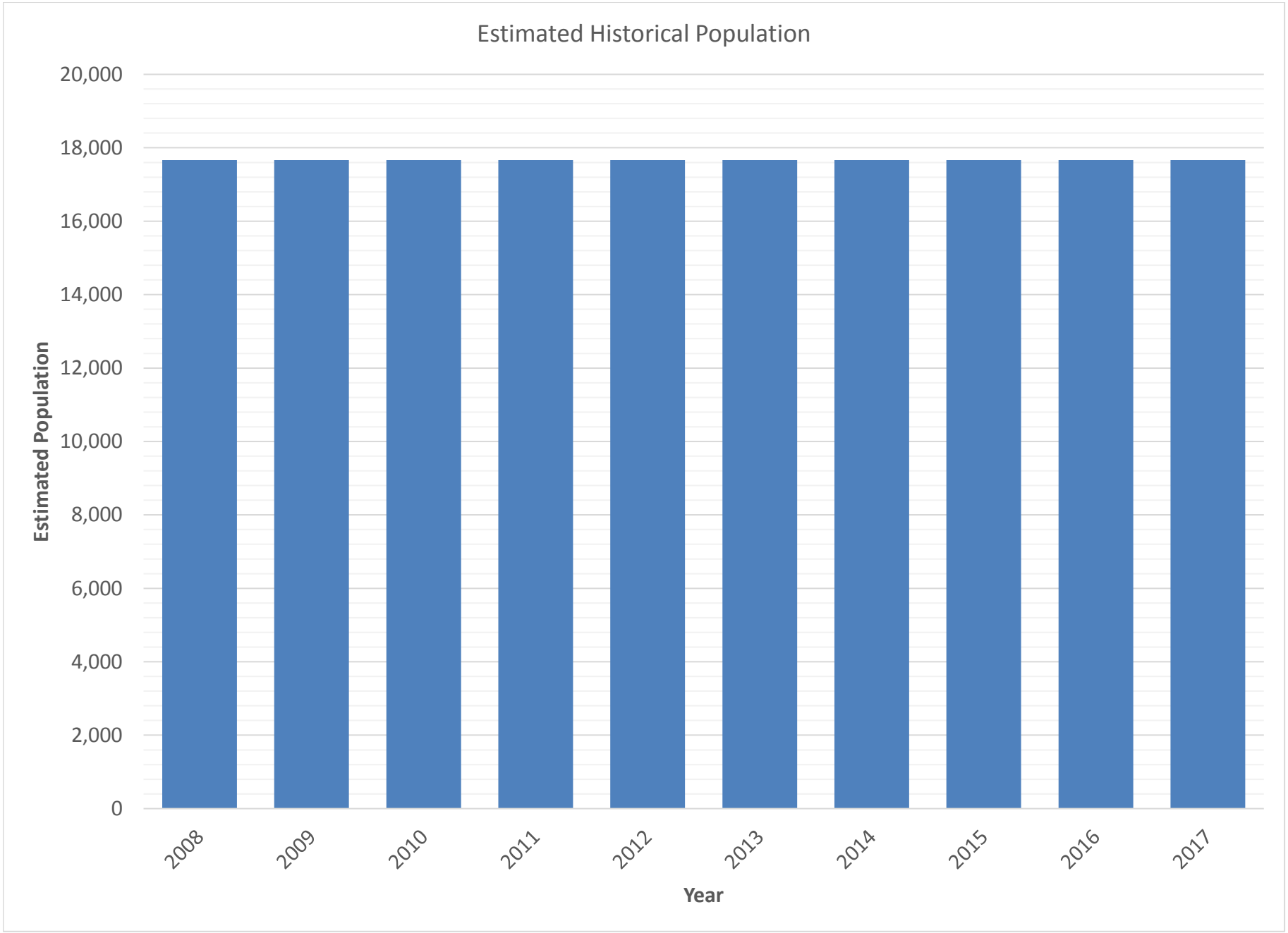
Historical Water Use Data for Terrell

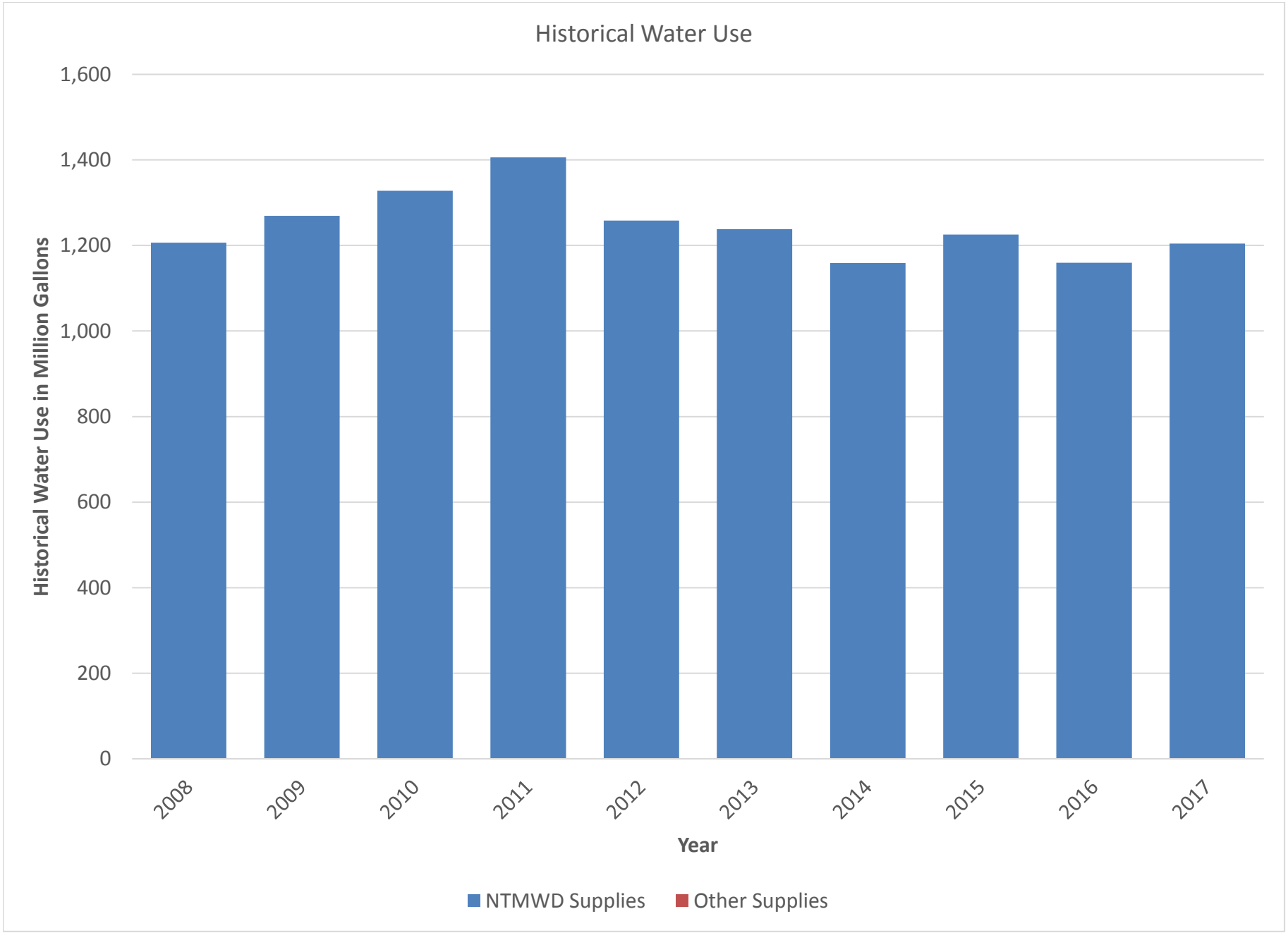
Year	Connections	Estimated Population	Deliveries from NTMWD (MG)	Other Supplies (MG)	Metered Sales by Category (Million Gallons)							
					Residential	Commercial	Public/ Institutional	Industrial	Metered Irrigation	Wholesale	Other	Total
2008	7,192	17,665	1,207	0	439	200	64	87	0	327	92	1,210
2009	7,192	17,665	1,269	0	435	193	45	70	0	339	0	1,084
2010	7,192	17,665	1,328	0	441	193	53	63	0	330	0	1,079
2011	7,192	17,665	1,406	0	501	194	57	57	0	378	0	1,187
2012	7,192	17,665	1,258	0	418	185	43	51	0	387	0	1,083
2013	7,192	17,665	1,238	0	384	205	46	59	0	374	0	1,068
2014	7,192	17,665	1,159	0	368	176	38	43	0	323	0	947
2015	7,192	17,665	1,226	0	385	182	38	52	0	356	0	1,013
2016	7,192	17,665	1,160	0	358	178	34	54	38	370	0	1,031
2017	7,192	17,665	1,204	0	339	206	30	63	42	264	0	943

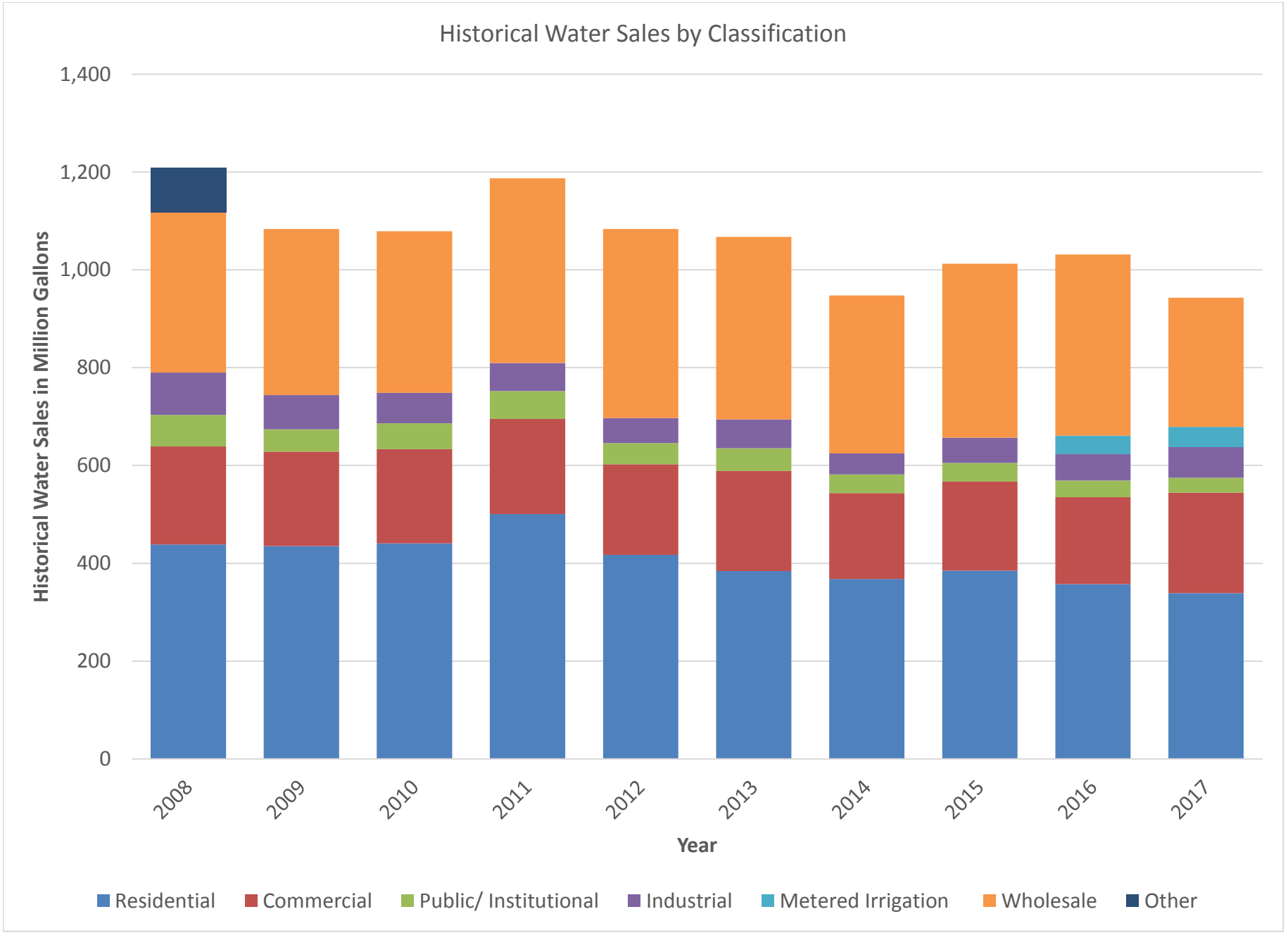
Historical Per Capita Use Data and Water Loss for Terrell

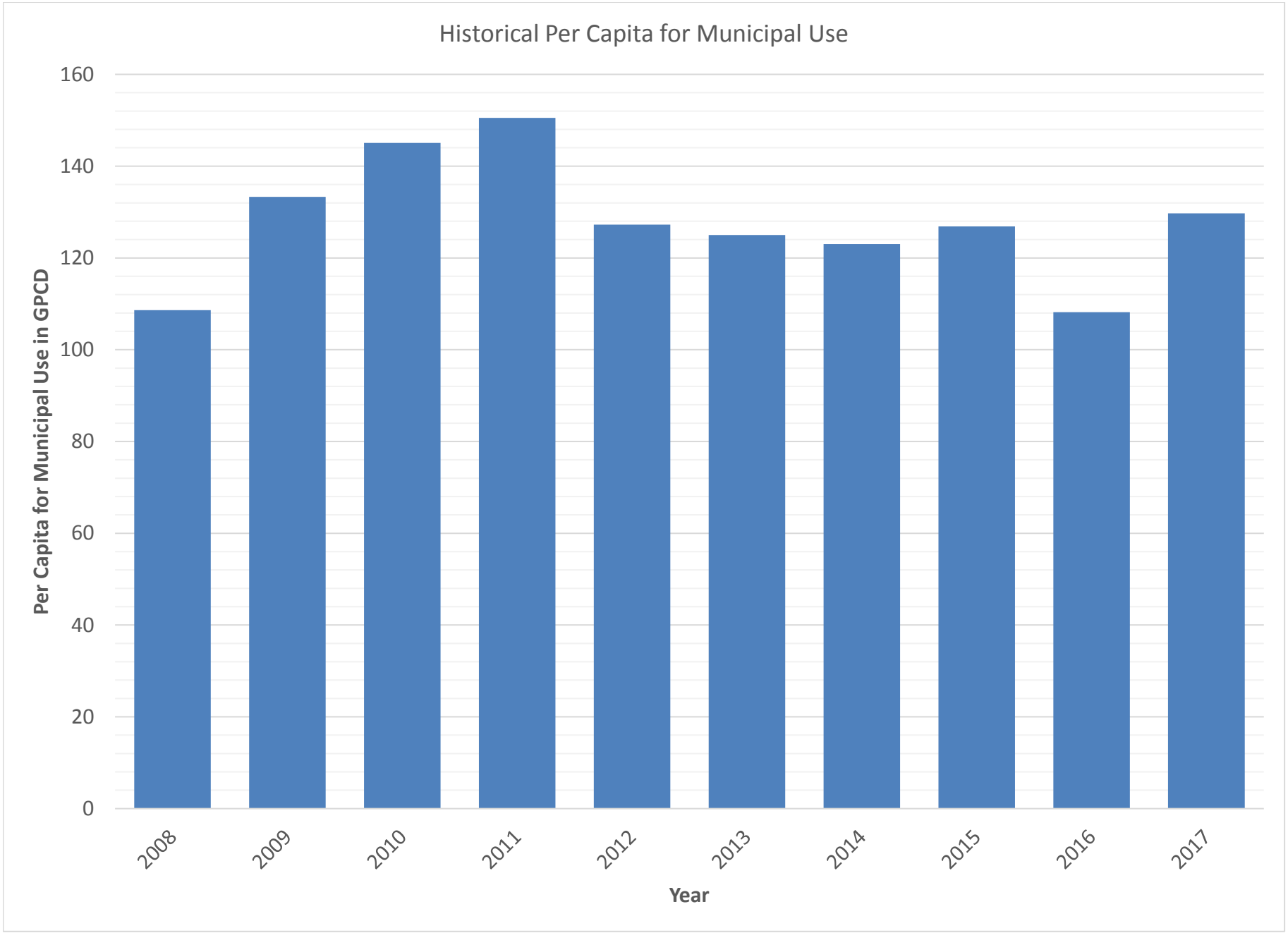
Year	Estimated Population	In-City Municipal Use (MG)	Per Capita Municipal Use (gpcd)	Per Capita Residential Use (gpcd)	Deliveries from NTMWD (MG)	Other Supplies (MG)	Wholesale Sales (MG)	Billed Metered (MG)	Billed Unmetered (MG)	Unbilled Metered (MG)	Unbilled Unmetered (MG)	Water Losses (MG)	% Water Loss
2008	17,665	700	109	68	1,207	0	327	1,210	0	0	6	-10	-0.81%
2009	17,665	860	133	67	1,269	0	339	1,084	0	0	34	152	11.96%
2010	17,665	935	145	68	1,328	0	330	1,079	0	1	179	68	5.15%
2011	17,665	971	151	77	1,406	0	378	1,187	0	0	133	85	6.07%
2012	17,665	821	127	65	1,258	0	387	1,083	0	0	161	14	1.07%
2013	17,665	806	125	59	1,238	0	374	1,068	0	0	65	105	8.50%
2014	17,665	793	123	57	1,159	0	323	947	0	0	52	160	13.77%
2015	17,665	818	127	60	1,226	0	356	1,013	0	0	71	142	11.56%
2016	17,665	697	108	55	1,160	0	370	1,031	0	0	47	81	7.01%
2017	17,665	836	130	53	1,204	0	264	679	0	0	142	119	12.70%

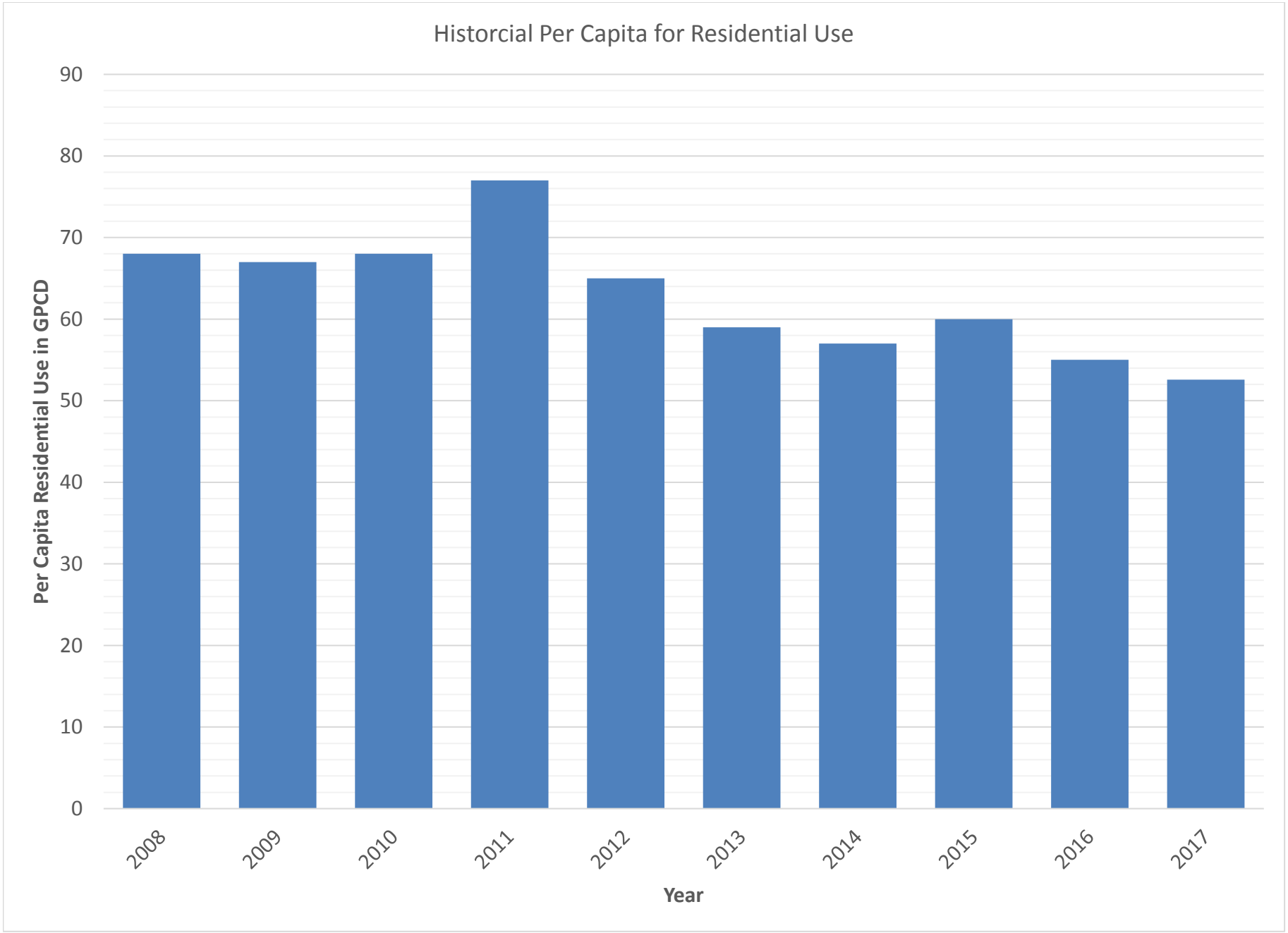
Note:
In-city municipal use = total water supplied less sales to industry, metered irrigation, wholesale sales and other sales.
After 2017 - Unaccounted Water has been removed and replaced with Water Losses (per TWDB definition). This category is inclusive of real and apparent losses. Categories for authorized consumption were also added; Unbilled metered replaced estimated fire use, unbilled unmetered replaced estimated line flushing, and a new category for billed unmetered sales was added.

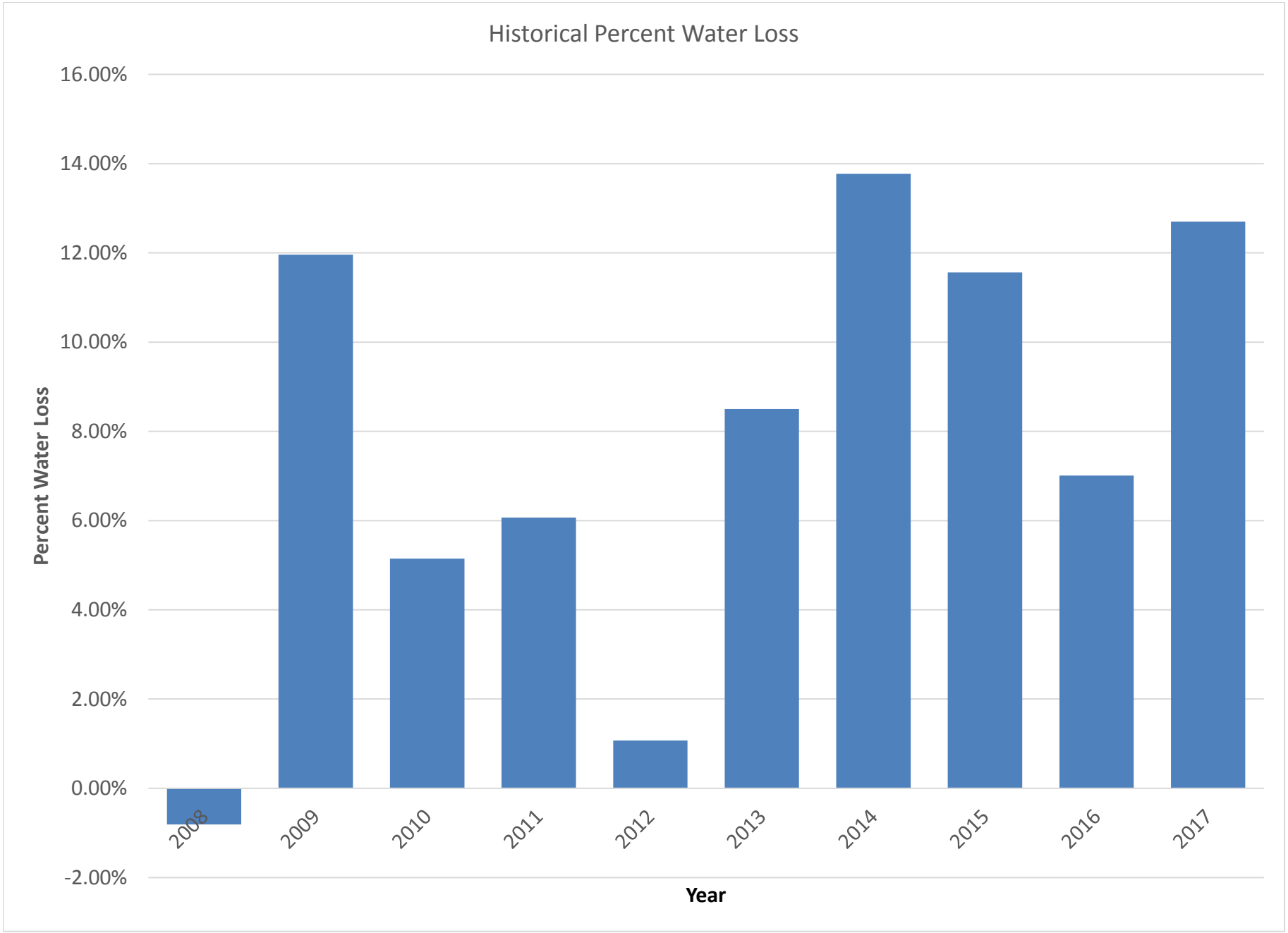

Estimated Historical Population
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Estimated Population
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Year


Historical Water Use
1,600
1,400
1,200
1,000
800
600
400
200
0
Historical Water Use in Million Gallons
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Year
NTMWD Supplies
Other Supplies


Historical Water Sales by Classification
1,400
1,200
1,000
800
600
400
200
0
Historical Water Sales in Million Gallons
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Year
Residential
Commercial
Public/ Institutional
Industrial
Metered Irrigation
Wholesale
Other


Historical Per Capita for Municipal Use
Per Capita for Municipal Use in GPCD
160
140
120
100
80
60
40
20
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Year


Historcial Per Capita for Residential Use
Per Capita Residential Use in GPCD
90
80
70
60
50
40
30
20
10
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Year


Historical Percent Water Loss
16.00%
14.00%
12.00%
10.00%
8.00%
6.00%
4.00%
2.00%
0.00%
-2.00%
Percent Water Loss
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Year

Appendix E

TCEQ Water Conservation Implementation Report

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Water Availability Division - MC-160, P.O. Box 13087 Austin, Texas 78711-3087
Telephone (512) 239-4691, FAX (512) 239-2214

WATER CONSERVATION IMPLEMENTATION REPORT FORM AND SUMMARY OF UPDATES/REVISIONS TO WATER CONSERVATION PLAN

(Texas Water Code §11.1271(b) and Title 30 Texas Administrative Code §288.30(1) to (4))

Please note, this form replaces the following forms: TCEQ-20645 (Non-Public Water Suppliers) and TCEQ-20646 (Public Water Suppliers)

This Form is applicable to the following entities:

1. **Water Right Holders of 1,000 acre-feet or more for municipal, industrial, and other non-irrigation uses.**
2. **Water Right Holders of 10,000 acre-feet or more for irrigation uses.**

The above noted entities are required by rule to submit updates to their water conservation plan(s) and water conservation implementation report(s) every five years. The most current five-year submittal deadline is **May 1st, 2019**. See 30 Texas Administrative Code (TAC) §288.30(1) to (4). Entities must also submit any revisions to their water conservation plan within 90 days of adoption when the plans are revised in between the five-year submittal deadlines. This form may be used for the five-year submittal or when revisions are made to the water conservation plans in the interim periods between five-year submittals. Please complete the form as directed below.

1. Water Right Holder Name: City of Terrell
2. Water Right Permit or Certificate Nos. CA 08-4972

3. Please Indicate by placing an 'X' next to all that Apply to your Entity:

Water Right Holder of 1,000 acre-feet or more for non-irrigation uses

X_____Municipal Water Use by Public Water Supplier

X_____Wholesale Public Water Supplier

_____Industrial Use

_____Mining Use

_____Agriculture Non-Irrigation

Water Right Holder of 10,000 acre-feet or more for irrigation uses

_____Individually-Operated Irrigation System

_____Agricultural Water Suppliers Providing Water to More Than One User

Water Conservation Implementation Reports/Annual Reports

4. Water Conservation Annual Reports for the previous five years were submitted to the Texas Water Development Board (TWDB) for each of the uses indicated above as required by 30 TAC §288.30(10)(C)? Yes x___ No_____

TCEQ no longer requires submittal of the information contained in the detailed implementation report previously required in Forms TCEQ-20645 (Non-Public Water Suppliers) and TCEQ-20646 (Public Water Suppliers). However, the Entity must be up-to-date on its Annual Report Submittals to the TWDB.

Water Conservation Plans

5. For the five-year submittal (or for revisions between the five-year submittals), attach your updated or revised Water Conservation Plan for each of the uses indicated in Section 3, above. Every updated or revised water conservation plan submitted must contain each of the minimum requirements found in the TCEQ rules and must be duly adopted by the entity submitting the water conservation plan. Please include evidence that each water conservation plan submitted has been adopted.

   - Rules on minimum requirements for Water Conservation Plans can be found in 30 TAC 288. http://texreg.sos.state.tx.us/public/readtac%24ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=288
   - Forms which include the minimum requirements and other useful information are also available to assist you. Visit the TCEQ webpage for Water Conservation Plans and Reports. https://www.tceq.texas.gov/permitting/water_rights/wr_technical-resources/conserve.html

*Call **512-239-4691** or email to **wcp@tceq.texas.gov** for assistance with the requirements for your water conservation plan(s) and report(s).*

6. For each Water Conservation Plan submitted, state whether the five and ten-year targets for water savings and water loss were met in your *previous* water conservation plan.
   Yes X_____ No_____
   If the targets were not met, please provide an explanation.

7. For each five-year submittal, does each water conservation plan submitted contain *updated* five and ten-year targets for water savings and water loss?
   Yes X_____ No_____

   If yes, please identify where in the water conservation plan the updated targets are located (page, section).
   Page 5-1

8. In the box below (or in an attachment titled "Summary of Updates or Revisions to Water Conservation Plans), please identify any other revisions/updates made to each water conservation plan that is being updated or revised. Please specify the water conservation plan being updated and the location within the plan of the newly adopted updates or revisions.

5-year and 10-year goals. Potential ICI programs being developed by NTMWD.

9. Form Completed by (Point of Contact): Mike Mikeska
(If different than name listed above, owner and contact may be different individual(s)/entities)

Contact Person Title/Position: Assistant City Engineer

Contact Address: P.O. Box 310, Terrell, TX 75160-0310

Contact Phone Number: (972) 551-6609 Contact Email Address: mmikeska@cityofterrell.org

Signature: _____ Date: 4/22/2019

Appendix F

Letters to Region C and Region D Water Planning Groups

April 16, 2019

Kevin Ward, Chair
Region C Water Planning Group
c/o Trinity River Authority
P.O. Box 60
Arlington, TX 76004

Reference: Water Conservation Plan

Dear Mr. Ward:

Enclosed please find a copy of the recently updated Water Conservation Plan for the City of Terrell. I am submitting a copy of this plan to the Region C Water Planning Group in accordance with the Texas Water Development Board and Texas Commission on Environmental Quality rules. The City of Terrell adopted the updated plan on April 2, 2019.

Sincerely,

Mike Mikeska
Assistant City Engineer
City of Terrell

April 16, 2019

Mr. Richard LeTourneau
Chair, Region D Water Planning Group
P.O. Box 12071
Longview, TX 75607

Reference: Water Conservation Plan

Dear Mr. LeTourneau :

Enclosed please find a copy of the recently updated Water Conservation Plan for the City of Terrell. I am submitting a copy of this plan to the Region D Water Planning Group in accordance with the Texas Water Development Board and Texas Commission on Environmental Quality rules. The City of Terrell adopted the updated model plan on April 2, 2019.

Sincerely,

Mike Mikeska
Assistant City Engineer
City of Terrell

Appendix G

Adoption of the Water Conservation Plan

ORDINANCE NO. 2762

AN ORDINANCE OF THE CITY OF TERRELL, KAUFMAN COUNTY, TEXAS, AMENDING CHAPTER 12, UTILITIES, SECTION 19, WATER CONSERVATION PLAN BY REPEALING ORDINANCE NO. 2599 IN ITS ENTIRETY AND REPLACING IT WITH A NEW WATER CONSERVATION PLAN, PROVIDING PENALTIES; PROVIDING FOR THE REPEAL OF CONFLICTING ORDINANCES; PROVIDING FOR THE DISCONNECTION OF WATER SERVICE FOR NONCOMPLIANCE; PROVIDING FOR SEVERABILITY AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of Terrell, Texas (the "City), recognizes that the amount of water available to its water customers is limited; and

WHEREAS, the City recognizes that due to natural limitations, drought conditi8ons, system failures and other acts of God which may occur, the City cannot guarantee an uninterrupted water supply for all purposes at all times; and

WHEREAS, the Water Code and the regulations of the Texas Commission for Environmental Quality ("T.C.E.Q.") require that the City Adopt a Water Conservation Plan; and

WHEREAS, THE City has determined an urgent need exists and it is in the best interests of the public to adopt a Water Conservation Plan; and

WHEREAS, pursuant to Chapter 54 of the Texas Local Government Code, the City is authorized to adopt such Ordinances as necessary to preserve and conserve its water resources; and

WEREAS, the City Council of the City of Terrell desire to adopt a Water Conservation Plan.

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF TERRELL, TEXAS:

Section 1. That the Water Conservation Plan contained in Ordinance No. 2599 is hereby repealed in its entirety and replaced by the new Water Conservation Plan as specified in Exhibit "A", a copy of which is attached hereto and made a part hereof for all purposes.

Section 2. The City Council hereby approves and adopts the Water Conservation Plan ("the Plan"), attached hereto as Exhibit "A", as if recited verbatim herein. The City commits to implement the requirements and procedures set forth in the adopted Plan.

Section 3. Any customer as defined pursuant to 30 Tex. Admin. Code Chapter 291, failing to comply with the provisions of this Plan shall be deemed to be guilty of a misdemeanor and, following the issuance of a citation for violation of same by a Commissioned Law Enforcement Officer, shall upon conviction in the Municipal Court of the City of Terrell, be subject to a fine of not less than one hundred dollars ($100.00) nor more than two thousand dollars ($2,000.00). In addition to the above fine, the City may discontinue water service for repeat violations. Proof

of a culpable mental state is not required for a conviction of an offense under this section. Each day a customer fails to comply with the Plan is a separate violation. The City's authority to seek injunctive or other civil relief available under the law is not limited by this section.

Section 4. The City Council does hereby find and declare that sufficient written notice of the date, hour, place and subject of the meeting adopting this Ordinance was posted at a designated place convenient to the public for the time required by law preceding the meeting, that such place of posting was readily accessible at all times to the general public and that all of the foregoing was done as required by law at all times during which this Ordinance and the subject matter thereof has been discussed, considered and formally acted upon. The City Council further ratifies, approves and confirms such written notice and the posting thereof.

Section 5. Should any paragraph, sentence, clause, phrase or word of this Ordinance be declared unconstitutional or invalid for any reason, the remainder of this Ordinance shall not be affected.

Section 6. The City Manager, or his designee, is hereby directed to file a copy of the Plan and this Ordinance with the TCEQ in accordance with the provisions of Title 30, Chapter 288 of the Texas Administrative Code.

Section 7. The City Secretary is hereby authorized and directed to cause the publication of the descriptive caption of this Ordinance as an alternative method of publication provided by law.

Section 8. All Ordinances or parts of Ordinances in conflict herewith are, to the extent of such conflict, hereby repealed.

PASSED AND APPROVED on this the 19th day of March, 2019.

PASSED AND ADOPTED on second reading this the 2nd day of April, 2019.

D.J. Ory, Mayor

Attest:

John Rounsavall, City Secretary

Approved as to Form:

Mary Gayle Ramsey, City Attorney

Appendix H

Illegal Water Connections and Theft of Water

ORDINANCE NO. 2394

AN ORDINANCE OF THE CITY OF TERRELL, TEXAS, REPLACING SECTION 12-9 OF CHAPTER 12 OF THE CODE OF ORDINANCES OF THE CITY OF TERRELL, TEXAS, PERTAINING TO ILLEGAL WATER CONNECTIONS AND/OR THE THEFT OF WATER RELATED TO THE WATER SUPPLY FOR THE CITY OF TERRELL.

WHEREAS, the City of Terrell, Texas (the "City") recognizes that the amount of water available to its water customers is limited; and

WHEREAS, pursuant to Chapter 54 of the Local Government Code, the City is authorized to adopt such policies necessary to preserve and conserve available water supplies; and

WHEREAS, the City seeks to adopt an ordinance pertaining to illegal water connections and theft of water.

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF TERRELL THAT:

Section 1. The City Council hereby approves and adopts this Ordinance as described herein.

Section 2. A person commits an offense of theft of water by any of the following actions:

(a) A person may not knowingly tamper, connect to, or alter any component of the City's water system including valves, meters, meter boxes, lids, hydrants, lines, pump stations, ground storage tanks, and elevated storage tanks. This shall include direct or indirect efforts to initiate or restore water service without the approval of the City.

(b) If, without the written consent of the City Manager or the City Manager's designee, the person knowingly causes, suffers or allows the initiation or restoration of water service to the property after termination of service(s). For purposes of this section, it shall be assumed that the owner, occupant, or person in control of the property caused, suffered, or allowed the unlawful initiation or restoration of service(s).

(c) A person may not knowingly make or cause a false report to be made to the City of a reading of a water meter installed for metered billing.

(d) A person commits a separate offense each day that the person performs an act prohibited by this section or fails to perform an act required by this section.

Section 3. An offense under this Ordinance is a Class C misdemeanor punishable by a fine of up to two thousand dollars ($2,000.00) and/or discontinuance of water service by the City.

Section 4. The City Council does hereby find and declare that sufficient written notice of the date, hour, place and subject of the meeting considering this Ordinance was posted at a designated place convenient to the public for the time required by law preceding the meeting, that such place of posting was readily accessible at all times to the general public, and that all of the foregoing was done as required by law at all times during which this Ordinance, and the subject matter thereof, has been discussed, considered and formally acted upon. The City Council further ratifies, approves and confirms such written notice and the posting thereof.

Section 5. Should any paragraph, sentence, clause, phrase or word of this Ordinance be declared unconstitutional or invalid for any reason, the remainder of this Ordinance shall not be affected.

Section 6. The City Secretary is hereby authorized and directed to cause publication of the descriptive caption of this ordinance as an alternative method of publication provided by law.

Section 7. That this ordinance shall take effect immediately from and after its passage.

PASSED AND APPROVED on first reading this the 6th day of January, 2009.

PASSED AND APPROVED on final reading this the 20th day of January, 2009.

HAL RICHARDS, MAYOR

ATTEST:

JOHN ROUNSAVALL, CITY SECRETARY

APPROVED AS TO FORM:

MARY GAYLE RAMSEY, CITY ATTORNEY

Appendix I

Landscape Water Management Regulations

ORDINANCE NO. 2399

AN ORDINANCE OF THE CITY OF TERRELL, TEXAS, ADDING SECTION 12-18 OF THE CODE OF ORDINANCES THROUGH THE ADOPTION OF A ORDINANCE PERTAINING TO LANDSCAPE WATER MANAGEMENT REGULATIONS FOR THE CITY OF TERRELL TO PROVIDE FOR PENALTIES AND PROVIDING SEVERABILITY AND AN EFFECTIVE DATE.

ARTICLE I.

WHEREAS, the City of Terrell, Texas (the "City") recognizes that the amount of water available to its water customers is limited; and

WHEREAS, pursuant to Chapter 54 of the Local Government Code, the City is authorized to adopt such policies necessary to preserve and conserve available water supplies; and

WHEREAS, the City of Terrell seeks to adopt an ordinance pertaining to landscape water management regulations.

NOW, THEREFORE, BE IT ORDAINED by the City Council of the City of Terrell, Texas that;

SECTION 1.

The Code of Ordinances is hereby amended by adopting a new section 12-18 to read as follows:

SECTION 2.

Lawn and Irrigation Restrictions

(a) A person commits an offense if the person irrigates, waters, or knowingly or recklessly causes or allows the irrigation or watering of any lawn or landscape located on any property owned, leased, or managed by the person between the hours of 10:00 a.m. and 6:00 p.m. year round.

(b) A person commits an offense if the person knowingly or recklessly irrigates, waters, or causes or allows the irrigation or watering of lawn or landscape located on any property owned, leased, or managed by that person in such a manner that causes:

i. Over-watering lawn or landscape, such that a constant stream of water overflows from the lawn or landscape onto a street or other drainage area; or

ii. Irrigating lawn or landscape during any form of precipitation or freezing conditions. This restriction applies to all forms of irrigation, including automatic sprinkler systems; or

iii. The irrigation of impervious surfaces or other non-irrigated areas, wind driven water drift taken into consideration.

(c) A person commits an offense if the person knowingly or recklessly operates a lawn or irrigation system or device on property that the person owns, leases, or manages that:

i. has broken or missing sprinkler head(s); or

ii. has not been properly maintained to prevent the waste of water.

(d) All new athletic fields must have separate irrigation systems that are capable of irrigating the playing fields separately from other open spaces.

SECTION 3.

Rain and Freeze Sensors and/or ET or Smart Controllers

(a) Six months after this plan is adopted, any new irrigation system installed must be equipped with rain and freeze sensing devices and/or ET or Smart controllers in compliance with state design and installation regulations.

(b) A person commits an offense on property owned, leased or managed if the person:

i. knowingly or recklessly installs or allows the installation of new irrigation systems in violation; or

ii. knowingly or recklessly operates or allows the operation of an irrigation system that does not comply with Section 3 (a).

SECTION 4.

Filling or Refilling of Ponds

(a) A person commits an offense if the person knowingly or recklessly fills or refills any natural or manmade pond located on any property owned, leased, or managed by the person by introducing any treated water to fill or refill the pond. This does not restrict the filling or maintenance of pond levels by the effect of natural water runoff or the introduction of well water into the pond. A pond is considered to be a still body of water with a surface area of 2,500 square feet or more.

SECTION 5.

Washing of Vehicles.

(a) A person commits an offense if the person knowingly or recklessly washes a vehicle without using a water hose with a shut-off nozzle on any property owned, leased or managed by the person.

SECTION 6.

An offense under this Ordinance is a Class C misdemeanor punishable by a fine of up to two thousand dollars (2,000.00) and/or discontinuance of irrigation water service by the City.

SECTION 7.

Variances.

In special cases, variances may be granted by the city manager or his designee to persons demonstrating extreme hardship or need. Variances may be granted under the following circumstances:

(a) The applicant must sign a compliance agreement agreeing to irrigate or water the lawn and/or landscape only in the amount and manner permitted by the variance; and

(b) The variance must not cause an immediate significant reduction to the water supply; and

(c) The extreme hardship or need requiring the variance must related to the health, safety, or welfare of the person making the request; and

(d) The health, safety, and welfare of the public and the person making the request must not be adversely affected by the requested variance.

A variance will be revoked upon a finding that:

(a) The applicant can no longer demonstrate extreme hardship or need; or

(b) The terms of the compliance agreement are violated; or

(c) The health, safety, or welfare of the public or other persons requires revocation.

SECTION 8.

The City Council does hereby find and declare that sufficient written notice of the date, hour, place and subject of the meeting considering this Ordinance was posted at a designated place convenient to the public for the time required by law preceding the meeting, that such place of posting was readily accessible at all times to the general public and that all of the foregoing was done as required by law at all times during which this Ordinance, and the subject matter thereof, has been discussed, considered and formally action upon. The City Council further ratifies, approves and confirms such written notice and the posting there.

SECTION 9.

All ordinances or part of ordinances in conflict herewith are, to the extent of such conflict, hereby repealed.

SECTION 10.

It is hereby declared to be the intention of the City Council that the sections, paragraphs, sentences, clauses, and phrases of this Ordinance are severable and, if any phrase, clause, sentence, paragraph, or section of this Ordinance shall be declared unconstitutional by the 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 Ordinance, since the same would have been enacted by the City Council without the incorporation in this Ordinance of any such unconstitutional phrase, clause, sentence, paragraph, or section.

SECTION 11.

The City Secretary is hereby authorized and directed to cause publication of the descriptive caption of this ordinance as an alternative method of publication provided by law.

SECTION 12.

This Ordinance will take effect immediately from and after its passage and the publication of the caption, as the law in such case provides.

PASSED AND APPROVED this the 7th day of April, 2009.
PASSED AND ADOPTED this the 21st day of April, 2009.

APPROVED:

Hal Richards, Mayor

ATTEST:

John Rounsavall, City Secretary

APPROVED AS TO FORM:

Mary Gayle Ramsey, City Attorney