



**WATER CONSERVATION PLAN
FOR THE CITY OF LUCAS**

DATE 09/15/2019



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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. This will delay the need for new supplies, minimize the environmental impacts associated with developing new supplies, and delay the high cost of additional water supply development.

Recognizing the need for efficient use of existing water supplies, the TCEQ has developed guidelines and requirements governing the development of water conservation and drought contingency plans for municipal uses by public water suppliers.² The TCEQ guidelines and requirements for wholesale suppliers are included in Appendix B. The North Texas Municipal Water District ("NTMWD or District") has developed this Model Water Conservation Plan to be consistent with TCEQ guidelines and requirements. The best management practices established by the Water Conservation Implementation Task Force³ were also considered in the development of the water conservation measures.

This Model Water Conservation Plan includes measures that are intended to result in ongoing, long-term water savings. This plan replaces the previous plans dated August 2004, April 2006, March 2008 and April 2014⁴.

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.



The water conservation plan presented in this document is a Model Water Conservation Plan intended for adoption by the NTMWD Member Cities and Customers. In order to adopt this plan, each Member City and Customer will need to do the following:

- Complete the water utility profile (provided in Appendix C).
- Set five-year and ten-year goals for per capita water use.
- Adopt ordinance(s) or regulation(s) approving the model plan.
- Complete the annual water conservation implementation report (in Appendix J).

The water utility profile, goals, and ordinance(s) or regulations should be provided to NTMWD in draft form for review and comments. Final adopted versions should also be provided to NTMWD, as well as TCEQ and should be attached to the adopted water conservation plan as Appendix G. This Model Water Conservation Plan includes all the elements of such plans required by TCEQ. Some elements of this model plan go beyond TCEQ requirements. Any water supplier wishing to adjust elements of the Model Water Conservation Plan should coordinate with NTMWD.

¹Superscripted numbers match references listed in Appendix A.

2. DEFINITIONS AND ABBREVIATIONS

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. **CUSTOMERS** include those entities to whom NTMWD provides wholesale water that are not members of NTMWD.
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. **MEMBER CITIES** include the cities of Allen, Farmersville, Forney, Frisco, Garland, McKinney, Mesquite, Plano, Princeton, Richardson, Rockwall, Royse City, and Wylie, Texas, which are members of NTMWD.



10. MUNICIPAL USE means the use of potable water provided by a public water supplier as well as the use of treated wastewater effluent for residential, commercial, industrial, agricultural, institutional, and wholesale uses.
11. REGULATED IRRIGATION PROPERTY means any (customer class, i.e. commercial) property that uses (over a certain amount) of water or more for irrigation purposes in a single calendar year or is greater than (certain size).
12. RESIDENTIAL GALLONS PER CAPITA PER DAY means (Residential GPCD) 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.
13. RETAIL CUSTOMERS include those customers to whom the utility provides retail water from a water meter.
14. TOTAL GALLONS PER CAPITA PER DAY (Total GPCD) means 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 TAC 288.1 shall be credited against total diversion volumes for the purposes of calculating GPCD for targets and goals.
15. WATER CONSERVATION PLAN means the Member City or Customer water conservation plan approved and adopted by the utility.

Abbreviations

Abbreviation	Full Nomenclature
BMP	Best Management Practices
NTMWD or District	North Texas Municipal Water District
TCEQ	Texas Commission on Environmental Quality
TWDB	Texas Water Development Board
WCAC	Water Conservation Advisory Council
WCP	Water Conservation Plan

3. REGULATORY BASIS FOR WATER CONSERVATION PLAN

3.1 TCEQ Rules Governing Conservation Plans

The TCEQ rules governing development of water conservation plans for municipal uses by public water suppliers are contained in Title 30, Chapter 288, Subchapter A, Section 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.”² The water conservation plan elements required by the TCEQ water conservation rules that are covered in this water conservation plan are listed below.

Minimum Conservation Plan Requirements

The minimum requirements in the Texas Administrative Code for Water Conservation Plans for Municipal Uses by Public Water Suppliers are covered in this water conservation plan as follows:

- 288.2(a)(1)(A) – Utility Profile – Section 4 and Appendix C
- 288.2(a)(1)(B) – Record Management System – Section 6.1.5
- 288.2(a)(1)(C) – Specific, Quantified Goals – Section 5
- 288.2(a)(1)(D) – Accurate Metering – Section 6.1.1
- 288.2(a)(1)(E) – Universal Metering – Section 6.1.2
- 288.2(a)(1)(F) – Determination and Control of Water Loss – Sections 6.1.3 and 6.1.4
- 288.2(a)(1)(G) – Public Education and Information Program – Section 6.2
- 288.2(a)(1)(H) – Non-Promotional Water Rate Structure – Section 6.6
- 288.2(a)(1)(I) – Reservoir System Operation Plan – Section 6.3
- 288.2(a)(1)(J) – Means of Implementation and Enforcement – Section 8
- 288.2(a)(1)(K) – Coordination with Regional Water Planning Group – Section 6.4 and Appendix F
- 288.2(c) – Review and Update of Plan – Section 9

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 – Sections 6.1.4
- 288.2(a)(2)(B) – Requirement for Water Conservation Plans by Wholesale Customers – Section 6.5

Additional Conservation Strategies

The TCEQ requires that a water conservation implementation report be completed and submitted on an annual basis. The template for this report is included in Appendix J.

In addition to the TCEQ required elements of a water conservation plan, NTMWD also requires the following water conservation strategies to be included in the Member City and Customer water conservation plans:

- 288.2(a)(3)(A) – Conservation Oriented Water Rates – Section 6.6
- 288.2(a)(3)(F) – Considerations for Landscape Water Management Regulations – Section 7.4 and Appendix E

TCEQ rules also include options of, conservation measures that may be adopted by public water suppliers but are not required. NTMWD recommends that the following strategies be included in Member City and Customer water conservation plans:

- 288.2(a)(3)(B) – Ordinances, Plumbing Codes or Rules on Water-Conserving Fixtures – Section 7.1
- 288.2(a)(3)(C) – Replacement or Retrofit of Water-Conserving Plumbing Fixtures – Section 7.5
- 288.2(a)(3)(D) – Reuse and Recycling of Wastewater – Section 7.2
- 288.2(a)(3)(F) – Considerations for Landscape Water Management Regulations – Section 7.3, 7.4
- 288.2(a)(3)(G) – Monitoring Method – Section 7.6
- 288.2(a)(3)(H) – Additional Conservation Practices – Section 7.5

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 TCEQ⁵, in consultation with the WCAC (the "Guidance"). 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.



4. WATER UTILITY PROFILE

Appendix C to this Model Water Conservation Plan is a template water utility profile based on the format recommended by the TCEQ. In adopting this Model Water Conservation Plan, each Member City and Customer will provide a draft water utility profile to NTMWD for review and comment. A final water utility profile will be provided to NTMWD as well as to TCEQ.



5. SPECIFICATION OF WATER CONSERVATION GOALS

TCEQ rules require the adoption of specific water conservation goals for a water conservation plan. As part of plan adoption, each Member City and Customer must develop 5-year and 10-year goals for water savings, including goals for per capita municipal use and for water loss programs. These goals should be submitted to NTMWD in draft form for review. The goals for this water conservation plan include the following:

- Maintain the total and residential per capita water use below the specified amount in gallons per capita per day in a dry year, as shown in the completed Table 5-1. NTMWD will publish the amount of reuse to be is calculating the credit for reuse.
- Maintain the water loss percentage in the system below 12 percent annually in 2018 and subsequent years, as discussed in Section 6.1.3. (The 12 percent goal for water loss is recommended but is not required. Systems with long distances between customers, such as rural systems, may adopt a higher percent nonrevenue water goal.)
- Implement and maintain a program of universal metering and meter replacement and repair, as discussed in Section 6.1.2.
- Increase efficient water usage through a water conservation ordinance, order or resolution as discussed in Section 7.4 and Appendix E. (This ordinance is required by NTMWD.)
- Decrease waste in lawn irrigation by implementation and enforcement of landscape water management regulations, as discussed in Section 7.5. (These landscape water management regulations are recommended but are not required.)
- 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 Per Capita Water Use Goals (GPCD)

Description	Current Average (GPCD)	5-Year Goal (GPCD)	10-Year Goal (GPCD)
Current 5-Year Average Total Per Capita Use with Credit for Reuse	159.24	154	150
Current 5-Year Average Residential Per Capita Use	150.07	145	140
Water Loss (GPCD) ¹	23.70	21	20
Water Loss (Percentage) ²	12.42%	11.42%	10.42%
Expected Reduction due to Low-Flow Plumbing Fixtures	0.00	0	0
Projected Reduction Due to Elements in this Plan	5.24	4	4
Water Conservation Goals (with credit for reuse)	159.24	154	150

1. Water Loss GPCD = (Total Water Loss ÷ Permanent Population) ÷ 365

2. Water Loss Percentage = (Total Water Loss ÷ Total Gallons in System) x 100; or (Water Loss GPCD ÷ Total GPCD) x 100



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

6.1.1 Accurate Metering of Treated Water Deliveries from NTMWD

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

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

The provision of water to all customers, including public and governmental users, should be metered. In many cases, Member Cities and Customers already meter retail and wholesale water users. For those Member Cities and Customers who do not currently meter all internal water uses, as well as all subsequent users.

Most Member Cities and Customers test and replace their customer meters on a regular basis. All customer meters should be replaced on a minimum of a 15-year cycle. Those who do not currently have a meter testing and replacement program should implement such a program.

6.1.3 Determination and Control of Water Loss

Total water loss is the difference between the water delivered to a Member City or Customer from NTMWD (and other supplies, if applicable) and the metered water sales to customers plus water authorized for use but not sold. (Authorized for use but not sold would include use for fire fighting, releases for flushing of lines, uses associated with new construction, etc.) Total water loss includes two categories:

- Apparent Losses – Includes inaccuracies in customer meters (customer meters tend to run more slowly as they age and under-report actual use); Losses due to

illegal connections and theft. (included in Appendix H); accounts that are being used but have not yet been added to the billing system.

- Real Losses – Includes physical losses from the system or mains, reported breaks and leaks, storage overflow and unreported losses.

Measures to control water loss should be part of the routine operations of Member Cities and Customers. Maintenance crews and personnel should look for and report evidence of leaks in the water distribution system. A leak detection and repair program is described in Section 6.1.4 below. Meter readers should watch for and report signs of illegal connections so that they can be quickly addressed.

Total water loss should be calculated in accordance with the provisions of Appendix J. With the measures described in this plan, Member Cities and Customers should maintain a water loss percentage below 12 percent in 2018 each year. If total water loss exceeds this goal, the Member City or Customer should implement a more intensive audit to determine the source(s) of loss and to reduce the water loss. The annual conservation report described below is the primary tool that should be used to monitor water loss.

As advance metering technology advances utilities that have these systems should consider as a BMP utilizing the capabilities of these system to provide leak alerts. Retail customers whose accounts demonstrate leaks can be notified by their water provider of potential leak situations for account holder remediation.

6.1.4 Leak Detection and Repair

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

6.1.5 Record Management System

As required by TAC Title 30, Chapter 288, Section 288.2(a)(1)(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 should be included in an annual water conservation report, as described in Section 7.6 below.

Those entities whose record management systems do not currently comply with this requirement should move to implement such a system within the next five years.

6.2 Continuing Public Education and Information Campaign

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 NTMWD.
- Utilize the “Water4Otter” campaign for students.
- Insert water conservation information with water bills. Inserts will include material developed by Member Cities’ and Customers’ staff and material obtained from the TWDB, 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 Member City or Customer staff and staff of 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 the Member City’s or Customer’s website (if applicable) and include links to the “Water IQ: Know Your Water” website, *Texas Smartscape* website and to information on water conservation on the TWDB and TCEQ web sites and other resources.
- NTMWD is an EPA Water Sense Partner and participates in the EPA Water Sense sponsored “Fix a Leak Week.” NTMWD encourages all member cities and customers to become EPA Water Sense Partners.
- Utilize the Water My Yard website and encourage customers to sign-up to receive weekly watering advice.

6.3 NTMWD Reservoir System Operation Plan

Member Cities and Customers of NTMWD purchase treated water from NTMWD and do not have surface water supplies for which to implement a reservoir system operations plan. NTMWD operates multiple sources of water supply as a system. The operation of the reservoir system is intended to optimize the use of the District's sources (within the constraints of existing water rights) while minimizing energy use cost for pumping, maintaining water quality, minimizing potential impacts on recreational users of the reservoirs and fish and wildlife.

6.4 Coordination with Regional Water Planning Group and NTMWD

Appendix F includes a letter sent to the Chairs of the water planning group accompanied by this Model Water Conservation Plan. The adopted ordinance(s) or regulation(s) and the adopted water utility profile will be sent to the Chair of the appropriate Water Planning Group and to NTMWD.

6.5 Requirement for Water Conservation Plans by Wholesale Customers

Every contract for the wholesale sale of water by a Member City and/or Customer 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, Chapter 288, of the Texas Administrative Code. This requirement extends to each successive wholesale customer in the resale of the water.

6.6 Increasing Block Water Rate Structure

Each Member City and Customer must adopt, if it has not already done so, an increasing block rate water structure that is intended to encourage water conservation and to discourage excessive use and waste of water upon completion its next rate study or within five years. An example water rate structure is as follows:

Residential Rates

1. Monthly minimum charge. This can (but does not have to) include up to 2,000 gallons water use with no additional charge.
2. Base charge per 1,000 gallons up to the approximate average residential use.



3. 2nd tier (from the average to 2 times the approximate average) at 1.25 to 2.0 times the base charge.
4. 3rd tier (above 2 times the approximate average) at 1.25 to 2.0 times the 2nd tier.
5. Additional tiers with further increases if desired.
6. The residential rate can also include a lower tier for basic household use up to 4,000 gallons per month or a determined basic use.

Commercial/Industrial Rates

Commercial/Industrial rates should include at least 2 tiers, with rates for the 2nd tier set at 1.25 to 2.0 times that of the first tier. Higher water rates for commercial irrigation use are encouraged, but not required.

7. ENHANCED WATER CONSERVATION STRATEGIES

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

The state has required water-conserving fixtures in new construction and renovations since 1992. The state standards call for flows of no more than 2.5 gallons per minute (gpm) for faucets, 2.5 gpm for showerheads. As of January 1, 2014, the state requires maximum average flow rates of 1.28 gallons per flush (gpf) for toilets and 0.5 gpf for urinals. Similar standards are now required under federal law. These state and federal standards assure that all new construction and renovations will use water-conserving fixtures. Rebate programs to encourage replacement of older fixtures with water conservation programs are discussed in Section 7.5.

7.2 Reuse and Recycling of Wastewater

Most Member Cities and Customers do not own and operate their own wastewater treatment plants. Their wastewater is treated by NTMWD. NTMWD currently has the largest wastewater reuse program in the state. NTMWD has water rights allowing reuse of up to 71,882 acre-feet per year of 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. NTMWD also provides treated effluent from its wastewater treatment plants available for direct reuse for landscape irrigation and industrial use.

Those Member Cities and Customers who own and operate their own wastewater treatment plants should move toward reusing treated effluent for irrigation purposes at their plant site over the next three years. These entities should also seek other alternatives for reuse of recycled wastewater effluent.

7.3 Interactive Weather Stations / "Water My Yard" Program

NTMWD has developed the Water My Yard program to install weather stations throughout its service area in order to provide consumers with a weekly e-mail and information through the "Water My Yard" website to assist consumers in determining an adequate amount of



supplemental water to maintain healthy grass in a specific location. This service represents the largest network of weather stations providing ET-based irrigation recommendations in the State of Texas, and provides the public advanced information regarding outdoor irrigation needs, thereby reducing water use. Through a series of selections on the type of irrigation system a consumer has, a weekly email is provided that will determine how long (in minutes) an irrigation system needs to run based on the past seven days of weather. This recommendation provides the actual amount of supplemental water that is required for a healthy lawn based on research of the Texas A&M Agrilife Extension Service and proven technologies. This innovative program has been available to those within the NTMWD service area since May 2013. The city/utility will encourage customers to subscribe to weekly watering updates through Water My Yard or other similar program in an effort to reduce outdoor water consumption.

7.4 Compulsory Landscape and Water Management Measures

The following landscape water management measures are required by NTMWD for this plan. These measures represent minimum measures to be implemented and enforced in order to irrigate the landscape appropriately and are to remain in effect on a permanent basis unless water resource management stages are declared.

1. Landscape Water Management Measures

- Limit landscape watering with sprinklers or irrigation systems at each service address to no more than two days per week (April 1 – October 31), with education that less than twice per week is usually adequate. (NTMWD has identified assigning designated watering days as a BMP and suggests implementing a watering schedule as part of this measure). Additional watering of landscape may be provided by hand-held hose with shutoff nozzle, use of dedicated irrigation drip zones. An exception is allowed for landscape associated with new construction that may be watered as necessary for 30 days from the installation of new landscape features.
- Limit landscape watering with sprinklers or irrigation systems at each service address to no more than one day per week beginning November 1 and ending March 31 of each year, with education that less than once per week is usually adequate.

- Estimated savings from the year-round watering restrictions, mentioned above, since the District terminated drought stages in 2015 is approximately 2.5 to 3.5 percent on an average annualized basis.
- Prohibit lawn irrigation watering from 10 AM to 6 PM (April 1 – October 31).
- Prohibit 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.
- Prohibit 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.
- Prohibit overseeding, sodding, sprigging, broadcasting or plugging with cool season grasses or watering cool season grasses, except for golf courses and athletic fields.
- Require that irrigation systems be inspected at the same time as initial backflow preventer inspection.
- Requirement that all new irrigation systems be in compliance with state design and installation regulations (Texas Administrative Code Title 30, Chapter 344).
- Require 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 an licensed irrigator in the State of Texas and be submitted to the local water provider (i.e., city, water supply corporation).

2. Additional Water Management Measures

- Prohibit the use of potable 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.
- Non-commercial car washing can be done only when using a water hose with a shut-off nozzle.
- Hotels and motels shall offer a linen reuse water conservation option to customers.

- Restaurants, bars, and other commercial food or beverage establishments may not provide drinking water to customers unless a specific request is made by the customer for drinking water.

Member Cities and Customers are responsible for developing regulations, ordinances, policies, or procedures for enforcement of water conservation guidelines.

Appendix E is a summary of considerations for landscape water management regulations adopted as part of the development of this water conservation plan. These regulations are intended to minimize waste in landscape irrigation. Appendix E includes the required landscape water measures laid out in this section.

7.5 Additional Water Conservation Measures (Not Required)

NTMWD also urges its Member Cities and Customers to consider including the following additional water conservation measures in their plans. Member Cities and Customers are responsible for developing regulations, ordinances, policies, or procedures for enforcement of water conservation guidelines.

1. Landscape Water Management Regulations

- Requirement that all existing irrigation systems be retrofitted with rain and freeze sensors and/or ET or Smart controllers capable of multiple programming. 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 separate irrigation system from surrounding areas.
- Implementation of other measures to encourage off-peak water use.

2. Landscape Ordinance

- Landscape ordinances are developed by a city to guide developers in landscaping requirements for the city. A sample landscape ordinance is provided in Appendix I and is intended as a guideline for adopting a landscape ordinance to promote water-efficient landscape design.
- Native, drought tolerant or adaptive plants should be encouraged.



- Drip irrigation systems should be promoted.
- ET/Smart controllers that only allow sprinkler systems to irrigate when necessary should be promoted.

3. Water Audits

- Water audits are useful in finding ways in which water can be used more efficiently at a specific location. NTMWD recommends that Member Cities and Customers offer water audits to customers.

4. Industrial, Commercial, and Institutional Customers

In order to target programs towards this customer base, the District 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 the project is currently in the process of data collection. 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.

5. Rebates

In addition to the conservation measures described above, NTMWD also recommends the following water conservation incentive programs for consideration by Member Cities and Customers:

- Commercial clothes washer rebates for the purchase and installation of high efficiency card- or coin -operated commercial clothes washers;
- Low-flow toilet replacement and rebate programs;
- Rebates for rain/freeze sensors and/or ET or Smart controllers;
- Low-flow showerhead and sink aerators replacement programs or rebates;
- Residential water efficient clothes washer rebates;
- Pressure reducing valve installation programs or rebates;
- Rain barrel rebates;
- Pool covers;
- On-demand hot water heater rebates; and/or
- Other water conservation incentive programs.

7.6 Monitoring of Effectiveness and Efficiency - NTMWD Annual Water Conservation Report

Appendix D is a form that should be used in the development of an annual water conservation report by Member Cities and Customers. This form should be completed by March 31 of the following year and used to monitor the effectiveness and efficiency of the water conservation program and to plan conservation-related activities for the next year. The form records the water use by category, per capita municipal use, and total water loss for the current year and compares them to historical values. As part of the development of Appendix D, Member Cities and Customers will complete the tracking tool by March 31 of the following year and submit them to NTMWD. The annual water conservation report should be sent to NTMWD, which will monitor NTMWD Member Cities' and Customers' water conservation trends:

7.7 Water Conservation Implementation Report

Appendix J includes the TCEQ-required water conservation implementation report. The report is due to the TCEQ by May 1 of every year. This report lists the various water conservation strategies that have been implemented, including the date the strategy was implemented. 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. The amount of water saved is also requested.

8. IMPLEMENTATION AND ENFORCEMENT OF THE WATER CONSERVATION PLAN

Appendix G contains a draft ordinance, order, or resolution which may be tailored to meet Member or Customer City needs and may be adopted by the City Council or governing board regarding the Model Water Conservation Plan. The ordinance, order, or resolution designates responsible officials to implement and enforce the water conservation plan. Appendix E, the considerations for landscape water management regulations, also includes information about enforcement. Appendix H includes a copy of an ordinance, order, or resolution that may be adopted related to illegal connections and water theft.



9. REVIEW AND UPDATE OF WATER CONSERVATION PLAN

TCEQ requires that the water conservation plans be updated every five years. The plan will be updated as required and as appropriate based on new or updated information.

WATER CONSERVATION PLAN
FOR THE CITY OF LUCAS

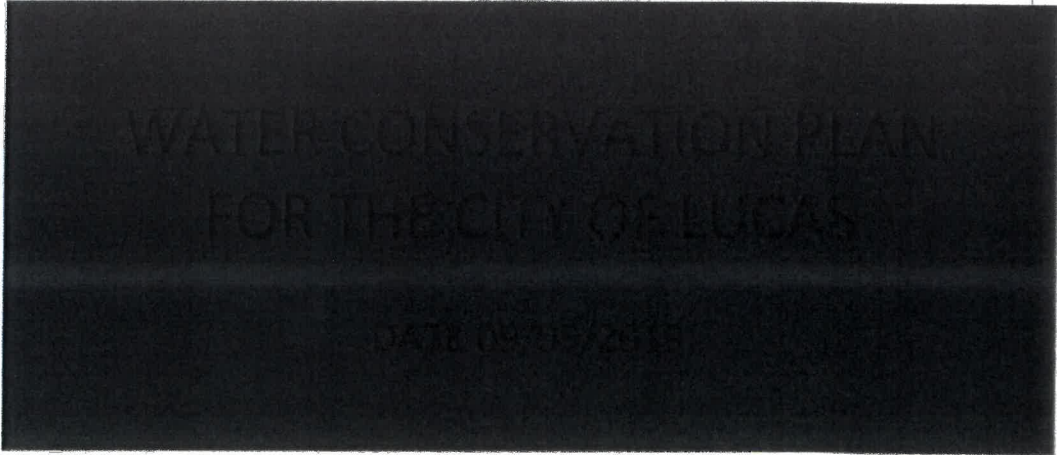
DATE 09/05/2019

Appendix A

APPENDIX A

LIST OF REFERENCES

1. Texas Commission on Environmental Quality Water Conservation Implementation 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://jtexreg.sos.state.tx.us/public/readtacSext.ViewTAC?tacview=4&ti=30&pt=l&ch=288>,
November 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, March 2014.
5. Texas Water Development Board, Texas Commission on Environmental Quality, Water
Conservation Advisory Council: Guidance and Methodology for Reporting on Water
Conservation and Water Use, December 2012
6. Freese and Nichols Inc., Alan Plummer and Associates, CP & Y Inc. and Cooksey
Communications.
"2016 Region C Regional Water Plan"



Appendix B

APPENDIX B

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULESON MUNICIPAL WATER CONSERVATION PLANS

Texas Administrative Code

TITLE 30	ENVIRONMENTAL QUALITY
PART I	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) 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.

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

(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 stateowned 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.

(23) Water conservation coordinator--The person designated by a retail public water supplier that is responsible for implementing a water conservation plan.

(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

Texas Administrative Code

TITLE 30	ENVIRONMENTAL QUALITY
PART I	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 288	WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS
SUBCHAPTER A	WATER CONSERVATION PLANS
RULE §288.1	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;

2019 Water Conservation Plan

(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

WATER CONSERVATION PLAN
FOR THE CITY OF LUCAS

DATE 04/05/2010

Appendix C

Exhibit C



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

Utility Profile and Water Conservation Plan Requirements for Municipal Water Use by Retail Public Water Suppliers

This form is provided to assist retail public water suppliers in water conservation plan assistance in completing this form or in developing your plan, please contact the Conservation staff of the Resource Protection Team in the Water Availability Division at (512) 239-4691.

Water users can find best management practices (BMPs) at the Texas Water Development Board's website <http://www.twdb.texas.gov/conservation/BMPs/index.asp>. The practices are broken out into sectors such as Agriculture, Commercial and Institutional, Industrial, Municipal and Wholesale. BMPs are voluntary measures that water users use to develop the required components of Title 30, Texas Administrative Code, Chapter 288. BMPs can also be implemented in addition to the rule requirements to achieve water conservation goals.

Contact Information

Name of Water Supplier: City of Lucas

Address: 665 Country Club Road Lucas Texas 75002

Telephone Number: (972)727-8999 Fax: (972) 727-0091

Water Right No.(s): _____

Regional Water Planning Group: NTMWD

Water Conservation Coordinator (or person responsible for implementing conservation program): Joseph Hilbourn Phone: (972) 912-1207

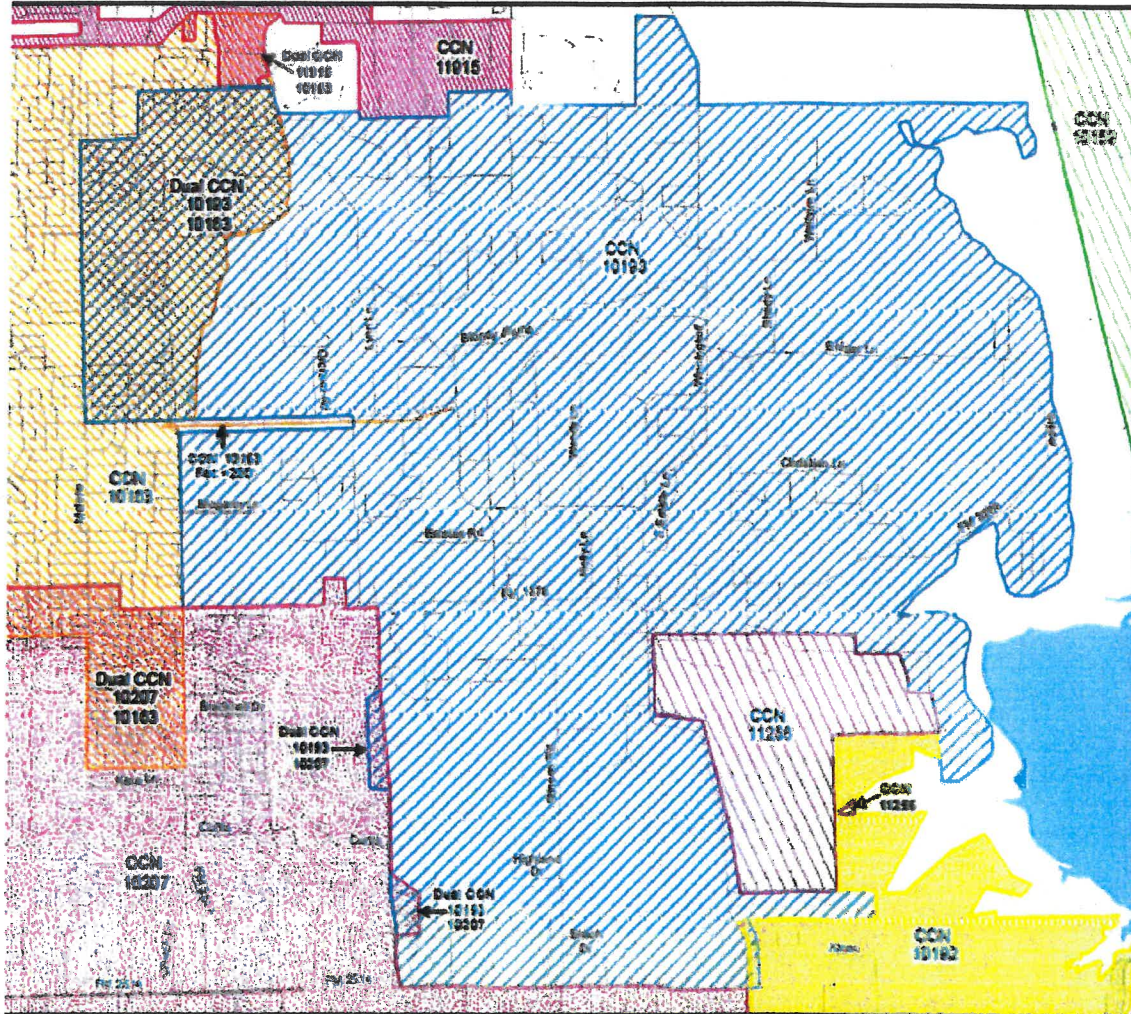
Form Completed by: Joseph Hilbourn

Title: Development Services Director

Signature: _____ Date: / /

A water conservation plan for municipal use by retail public water suppliers must include the following requirements (as detailed in 30 TAC Section 288.2). If the plan does not provide information for each requirement, you must include in the plan an explanation of why the requirement is not applicable.

**City of Lucas
Water CCN No. 10193
PUC Docket No. 48660
Amended CCN No. 10193 in Collin County**



Water CCN

- 10193 - City of Lucas
- 11915 - City of Fairview
- 10159 - Culeoka WSC
- 11256 - Sels Lagos Utility District
- 10192 - Wylie Northeast SUD
- 10207 - City of Parker

Water CCN Facility +200'

- 10163 - City of Allen



Public Utility Commission of Texas
1701 N. Congress Ave.

Map by: Korum Patel
Date created: April 5, 2019
Project Path: r:\collin\ccn\



Public Utility Commission of Texas

**By These Presents Be It Known To All That
City of Lucas**

having obtained certification to provide water utility service for the convenience and necessity of the public, and it having been determined by this Commission that the public convenience and necessity would in fact be advanced by the provision of such service, City of Lucas is entitled to this

Certificate of Convenience and Necessity No. 10193

to provide continuous and adequate water utility service to that service area or those service areas in Collin County as by final Order or Orders duly entered by this Commission, which Order or Orders resulting from Docket No. 48660 are on file at the Commission offices in Austin, Texas; and are matters of official record available for public inspection; and be it known further that these presents do evidence the authority and the duty of the City of Lucas to provide such utility service in accordance with the laws of this State and Rules of this Commission, subject only to any power and responsibility of this Commission to revoke or amend this Certificate in whole or in part upon a subsequent showing that the public convenience and necessity would be better served thereby.

Issued at Austin, Texas, this 26th day of July 2019.

Utility Profile

I. POPULATION AND CUSTOMER DATA

A. *Population and Service Area Data*

1. Attach a copy of your service-area map and, if applicable, a copy of your Certificate of Convenience and Necessity (CCN).
2. Service area size (in square miles): 17.66
(Please attach a copy of service-area map)
3. Current population of service area: 8338
4. Current population served for:
 - a. Water 8147
 - b. Wastewater 40

5. Population served for previous five years:

<u>Year</u>	<u>Population</u>
<u>2015</u>	<u>7134</u>
<u>2016</u>	<u>7599</u>
<u>2017</u>	<u>7775</u>
<u>2018</u>	<u>8147</u>
<u>2019</u>	<u>8338</u>

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

<u>Year</u>	<u>Population</u>
<u>2020</u>	<u>9,000</u>
<u>2030</u>	<u>11,000</u>
<u>2040</u>	<u>14,000</u>
<u>2050</u>	<u>14,000</u>
<u>2060</u>	<u>14,000</u>

7. List source or method for the calculation of current and projected population size.

Current NTCOG plan, and City of Lucas future Comprehensive plan

B. Customer Data

Senate Bill 181 requires that uniform consistent methodologies for calculating water use and conservation be developed and available to retail water providers and certain other water use sectors as a guide for preparation of water use reports, water conservation plans, and reports on water conservation efforts. A water system must provide the most detailed level of customer and water use data available to it, however, any new billing system purchased must be capable of reporting data for each of the sectors listed below. More guidance can be found at: <http://www.twdb.texas.gov/conservation/doc/SB181Guidance.pdf>

1. Quantified 5-year and 10-year goals for water savings:

	<i>Historic 5-year Average</i>	<i>Baseline</i>	<i>5-year goal for year 2024</i>	<i>10-year goal for year 2029</i>
Total GPCD	159.24		154	150
Residential GPCD	150.07		145	140
Water Loss GPCD	23.70		21	20
Water Loss Percentage	12.42%		11.42%	10.42%

Notes:

Total GPCD = (Total Gallons in System ÷ Permanent Population) ÷ 365

Residential GPCD = (Gallons Used for Residential Use ÷ Residential Population) ÷ 365

Water Loss GPCD = (Total Water Loss ÷ Permanent Population) ÷ 365

Water Loss Percentage = (Total Water Loss ÷ Total Gallons in System) x 100; or (Water Loss GPCD ÷ Total GPCD) x 100

2. Current number of active connections. Check whether multi-family service is counted as Residential or Commercial?

<i>Treated Water Users</i>	<i>Metered</i>	<i>Non-Metered</i>	<i>Totals</i>
Residential			2647
Single-Family	2607	0	2647
Multi-Family			
Commercial	40	0	40
Industrial/Mining			
Institutional			
Agriculture			
Other/Wholesale			

3. List the number of new connections per year for most recent three years.

<i>Year</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>
<i>Treated Water Users</i>			
Residential	74	56	130
Single-Family	74	56	130
Multi-Family	0	0	0
Commercial	2	4	3
Industrial/Mining			
Institutional	0	15	11
Agriculture			
Other/Wholesale	0		

4. List of annual water use for the five highest volume customers.

<i>Customer</i>	<i>Use (1,000 gal/year)</i>	<i>Treated or Raw Water</i>
Larsen, Brandon & Heather	18,128	Treated
Lovejoy High School	16,031	Treated
Lovejoy High School	15,120	Treated
CE Lucas HOA	14,867	Treated
Lovejoy High School	13,084	Treated

II. WATER USE DATA FOR SERVICE AREA

A. *Water Accounting Data*

1. List the amount of water use for the previous five years (in 1,000 gallons).

Indicate whether this is diverted or X treated water.

<i>Year</i>	2014	2015	2016	2017	2018
<i>Month</i>					
January	<u>17,685,900</u>	<u>19,188,800</u>	<u>16,187,800</u>	<u>18,555,500</u>	<u>20,895,800</u>
February	<u>15,469,000</u>	<u>17,412,500</u>	<u>21,664,500</u>	<u>20,774,600</u>	<u>20,353,100</u>
March	<u>19,722,100</u>	<u>13,202,900</u>	<u>18,093,300</u>	<u>17,361,100</u>	<u>19,269,700</u>
April	<u>22,975,100</u>	<u>14,498,400</u>	<u>24,831,900</u>	<u>27,565,500</u>	<u>31,516,500</u>
May	<u>34,810,200</u>	<u>34,810,200</u>	<u>29,090,100</u>	<u>34,530,300</u>	<u>37,964,600</u>
June	<u>34,200,300</u>	<u>26,579,100</u>	<u>26,750,900</u>	<u>45,460,000</u>	<u>66,607,000</u>
July	<u>44,171,900</u>	<u>41,603,300</u>	<u>69,692,100</u>	<u>40,498,900</u>	<u>74,689,900</u>
August	<u>37,923,900</u>	<u>78,179,300</u>	<u>63,482,100</u>	<u>59,412,200</u>	<u>86,343,200</u>
September	<u>50,182,300</u>	<u>106,421,900</u>	<u>45,469,900</u>	<u>53,254,900</u>	<u>63,810,700</u>
October	<u>39,354,300</u>	<u>61,441,700</u>	<u>53,291,000</u>	<u>53,805,700</u>	<u>33,033,500</u>
November	<u>32,740,900</u>	<u>21,109,100</u>	<u>42,721,100</u>	<u>46,462,700</u>	<u>19,253,600</u>
December	<u>17,974,800</u>	<u>20,554,900</u>	<u>23,777,600</u>	<u>34,739,500</u>	<u>20,225,900</u>
Totals	<u>367,210,700</u>	<u>435,813,300</u>	<u>435,052,300</u>	<u>452,420,900</u>	<u>493,963,500</u>

2. Describe how the above figures were determined (e.g, from a master meter located at the point of a diversion from the source or located at a point where raw water enters the treatment plant, or from water sales).

Water Sales

3. Amount of water (in 1,000 gallons) delivered/sold as recorded by the following account types for the past five years.

<i>Year</i>	2014	2015	2016	2017	2018
<i>Account Types</i>					
Residential					
Single-Family	16,786,400	410,068,400	411,174,500	427,439,600	467,658,300
Multi-Family					
Commercial	873,900	30,685,500	25,888,100	22,783,100	26,077,800
Industrial/Minin g					
Institutional					
Agriculture					
Other/Wholesale					

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

<i>Year</i>	<i>Amount (gallons)</i>	<i>Percent %</i>
2018	70 MG	12.42%
2017	58 MG	11.14%
2016	70 MG	14%
2015	46 MG	9%
2014	45 MG	10%

B. Projected Water Demands

1. If applicable, attach or cite projected water supply demands from the applicable Regional Water Planning Group 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 requirements from such growth.

III. WATER SUPPLY SYSTEM DATA

A. Water Supply Sources

1. List all current water supply sources and the amounts authorized (in acre feet) with each.

<i>Water Type</i>	<i>Source</i>	<i>Amount Authorized</i>
Surface Water		
Groundwater		
Other	NTMWD	2115

B. Treatment and Distribution System (if providing treated water)

1. Design daily capacity of system (MGD): N/A
2. Storage capacity (MGD):
 - a. Elevated .6
 - b. Ground 1.8
3. If surface water, do you recycle filter backwash to the head of the plant?
 Yes No If yes, approximate amount (MGD): N/A

IV. WASTEWATER SYSTEM DATA

A. Wastewater System Data (if applicable)

1. Design capacity of wastewater treatment plant(s) (MGD): N/A
2. Treated effluent is used for on-site irrigation, off-site irrigation, for plant wash-down, and/or for chlorination/dechlorination.
 If yes, approximate amount (in gallons per month): 0
3. Briefly describe the wastewater system(s) of the area serviced by the water utility. Describe how treated wastewater is disposed. Where applicable, identify treatment plant(s) with the TCEQ name and number, the operator, owner, and the receiving stream if wastewater is discharged.

NTMWD Wilson Creek Plant

B. Wastewater Data for Service Area (if applicable)

1. Percent of water service area served by wastewater system: 4.72%
2. Monthly volume treated for previous five years (in 1,000 gallons):

<i>Year</i>	2014	2015	2016	2017	2018
<i>Month</i>					
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	0	0	0	0	0
May	0	0	0	0	0
June	0	0	0	0	0
July	0	0	0	0	0
August	0	0	0	0	0
September	0	0	0	0	0
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Totals	0	0	0	0	0

Water Conservation Plan

In addition to the utility profile, please attach the following as required by Title 30, Texas Administrative Code, §288.2. Note: If the water conservation plan does not provide information for each requirement, an explanation must be included as to why the requirement is not applicable.

A. Record Management System

The water conservation plan must include a record management system which allows for the classification of water sales and uses in to the most detailed level of water use data currently available to it, including if possible, the following sectors: residential (single and multi-family), commercial.

B. Specific, Quantified 5 & 10-Year Targets

The water conservation plan must include specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal use in gallons per capita per day. Note that the goals established by a public water supplier under this subparagraph are not enforceable. These goals must be updated during the five-year review and submittal.

C. Measuring and Accounting for Diversions

The water conservation plan must include a statement about the water suppliers 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.

D. Universal Metering

The water conservation plan must include and a program for universal metering of both customer and public uses of water, for meter testing and repair, and for periodic meter replacement.

E. Measures to Determine and Control Water Loss

The water conservation plan must include 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.).

F. Continuing Public Education & Information

The water conservation plan must include a description of the program of continuing public education and information regarding water conservation by the water supplier.

G. Non-Promotional Water Rate Structure

The water supplier must have 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. This rate structure must be listed in the water conservation plan.

H. Reservoir Systems Operations Plan

The water conservation plan must include 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.

I. Enforcement Procedure and Plan Adoption

The water conservation plan must include 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.

J. Coordination with the Regional Water Planning Group(s)

The water conservation plan must include 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.

K. Plan Review and Update

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 not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. The revised plan must also include an implementation report.

VI. ADDITIONAL REQUIREMENTS FOR LARGE SUPPLIERS

Required of suppliers serving population of 5,000 or more or a projected population of 5,000 or more within the next ten years:

A. Leak Detection and Repair

The plan must include a description of the program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system in order to control unaccounted for uses of water.

B. Contract Requirements

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.

VII. ADDITIONAL CONSERVATION STRATEGIES

Any combination of the following strategies shall be selected by the water supplier, in addition to the minimum requirements of 30 TAC §288.2(1), 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:

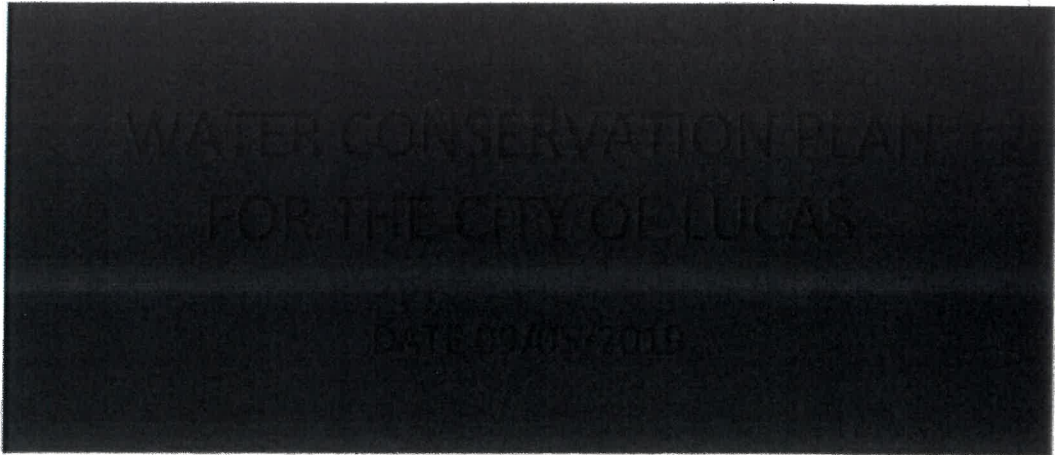
1. Conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;
2. Adoption of ordinances, plumbing codes, and/or rules requiring water conserving plumbing fixtures to be installed in new structures and existing structures undergoing substantial modification or addition;
3. A program for the replacement or retrofit of water-conserving plumbing fixtures in existing structures;
4. A program for reuse and/or recycling of wastewater and/or graywater;
5. A program for pressure control and/or reduction in the distribution system and/or for customer connections;
6. A program and/or ordinance(s) for landscape water management;
7. A method for monitoring the effectiveness and efficiency of the water conservation plan; and
8. 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.

VIII. WATER CONSERVATION PLANS SUBMITTED WITH A WATER RIGHT APPLICATION FOR NEW OR ADDITIONAL STATE WATER

Water Conservation Plans submitted with a water right application for New or Additional State Water must include data and information which:

1. support the applicant's proposed use of water with consideration of the water conservation goals of the water conservation plan;
2. evaluates conservation as an alternative to the proposed appropriation; and
3. evaluates any other feasible alternative to new water development including, but not limited to, waste prevention, recycling and reuse, water transfer and marketing, regionalization, and optimum water management practices and procedures.

Additionally, it shall be the burden of proof of the applicant to demonstrate that no feasible alternative to the proposed appropriation exists and that the requested amount of appropriation is necessary and reasonable for the proposed use.



Appendix D

**APPENDIX D
WYRWIND MEMBER CITY AND CUSTOMER WATER CONSERVATION REPORT**
Year: 2015

Water Utility Reporting:
 Filed On: 1/27/2016
 Phone Number: 214-241-2222
 Email: water@wyrwind.com
 Date Completed: 01/27/2016
 Year Covered: 2015
 # of Connections: 1,000
 Estimated Population: 1,000
 Source: Public Supply - City of Wyrwind
 # of Inlets: 1,000

Use the icons used for selection of connection. Indicate Inlet or Outlet Preventers using the Dropdown Menu

Recorded Deliveries and Sales by Month in Millions Gallons

Month	Supply other than WYRWIND	Sales by Category				
		Residential	Commercial	Public Institutions	Industrial	Miscellaneous
January	0.00	0.00	0.00	0.00	0.00	0.00
February	0.00	0.00	0.00	0.00	0.00	0.00
March	0.00	0.00	0.00	0.00	0.00	0.00
April	0.00	0.00	0.00	0.00	0.00	0.00
May	0.00	0.00	0.00	0.00	0.00	0.00
June	0.00	0.00	0.00	0.00	0.00	0.00
July	0.00	0.00	0.00	0.00	0.00	0.00
August	0.00	0.00	0.00	0.00	0.00	0.00
September	0.00	0.00	0.00	0.00	0.00	0.00
October	0.00	0.00	0.00	0.00	0.00	0.00
November	0.00	0.00	0.00	0.00	0.00	0.00
December	0.00	0.00	0.00	0.00	0.00	0.00

Other Parameters:
 Peak Day (MG): 0.00 Total peak day use (Peak day delivery from WYRWIND + other supplies)
 Billed Unmetered: 0.00 Estimated water that has been sold but not metered, for example, fire hydrants and types of businesses using unmetered water drawn from fire hydrants or other unmetered uses.
 Unbilled Metered: 0.00 Water that is metered but not billed, such as city/government offices, city park irrigation, water treatment facility use, and some fire department use.
 Unbilled Unmetered: 0.00 Firefighting water not billed or metered, such as most fire fighting.
 Goal for Total Loss Percent: 0.00
 \$-wsp Per Capita Goal
 10-year Per Capita Goal

Recorded Wholesale Sales by Month in Millions Gallons

Month	Sales to...	Sales to...	Sales to...	Sales to...	Sales to...	Sales to...
January						
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						

Information on Wholesale Connections

Customer	Estimated Total Population

Wholesale Connections and additional sheets if necessary

During FY 2015, we had zero wholesale connections to be reported. We had zero water to be reported. We had zero water to be reported. We had zero water to be reported.

Progress in Implementation of Conservation Plan. Any additional sheets if necessary.

Conservation measures planned for next year. Any additional sheets if necessary.

Additional measures requested from North Texas Municipal Water District. Any additional sheets if necessary.

Additional measures requested from North Texas Municipal Water District. Any additional sheets if necessary.

Any other items requested. Any additional sheets if necessary.

Any other items requested. Any additional sheets if necessary.

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

Water Utility Reporting:
 Filled Out By: Lucas Adam Gerster
 Phone Number: 972-912-1209
 Email: agerster@lucastexas.us
 Date Completed: 02/20/2019
 Year Covered: 2018
 # of Connections: 2,607
 Estimated Population: 8,147
 Source: Stanton Foerster, City Engineer
 # of Irrigation Systems

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

Month	Deliveries from NTMWD	Other Supplies	Sales by Category					Total		
			Residential	Commercial	Public/ Institutional	Industrial	Metered Irrigation		Wholesale	Other
January	30.250		19.998	0.400	0.482	0.005				20.885
February	26.564		18.966	0.387	0.562	0.011				19.926
March	30.873		17.783	0.504	0.539	0.004				18.830
April	37.163		29.454	0.597	1.145	0.006				31.202
May	62.812		36.362	0.604	0.948	0.013				37.927
June	64.199		63.770	1.098	1.350	0.025				66.183
July	100.812		71.475	0.959	2.205	0.019				74.658
August	88.952		81.876	1.203	2.552	0.041				85.672
September	42.821		60.129	1.157	2.366	0.018				63.670
October	28.793		30.682	0.907	1.373	0.004				32.966
November	29.512		17.869	0.656	0.705	0.006				19.236
December	24.596		18.918	0.798	0.596	0.016				20.328
TOTAL	567.347		467.282	9.210	14.823	0.168				491.483

Peak Day Usage
 Peak Day (MG) 4.886
 Average Day (MG) 1.554
 Peak/Average Day Ratio 3.143

Authorized Consumption and Water Loss

Total System Input Volume: 567.347
 Billed Metered: 491.483
 Unbilled Metered: 0.050
 Unbilled Unmetered: 5.334
 Total Authorized Consumption: 496.867
 Water Losses: 70.480
 Total Loss Percent: 12.42%
 Goal for Total Loss Percent:

Per Capita Use (Gallons per person per day)

Municipal Use (MG) 567
 Residential Use (MG) 467.282
 Total Per Capita Use (gpcd) 191
 Municipal Per Capita Use (gpcd) 191
 Residential Per Capita Use (gpcd) 157
 5-year Per Capita Goal
 10-year Per Capita Goal

Recorded Wholesale Sales by Month (in Million Gallons):

Month	Sales to...	Sales to...	Sales to...	Sales to...	Sales to...	Sales to...	Sales to...	Sales to...	Sales to...	Total Wholesale Sales
January										
February										
March										
April										
May										
June										
July										
August										
September										
October										
November										
December										
TOTAL										

Information on Wholesale Customers:

Customer	Estimated Total Population

Unusual Circumstances (use additional sheets if necessary):

January 4th, 2018, we flushed both elevated towers to boost our chlorine residuals. We flushed both again on September 28th, 2018 for the same reason to boost chlorine residuals. With the abundance of rain we received this year, customers did not use as much water resulting in residual drop so we were forced to drain the towers to offset that drop.

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

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

--

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

--

Other (use additional sheets if necessary):

--

Historical Water Use Data for Lucas

Year	Connections	Estimated Population	Deliveries from NTMWD (MG)	Other Supplies (MG)	Metered Sales by Category (Million Gallons)							Total	
					Residential	Commercial	Public/Institutional	Industrial	Metered Irrigation	Wholesale	Other		
1990	0	2,205	0	0	0	0	0	0	0	0	0	0	0
1991	0	2,273	0	0	0	0	0	0	0	0	0	0	0
1992	0	2,342	0	0	0	0	0	0	0	0	0	0	0
1993	0	2,410	0	0	0	0	0	0	0	0	0	0	0
1994	0	2,479	0	0	0	0	0	0	0	0	0	0	0
1995	0	2,547	0	0	0	0	0	0	0	0	0	0	0
1996	0	2,616	0	0	0	0	0	0	0	0	0	0	0
1997	0	2,684	0	0	0	0	0	0	0	0	0	0	0
1998	0	2,753	0	0	0	0	0	0	0	0	0	0	0
1999	0	2,821	0	0	0	0	0	0	0	0	0	0	0
2000	0	2,890	0	0	0	0	0	0	0	0	0	0	0
2001	0	3,117	0	0	0	0	0	0	0	0	0	0	0
2002	0	3,345	0	0	236	0	0	0	0	0	0	0	236
2003	0	3,573	0	0	248	0	0	0	0	0	0	0	248
2004	0	3,801	0	0	248	0	0	0	0	0	0	0	248
2005	0	4,100	0	0	369	0	0	0	0	0	0	0	369
2006	0	4,400	420	0	391	0	0	0	0	0	0	0	391
2007	0	5,100	294	0	249	0	0	0	0	0	0	0	249
2008	0	5,391	428	0	369	0	0	0	0	0	0	0	369
2009	1,859	5,473	385	0	323	0	0	0	0	0	0	0	323
2010	1,890	5,564	457	0	371	0	0	0	0	0	0	0	371
2011	1,940	5,704	593	0	507	0	0	0	0	0	0	0	507
2012	2,154	6,100	547	0	453	0	0	0	0	0	0	0	453
2013	2,215	6,414	538	0	407	31	0	0	0	0	0	0	437
2014	2,223	6,862	452	0	342	22	0	0	0	0	0	0	364
2015	2,354	7,134	514	0	411	30	0	0	0	0	0	0	441
2016	2,476	7,775	512	0	411	25	0	0	0	0	0	0	437
2017	2,420	7,599	519	0	427	11	11	0	0	0	0	0	450
2018	2,607	8,147	567	0	467	9	15	0	0	0	0	0	491

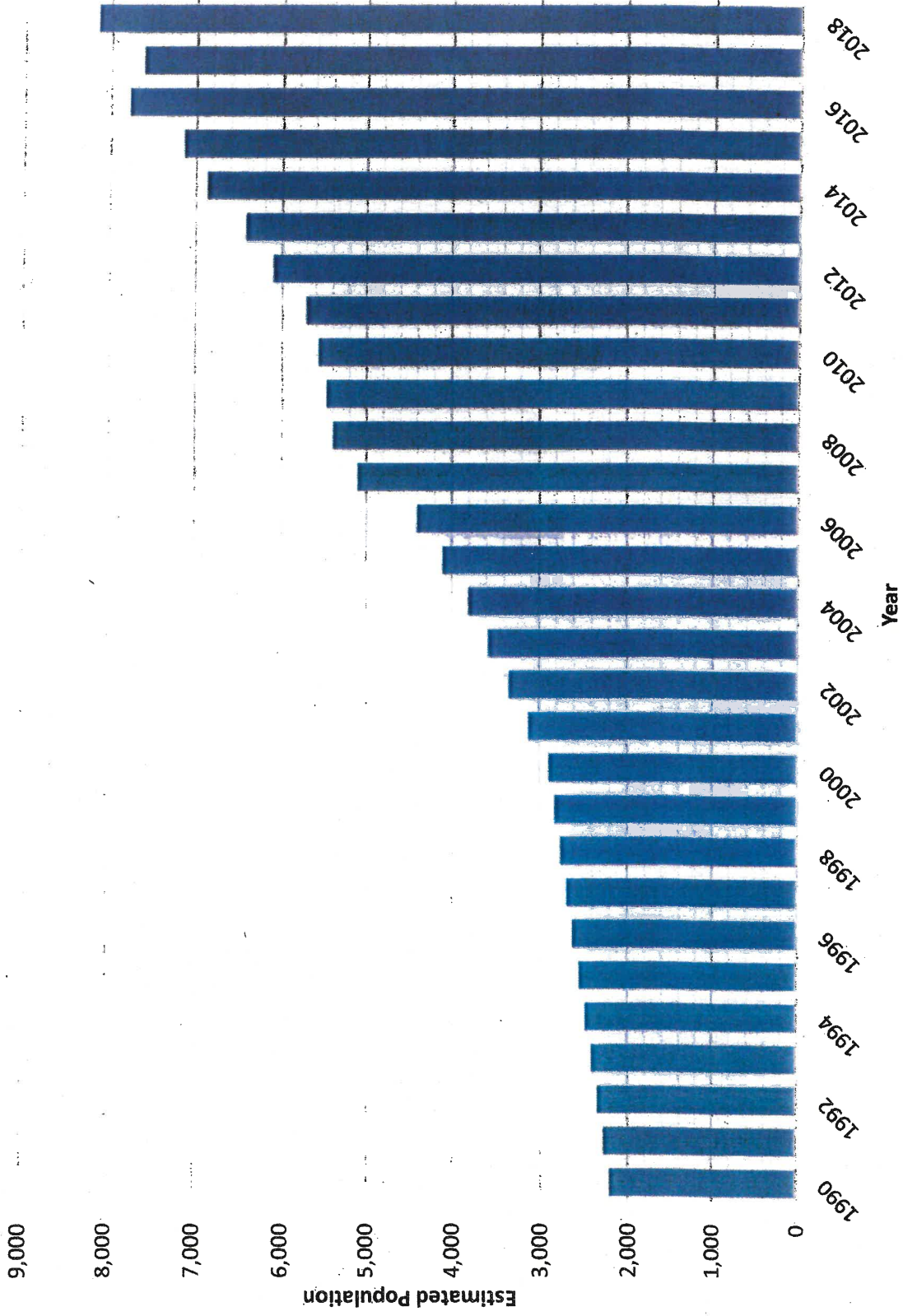
Historical Per Capita Use Data and Water Loss for Lucas

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
2002	0	0	0	0	0	0	0	236	0	0	0	0	0.00%
2003	0	0	0	0	0	0	0	248	0	0	0	0	0.00%
2004	0	0	0	0	0	0	0	248	0	0	0	0	0.00%
2005	0	0	0	0	0	0	0	369	0	0	0	0	0.00%
2006	4,400	420	262	243	420	0	0	391	0	0	0	29	6.90%
2007	5,100	294	158	133	294	0	0	249	0	0	0	45	15.31%
2008	5,391	428	217	187	428	0	0	369	0	0	0	59	13.82%
2009	5,473	385	193	161	385	0	0	323	0	1	1	61	15.73%
2010	5,564	457	225	182	457	0	0	371	0	1	4	80	17.60%
2011	5,704	593	285	243	593	0	0	507	0	1	4	81	13.65%
2012	6,100	547	246	203	547	0	0	453	0	2	8	85	15.52%
2013	6,414	538	230	173	538	0	0	437	0	2	14	86	16.00%
2014	6,862	452	181	136	452	0	0	364	0	2	41	45	10.00%
2015	7,134	514	197	157	514	0	0	441	0	3	23	46	9.00%
2016	7,775	512	180	145	512	0	0	437	0	0	5	70	14.00%
2017	7,599	519	187	154	519	0	0	450	0	0	11	58	11.14%
2018	8,147	567	191	157	567	0	0	491	0	0	5	70	12.42%

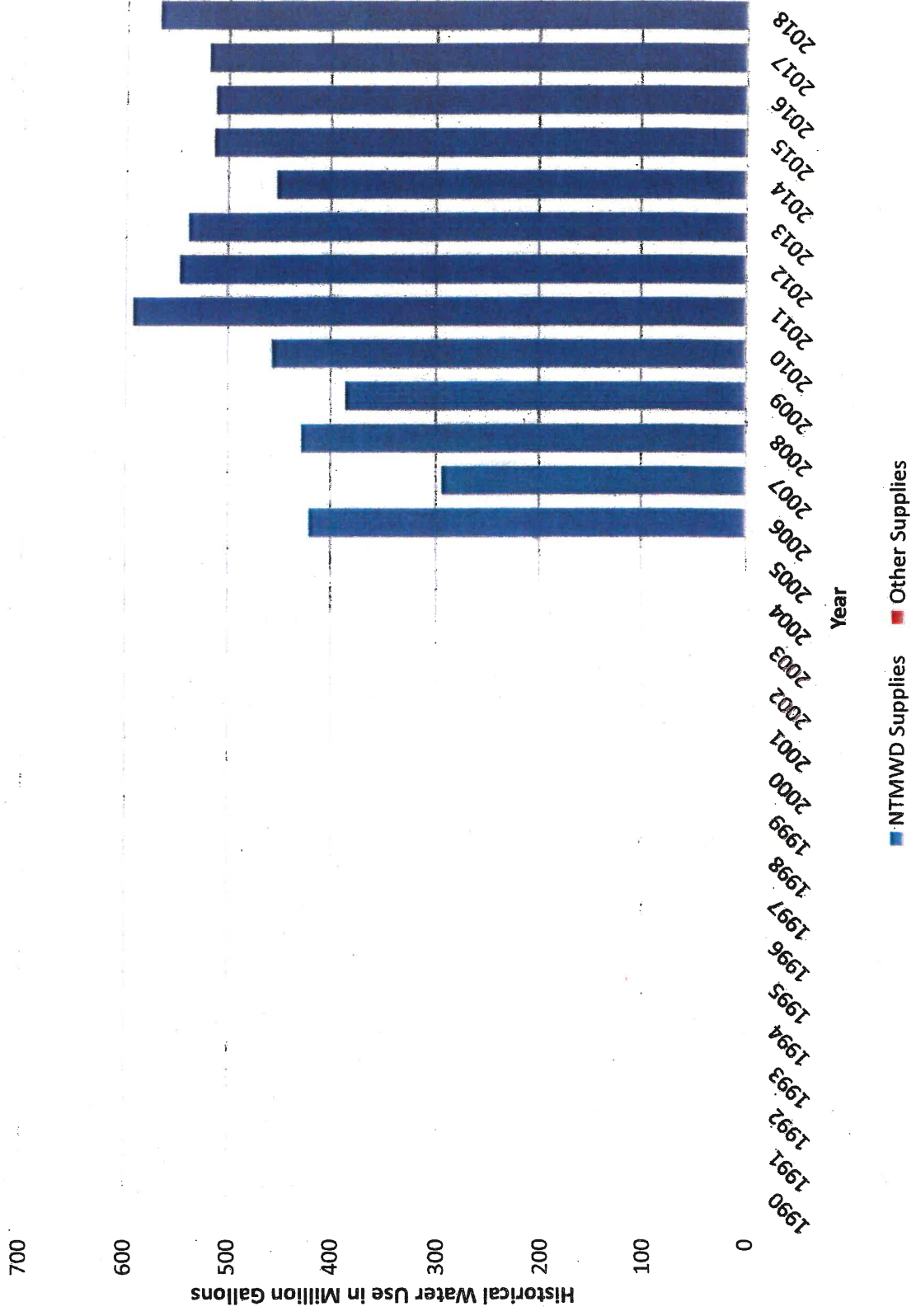
Note:

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.

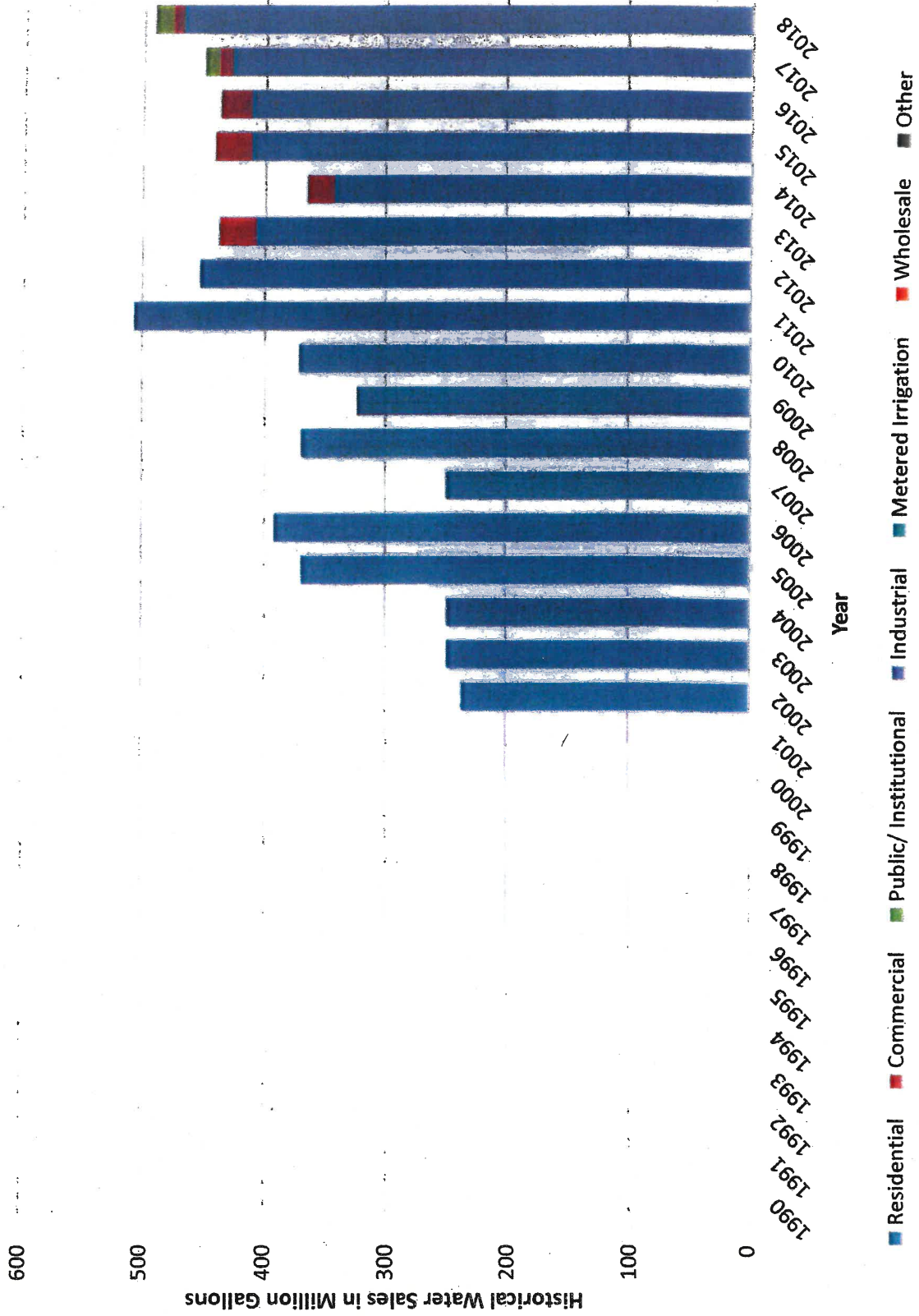
Estimated Historical Population



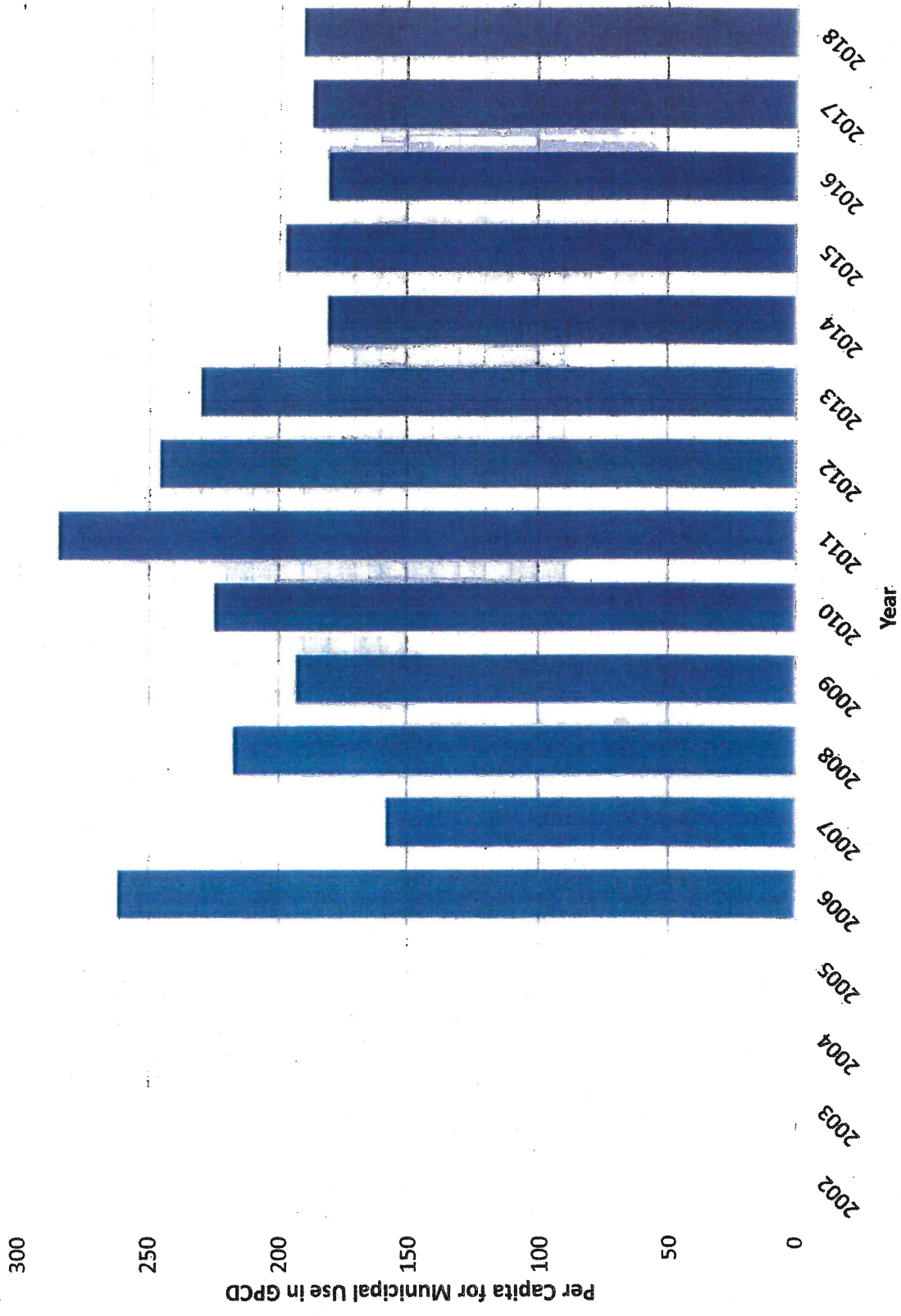
Historical Water Use



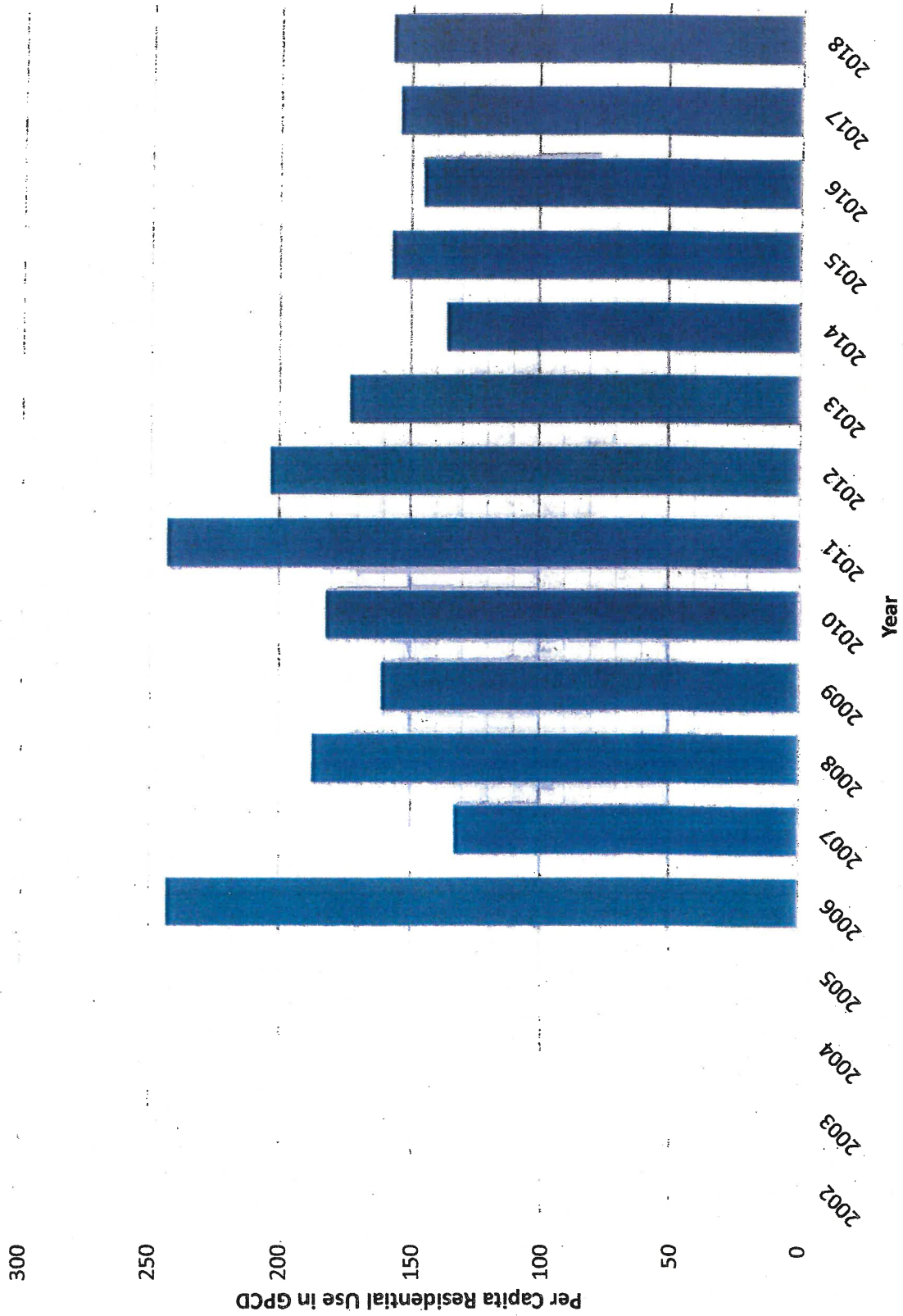
Historical Water Sales by Classification



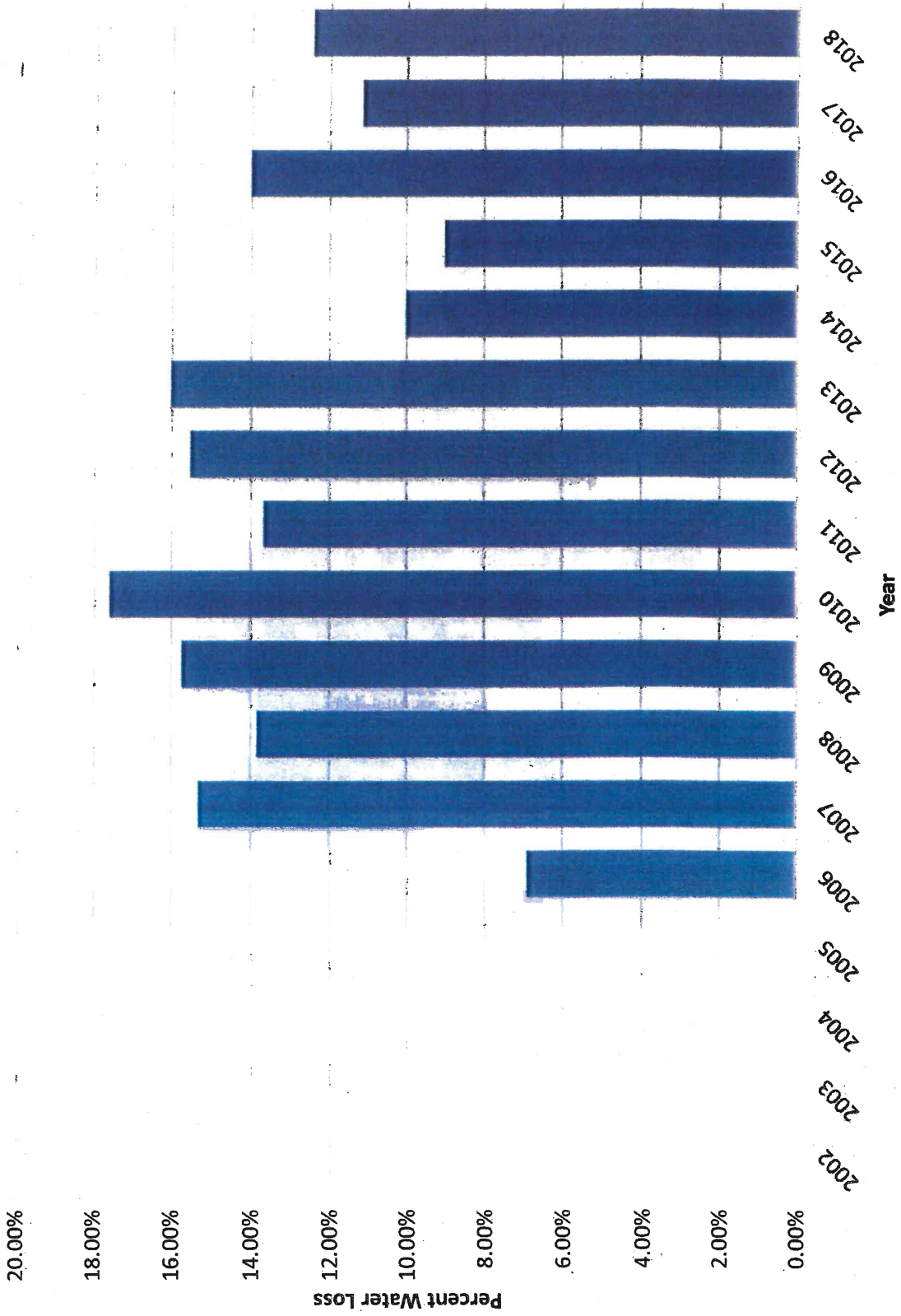
Historical Per Capita for Municipal Use

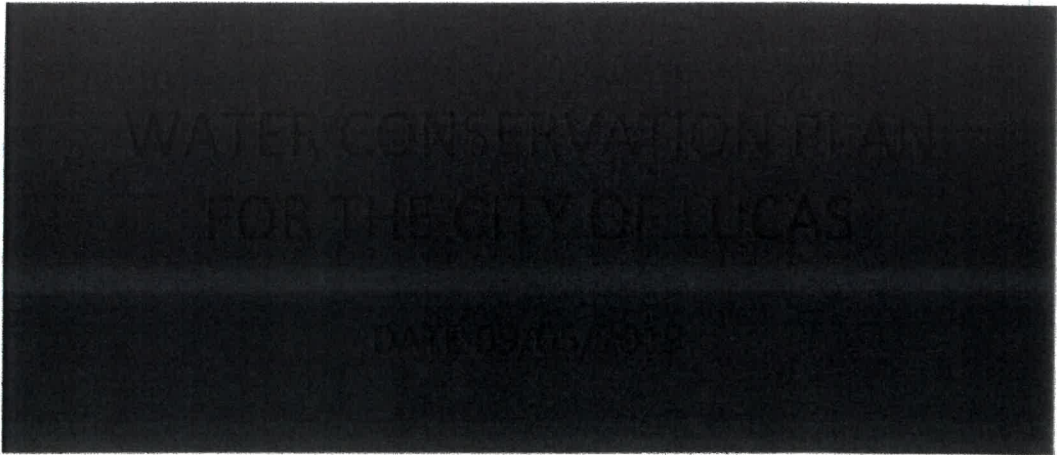


Historical Per Capita for Residential Use



Historical Percent Water Loss





Appendix E

APPENDIX E

LANDSCAPE WATER MANAGEMENT REGULATIONS

A. Purpose

The purpose of these proposed landscape water management regulations is to provide a consistent mechanism for preventing the waste of water resources. To enact these provisions, entities must verify legal authority to adopt such provisions, and must promulgate valid rules, orders, or ordinances.

B. Required Measures

The following landscape water conservation measures are required to be included in the landscape management regulations adopted and enforced in this plan.

1. Lawn and Landscape 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. from April 1 through October 31 of any year.
- 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:
 - 1) 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
 - 2) 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
 - 3) 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 allows the

irrigation or watering of any lawn or landscape located on any property owned, leased, or managed by the person more than two days per week.

2. Rain and Freeze Sensors and/or ET or Smart Controllers

Any new irrigation system installed on or after November 4, 2004, must be equipped with rain and freeze sensing devices and/or ET or Smart controllers in compliance with state design and installation regulations.

a. A person commits an offense on property owned, leased or managed if the person:

- 1) knowingly or recklessly installs or allows the installation of new irrigation systems in violation of Subsection B.2.a; or
- 2) knowingly or recklessly operates or allows the operation of an irrigation system that does not comply with Subsection B.2.a.

3. Filling or Refilling of Ponds

A person commits an offense if the person knowingly or recklessly fills or refills any natural or man made 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 500 square feet or more.

4. Washing of Vehicles

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.

5. Enforcement

Violations of the ordinance, order, or resolution will result in fees outlined below.

First Offense	Courtesy Tag Warning
Second Offense	Certified Letter notifying of violation
Third Offense	\$100

Fourth and Subsequent Offenses \$300

C. Recommended Measures

1. Lawn and Landscape Irrigation Restrictions

a. 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:

1) has broken or missing sprinkler head(s); or

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

b. A person commits an offense if the person knowingly or recklessly overseeds a lawn with rye or winter grass on property that the person owns, leases, or manages. Golf courses and public athletic fields are exempt from this restriction.

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

2. Rain and Freeze Sensors

a. Existing irrigation systems must be retrofitted with similar rain and freeze sensors and be capable of multiprogramming within 5 years.

D. Variances

1. In special cases, variances may be granted 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 relate to the health, safety, or welfare of the person making the request; and

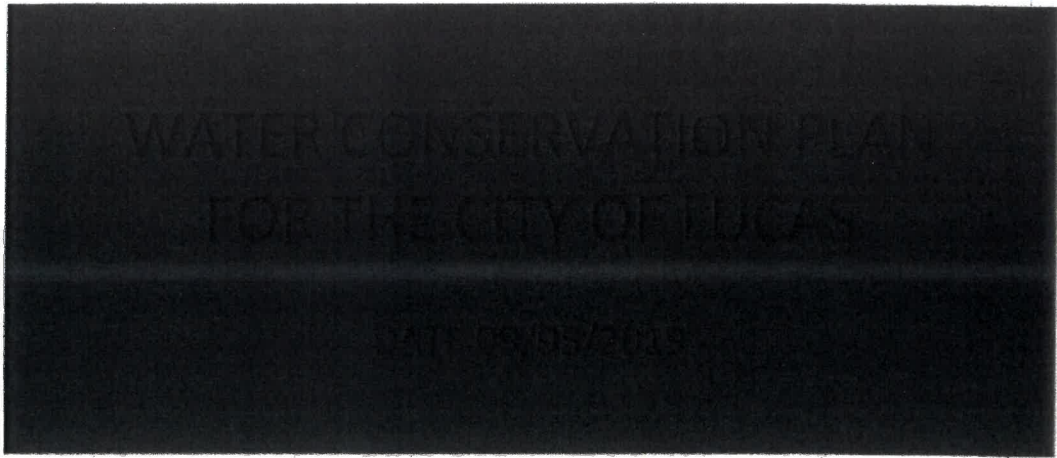
d. the health, safety, and welfare of the public and the person making the request must not be adversely affected by the requested variance.

2. 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.



Appendix F

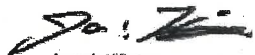
Appendix F

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

Dear Sir:

Enclosed please find a copy of the Model Water Resource and Emergency Management Plan for Member Cities and Customers of the North Texas Municipal Water District. 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 Board of the North Texas Municipal Water District adopted the updated model plan on _____, 2019.

Sincerely,



Joseph Hiboun
City of Lucas


Appendix F

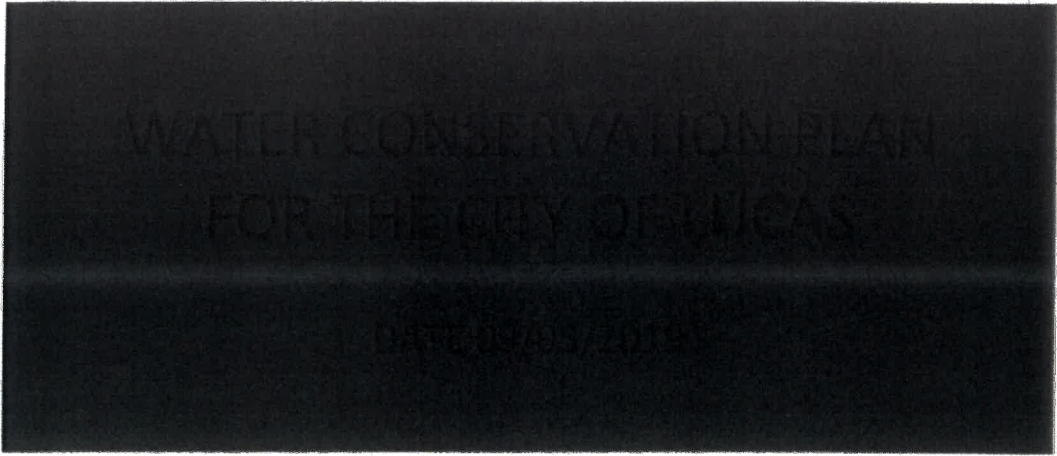
Mr. Richard LeTourneau
Chair, Region D Water Planning Group
P.O. Box 12071
Longview, TX 75607

Dear Mr. LeTourneau:

Enclosed please find a copy of the recently updated Model Water Resource and Emergency Management Plan for Member Cities and Customers of the North Texas Municipal Water District. 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 Board of the North Texas Municipal Water District adopted the updated model plan on _____ 2019.

Sincerely,


Joseph Hibourn
City of Lucas



Appendix G

Appendix G

SECTION 1

The findings set forth above are incorporated into the body of this Ordinance as if fully set forth herein.

SECTION 2

From and after the effective date of this Ordinance, Section 13.05.01, "Plan Adopted," of Article 13.05, "Water Conservation and Water Resource and Emergency Management Plan" of Chapter 13, "Utilities," of the City's Code of Ordinances is amended to read as follows:

"Sec. 13.05.001 Plan Adopted

The City Council hereby approves and adopts for the city, its citizens and water customers the new Water Conservation and Water Resource and Emergency Management Plan (the "Plan"), attached to this Ordinance as Exhibit A and incorporated herein for all purposes. A copy of this Ordinance and the Plan are available in the City Secretary's Office."

SECTION 3

The City Council hereby approves and adopts the Plan, as referenced in Section 2 of this Ordinance, as if recited verbatim herein. The City commits to implement the requirements and procedures set forth in the adopted Plan.

SECTION 4

From and after the effective date of this Ordinance, Section XVII, "Water Conservation and Enforcement Fees," of Appendix A, "Fee Schedule," to the City's Code of Ordinances is amended to read as follows:

"Sec. XVII Water Conservation and Enforcement Fees

Administrative Fees. Administrative fees for violations to the City's Water Conservation and Water Resource and Emergency Management Plan shall be added to water account holder's regular monthly utility bill as follows:

First Offense	Courtesy Tag Warning
Second Offense	Certified Letter notifying of violation
Third Offense and Subsequent offenses	\$100
Fourth Offense and Subsequent offenses	\$300

Contesting Violations: A water customer may request a hearing before a hearing officer(s) appointed by the Executive Director of Infrastructure Services within fifteen (15) business days after the date on the Notice. The hearing officer(s) shall evaluate all information offered by the petitioner at the hearing. The customer shall bear the burden of proof to show why, by preponderance of the evidence, the administrative fee should not be assessed. The hearing

officer(s) shall render a decision in writing within three (3) business days of the conclusion of the hearing. A customer may appeal the decision from the hearing officer(s) in writing to the Executive Director of Infrastructure Services within three (3) business days from the receipt of the written appeal. The decision by the Executive Director of Infrastructure Services is final and binding.

Unpaid assessed administrative fees related to violations of water use restrictions under the City Plan shall incur late payment penalties and may result in termination of water service."

SECTION 5

All provisions of any ordinance in conflict with this Ordinance are hereby repealed to the extent they are in conflict; but such repeal shall not abate any pending prosecution for violation of the repealed ordinance, nor shall the repeal prevent a prosecution from being commenced for any violation if occurring prior to the repeal of the ordinance. Any remaining portions of said ordinances shall remain in full force and effect.

SECTION 6

If any section, subsection, sentence, clause or phrase of this Ordinance is for any reason held to be unconstitutional or invalid by a court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this Ordinance. The City of Lucas hereby declares that it would have passed this Ordinance, and each section, subsection, clause or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses, and phrases be declared unconstitutional.

SECTION 7

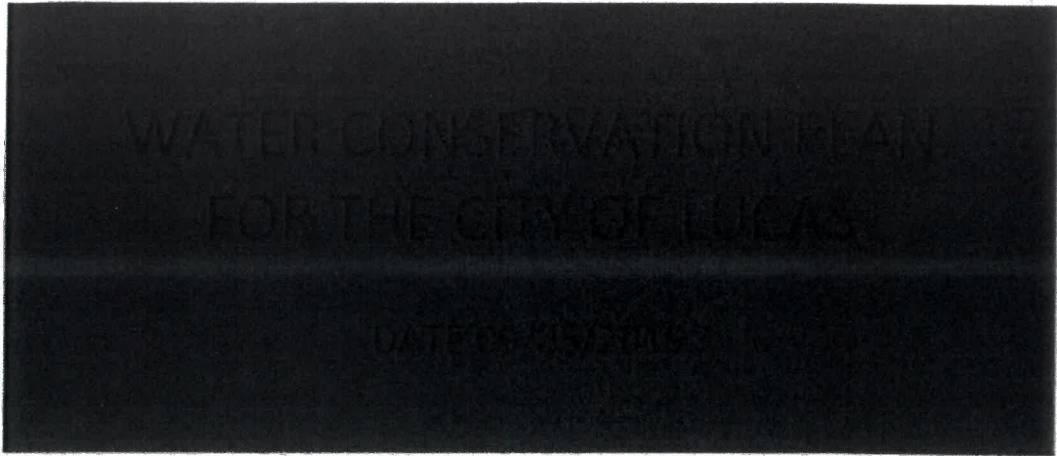
The City Manager or his designee is hereby directed to file a copy of the Plan and this Ordinance with the Commission in accordance with Title 30, Chapter 288 of the Texas Administrative Code, as amended.

SECTION 8

Any person, firm, corporation or business entity violating this Ordinance shall be deemed guilty of a misdemeanor, and upon conviction, therefore, shall be fined a sum not exceeding Two Thousand Dollars (\$2,000.00), and each and every day that such violation continues shall be considered a separate offense; provided, however, that such penal provision shall not preclude a suit to enjoin such violation. City of Lucas retains all legal rights and remedies available to it pursuant to local, state and federal law.

SECTION 9

This Ordinance shall take effect and be in full force from and after its passage and publication, as provided by the Revised Civil Statutes of the State of Texas and the Home Rule Charter of the City of Lucas, Texas.



Appendix H

Appendix H

Section 1

Findings Incorporated. The findings set forth above are incorporated into the body of this Ordinance as if fully set forth herein.

Section 2

Offense Established. A person commits an offense of theft of water by any of the following actions:

- (a) A person may not 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 Managers designee, the person causes, suffers or allows the initiation or restoration of water service to the property after termination of service(s). For purposes of this Section 2(b), 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 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 2 or fails to perform an act required by this section.

Section 3

Disconnections of Water Service and Reconnection Fee. Any violation of this Ordinance, including the first offense, will result in forfeiture of any and all deposits, removal of meters, and/or discontinuance of water service by the City. A five hundred (\$500.00) reconnection fee will be required before the City will restore water service.

Section 4

Penalty. Any person violating the provisions of Section 2 of this Ordinance shall be deemed guilty of the offense of criminal mischief, their offense shall be classified, whether a misdemeanor or a felony, in accordance with Section 28.03 of the Texas Penal Code, as it exists or may be amended and, upon conviction thereof, shall be punished in accordance with Section 28.03 of the Texas Penal Code, as it exists or may be amended. For purposes of determining whether an offense has occurred, the presumption in Section 28.03(c) the Texas Penal Code, as it exists or may be amended, shall apply.

Section 5

Savings/Repealing. All provisions of any ordinance in conflict with this Ordinance are hereby repealed to the extent they are in conflict; but such repeal shall not abate any pending prosecution for violation of the repealed ordinance, nor shall the repeal prevent a prosecution from being commenced for any violation if

occurring prior to the repeal of the ordinance. Any remaining portions of said ordinances shall remain in full force and effect.

Section 6

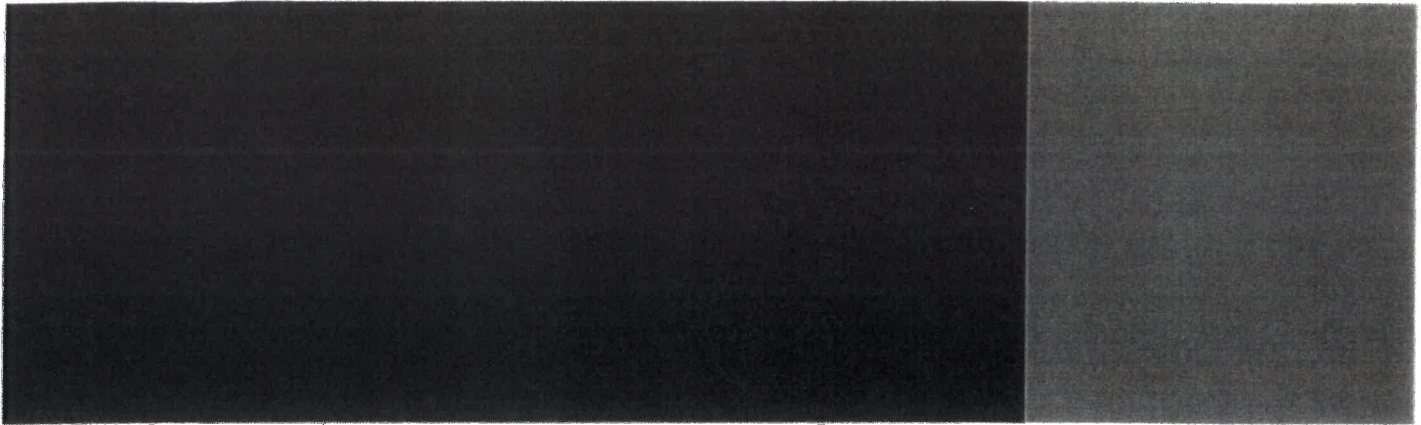
Severability. Should any section, subsection, sentence, clause or phrase of this Ordinance be declared unconstitutional or invalid by a court of competent jurisdiction, it is expressly provided that any and all remaining portions of this Ordinance shall remain in full force and effect. Prosper hereby declares that it would have passed this Ordinance, and each section, subsection, sentence, clause or phrase thereof regardless of the fact that any one or **MORE** sections, subsections, sentences, clauses and phrases be declared unconstitutional or invalid.

Section 7

Effective Date. This Ordinance shall become effective from and after its adoption and publication as required by law.



Appendix J



Appendix J



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 Lucas
2. Water Right Permit or Certificate Nos. ID 0430054

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

- Municipal Water Use by Public Water Supplier
- 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 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 _____ No X

If the targets were not met, please provide an explanation.

The city did not meet goals for two reasons:

1. Building exceeded expectations 2. The city was required to flush both towers losing in excess of 600k in water loss to obtain water residuals in compliance with state regulations.

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).

Chapter 5 page 5-2

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.

The previous plan defines "Regulated Irrigation Property" as any property that uses 1 million gallons of water or more for irrigation in a single calendar year or is greater than 1 acre in size. The new plan defines it as any property that uses 1 million gallons of water or more for irrigation purposes in a single calendar year.

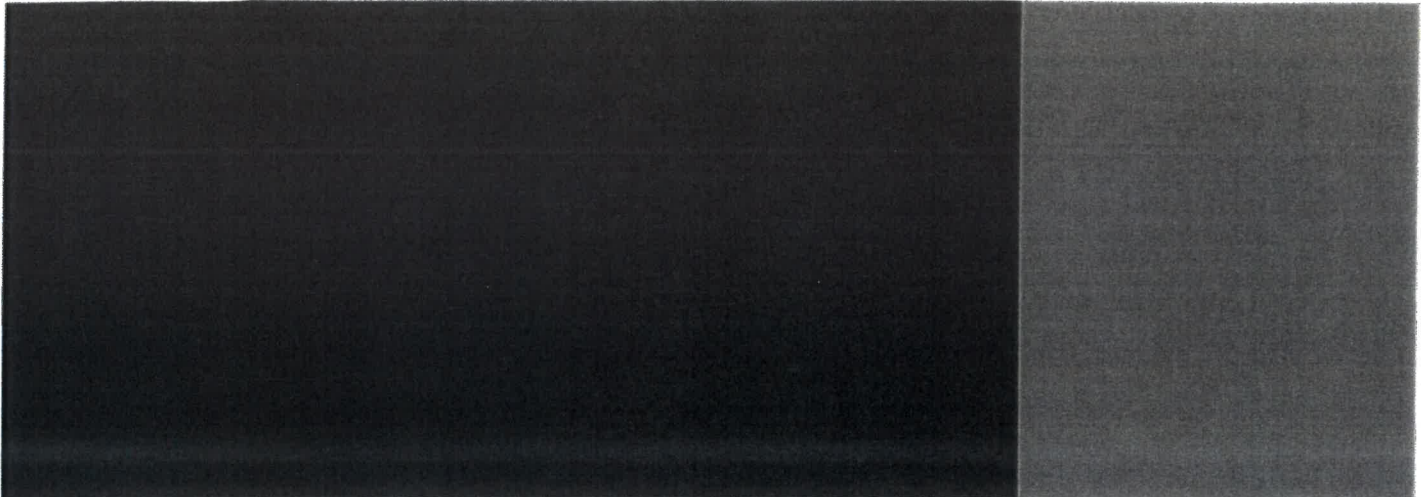
Stage 1 Initiation
Previous - Storage in Lavon Lake is less than 55% of NTMWD's total conservation pool capacity
New - Storage in Lavon Lake is less than 70% of NTMWD's total conservation pool capacity
April — October or less than 60%
during November — March

Stage 2 Initiation
Previous - Storage in Lavon Lake is less than 45% of NTMWD's total conservation pool capacity
New - Storage in Lavon Lake is less than 55% of NTMWD's total conservation pool capacity
April — October or less than 45%

9. Form Completed by (Point of Contact): Joseph Hilbourn
(if different than name listed above, owner and contact may be different individual(s)/entities)
- Contact Person Title/Position: Development Services Director
- Contact Address: 665 Country Club Road Lucas Texas 75002
- Contact Phone Number: 972-912-1206 Contact Email Address: jhilbourn@lucastexas.us

Signature: 

Date: 9/10/19



**2019 WATER RESOURCE AND EMERGENCY
MANAGEMENT PLAN
CITY OF LUCAS**

JANUARY 2019



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APPENDICES

- APPENDIX A** List of References
- APPENDIX B** Texas Commission on Environmental Quality Rules on Drought Contingency Plans
- Texas Administrative Code Title 30, Chapter 288, Section 288.20 – Drought Contingency Plans for Municipal Uses by Public Water Suppliers
- APPENDIX C** Letters to Region C and Region D Water Planning Groups
- APPENDIX D** Adoption of Water Resource and Emergency Management Plan
- Municipal Ordinance Adopting Water Resource and Emergency Management Plan
 - Municipal Utility District Order Adopting Water Resource and Emergency Management Plan
 - Special Utility District Order Adopting Water Resource and Emergency Management Plan
 - Water Supply Corporation Resolution Adopting Water Resource and Emergency Management Plan



1. INTRODUCTION AND OBJECTIVES

This document has been prepared as a Model Water Resource and Emergency Management Plan (Model WREMP), intended to be available for use by North Texas Municipal Water District (NTMWD) Member Cities and Customers as they develop their own respective WREMPs. This Model WREMP addresses all of the current TCEQ requirements for a drought contingency plan.¹ This Model WREMP will replace the plans dated August 2004, April 2006, March 2008, and April 2014.

The measures included in this Model WREMP are intended to provide short-term water savings during drought or emergency conditions. Water savings associated with ongoing, long-term strategies are discussed in the document entitled *Model Water Conservation Plan for North Texas Municipal Water District Member Cities and Customers*.²

The purpose of this Model WREMP is as follows:

- To conserve the available water supply in times of drought, water supply shortage, and emergency.
- To maintain supplies for domestic water use, sanitation, and fire protection.
- To protect and preserve public health, welfare, and safety.
- To minimize the adverse impacts of water supply shortages.
- To minimize the adverse impacts of emergency water supply conditions.

NTMWD supplies treated potable water to its Member Cities and Customers. This Model WREMP was developed by NTMWD in consultation with its Member Cities and Customers. In order to adopt this Model WREMP, each NTMWD Member City and Customer will need to adopt ordinance(s) or regulation(s) implementing the WREMP, including the establishment of fines and enforcement procedures. The Model WREMP calls for each Member City and Customer to adopt Water Resource Management Stages initiated by NTMWD during a drought or water supply emergency. Member Cities and Customers may also adopt more stringent Water Resource Management Stages than NTMWD if conditions so warrant.

In the absence of drought response measures, water demands tend to increase during a drought due to increased outdoor irrigation. The severity of a drought depends on the degree of depletion of supplies



and on the relationship of demand to available supplies. NTMWD considers a drought to end when all of NTMWD's supply reservoirs refill to conservation storage pool levels.

¹ Superscripted numbers match references listed in Appendix A.



2. DEFINITIONS AND ABBREVIATIONS

1. **AQUATIC LIFE** means a vertebrate organism dependent upon an aquatic environment to sustain its life.
2. **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.
3. **COMMERCIAL FACILITY** means business or industrial buildings and the associated landscaping, but does not include the fairways, greens, or tees of a golf course.
4. **COMMERCIAL VEHICLE WASH FACILITY** means a permanently-located business that washes vehicles or other mobile equipment with water or water-based products, including but not limited to self-service car washes, full service car washes, roll-over/in-bay style car washes, and facilities managing vehicle fleets or vehicle inventory.
5. **CUSTOMERS** include those entities to whom NTMWD provides wholesale water that are not Member Cities of NTMWD.
6. **DESIGNATED OUTDOOR WATER USE DAY** means a day prescribed by rule on which a person is permitted to irrigate outdoors**.
7. **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.
8. **DROUGHT**, for the purposes of this report, means an extended period of time when an area receives insufficient amounts of rainfall to replenish the water supply, causing water supply sources (in this case reservoirs) to be depleted.
9. **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.



10. EXECUTIVE DIRECTOR means the Executive Director of the NTMWD and includes a person the Executive Director has designated to administer or perform any task, duty, function, role, or action related to this Plan or on behalf of the Executive Director.
11. FOUNDATION WATERING means an application of water to the soils directly abutting (within 2 feet) the foundation of a building, structure .
12. INTERACTIVE WATER FEATURES means water sprays, dancing water jets, waterfalls, dumping buckets, shooting water cannons, inflatable pools, temporary splash toys or pools, slip-n-slides, or splash pads that are maintained for recreation.
13. 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.
14. 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.
15. MEMBER CITIES include the cities of Allen, Farmersville, Forney, Frisco, Garland, McKinney, Mesquite, Plano, Princeton, Richardson, Rockwall, Royse City, and Wylie, Texas, which are members of NTMWD.
16. NEW LANDSCAPE means : (a) vegetation installed at the time of the construction of a residential or commercial facility; (b) installed as part of a governmental entity's capital improvement project; or (c) installed to stabilize an area disturbed by construction.
17. ORNAMENTAL FOUNTAIN means an artificially created structure (up to a certain diameter) from which a jet, stream, or flow of treated water emanates and is not typically utilized for the preservation of aquatic life.
18. RETAIL CUSTOMERS include those customers to whom the Supplier provides retail water from a water meter.
19. SOAKER HOSE means a perforated or permeable garden-type hose or pipe that is laid above ground that provides irrigation at a slow and constant rate.



- 20. **SPRINKLER** means an above-ground water distribution device that may be attached to a garden hose.
- 21. **SUPPLIER** means a Member City or Customer that purchases wholesale water from NTMWD and provides water to retail and/or wholesale customers.
- 22. **SWIMMING POOL** means any structure, basin, chamber, or tank including hot tubs, containing an artificial body of water for swimming, diving, or recreational bathing, and having a depth of two (2) feet or more at any point.
- 23. **WATER RESOURCE MANAGEMENT PLAN** means a strategy or combination of strategies for temporary supply management and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies required by Texas Administrative Code Title 30, Chapter 288, Subchapter B. This is sometimes called a drought contingency plan.

Abbreviations

Abbreviation	Full Nomenclature
ED	NTMWD Executive Director
NTMWD or District	North Texas Municipal Water District
TCEQ	Texas Commission on Environmental Quality
TWDB	Texas Water Development Board
Model WREMP	Model Water Resource and Emergency Management Plan for Member Cities and Customers



3. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES

The TCEQ rules governing development of drought contingency plans for public water suppliers are contained in Title 30, Chapter 288, Section 288.20 of the Texas Administrative Code, a current copy of which is included in Appendix B. For the purpose of these rules, a drought contingency plan is defined as “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.”¹

Minimum Requirements

TCEQ’s minimum requirements for drought contingency plans are addressed in the following subsections of this report:

- 288.20(a)(1)(A) – Provisions to Inform the Public and Provide Opportunity for Public Input – Section 4.1
- 288.20(a)(1)(B) – Program for Continuing Public Education and Information – Section 4.2
- 288.20(a)(1)(C) – Coordination with the Regional Water Planning Group – Section 4.6
- 288.20(a)(1)(D) – Description of Information to be Monitored and Criteria for the Initiation and Termination of Water Resource Management Stages – Section 4.3
- 288.20(a)(1)(E) – Water Resource Management Stages – Section 4.3
- 288.20(a)(1)(F) – Specific, Quantified Targets for Water Use Reductions During Water Shortages – Section 4.3
- 288.20(a)(1)(G) – Water Supply and Demand Management Measures for Each Stage – Section 4.3
- 288.20(a)(1)(H) – Procedures for Initiation and Termination of Water Resource Management Stages – Section 4.3
- 288.20(a)(1)(I) - Procedures for Granting Variances – Section 4.4
- 288.20(a)(1)(J) - Procedures for Enforcement of Mandatory Restrictions – Section 4.5
- 288.20(a)(3) – Consultation with Wholesale Water Supplier – Sections 1 and 4.3
- 288.20(b) – TCEQ Notification of Implementation of Mandatory Measures – Section 4.3
- 288.20(c) – Review and Update of WREMP – Section 4.7



4. WATER RESOURCE AND EMERGENCY MANAGEMENT PLAN

4.1 PROVISIONS TO INFORM THE PUBLIC AND OPPORTUNITY FOR PUBLIC INPUT

Member Cities and Customers will provide opportunity for public input in the development of this WREMP by the following means:

- Providing written notice of the proposed WREMP and the opportunity to comment on the WREMP by newspaper, posted notice, and notice on the utility's web site and social media (if available).
- Making the draft WREMP available on the supplier's web site (if available).
- Providing the draft WREMP to anyone that requests a copy.
- Supplier may hold a public meeting providing advance public notice of such meeting.

4.2 PROGRAM FOR CONTINUING PUBLIC EDUCATION AND INFORMATION

Member Cities and Customers will inform and educate the public about the Water Resource and Emergency Management Plan by the following means:

- Preparing a bulletin describing the plan and making it available at City Hall and other appropriate locations.
- Making the plan available to the public through the supplier's web site (if available).
- Including information about the Water Resource and Emergency Management Plan on the supplier's web site (if available).
- Notifying local organizations, schools, and civic groups that utility staff are available to make presentations on the Water Resource and Emergency Management Plan (usually in conjunction with presentations on water conservation programs).
- At any time that the Water Resource and Emergency Management Plan is activated or changes, Member Cities and Customers will notify local media of the issues, the Water Resource Management Stage (if applicable), and the specific actions required of the public. The information will also be publicized on the supplier's web site (if available). Billing inserts will also be used as appropriate.



4.3 CRITERIA FOR INITIATION AND TERMINATION OF WATER RESOURCE AND EMERGENCY MANAGEMENT STAGES AND TARGETS FOR WATER USE REDUCTIONS

Initiation of a Water Resource Management Stage

The City Manager, General Manager, Mayor, Chief Executive, or official designee may order the implementation of a Water Resource Management Stage when one or more of the trigger conditions for that stage is met.

- Water Resource and Emergency Management Plan stages imposed by NTMWD action must be initiated by Member Cities and Customers.
- For other trigger conditions internal to a city or water supply entity, the City Manager, General Manager, Mayor, Chief Executive, or official designee may decide not to order the implementation of a Water Resource Management Stage or Water Emergency even though one or more of the trigger criteria for the stage are met. Factors which could influence such a decision include, but are not limited to, the time of the year, weather conditions, the anticipation of replenished water supplies, or the anticipation that additional facilities will become available to meet needs. The reason for this decision should be documented.

The following actions will be taken when a water resource management stage is initiated:

- The public will be notified through local media and the supplier's web site (if available) as described in Section 4.2.
- Wholesale customers (if any) and NTMWD will be notified by e-mail with a follow-up letter that provides details of the reasons for initiation of the Water Resource Management Stage.
- If any mandatory provisions of the Water Resource and Emergency Management Plan are activated, Member Cities and Customers will notify the TCEQ Executive Director and the NTMWD Executive Director within 5 business days.

Termination of a Water Resource Management Stage

WREMP stages initiated by NTMWD may be terminated after NTMWD has terminated the stage. For WREMP stages initiated by the Supplier, the City Manager, General Manager, Mayor, Chief Executive, or



official designee may order the termination of a Water Resource Management Stage when the conditions for termination are met or at their discretion.

The following actions will be taken when a Water Resource Management Stage is terminated:

- The public will be notified through local media and the supplier's web site (if available) as described in Section 4.2.
- Wholesale customers (if any) and NTMWD will be notified by e-mail with a follow-up letter.
- If any mandatory provisions of the Water Resource and Emergency Management Plan that have been activated are terminated, Member Cities and Customers will notify the TCEQ Executive Director and the NTMWD Executive Director within 5 business days.

The City Manager, General Manager, Mayor, Chief Executive, or official designee may decide not to order the termination of a Water Resource Management Stage even though the conditions for termination of the stage are met. Factors which could influence such a decision include, but are not limited to, the time of the year, weather conditions, or the anticipation of potential changed conditions that warrant the continuation of the Water Resource Management Stage. The reason for this decision should be documented.

Water Resource and Emergency Management Plan Stages and Corresponding Measures

4.3.1 Stage 1

Initiation and Termination Conditions for Stage 1

NTMWD has initiated Stage 1, which may be initiated due to one or more of the following:

- The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the declaration of Stage 1.
- Water demand is projected to approach the limit of NTMWD's permitted supply.
- The storage level in Lavon Lake as published by the Texas Water Development Board (TWDB),³ is less than 70 percent of the total conservation pool capacity during any of the months of April through October or less than 60 percent of the total conservation pool capacity during any of the months of November through March.



- The Sabine River Authority (SRA) has indicated that its Upper Basin water supplies used by NTMWD (Lake Tawakoni and/or Lake Fork) are in a Stage 1 drought.
- NTMWD has concern that Lake Texoma, Jim Chapman Lake, the East Fork Water Reuse Project, the Main Stem Pump Station, or some other NTMWD water source may be limited in availability within the next six (6) months.
- Water demand exceeds 95 percent of the amount that can be delivered by NTMWD to Customers for three (3) consecutive days.
- Water demand for all or part of the delivery system approaches delivery capacity because delivery capacity is inadequate.
- Supply source is interrupted or unavailable due to contamination, invasive species, equipment failure, or other cause.
- Water supply system is unable to deliver water due to the failure or damage of major water system components.
- Part of the system has a shortage in supply or damage to equipment. NTMWD may implement measures for only that portion of the NTMWD system impacted.

Supplier has initiated Stage 1 due to one or more of the following reasons:

- Supplier's water demand exceeds 95 percent of the amount that can be delivered to customers for three consecutive days.
- Supplier's water demand for all or part of the delivery system equals delivery capacity because delivery capacity is inadequate.
- Supply source becomes contaminated.
- Supplier's water system is unable to deliver water due to the failure or damage of major water system components.
- Supplier's individual plan may be implemented if other criteria dictate.

NTMWD has terminated Stage 1, which may be terminated due to one or more of the following:

- The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the termination of Stage 1.



- The storage level in Lavon Lake, as published by the TWDB,³ is greater than 75 percent of the total conservation pool capacity during any of the months of April through October or greater than 65 percent of the total conservation pool capacity during any of the months of November through March.
- Other circumstances that caused NTMWD initiation of Stage 1 no longer prevail.

The circumstances that caused the Supplier's initiation of Stage 1 no longer prevail.

Goal for Use Reduction and Actions Available under Stage 1

The goal for water use reduction under Stage 1 is a two percent (2%) reduction in the amount of water produced by NTMWD from the previous corresponding annual payment period prior to institution of drought restrictions. **If circumstances warrant, or if required by NTMWD, the City Manager, General Manager, Mayor, Chief Executive, or official designee can set a goal for greater or lesser water use reduction under Stage 1.** The City Manager, General Manager, Mayor, Chief Executive, or official designee may order the implementation of any or all of the actions listed below, as deemed necessary, to achieve a two-percent reduction. Measures described as "requires notification to TCEQ" are those that impose mandatory requirements on customers. The supplier must notify TCEQ and NTMWD within five (5) business days if such mandatory measures are implemented.

- Continue actions established by the Water Conservation Plan.
- Notify any wholesale customers of actions being taken and request that they implement similar procedures.
- Initiate engineering studies to evaluate alternative water sources and/or alternative delivery mechanisms should conditions worsen.
- Further accelerate public education efforts on ways to reduce water use.
- Halt non-essential city government water use. Examples include street cleaning, vehicle washing, operation of ornamental fountains, etc.
- Encourage the public to wait until the current drought or emergency situation has passed before establishing New Landscape.
- Encourage all users to reduce the frequency of draining and refilling swimming pools.



- **Requires Notification to TCEQ** – Increase enforcement of the following landscape watering restrictions established by the Water Conservation Plan: (1) limit landscape watering with sprinklers or irrigation systems at each service address to no more than two (2) days per week, on designated days, between April 1 and October 31; and (2) limit landscape watering with sprinklers or irrigation systems at each service address to once every week, on designated days, between November 1 and March 31. Exceptions are as follows:
 - An exception is allowed for New Landscape associated with new construction that may be watered as necessary for 30 days from the date of installation of new landscape features.
 - An exception for additional watering of landscape may be provided by hand-held hose with shutoff nozzle, and/or use of dedicated irrigation drip zones provided no runoff occurs.
 - Foundation (within 2 feet), New Landscape Watering, watering of new plantings (first year) of shrubs, and watering of trees (within a ten foot radius of its trunk) may occur by a hand-held hose, a soaker hose, or a dedicated zone using a Drip Irrigation system provided no runoff occurs.
 - Locations using alternative sources of water supply only for irrigation may irrigate without day of the week restrictions provided proper signage is employed. However, irrigation using alternative sources of supply is subject all other restrictions applicable to this stage. If the alternative supply source is a well, proper proof of well registration with the North Texas Groundwater Conservation District or Red River Ground Water Conservation District is required. Other sources of water supply may not include imported treated water.
- **Requires Notification to TCEQ** – Initiate a rate surcharge for all water use over a certain level.
- **Requires Notification to TCEQ** – Parks, golf courses and Athletic Fields using potable water for landscape watering are required to meet the same reduction goals and measures outlined in this stage. Exception for golf course greens and tee boxes that may be hand-watered as needed.

4.3.2 Stage 2

Initiation and Termination Conditions for Stage 2



NTMWD has initiated Stage 2, which may be initiated due to one or more of the following:

- The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the declaration of Stage 2.
- Water demand is projected to approach the limit of NTMWD's permitted supply.
- The storage level in Lavon Lake, as published by the TWDB,³ is less than 55 percent of the total conservation pool capacity during any of the months of April through October or less than 45 percent of the total conservation pool capacity during any of the months of November through March.
- SRA has indicated that its Upper Basin water supplies used by NTMWD (Lake Tawakoni and/or Lake Fork) are in a Stage 2 drought.
- NTMWD has concern that Lake Texoma, Jim Chapman Lake, the East Fork Water Reuse Project, the Main Stem Pump Station, or some other NTMWD water source may be limited in availability within the next three (3) months.
- Water demand exceeds 98 percent of the amount that can be delivered to Customers for three (3) consecutive days.
- Water demand for all or part of the delivery system equals delivery capacity, because delivery capacity is inadequate.
- Supply source is interrupted or unavailable due to contamination, invasive species, equipment failure, or other cause.
- Water supply system is unable to deliver water due to the failure or damage of major water system components.
- Part of the system has a shortage in supply or damage to equipment. NTMWD may implement measures for only that portion of the system impacted.

Supplier has initiated Stage 2 due to one or more of the following reasons:

- Supplier's water demand exceeds 98 percent of the amount that can be delivered to customers for three consecutive days.



- Supplier's water demand for all or part of the delivery system exceeds delivery capacity because delivery capacity is inadequate.
- Supply source becomes contaminated.
- Supply source is interrupted or unavailable due to invasive species.
- Supplier's water supply system is unable to deliver water due to the failure or damage of major water system components.
- Supplier's individual plan may be implemented if other criteria dictate.

NTMWD has terminated Stage 2, which may be terminated due to one or more of the following:

- The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the termination of Stage 2.
- The storage level in Lavon Lake, as published by the TWDB,³ is greater than 70 percent of the total conservation pool capacity during any of the months of April through October or greater than 60 percent of the total conservation pool capacity during any of the months of November through March.
- Other circumstances that caused the NTMWD's initiation of Stage 2 no longer prevail.

The circumstances that caused the Supplier's initiation of Stage 2 no longer prevail.

Goals for Use Reduction and Actions Available under Stage 2

The goal for water use reduction under Stage 2 is a reduction of ten percent (10%) in the amount of water obtained from NTMWD from the previous corresponding annual payment period prior to the institution of drought restrictions. **If circumstances warrant, or if required by NTMWD, the City Manager, General Manager, Mayor, Chief Executive, or official designee can set a goal for greater or lesser water use reduction.** The City Manager, General Manager, Mayor, Chief Executive, or official designee may order the implementation of any or all of the actions listed below, as deemed necessary to achieve a ten percent reduction. Measures described as "requires notification to TCEQ" are those that impose mandatory requirements on customers. The supplier must notify TCEQ and NTMWD within five (5) business days if such mandatory measures are implemented.



- Continue or initiate any actions available under the Water Conservation Plan and Stage 1.
- Notify any wholesale customers of actions being taken and request that they implement similar procedures.
- Implement viable alternative water supply strategies.
- Encourage all users to reduce the frequency of draining and refilling swimming pools.
- **Requires Notification to TCEQ** – Limit landscape watering with sprinklers or irrigation systems at each service address to once per week on designated days between April 1 and October 31. Limit landscape watering with sprinklers or irrigation systems at each service address to once every other week on designated days between November 1 and March 31. Exceptions are as follows:
 - New Landscape may be watered as necessary for 30 days from the date of the installation of new landscape features.
 - Foundation Watering (within 2 feet), New Landscape Watering, watering of new plantings (first year) of shrubs, and watering of trees (within a ten foot radius of its trunk) may occur for up to two hours on any day by a hand-held hose, a dedicated zone using a Drip Irrigation system and/or Soaker Hose, provided no runoff occurs.
 - Athletic Fields may be watered twice per week.
 - Locations using alternative sources of water supply only for irrigation may irrigate without day-of-the-week restrictions, provided proper signage is employed to notify the public of alternative water source(s) being used. However, irrigation using alternative sources of supply is subject all other restrictions applicable to this stage. If the alternative supply source is a well, proper proof of well registration with the North Texas Groundwater Conservation District or Red River Groundwater Conservation District is required. Alternative sources of water supply may not include imported treated water.
 - An exemption is allowed for Drip Irrigation systems from the designated outdoor water use day limited to no more than one day per week. Drip Irrigation systems are however subject to all other restrictions applicable under this stage.
 - Hand watering with shutoff nozzle, drip lines, and Soaker Hoses are allowed before 10 am and after 6 pm, provided no runoff occurs.



- **Requires Notification to TCEQ** – Prohibit hydro seeding, hydro mulching, and sprigging.
- **Requires Notification to TCEQ** – Initiate a rate surcharge as requested by NTMWD.
- **Requires Notification to TCEQ** – Initiate a rate surcharge for all water use over a certain level.
- **Requires Notification to TCEQ** – If NTMWD has imposed a reduction in water available to Member Cities and Customers, impose the same percent reduction on any wholesale customers.
- **Requires Notification to TCEQ** – Parks and golf courses using potable water for landscape watering are required to meet the same reduction goals and measures outlined in this stage. Exception for golf course greens and tee boxes which may be hand watered as needed.

4.3.3 Stage 3

Initiation and Termination Conditions for Stage 3

NTMWD has initiated Stage 3, which may be initiated due to one or more of the following:

- The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the declaration of Stage 3.
- Water demand is projected to approach or exceed the limit of the permitted supply.
- The storage level in Lavon Lake, as published by the TWDB,³ is less than 30 percent of the total conservation pool capacity during any of the months of April through October or less than 20 percent of the total conservation pool capacity during any of the months of November through March.
- SRA has indicated that its Upper Basin water supplies used by NTMWD (Lake Tawakoni and/or Lake Fork) are in a Stage 3 drought.
- The water supply from Lake Texoma, Jim Chapman Lake, the East Fork Water Reuse Project, Main Stem Pump Station, or some other NTMWD water source has become limited in availability.
- Water demand exceeds the amount that can be delivered to Customers.
- Water demand for all or part of the delivery system exceeds delivery capacity because delivery capacity is inadequate.



- Supply source is interrupted or unavailable due to contamination, invasive species, equipment failure or other cause.
- Water supply system is unable to deliver water due to the failure or damage of major water system components.
- Part of the system has a shortage in supply or damage to equipment. NTMWD may implement measures for only that portion of the system impacted.

Supplier has initiated Stage 3 due to one or more of the following reasons:

- Supplier's water demand exceeds the amount that can be delivered to customers.
- Supplier's water demand for all or part of the delivery system seriously exceeds delivery capacity because the delivery capacity is inadequate.
- Supply source becomes contaminated.
- Supplier's water supply system is unable to deliver water due to the failure or damage of major water system components.
- Supplier's individual plan may be implemented if other criteria dictate.

NTMWD has terminated Stage 3, which may be terminated due to one or more of the following:

- The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the termination of Stage 3.
- The storage level in Lavon Lake, as published by the TWDB,³ in Lavon Lake is greater than 55 percent of the total conservation pool capacity during any of the months of April through October or greater than 45 percent of the total conservation pool capacity during any of the months of November through March.
- Other circumstances that caused the NTMWD's initiation of Stage 3 no longer prevail.

When other circumstances that caused the Supplier's initiation of Stage 3 no longer prevail.

Goals for Use Reduction and Actions Available under Stage 3

The goal for water use reduction under Stage 3 is a reduction of whatever amount is designated by NTMWD in the amount of water obtained from NTMWD from the corresponding previous annual



payment period prior to institution of drought restrictions. **If circumstances warrant or if required by NTMWD, the City Manager, General Manager, Mayor, Chief Executive, or official designee can set a goal for greater or lesser water use reduction.** The City Manager, General Manager, Mayor, Chief Executive, or official designee may order the implementation of any or all of the actions listed below, as deemed necessary. Measures described as “requires notification to TCEQ” are those that impose mandatory requirements on Member Cities and Customers. The supplier must notify TCEQ and NTMWD within five (5) business days if such mandatory measures are implemented.

- Continue or initiate any actions available under the Water Conservation Plan and Stages 1 and 2.
- Notify any wholesale customers of actions being taken and request them to implement similar procedures.
- Implement viable alternative water supply strategies.
- **Requires Notification to TCEQ** – Initiate mandatory water use restrictions as follows:
 - Hosing and washing of paved areas, buildings, structures, windows or other surfaces is prohibited except by variance and performed by a professional service using high efficiency equipment.
 - Prohibit operation of ornamental fountains or ponds that use potable water except where supporting aquatic life or water quality.
- **Requires Notification to TCEQ** – Prohibit new sod, hydro-seeding, hydro-mulching, and sprigging.
- **Requires Notification to TCEQ** – Prohibit the use of potable water for the irrigation of New Landscape.
- **Requires Notification to TCEQ** – Prohibit all commercial and residential landscape watering, except that Foundation Watering (within 2 feet) and watering of trees (within a ten foot radius of its trunk) may occur for two hours one day per week with a hand-held hose or with a dedicated zone using a Drip Irrigation system and/or Soaker Hose, provided no runoff occurs. Drip Irrigation systems are not exempt from this requirement.
- **Requires Notification to TCEQ** – Prohibit washing of vehicles except at a Commercial Vehicle Wash Facility.



- **Requires Notification to TCEQ** – Landscape watering of parks, golf courses, and Athletic Fields with potable water is prohibited. Exception for golf course greens and tee boxes that may be hand watered as needed. Variances may be granted by the water provider under special circumstances.
- **Requires Notification to TCEQ** – Prohibit the filling, draining, and/or refilling of existing swimming pools, wading pools, Jacuzzi and hot tubs except to maintain structural integrity, proper operation and maintenance, or to alleviate a public safety risk. Existing pools may add water to replace losses from normal use and evaporation. Permitting of new swimming pools, wading pools, Jacuzzi, and hot tubs is prohibited.
- **Requires Notification to TCEQ** – Prohibit the operation of interactive water features such as water sprays, dancing water jets, waterfalls, dumping buckets, shooting water cannons, inflatable pools, temporary splash toys or pools, slip-n-slides or splash pads that are maintained for recreation.
- **Requires Notification to TCEQ** – Require all commercial water users to reduce water use by a percentage established by the City Manager, General Manager, Mayor, Chief Executive, or official designee.
- **Requires Notification to TCEQ** – If NTMWD has imposed a reduction in water available to Member Cities and Customers, impose the same percent reduction on any wholesale customers.
- **Requires Notification to TCEQ** – Initiate a rate surcharge over normal rates for all water use or for water use over a certain level.

4.4 PROCEDURES FOR GRANTING VARIANCES TO THE PLAN

The City Manager, General Manager, Mayor, Chief Executive, or official designee may grant temporary variances for existing water uses otherwise prohibited under this Water Resource and Emergency Management Plan if one or more of the following conditions are met:

- Failure to grant such a variance would cause an emergency condition adversely affecting health, sanitation, or fire safety for the public or the person or entity requesting the variance.
- Compliance with this plan cannot be accomplished due to technical or other limitations.



- Alternative methods that achieve the same level of reduction in water use can be implemented.

Variations shall be granted or denied at the discretion of the City Manager, General Manager, Mayor, Chief Executive, or official designee. All petitions for variations should be in writing and should include the following information:

- Name and address of the petitioners.
- Purpose of water use.
- Specific provisions from which relief is requested.
- Detailed statement of the adverse effect of the provision from which relief is requested.
- Description of the relief requested.
- Period of time for which the variance is sought.
- Alternative measures that will be taken to reduce water use and the level of water use reduction.
- Other pertinent information.

4.5 PROCEDURES FOR ENFORCING MANDATORY WATER USE RESTRICTIONS

Mandatory water use restrictions may be imposed in Stage 1, Stage 2 and Stage 3. The penalties associated with the mandatory water use restrictions will be determined by each entity and will be laid out in each entity's WREMP.

Appendix D contains potential ordinances, resolutions, and orders that may be adopted by the city council, board, or governing body approving the Water Resource and Emergency Management plan, including enforcement of same.

4.6 COORDINATION WITH THE REGIONAL WATER PLANNING GROUP AND NTMWD

Appendix C includes a copy of a letter sent to the Chairs of the Region C Water Planning Group and the Chairs of the North East Texas Water Planning Group in conjunction with this model Water Resource and Emergency Management Plan.



The suppliers will send a draft of its ordinance(s) or other regulation(s) implementing this plan to NTMWD for NTMWD's review and comment. The supplier will also send the final ordinance(s) or other regulation(s) to NTMWD.

4.7 REVIEW AND UPDATE OF WATER RESOURCE AND EMERGENCY MANAGEMENT PLAN

As required by TCEQ rules, Member Cities and Customers must review their respective Water Resource and Emergency Management plans every five years. The plan will be updated as appropriate based on new or updated information, such as the revision of the regional water plans.