WATER CONSERVATION PLAN
FOR
CITY OF KAUFMAN

AUGUST 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 Force[3] 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 2014[4].

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.

[a]Superscripted 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 TCEQ[5], 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	N/A	N/A	120
Current 5-Year Average Residential Per Capita Use	108	118	115
Water Loss (GPCD)[1]	7	7	6
Water Loss (Percentage)[2]	12.56	12	11
Expected Reduction due to Low-Flow Plumbing Fixtures	1	2	4
Projected Reduction Due to Elements in this Plan	2	5	6
Water Conservation Goals (with credit for reuse)	0	0	120

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 ±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 theses 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.

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 or 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.

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.

APPENDIX A

LIST OF REFERENCES

APPENDIX A

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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://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=4&ti=30&pt=1&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

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES ON MUNICIPAL WATER CONSERVATION PLANS

APPENDIX B

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULESON MUNICIPAL WATER CONSERVATION PLANS

Texas Administrative Code

TITLE 30	ENVIRONMENTAL QUALITY
PART 1	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 288	WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS
SUBCHAPTER A	WATER CONSERVATION PLANS
RULE §288.1	**Definitions**

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

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

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

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

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

(D) raising or keeping equine animals;

(E) wildlife management; and

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(16) 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 state-owned water.

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

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

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

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

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

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

(B) a record management system which allows for the classification of water sales and uses into the most detailed level of water use data currently available to it, including, if possible, the sectors listed in clauses (i) - (vi) of this subparagraph. Any new billing system purchased by a public water supplier must be capable of reporting detailed water use data as described in clauses (i) - (vi) of this subparagraph:

(i) residential;

(I) single family;

(II) multi-family;

(ii) commercial;

(iii) institutional;

(iv) industrial;

(v) agricultural; and,

(vi) wholesale.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

APPENDIX C

TCEQ WATER UTILITY PROFILE

Texas Commission on Environmental Quality

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 development. If you need 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.

Name:	City of Kaufman
Address:	209 S. Washington St., Kaufman, Texas 75142
Telephone Number:	(972) 932-2216 Fax: (972) 932-3008
Water Right No.(s):	TX1290003
Regional Water Planning Group:	C
Form Completed by:	Richard A. Underwood
Title:	Director of Public Works
Person responsible for implementing conservation program:	Mike Slye, City Manager Phone: (972) 932-2216
Signature:	Date: 8 /7 /2019

NOTE: If the plan does not provide information for each requirement, include an explanation of why the requirement is not applicable.

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 (8 miles):
   (Please attach a copy of service-area map)

3. Current population of service area: 7,322

4. Current population served for:
   a. Water 7,322
   b. Wastewater 6,500

5. Population served for previous five years:

Year	*Population*
2014	6,831
2015	6,892
2016	7,203
2017	7,181
2018	7,322

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

Year	*Population*
2020	8,994
2030	10,878
2040	12,500
2050	18,890
2060	24,445

7. List source or method for the calculation of current and projected population size.
   US Census data and Texas Water Development Board's projections.

B. *Customers 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

Industrial/Mining					
Institutional	7.884	10.925	10.876	7.853	7.958
Agriculture					
Other/Wholesale	106.884	110.414	104.058	105.411	113.661

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

Year	*Amount (gallons)*	*Percent %*
2014	128,736,000	30.28
2015	62,088,000	15.01
2016	36,060,000	8.61
2017	35,766,000	12.56
2018	38,354,000	13.41

B. Projected Water Demands

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

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

Water Type	*Source*	*Amount Authorized*
Surface Water		
Groundwater		
Contracts	North Texas Municipal Water District	459,989,000
Other		

June	14.92	19.43	22.02	21.90	15.90
July	16.13	15.04	16.83	20.09	16.11
August	15.17	14.83	21.26	20.05	20.92
September	14.34	14.64	16.73	17.91	21.92
October	17.43	19.82	17.43	20.22	28.54
November	16.28	22.42	20.85	19.61	23.46
December	16.54	22.56	18.75	21.78	24.62
Totals	181.86	235.91	237.03	241.41	254.77

V. ADDITIONAL REQUIRED INFORMATION

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. *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

B. *Metering Devices*

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.

C. *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.

D. *Unaccounted- For Water Use*

The water conservation plan must include measures to determine and control unaccounted-for uses of water (for example, periodic visual inspections along distribution lines; annual or monthly audit of the water system to determine illegal connections; abandoned services; etc.).

E. *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.

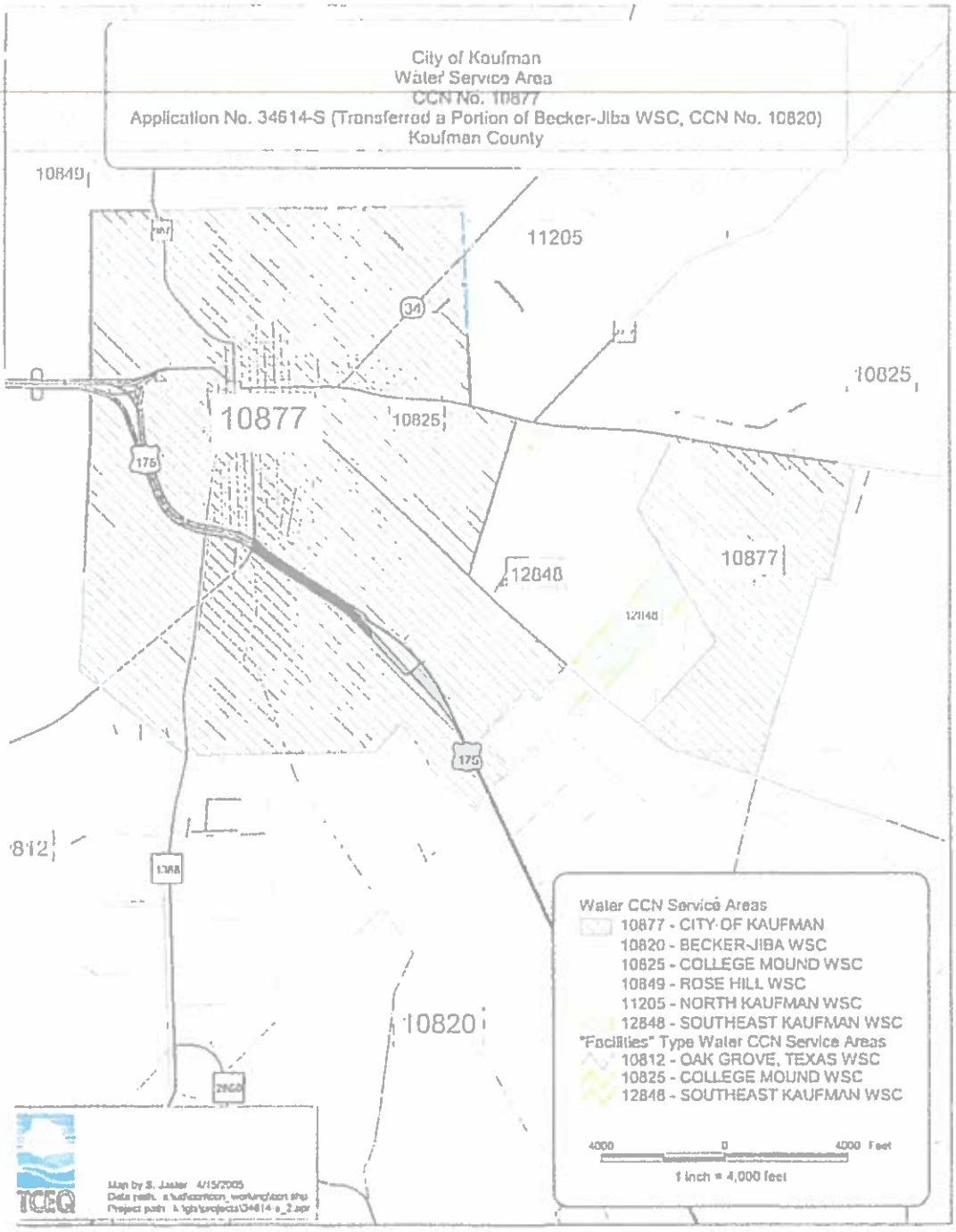

City of Kaufman
Water Service Area
CCN No. 10877
Application No. 34614-S (Transferred a Portion of Becker-Jiba WSC, CCN No. 10820)
Kaufman County
10849
11205
34
10825
10877
10825
175
12848
10877
12848
175
812
1388
10820
2960
Water CCN Service Areas
10877 - CITY OF KAUFMAN
10820 - BECKER-JIBA WSC
10825 - COLLEGE MOUND WSC
10849 - ROSE HILL WSC
11205 - NORTH KAUFMAN WSC
12848 - SOUTHEAST KAUFMAN WSC
"Facilities" Type Water CCN Service Areas
10812 - OAK GROVE, TEXAS WSC
10825 - COLLEGE MOUND WSC
12848 - SOUTHEAST KAUFMAN WSC
4000 0 4000 Feet
1 inch = 4,000 feet
TCEQ
Map by S. Jester 4/15/2005
Data path: s:\ud\common_work\arc\com.shp
Project path: k:\gis\projects\34614-s_2.apr

EXHIBIT A

F. 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.

G. 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. The reservoir systems operations plan shall include optimization of water supplies as one of the significant goals of the plan.

H. 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.

I. 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 wholesale water supplier in order to ensure consistency with the appropriate approved regional water plans.

J. 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 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

A. Conservation Strategies

Any combination of the following strategies shall be selected by the water supplier, in addition to the minimum requirements of this chapter, 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.

Best Management Practices

The Texas Water Developmental Board's (TWDB) Report 362 is the Water Conservation Best Management Practices (BMP) guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The Best Management Practices Guide broken out by sector, including Agriculture, Commercial, and Institutional, Industrial, Municipal and Wholesale along with any new or revised BMP's can be found at the following link on the Texas Water Developments Board's website: http://www.twdb.state.tx.us/conservation/bmps/index.asp

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact 512-239-3282.

APPENDIX D

NTMWD MEMBER CITY AND CUSTOMER ANNUAL WATER CONSERVATION REPORT

APPENDIX D

NTMWD MEMBER CITY AND CUSTOMER WATER CONSERVATION REPORT

Due: March 31 of every year

Water Utility Reporting:	Kaufman
Filled Out By:	Margaret Barr
Phone Number:	972-962-8007
Email:	mbarr@kaufmantx.org
Date Completed:	43501
Year Covered:	2018
# of Connections	2,528
Estimated Population	7,322
Source:	*Census*
# of Irrigation Systems	379

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

Month	Deliveries from NTMWD	Other Supplies	Sales by Category							
			Residential	Commercial	Public/ Institutional	Industrial	Metered Irrigation	Wholesale	Other	Total
January	40.927		7.183	5.163	0.476		0.891	9.914		23.627
February	27.655		7.902	6.025	0.477		0.026	15.475		29.905
March	31.488		6.862	5.067	0.859		0.035	6.720		19.543
April	26.415		10.690	6.005	0.663		0.428	7.655		25.441
May	33.965		11.079	6.870	0.598		0.206	8.668		27.421
June	35.329		11.056	6.513	0.874		0.253	9.357		28.053
July	43.604		12.100	7.661	1.238		0.340	11.461		32.800
August	46.202		11.746	7.772	1.089		0.264	10.161		31.032
September	28.554		17.332	5.741	0.539		0.665	7.878		32.155
October	29.251		19.122	6.378	0.564		0.111	8.709		3 .884
November	29.830		10.219	15.895	0.298		0.462	9.516		36.390
December	26.491		11.563	15.080	0.283		0.325	8.147		35.398
TOTAL	399.711		136.854	94.170	7.958		4.006	113.661		356.649

Peak Day Usage	
Peak Day (MG)	1.400
Average Day (MG)	1.095
Peak/Average Day Ratio	1.278

Authorized Consumption and Water Loss	
Total System Input Volume:	286.050
Billed Metered:	242.988
Billed Unmetered:	1.461
Unbilled Metered:	1.786
Unbilled Unmetered:	1.461
Total Authorized Consumption:	247.696
Water Losses:	38.354
Total Loss Percent:	13.41%
Goal for Total Loss Percent:	12.00%

Per Capita Use (Gallons per person per day)	
Municipal Use (MG)	282
Residential Use (MG)	136.854
Total Per Capita Use (gpcd)	107
Municipal Per Capita Use (gpcd)	106
Residential Per Capita Use (gpcd)	51
5-year Per Capita Goal	128
10-year Per Capita Goal	138

Recorded Wholesale Sales by Month (In Million Gallons):

Month	Sales to... ker Jiba Water Sup	Sales to... Kaufman Water	Sales to... ve Water Sup	Sales to... heast Water	Sales to...	Sales to...	Sales to...	Sales to...	Total Wholesale Sales
January	6.625	2.000	1.011	0.278					9.914
February	4.444	1.000	0.830	9.201					15.475
March	4.637	1.000	0.870	0.213					6.720
April	5.252	1.000	1.093	0.310					7.655
May	6.047	1.000	1.303	0.318					8.668
June	6.485	1.000	1.484	0.388					9.357
July	7.944	1.000	1.891	0.626					11.461
August	6.923	1.000	1.636	0.602					10.161
September	5.406	1.000	1.092	0.380					7.878
October	5.144	2.000	1.096	0.469					8.709
November	5.144	2.000	1.845	0.527					9.516
December	5.926	1.000	0.959	0.262					8.147
TOTAL	69.977	15.000	15.110	13.574					113.661

Information on Wholesale Customers:

Customer	Estimated Total Population
Becker Jiba	1,159
North Kaufman	809
Oak Grove	725
Southeast	57

Unusual Circumstances (use additional sheets if necessary):

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

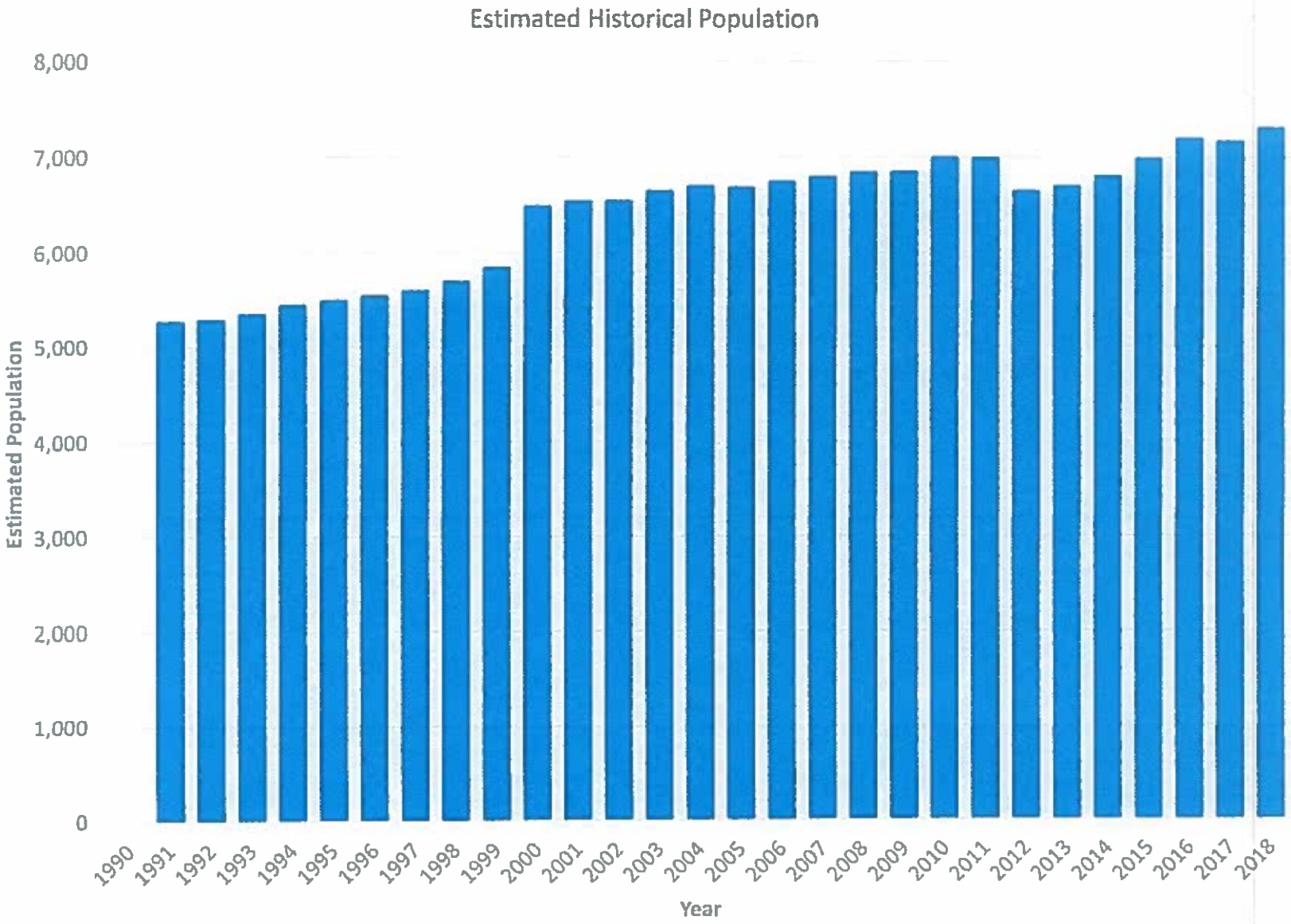
Historical Water Use Data for Kaufman

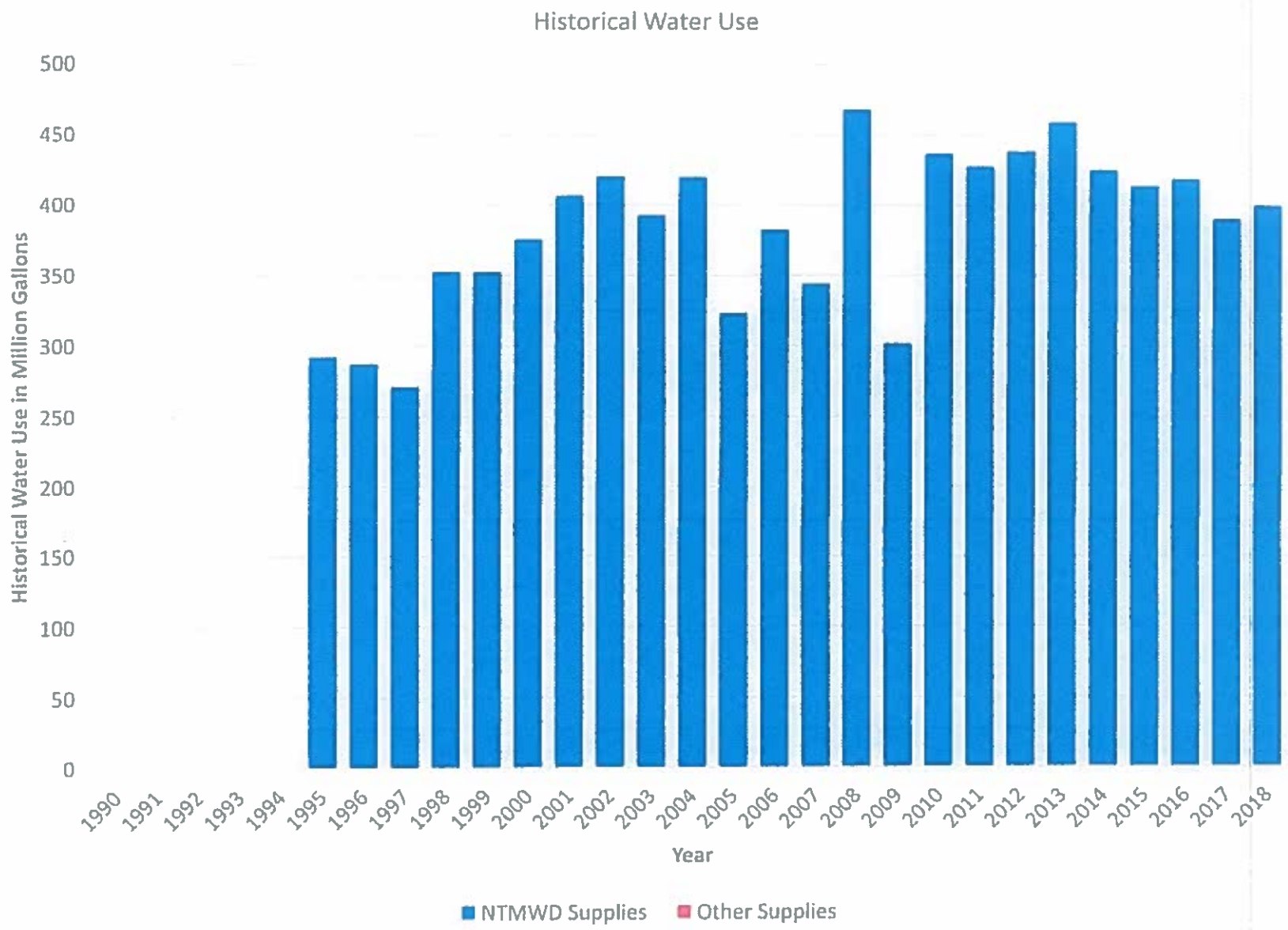
Year	Connections	Estimated Population	Deliveries from NTMWD (MG)	Other Supplies (MG)	Metered Sales by Category (Million Gallons)							
					Residential	Commercial	Public/ Institutional	Industrial	Metered Irrigation	Wholesale	Other	Total
1990	0	0	0	0	0	0	0	0	0	0	0	0
1991	0	5,275	0	0	0	0	0	0	0	0	0	0
1992	2,059	5,290	0	0	0	0	0	0	0	0	0	0
1993	2,124	5,350	0	0	0	0	0	0	0	0	0	0
1994	2,107	5,452	0	0	0	0	0	0	0	0	0	0
1995	2,122	5,500	292	0	0	0	0	0	0	0	0	0
1996	2,167	5,550	287	0	0	0	0	0	0	0	0	0
1997	2,156	5,600	271	0	0	0	0	0	0	0	0	0
1998	2,229	5,700	352	0	0	0	0	0	0	0	0	0
1999	2,377	5,850	352	0	0	0	0	0	0	0	0	0
2000	2,286	6,490	375	0	186	81	13	0	0	99	0	379
2001	2,304	6,544	406	0	198	86	14	0	0	89	0	387
2002	2,357	6,550	420	0	182	81	11	0	0	81	0	355
2003	2,405	6,648	392	0	185	84	21	0	0	97	0	386
2004	2,627	6,700	420	0	176	81	23	0	0	52	0	332
2005	2,400	6,685	323	0	194	87	21	0	0	93	0	396
2006	2,488	6,750	382	0	207	90	19	0	0	119	0	435
2007	2,499	6,800	344	0	162	74	13	0	0	127	0	377
2008	2,500	6,848	468	0	286	84	20	0	0	86	0	475
2009	2,501	6,850	301	0	174	78	13	0	0	84	0	348
2010	2,502	7,000	437	0	175	78	13	0	0	112	0	378
2011	2,503	7,000	427	0	198	81	16	0	0	124	0	419
2012	2,463	6,650	438	0	174	74	13	0	0	113	0	373
2013	2,463	6,703	459	0	154	83	13	0	0	99	0	349
2014	2,463	6,813	425	0	104	64	8	0	0	107	0	283
2015	2,484	6,997	414	0	110	69	11	0	0	110	39	339
2016	2,502	7,203	419	0	115	81	11	0	59	104	0	370
2017	2,404	7,181	390	0	219	91	8	0	1	105	0	425
2018	2,528	7,322	400	0	137	94	8	0	4	114	0	357

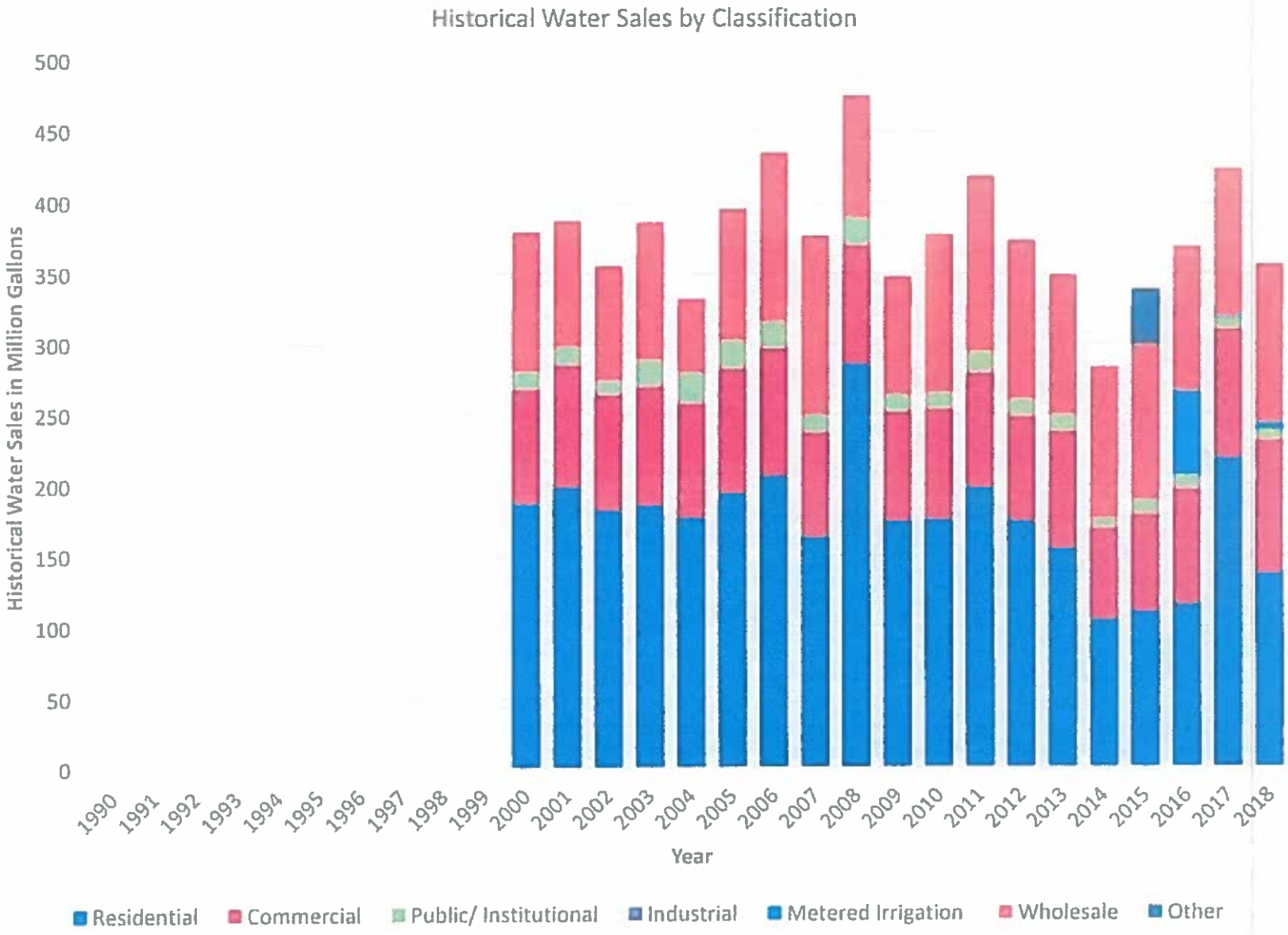
Historical Per Capita Use Data and Water Loss for Kaufman

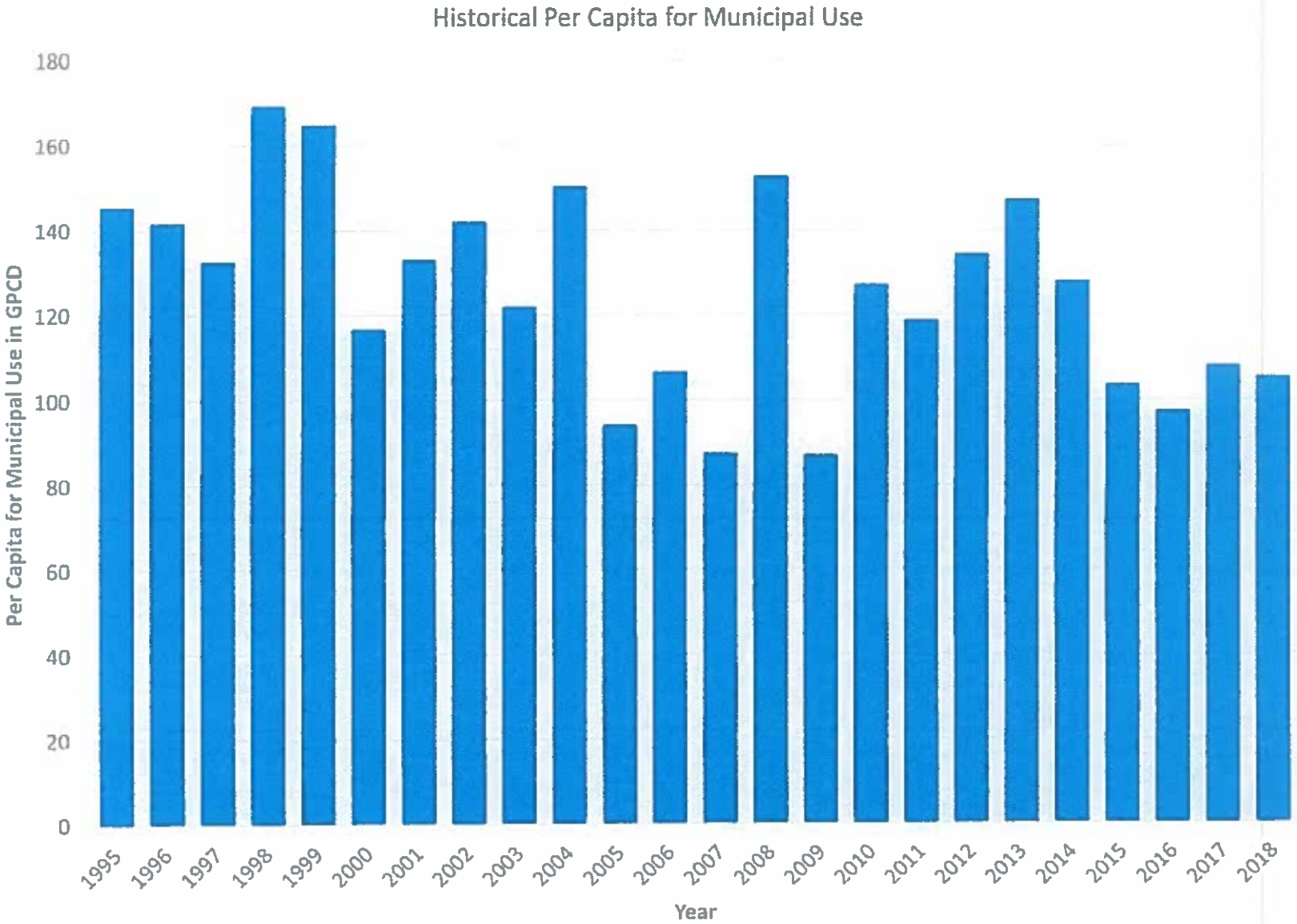
Year	Estimated Population	In-City Municipal Use (MG)	Per Capita Municipal Use (gpcd)	Per Capita Residential Use (gpcd)	Deliveries from NTMWD (MG)	Other Supplies (MG)	Wholesale Sales (MG)	Billed Metered (MG)	Billed Unmetered (MG)	Unbilled Metered (MG)	Unbilled Unmetered (MG)	Water Losses (MG)	% Water Loss
1995	5,500	292	146	0	292	0	0	0	0	0	0	0	0.00%
1996	5,550	287	142	0	287	0	0	0	0	0	0	0	0.00%
1997	5,600	271	133	0	271	0	0	0	0	0	0	0	0.00%
1998	5,700	352	169	0	352	0	0	0	0	0	0	0	0.00%
1999	5,850	352	165	0	352	0	0	0	0	0	0	0	0.00%
2000	6,490	276	117	78	375	0	99	379	0	2	3	-9	-2.38%
2001	6,544	318	133	83	406	0	89	387	0	3	3	14	-3.35%
2002	6,550	339	142	76	420	0	81	355	0	4	4	57	3.61%
2003	6,648	296	122	76	392	0	97	386	0	2	3	2	1.40%
2004	6,700	368	150	72	420	0	52	332	0	5	5	78	18.63%
2005	6,685	230	94	79	323	0	93	396	0	4	3	-80	-24.85%
2006	6,750	263	107	84	382	0	119	435	0	3	4	-60	-15.74%
2007	6,800	217	87	65	344	0	127	377	0	3	4	-39	-11.00%
2008	6,848	382	153	114	468	0	86	475	0	3	4	-14	-3.00%
2009	6,850	218	87	69	301	0	84	348	0	3	4	-53	-18.00%
2010	7,000	325	127	68	437	0	112	378	0	3	4	52	12.00%
2011	7,000	303	119	77	427	0	124	419	0	3	4	1	0.34%
2012	6,650	326	134	71	438	0	113	373	0	5	7	53	12.03%
2013	6,703	360	147	63	459	0	99	349	0	6	7	97	21.17%
2014	6,813	318	128	42	425	0	107	283	0	6	7	129	30.28%
2015	6,997	265	104	43	414	0	110	339	0	6	7	62	15.01%
2016	7,203	256	97	44	419	0	104	370	0	6	7	36	8.61%
2017	7,181	284	108	83	390	0	105	319	0	1	0	-36	-12.56%
2018	7,322	282	106	51	400	0	114	243	1	2	1	38	13.41%

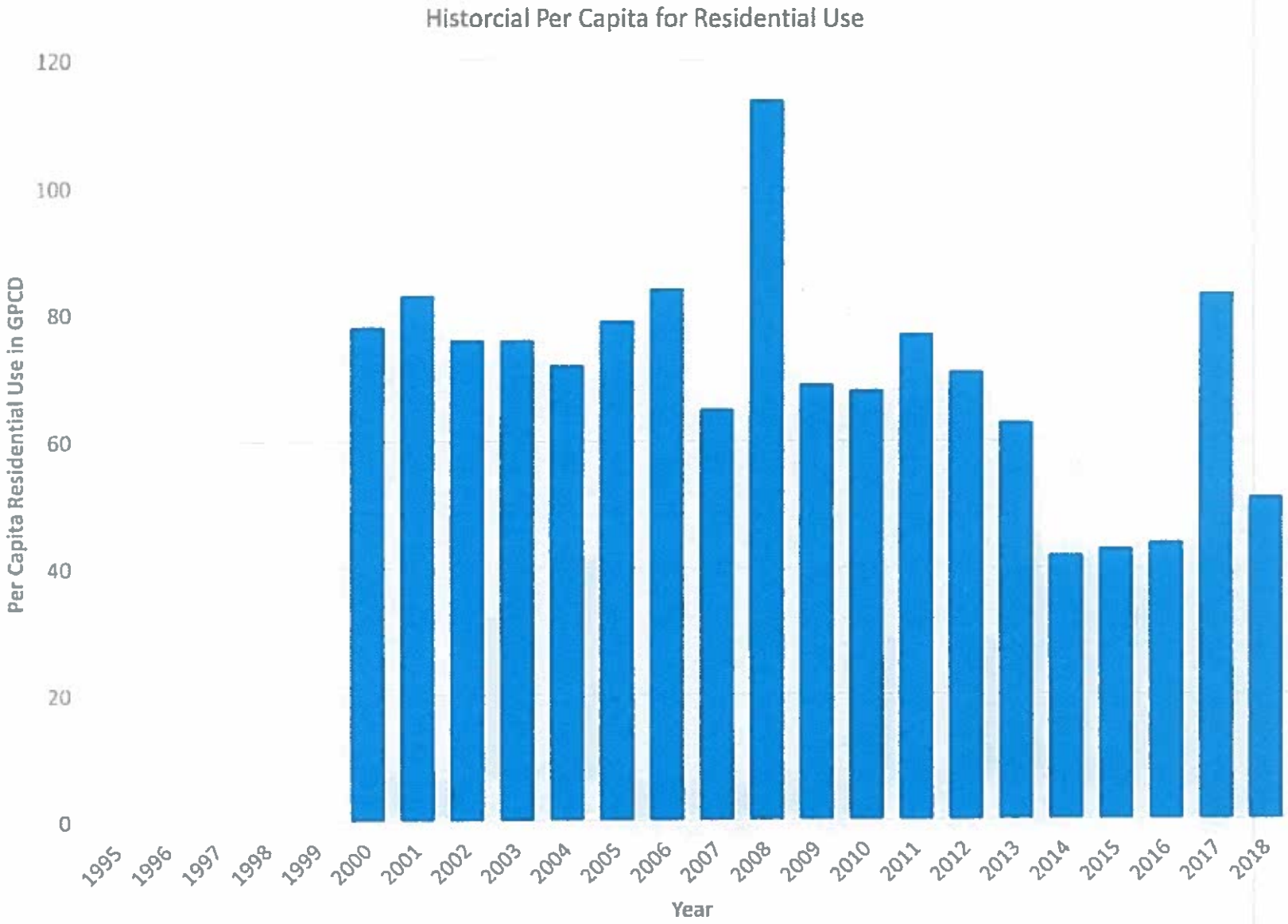
Note:
In-city municipal use = total water supplied less sales to industry, metered irrigation, wholesale sales and other sales.
After 2017 - Unaccounted Water has been removed and replaced with Water Losses (per TWDB definition). This category is inclusive of real and apparent losses. Categories for 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
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Estimated Population
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Year


Historical Water Use
Historical Water Use in Million Gallons
500
450
400
350
300
250
200
150
100
50
0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Year
NTMWD Supplies
Other Supplies


Historical Water Sales by Classification
Historical Water Sales in Million Gallons
500
450
400
350
300
250
200
150
100
50
0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Year
Residential
Commercial
Public/ Institutional
Industrial
Metered Irrigation
Wholesale
Other


Historical Per Capita for Municipal Use
Per Capita for Municipal Use in GPCD
180
160
140
120
100
80
60
40
20
0
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Year


Historcial Per Capita for Residential Use
Per Capita Residential Use in GPCD
120
100
80
60
40
20
0
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Year

APPENDIX E

CONSIDERATIONS FOR LANDSCAPE WATER MANAGEMENT REGULATIONS

APPENDIX E

CONSIDERATIONS FOR 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 manmade pond located on any property owned, leased, or managed by the person by introducing any treated water to fill or refill the pond. This does not restrict the filling or maintenance of pond levels by the effect of natural water runoff or the introduction of well water into the pond. A pond is considered to be a still body of water with a surface area of 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

   Each entity will develop its own set of penalties for violations of the ordinance, order, or resolution. The ordinance, order, or resolution will designate the responsible official(s) to implement and enforce the landscape water conservation measures.

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

LETTERS TO REGION C AND REGION D WATER PLANNING GROUPS

August 27, 2019

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 D Water Planning Group in accordance with the Texas Water Development Board and Texas Commission on Environmental Quality rules. The City of Kaufman adopted the updated model plan on August 26, 2019.

Sincerely,

Richard A. Underwood
Director of Public Works
City of Kaufman

City of Kaufman

August 27, 2019

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 City of Kaufman adopted the updated model plan on August 26, 2019.

Sincerely,

Richard A. Underwood
Director of Public Works
City of Kaufman

APPENDIX G

ADOPTION OF WATER CONSERVATION PLAN

WHEREAS, as required by the Plans, the City has provided written notice of the proposed Plans and an opportunity to comment by newspaper, posted notice, and on the City's website and social media, as applicable, has made the Plans available on the City's website and provided a copy of the Plans, and City has held a public meeting providing advance notice of such meeting at which the City Council has considered the adoption of the Plans.

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

Section 1. Incorporation of Premises. The foregoing recitals are the findings of the City Council and are incorporated into this Ordinance as if set forth fully herein.

Section 2. Water Conservation Plan Adopted. The City Council hereby approves and adopts the 2019 NTMWD Model Water Conservation Plan, attached hereto as **Exhibit A** as if recited verbatim herein. The City commits to implement the requirements and procedures set forth in the adopted Plan.

Section 3. Water Resource and Emergency Management Plan Adopted. The City Council hereby approves and adopts the 2019 NTMWD Model Water Resource and Emergency Management Plan, attached herein as **Exhibit B**, as if recited verbatim herein. The City commits to implement the requirements and procedures set forth in the adopted Plan.

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

Section 5. Savings and Repealer. That this Ordinance shall be cumulative of all other ordinances of the City of Kaufman and shall not repeal any of the provisions of such ordinances, except in those instances where provisions of such ordinances are in direct conflict with the provisions of this ordinance. Provided however, that any complaint, action, claim or lawsuit which has been initiated or has arisen under or pursuant to any such ordinance and for that purpose the ordinance shall remain in full force and effect.

Section 6. Penalties. Any customer, defined pursuant to 30 Tex. Admin. Code Chapter 291, failing to comply with the provisions of the Plans shall be subject to a fine of up to two thousand dollars ($2,000.00) and/or discontinuance of water service by the City. Proof of a culpable mental state is not required for a conviction of an offense under these sections. Each day a customer fails to comply with the Plans is a separate violation. The City's authority to seek injunctive or other civil relief available under the law is not limited by this section.

Section 7. Severability. That is hereby declared to be the intention of the City Council that the sections, paragraphs, sentences, clauses and phrases of this ordinance, including Exhibits "A" and "B" hereto, are severable, and if any phrase, clause, sentence, paragraph or section of this Ordinance shall be declared void, ineffective or unconstitutional by the valid judgment or decree of any court of competent jurisdiction,

such voidness, ineffectiveness or unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs or sections of this Ordinance, since the same would have been enacted by the City Council without the incorporation herein of any such void, ineffective or unconstitutional phrase, clause, sentence, paragraph or section.

Section 8. Filing of Plan. 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.

Section 9. Publication. The City Secretary is hereby authorized and directed to cause publication of the descriptive caption of this ordinance as an alternative method of publication provided by law.

Section 10. Effective Date. The ordinance shall become effective immediately upon its passage and approval.

PASSED AND ADOPTED this 26th day of August, 2019.

JEFF JORDAN
MAYOR

ATTEST:

JESSIE HANKS
CITY SECRETARY

APPROVED AS TO FORM:

PATRICIA A. ADAMS
CITY ATTORNEY

APPENDIX H

ILLEGAL WATER CONNECTIONS AND THEFT OF WATER

(8) Utility rates are not changed for level billing, but it allows a customer to pay approximately the same amount each month rather than more in high usage months and less in low usage months.

(d) If utility rates are changed at any time, the new rates will be factored into the billing and may cause an adjustment to the average level bill payment due.

(e) Enrollment periods for applications to participate in level billing shall be in March and October. Eligible customers will be given the opportunity to enroll only during these two months. Terms of agreement and the application form will be furnished by the city. An application must be received prior to the last business day of the enrollment period.

(f) If a customer who is on level billing experiences a rate classification change, such as from residential to commercial or industrial, they will be discontinued in the program as level billing applies only to residential service. The account will then be adjusted as described in subsection (c)(2) of this section. No cash refunds will be made for any credit accrued unless the customer discontinues receiving service and the account is finaled.

(g) Level billing accounts shall be subject to the same rules, rates, charges, fees, penalties and policies established by the city as regular utility customer accounts.
(Ord. No. O-12-00, § 1(23-10.5), 5-8-2000)

Sec. 106-20. Tampering with, injuring, water meters.

(a) It shall be unlawful for any person, other than a duly authorized employee of the city, to tamper with any water meter in any manner; or in any way act to damage or injure any meter; or to manipulate or attempt to manipulate any meter in any manner so as to affect it registration or measurement of water.

(b) It shall be unlawful for any person or persons to install or maintain any water by-pass or water connection between the water meter and the water main supply, except where approved upon written permission from the city water department.

(c) It shall be unlawful for any person who shall tap or connect with any utility being furnished by the city or through a franchise granted by the city, or who shall turn on any utility meter valve without first having obtained approval from the city to do so, or who shall turn on such utility meter valve after the same has been turned off by the city or its agents, without first having obtaining written permission from the city water department to do so, or who shall tamper with or interfere with any water meter or any other utility supplying equipment.

(d) It shall be unlawful to use any utility after the same has been disconnected by the city, without first having secured a new application for such utility service.

(e) The discovery of an unauthorized by-pass as above mentioned shall be prima facie evidence that such by-pass was installed by and maintained by the person or persons to whom the utility service is received through such unauthorized by-pass. Also, after a utility service

APPENDIX I

CITY OF KAUFMAN

LANDSCAPE ORDINANCE

SECTION 36 LANDSCAPE REQUIREMENTS

36.1 PURPOSE:

Landscaping is accepted as adding value to property and is in the interest of the general welfare of the City. Therefore, landscaping is hereafter required of new development, except single-family and agricultural uses, adjacent to public streets. Single-family uses are generally not required to provide extensive landscaping at the time of development because they rarely fail to comply with the requirements set forth herein. Streetscaping (within the right-of-way) or landscaping in common areas or dedicated parks in new residential subdivisions must have prior approval of the Director (or his designee) as to locations and plant variety selections.

36.2 SCOPE AND ENFORCEMENT:

The standards and criteria contained within this Section are deemed to be minimum standards and shall apply to all new, or altered (exceeding thirty (30%) percent of the original floor area), construction occurring within the City, except that single-family or townhouse dwellings shall be exempt (see Subdivision Regulations or Section 18 for single-family development requirements). Additionally, any use requiring a Specific Use Permit or a PD zoning designation must comply with these landscape standards. The provisions of this Section shall be administered by the Director, or his designee. The landscape standards in this Section apply only to nonresidential and multi-family parcels.

If at any time after the issuance of a certificate of occupancy, the approved landscaping is found to be in nonconformance to the standards and criteria of this Section, the Director (or his designee) shall issue notice to the owner, citing the violation and describing what action is required to comply with this Section. The owner, tenant or agent shall have thirty (30) days from date of said notice to restore the landscaping as required. If the landscaping is not restored within the allotted time, such person shall be in violation of this Ordinance.

36.3 PERMITS:

No permits shall be issued for building, paving, grading or construction until a detailed landscape plan is submitted and approved by the Director, or his designee, along with the site plan and engineering/construction plans. A conceptual or generalized landscape plan shall be required as part of the site plan submission, as required in Section 39. Prior to the issuance of a certificate of occupancy for any building or structure, all screening and landscaping shall be in place in accordance with the landscape plan.

In any case in which a certificate of occupancy is sought at a season of the year in which the Director (or his designee) determines that it would be impractical to plant trees, shrubs or grass, or to lay turf, a temporary certificate of occupancy may be issued provided a letter of agreement from the property owner is provided stating when the installation shall occur. All landscaping required by the landscaping plan shall be installed within six (6) months of the date of the issuance of the certificate of occupancy.

36.4 LANDSCAPE PLAN:

Prior to the issuance of a building, paving, grading or construction permit for any use other than single-family detached or townhouse dwellings, a landscape plan shall be submitted to the Director, or his designee. The Director, or his designee, shall review such plans and shall approve it if the plans are in accordance with the criteria of these regulations. If the plans are not in accord, they shall be disapproved and shall be accompanied by a written statement setting forth the changes necessary for compliance.

Landscaping plans shall be prepared by a person knowledgeable in plant material usage and landscape design (e.g., landscape architect, landscape contractor, landscape designer, etc.) and shall contain the following minimum information:

A. Minimum scale of one inch (1") equals fifty feet (50'); show scale in both written and graphic form.

B. Location, size and species of all trees to be preserved (do not use "tree stamps" unless they indicate true size and location of trees).

C. Location of all plant and landscaping material to be used, including plants, paving, benches, screens, fountains, statues, earthen berms, ponds (to include depth of water), topography of site, or other landscape features

D. Species, cultivars, or varieties of all plant material to be used.

E. Size of all plant material to be used (container size, planted height, etc.)

F. Spacing of plant material where appropriate

G. Layout and description of irrigation, sprinkler, or water systems including location of water sources

H. Description of maintenance provision.

I. Person(s) responsible for the preparation of the landscape plan.

J. North arrow/symbol.

K. Date of the landscape plan.

36.5 GENERAL STANDARDS:

The following criteria and standards shall apply to landscape materials and installation:

A. All required landscaped open areas shall be completely covered with living plant material. Landscaping materials such as wood chips and gravel may be used under trees, shrubs and other plants, but shall not comprise a significant portion of the total landscaped area. Any additional landscaped (i.e., pervious) areas that are in excess of the required landscaped area shall also be covered with living plant material, such as turf grass or other ground cover (i.e., shall be "greenscaped" rather than being covered with gravel or other unattractive surfacing).

Visibility Triangle
Figure 36-1

The horizontal visibility triangle area at the intersection of a street, alley or driveway shall remain clear of any man-made or natural items between an elevation of 2.5 feet and 6.0 feet above the pavement measured at the gutter line according to the distance "T" as shown on the Exhibit.

Posted Speed Limit	T Distance Left or Right
30 MPH	350 Feet
35 MPH	410 Feet
40 MPH	470 Feet
45 MPH	470 Feet
50 MPH	590 Feet
55 MPH	645 Feet

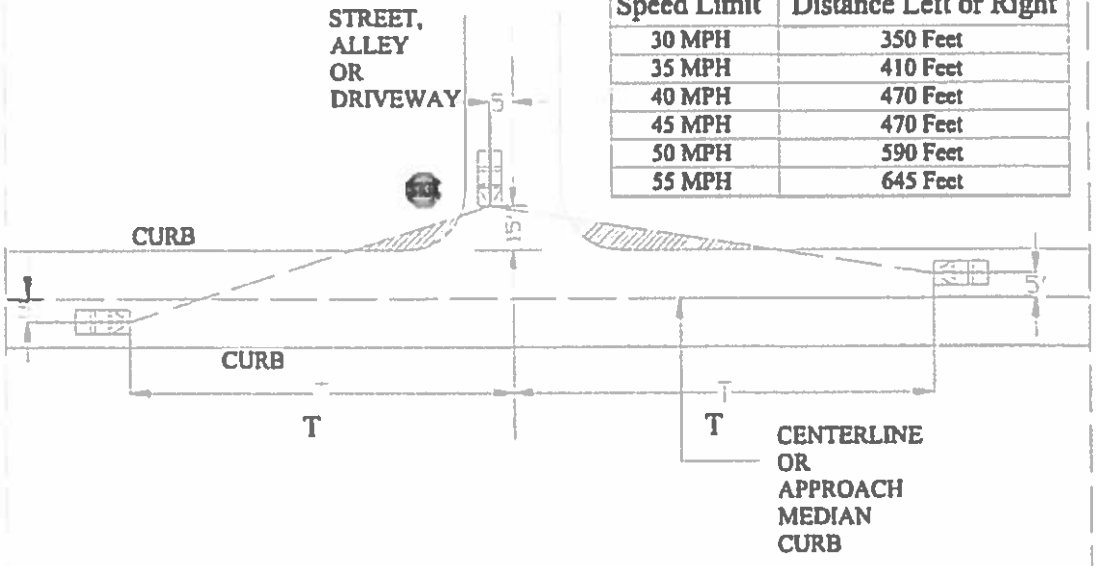
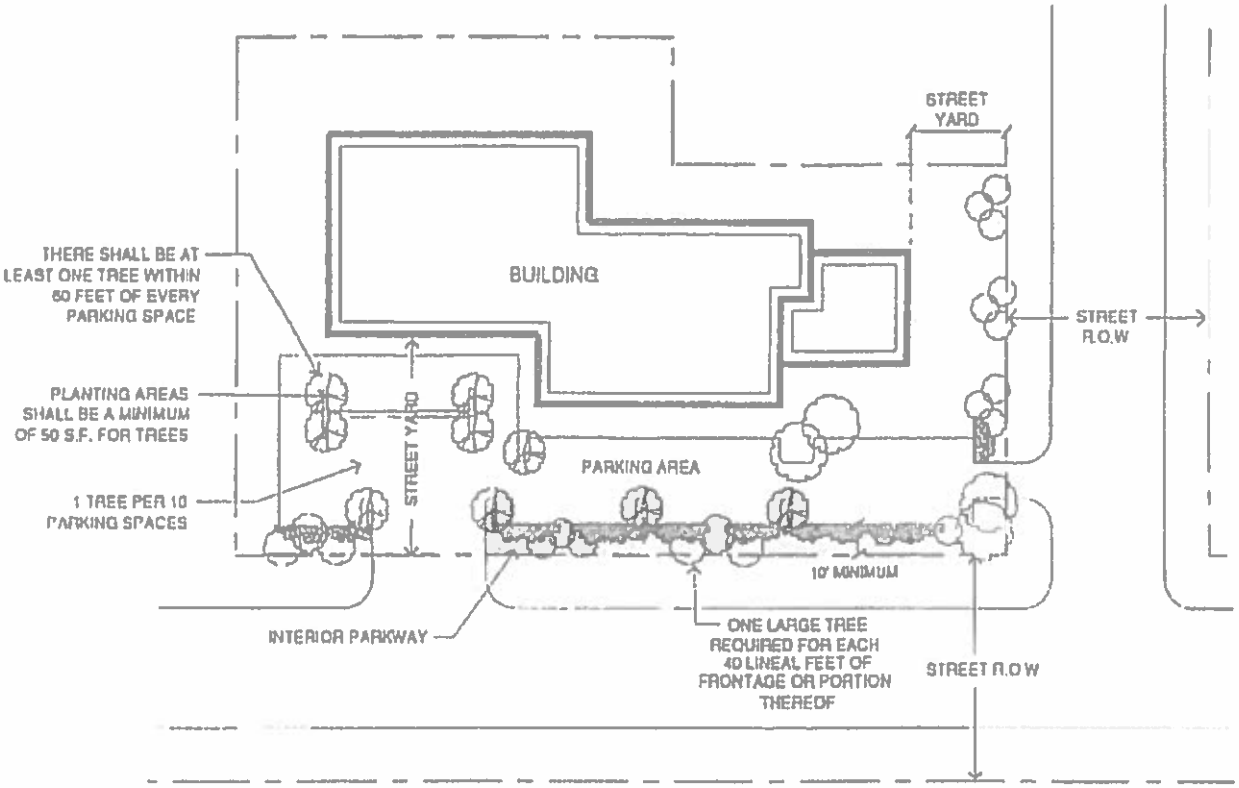


Figure 36-3



LANDSCAPE REQUIREMENTS

Example
Figure 36-3

FIGURE 36-2 RECOMMENDED PLANT LIST

Large Trees	Medium Trees	Small Trees
Bald Cypress	Aristocrat Pear	Austrian Black Pine
Bur Oak	Bigtooth maple	Crape Myrtle
Caddo Maple	Capital Pear	Dessert Willow
Cedar Elm	Chanticleer Pear	Eldarica Pine
Chinquapin Oak	Chinese Pistache	Eve's Necklace
Live Oak	Chitalpa	Japanese Black Pine
Pecan	Cleveland Select Pear	Little Gem Magnolia
Shumard Red Oak	Golden Rain Tree	Mexican Plum
Southern Magnolia	Lacebark Elm	Possumhaw Holly
Sweetgum	Redspire Pear	Redbud
Texas Ash	Savannah Holly	Wax Myrtle
Texas Persimmon	Texas Red Oak	Yaupon Holly

Small Evergreen Shrubs	Large Evergreen Shrubs	Deciduous Shrubs
(Acceptable for low	(Acceptable as noted	Crepe Myrtle
[5' or less] screening)	for 6' screening)	Flowering Quince
Barberry	Burford Holly	Rose of Sharon
Chinese Holly	Dwarf Wax Myrtle	Spirea
Cleyera	Eleagnus	Sumac
Dwarf Abelia	Juniper (large varieties)	
Dwarf Burford Holly	Leyland Cypress	
Dwarf Burning Bush	Nellie R. Stevens Holly	
Dwarf Indian Hawthorne	Red Tip Photinia	
Dwarf Yaupon Holly	Sweet Viburnum	**Ground Cover**
Japanese Boxwood	Variegated Ligustrum	Asian Jasmine
Juniper (dwarf varieties)	Waxleaf Ligustrum	English Ivy
Nandina	Willowleaf Holly	Honeysuckle
Texas Sage (Ceniza)		Liriope
	Turfgrasses	Monkey Grass
	Bermuda Grass	Trailing Juniper
	Buffalo Grass	Vinca
	Zoysiagrass	Vinca (Periwinkle)

Notes: Plants are preferred, which due to their lower water demand are designated in "Landscape Water Conservation as Xeriscape" published by the Texas Agricultural Extension Service.

Additional plant material may be approved as appropriate.

NOTE: The following trees are considered to be nuisance trees and are strongly advised not to be planted in the City of Kaufman: Cottonwood, Silver Maple, Arizona Ash, Fruitless Mulberry, Black Willow, Chinese Tallow, Bradford Pear, and Sycamore. (These are fast growing, short-lived species which have weak branch structure and many other disease, insect and root problems.)

APPENDIX J
TCEQ WATER CONSERVATION IMPLEMENTATION REPORT

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

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

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

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

This Form is applicable to the following entities:

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

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

1. Water Right Holder Name:_____
2. Water Right Permit or Certificate Nos._____

   _____
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.

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.

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

Contact Person Title/Position: _____

Contact Address:_____

Contact Phone Number:_____Contact Email Address: _____

Signature: _____ Date: _____