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City of Mesquite
2019 Water Conservation Plan

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APPENDICES

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 already largely developed. Additional supplies to meet future demands will be expensive and difficult to secure. It is therefore important to make efficient use of our existing supplies and 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 Texas Commission on Environmental Quality (TCEQ) has developed guidelines and requirements governing the development of water conservation and drought contingency plans for public water suppliers. The City of Mesquite (City) has developed this Water Conservation Plan (Plan), pursuant to TCEQ guidelines and requirements. This Plan, intended as a year-round water efficiency plan, includes measures that are designed to result in ongoing, long-term water savings. The overall 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 the efficiency in the use of water
- To extend the life of current water supplies by reducing the rate of growth in demand

The City of Mesquite is located on the eastern edge of Dallas County and is bordered by the cities of Dallas, Garland, Sunnyvale, and Balch Springs. As of May 2019, the City's current population is 143,350 with a total of 54,761 metered water utility connections. The City currently operates three pumping facilities at Barnes Bridge (North), Hailey (Central), and Southeast Mesquite (South). The ground storage capacity is 24.5 million gallons. The City also utilizes elevated storage tanks to meet peak-day water demands, replenishing the storage when the demand is lower. Four towers, located at Town East, Big Town, McKenzie, and Peachtree, have a total storage capacity of 9.5 million gallons. The total combined system has a pumping capacity of approximately 64 million gallons.

The City purchases treated water from the North Texas Municipal Water District (NTMWD). The NTMWD is a regional wholesale supplier for 13 Member Cities and numerous other customers in Collin, Dallas, Denton, Rockwall, Kaufman, Hunt, Hopkins, Fannin and Rains Counties in North Central Texas. The City provides wholesale water to Kaufman County MUD 9-12. This Plan has been developed in concert with the model plans for the NTMWD Member Cities and Customers and contains best management practices intended to meet the targets and goals identified in the plan.

2. DEFINITIONS

1. AQUATIC LIFE means organisms dependent upon an aquatic environment to sustain its life.
2. ATHLETIC FIELD means a sports playing field, the essential feature of which is turf grass, used primarily for organized sports practice, competition or exhibition events for schools, professional sports, or sanctioned league play.
3. CITY MANAGER means the City Manager of the City of Mesquite, Texas, or designee.
4. COMMERCIAL FACILITY means business or industrial buildings and the associated landscaping, but does not include the fairways, greens, or tees of a golf course.
5. 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 and others.
6. COSMETIC POWER WASHING means treatment or cleaning of a surface with specialized equipment that uses a spray of or directed water for the cosmetic cleaning of buildings, vehicles or other mobile equipment, or outdoor surfaces. It does not include industrial cleaning, cleaning associated with manufacturing activities, hazardous or toxic waste cleaning, or cleaning necessary to remove graffiti.
7. DESIGNATED OUTDOOR WATER USE DAY means a day prescribed by rule on which a person is permitted to water outdoors.
8. DRIP IRRIGATION sometimes known as trickle irrigation, or micro-irrigation, is a method of low volume, low pressure water application on the landscape from a series of valves, pipes, tubes and emitters delivering water at a rate of 0.16 up to 4 gallons per hour (GPH).
9. DROUGHT, for the purposes of this report, means an extended period of time when an area receives insufficient amounts of rainfall to replenish the water supply, causing water supply sources (in this case reservoirs) to be depleted.
10. EVAPOTRANSPIRATION abbreviated as ET represents the amount of water lost from plant material and soils through transpiration and evaporation. The amount of ET can be estimated based on the temperature, wind, and relative humidity.
11. 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.
12. EXECUTIVE DIRECTOR means the Executive Director of the North Texas Municipal Water District and includes a person the Director has designated to administer or perform any task, duty, function, role, or action related to this plan or on behalf of the Executive Director.

13. FOUNDATION WATERING means an application of water to the soils directly abutting the foundation of a building or structure.

14. GOVERNMENT PROPERTY means a property owned or operated by a federal, state, or local governmental unit, entity, agency, or subdivision for public purpose.

15. HOSE-END SPRINKLER means an above-ground water distribution device that may be attached to a garden hose[3].

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

17. NEW LANDSCAPING means living vegetation comprised of turfgrasses, trees, shrubs, groundcovers, and annual or perennial herbaceous plants used ornamentally. Does not include fruits or vegetables.

18. ORNAMENTAL FOUNTAIN means an artificially created structure from which a jet, stream, or flow of water emanates and is not utilized for the preservation of aquatic life.

19. PERMANANTLY INSTALLED IRRIGATION SYSTEM means a custom-made, site-specific system of delivering water generally for landscape irrigation via a system of pipes or other conduits, valves, heads, or other equipment installed below ground.

20. POND is a still body of water with a surface area of 500 square feet or more.

21. RAIN/FREEZE SENSOR means a device designed to stop the flow of water to an automatic irrigation system when rainfall or freeze event has been detected.

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

23. RESIDENTIAL FACILITY means a site with four or fewer dwelling units.

24. RESIDENTIAL GALLONS PER CAPITA PER DAY (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[6].

25. SOAKER HOSE means a perforated or permeable garden-type hose or pipe that is laid above ground that provides irrigation at a slow and constant rate.

26. SWIMMING POOL means any structure, basin, chamber, or tank including hot tubs, containing an artificial body of water for swimming, diving, or recreational bathing, and having a depth of two (2) feet or more at any point.

27. TOTAL GALLONS PER CAPITA PER DAY (Total 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 TCA Chapter 288.1 shall be credited against total

diversion volumes for the purposes of calculating gpcd for targets and goals. (TAC Chapter 288.1)

28. VEGETABLE/COMMUNITY GARDEN means any non-commercial vegetable garden planted primarily for household use; "non-commercial" includes incidental direct selling of produce from such a vegetable garden to the public.

29. VEHICLE WASH FACILITY means a permanently-located business that washes vehicles or other mobile equipment with water or water-based products, including but not limited to self-service car washes, full service car washes, roll-over/in-bay style car washes, and facilities managing vehicle fleets or vehicle inventory.

30. WATER SHORTAGE means a condition in which existing or projected water supply or delivery available to City customers is not anticipated to meet, or cannot meet, the ordinary water requirements of these customers.

31. WHOLESALE WATER CUSTOMER means any water supplier that receives all or a portion of its treated water supply directly from the City of Mesquite.

3. WATER CONSERVATION PLAN

3.1 Purpose and State Requirements

The purpose of a water conservation plan is to identify water conservation opportunities and set goals to be accomplished by water conservation measures. The main objective of this Plan is for a strategy or combination of strategies for reducing the consumption of water, reducing the loss or waste of water, and improving the efficiency in the use of water. This Plan meets the requirements set forth by the Texas Water Development Board (TWDB) and the Texas Commission on Environmental Quality (TCEQ) rules governing development of water conservation plans for public water suppliers contained in TAC Title 30, Part 1, Chapter 288, Subchapter A, Rule 288 (Appendix A). The Water Conservation Plan (Plan) must be updated every 5 years and must include a Utility Profile (Appendix C). In addition to TCEQ rules regarding water conservation, this plan also incorporates elements of the Guidance and Methodology for Reporting on Water Conservation and Water Use developed by TWDB and TCEQ, in consultation with the Water Conservation Advisory Council. The Guidance 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. This 2019 Water Conservation Plan will replace the plan dated September 2015 titled "City of Mesquite Water Conservation Plan".

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

- 288.2(a)(2)(A) – Leak Detection, Repair, and Water Loss Accounting
- 288.2(a)(1)(B) – Record Management System
- 288.2(a)(2)(C) – Requirement for Water Conservation Plans by Wholesale Customers

3.2 Specification of Water Conservation Goals

TCEQ rules require the adoption of specific water conservation goals for water conservation plans. As part of Plan adoption, the City has developed 5-year and 10-year goals for per capita municipal use (see Table 3.1). The overall goals for this Plan are as follows:

- Maintain the per capita municipal water use below the specified amount in gallons per capita per day (GPCD) in a normal climate year, as shown in the completed Table 3.1
- Maintain the level of unaccounted water in the system below 12 percent annually in 2019 and subsequent years
- Implement and maintain a program of universal metering and meter replacement and repair
- Increase efficient water usage through water conservation measures with ordinance for

enforcement

- Decrease waste in lawn irrigation by implementation and enforcement of landscape water management regulation

- Raise public awareness of water conservation and encourage responsible public behavior through a public education and information program

- Develop a system specific strategy to conserve water during peak demands, thereby reducing the peak use

Table 3.1
Five-Year and Ten-Year Municipal Per Capita Water Use Goals (gpcd)

Description	Historic 5yr Average (gpcd)[1]	5-Year Goal for year 2024[2]	10-Year Goal for year 2029
Total GPCD	109	132	130
Residential GPCD	67	87	86
Water Loss (GPCD)[3]	10	15	15
Water Loss (percentage)	9.2	12%	12%

1 The Historic 5yr Average is based on 2013, 2015-2018 consumption figures (2014 numbers were omitted due to extreme drought restrictions in place during the non-normal climate conditions)

2 Projected GPCD is based on future population growth and historical weather patterns that should increase outdoor water use due to hot, dry summers

3 Water loss is expected to increase due to aging infrastructure and/or the need for increased flushing in the distribution system to maintain water quality

3.3 Metering, Water Use Records, Control of Unaccounted Water and Leak Detection and Repair

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

3.4 Accurate Metering of Treated Water Deliveries from NTMWD

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

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

The provision of water to all customers, including private, public and governmental users, will continue to be metered in the City of Mesquite. The City will test and replace their residential customer meters on a regular basis. The City has an established program to replace approximately 6% of all meters annually. Currently, the City has a water accounting program that is implemented by computerized water consumption tracking. Each metered connection is monitored for consistency in water use. If water consumption increases or decreases significantly, the meter becomes suspect and is tested and repaired or replaced as necessary.

3.6 Record Management System

As required by TAC Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2(a)(1)(B), the City will maintain a customer billing and record management system that allows for the separation of water sales and uses into single family residential, multifamily residential, commercial, public/institutional, and industrial categories. This information will be included in the City's annual water conservation report, as described in Section 3.9. Should TCEQ, TWDB, or NTMWD require the inclusion of additional customer classes, the City will add the required classes to its billing and records management system.

3.7 Determination and Control of Unaccounted Water

Unaccounted water is the difference between water delivered to the City of Mesquite from NTMWD and metered water sales to customers plus authorized, but unmetered, uses. Authorized, but unmetered, uses would include use for firefighting, releases for flushing of lines, uses associated with new construction, etc. Unaccounted water can include several categories:

- Inaccuracies in customer meters (customer meters tend to run more slowly as they age and under-report actual use)
- Losses due to water main breaks and leaks in the water distribution system
- Losses due to fire fighting
- Losses due to illegal connections and theft
- Other

Measures to control unaccounted water are part of the routine operations of the City. Maintenance

crews and personnel will test for, observe for, and report evidence of leaks in the water distribution system. A leak detection and repair program is described in Section 3.8 below. With the measures described in this Plan, the City should maintain unaccounted water below 12 percent in 2019 and subsequent years. If unaccounted water exceeds this goal, the City will implement a more intensive audit to determine the source(s) of and reduce the unaccounted water. The annual conservation report described in Section 3.9 (below) is the primary tool used to monitor unaccounted water.

3.8 Leak Detection and Repair

The City currently has a continuous leak detection, location and repair program that includes an annual water audit. When a source of unaccounted-for water loss is located, corrective repairs or other actions are taken. Implementation of fire hydrant metering, along with the meter-replacement program, aids in reducing unaccounted-for water losses. In addition, meter readers and all utility personnel are instructed to watch for possible leaks and misuses of water while performing their daily tasks.

3.9 Monitoring of Effectiveness and Efficiency

The City will continue to complete an annual water conservation report to the NTMWD by March 31 each year. This report, referred to as the Appendix D Report, is utilized to monitor the effectiveness and efficiency of the City's water conservation program and to plan conservation-related activities for the next year. The report records the water use by category, per capita municipal use and unaccounted water for the previous year and compares them to historical values The NTMWD monitors the Member and Customer Cities water conservation trends and the effectiveness of various water conservation strategies in the water conservation plans.

3.10 Water Conservation Annual Report

The City is required to submit an annual water conservation report to the TWDB by May 1 of every year. This report lists the various water conservation strategies that have been implemented and shows the estimated gallons of water saved by using the newly developed conservation tracking tool from the TWDB. The report also calls for the five-year and ten-year per capita water use goals from the previous water conservation plan, whether or not these goals have been met and if not, why not, and the amount of water saved.

4. PUBLIC INFORMATION AND EDUCATION CAMPAIGN

The NTMWD has maintained an ongoing water conservation education and public outreach campaign that includes the following methods to reach and educate the public within the NTMWD service area:

- Utilizing the "Water IQ: Know Your Water" and other public education materials produced by the NTMWD
- Utilizing the "Water4Otter" campaign for students

- Development of water conservation materials by NTMWD staff and/or materials obtained from the TWDB, the TCEQ, and other sources
- Encouraging local media coverage of water conservation issues and the importance of water conservation
- Notify local organizations, schools, and civic groups that Member City staff and staff of the NTMWD are available to make presentations on the importance of water conservation and ways to save water
- Promoting the *Texas Smartscape* web site (www.txsmartscape.com) and providing water conservation brochures and other water conservation materials available to public city events or other public places
- Promoting the Water University website, classes, and educational materials through Texas Agri-Life
- Promoting the Water My Yard website and encouraging customers to sign-up to receive weekly watering advice

In addition to the NTMWD campaign, the City of Mesquite employs the following public information strategies:

- Designated Water Conservation Coordinator to develop water conservation programs, materials, presentations, exhibits, and educational workshops
- Dedicated water conservation webpage to educate residents on both indoor and outdoor conservation, efficient watering practices, irrigation videos, and links to other resources (www.cityofmesquite.com/utilities)
- Periodic notices and articles dedicated to water conservation in the City's newsletter.
- The City of Mesquite is member of the Alliance for Water Efficiency and is an EPA WaterSense Partner and participates in "Fix a Leak Week", "Spruce Up Your Sprinkler", and other campaigns
- The City promotes *Texas Smartscape* website (txsmartscape.com) on its conservation webpage and partners with cities in the region to host regional water conservation events
- The City provides Waterwise Landscaping and Irrigation Workshops for residents on best management practices for lawns, landscapes, and irrigation systems to promote efficient water use
- Public outreach of K-12 level water conservation education to Mesquite Independent School District
- Public outreach to HOA's and other speaking opportunities within the City and region
- The City provides periodic water conservation messages on the utility bill

- The City promotes water conservation at public events, city-sponsored events and more

5. ENHANCED WATER CONSERVATION STRATEGIES

5.1 Water Rate Structure

The Texas Administrative Code 288 .2(a)(1)(H) designates the use of a "water rate structure which is not 'promotional,' i.e., a rate structure which is cost-base and which does not encourage the excessive use of water." The City implemented an increasing block rate water structure in 2014 (Appendix F) intended to encourage water conservation and discourage excessive use and waste of water.

5.2 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 2.2 gallons per minute (gpm) for faucets and 2.5 gpm for showerheads, and 1.28 gallons per flush for toilets. Similar standards are now required nationally under federal law. These state and federal standards assure that all new construction and renovations will use water-conserving fixtures.

5.3 Reuse and Recycling of Wastewater

The City does not own and operate a wastewater treatment plant. All wastewater for the City is treated by NTMWD at the South Mesquite Creek Regional Wastewater Treatment Plant. All effluent water from this treatment plant is released into Mesquite Creek which flows to the East Fork of the Trinity. A portion of this treated wastewater is diverted through the NTMWD's East Fork Water Reuse Project for reuse that is permitted by the state. Because a significant percentage of Mesquite's waste water is reused through this process, the City has not considered gray water initiatives or implementation of direct use of effluent on parks.

5.4 Rebate Incentives

The City is currently researching the possibility of adding the following incentive programs to its overall water conservation efforts:

- Low-flow Toilet Replacement (linked to EPA WaterSense)
- Water-efficient Washing Machine purchase
- Rain Barrel purchase/installation
- Rain and Freeze Sensor retrofit and installation

Additionally, the City is waiting to receive the results of a study currently being conducted for the NTMWD service area that targets the Industrial, Commercial and Institutional (ICI) customer base. In December 2018, the NTMWD hired Alan Plummer Associates to conduct the "North Texas Municipal

Water District Industrial, Commercial, and Institutional Water Use Efficiency Study." The primary scope items in the study are as follows:

- Develop ICI Customer Database
- Calculate per Capita Consumptions
- Identify, Define and Categorize
- Establish Base Use Estimates
- Identify Trends
- Select sectors for detailed analysis
- Benchmarking
- Identify Potential for Reduction
- Estimate Potential Demand Reduction by Strategy
- Program Development

The project is currently in the process of data collection. Once the results are published, the City will investigate if any new ICI conservation measures can be implemented, including the implementation of commercial rebates to commercial coin operated laundry facilities that install low water use equipment. Also, should any new coin operated laundry facility seek a permit, the City shall recommend installation of water efficient equipment.

5.5 Landscape Water Management Measures

Landscape water management measures are strategies for reducing the consumption of water, reducing the loss or waste of water, or improving or maintaining the efficiency in the use of water. The following landscape water management measures are required or recommended by the 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 drought or water management stages are declared. These measures were developed specifically to address efficient use of water in the City. Based on existing or projected conditions, the City Manager may impose alternative provisions which may be more or less restrictive than specified herein. Factors which could influence such a decision could include, but are not limited to, changes in the City's distribution system, water quality concerns to protect the public health and safety, supply interruptions, or the need for additional water use reduction. **Mandatory requirements** include:

- Limit landscape watering with sprinklers or irrigation systems at each service address, as designated by the City Manager, to no more than **two days per week**, year round, with education that less than twice per week is usually adequate. The City Manager is authorized to determine the most effective manner of implementing this requirement, whether it be by area of the City, address, or other designation to assure that no undue burden is placed on water

supply on the same days of the week. The following are **exceptions** to the applicable day of week watering limitation:

  - Additional watering of landscape, if necessary, may be provided by hand-held hose, use of dedicated irrigation drip zones, and/or soaker hoses, provided no runoff occurs
  - New landscaping, including sod replacement, may be watered as necessary for 30 days from the installation with City notification
  - Golf courses may water greens and tee boxes without restrictions
  - Public athletic fields used for competition may be watered without restrictions
  - Locations using other sources of water supply only for irrigation may irrigate without day of the week restrictions provided proper signage is employed. However, irrigation using alternative sources of supply is subject to all other restrictions applicable to this stage

- Prohibit lawn/landscape watering from 10 AM to 6 PM April 1-October 31 each year
- Prohibit the use of irrigation systems that intentionally water impervious surfaces. (Wind driven water drift will be taken into consideration)
- Prohibit use of poorly maintained or malfunctioning irrigation systems that waste water
- Prohibit outdoor watering during precipitation or freeze events
- Prohibit water waste at all times. Water runoff to streets, alleys, or storm drains or failing to repair a controllable leak is considered water waste
- Require all new irrigation systems be in compliance with state design and installation regulations (TAC Title 30, Part 1, Chapter 344)
- Require rain and freeze sensors or ET or Smart Controllers on all new irrigation systems. Rain and freeze sensors and ET Controllers must be maintained to function properly. ET controllers ARE NOT exempt from water restrictions in this plan
- Require the playing surface on all new athletic fields be irrigated by a separate irrigation zone from surrounding areas

ADDITIONAL REQUIRED WATER CONSERVATION MEASURES:

- Non-commercial car washing can be done only when using a water hose with a positive shut-off nozzle
- Positive shut-off nozzles must be used in all restaurants and food service establishment kitchens to prevent wash and rinse water running continuously

6. IMPLEMENTATION/ENFORCEMENT OF THE WATER CONSERVATION PLAN

6.1 Procedure for Enforcing Mandatory Water Use Restrictions

Procedures for the enforcement of mandatory water use restrictions, notice of violations, fines and penalties are outlined in Section 16-13, Chapter 16 of the Code of the City of Mesquite, Texas. (See Appendix B). The City Manager is authorized to implement the applicable provisions of this Plan to protect public health, safety, and welfare. The City Manager shall have the authority to initiate or terminate drought or other emergency response measures as described in this Plan. The authority to implement and enforce this Plan is established in Chapter 16 of the Code of the City of Mesquite, Texas (see Appendix B).

6.2 Procedure for Granting Variances to the Plan

Procedures for granting variances to the Plan are outlined in Section 16-13, Chapter 16 of the Code of the City of Mesquite, Texas. (See Appendix B).

7. COORDINATION WITH REGIONAL WATER PLANNING GROUPS

This Plan was prepared in cooperation with the NTMWD, other member and customer cities of the NTMWD, as well as other regional water suppliers. The City of Mesquite will provide a copy of this Plan to the Chairs of the Region C and Region D water planning groups (see transmittal letters in Appendix E) and will continue to work with the regional planning groups to improve efficient utilization of existing water resources and water conservation practices.

8. REVIEW AND UPDATE OF THE WATER CONSERVATION PLAN

As required by TCEQ rules, the City of Mesquite will review this plan every five years. The plan will be updated as appropriate based on new or updated information.

9. ADOPTION OF THE WATER CONSERVATION PLAN

Appendix B contains a copy of the Ordinance adopting the Water Conservation Plan approved on July 1, 2019 by Mesquite City Council.

APPENDIX A

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 drinking water suppliers must include the following elements:

(A) a utility profile including, but not limited to, information regarding population and customer data, water use data, water supply system data, and wastewater system data;

(B) until May 1, 2005, specification of conservation goals including, but not limited to, municipal per capita water use goals, the basis for the development of such goals, and a time frame for achieving the specified goals;

(C) beginning May 1, 2005, 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. 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 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.);

(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 in order to control unaccounted-for uses of water;

(B) a record management system to record water pumped, water deliveries, water sales, and water losses which allows for the desegregation of water sales and uses into the following user classes:

(i) residential;

(ii) commercial;

(iii) public and institutional; and

(iv) industrial; and

(C) 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, then the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with applicable provisions of this chapter.

(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 greywater;

(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) Beginning May 1, 2005, 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.

APPENDIX B

Ordinance Adopting City of Mesquite Water Conservation Plan

ORDINANCE NO. 4691

AN ORDINANCE OF THE CITY OF MESQUITE, TEXAS, AMENDING CHAPTER 16 OF THE MESQUITE CITY CODE, AS AMENDED, THEREBY ADOPTING THE MAY 2019 WATER CONSERVATION PLAN AND THE MAY 2019 DROUGHT CONTINGENCY AND EMERGENCY MANAGEMENT PLAN; PROVIDING A REPEALER CLAUSE; PROVIDING A SEVERABILITY CLAUSE; AND PROVIDING FOR A PENALTY NOT TO EXCEED TWO THOUSAND ($2,000.00) DOLLARS FOR EACH OFFENSE; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, on September 21, 2015, the City Council duly passed Ordinance No. 4383, adopting the September 2015 Water Conservation Plan and the September 2015 Drought Contingency and Emergency Management Plan; and

WHEREAS, the City Council has reviewed the May 2019 Water Conservation Plan and the May 2019 Drought Contingency and Emergency Management Plan, hereto respectively as Exhibits "A" and "B," and incorporated herein by reference, and finds it is in the best interest of the City to adopt the same.

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

SECTION 1. That the City Council hereby adopts the May 2019 Water Conservation Plan and the May 2019 Drought Contingency and Emergency Management Plan, attached hereto respectively as Exhibits "A" and "B," as the official policies of the City of Mesquite.

SECTION 2. That Chapter 16 of the Mesquite City Code, as amended, is hereby amended by deleting Sections 16-12 in its entirety and adding a new Section 16-12 to read as follows, in all other respects said Code and Chapter to remain in full force and effect:

Sec. 16-12. Adoption of Water Conservation Plan and Drought Contingency and Emergency Management Plan.

The City Council of the City of Mesquite hereby adopts the May 2019 City of Mesquite Water Conservation Plan and the May 2019 Drought Contingency and Emergency Management Plan, which are incorporated herein by reference as if set forth in full. A copy of each Plan shall be kept on file in the office of the City Secretary. The City Manager is authorized to order that the appropriate stage of emergency response, as detailed in the emergency water management plan, be implemented. To be effective, the order must be:

(a) made by public announcement; and

(b) published in a newspaper of general circulation in the City within 24 hours after the public announcement, which order becomes immediately effective upon publication.

SECTION 3. That all ordinances or portions thereof in conflict with the provisions of this ordinance, to the extent of such conflict, are hereby repealed. To the extent that such ordinances or portions thereof are not in conflict herewith, the same shall remain in full force and effect.

SECTION 4. That should any word, sentence, clause, paragraph or provision of this ordinance be held to be invalid or unconstitutional, the remaining portions of this ordinance shall remain in full force and effect.

SECTION 5. That any person (as defined in Chapter 1, Section 1-2 of the Code of the City of Mesquite, Texas, as amended) violating any of the provisions or terms of this ordinance shall be deemed to be guilty of a Class C Misdemeanor and upon conviction thereof, shall be subject to a fine not to exceed Two Thousand ($2,000.00) Dollars for each offense, provided, however, if the maximum penalty provided for by this ordinance for an offense is greater than the maximum penalty provided for the same offense under the laws of the State of Texas, the maximum penalty for violation of this ordinance for such offense shall be the maximum penalty provided by the laws of the State of Texas. Each day or portion of a day any violation of this ordinance continues shall constitute a separate offense.

SECTION 6. That this ordinance shall take effect and be in force from and after five days after publication.

DULY PASSED AND APPROVED by the City Council of the City of Mesquite, Texas, on the 1st day of July 2019.

Stan Pickett
Mayor

ATTEST:

Sonja Land
City Secretary

APPROVED:

David L. Paschall
City Attorney

APPENDIX C

TWDB Utility Profile

(submitted electronically with TWDB)

Texas Water Development Board

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

CONTACT INFORMATION

Name of Utility: City of Mesquite

Public Water Supply Identification Number (PWS ID): TX0570014

Certificate of Convenience and Necessity (CCN) Number: 10060

Surface Water Right ID Number:

Wastewater ID Number: 20016

Contact: First Name: Tim Last Name: Abbott

Title: Manager of Utilities

Address: 1101 East Main City: Mesquite State: TX

Zip Code: 75149 Zip+4: 8717 Email: tabbott@cityofmesquite.com

Telephone Number: 9722166941 Date: 5/24/2019

Is this person the designated Conservation Coordinator? ○ Yes ◉ No

Coordinator: First Name: Kathy Last Name: Fonville

Title: Sustainability Program Coordinator

Address: 1101 East Main City: Mesquite Zip Code: 75149

Email: kfonvill@cityofmesquite.com Telephone Number: 972-329-8300

Regional Water Planning Group: C

Groundwater Conservation District:

Our records indicate that you:

☐ Received financial assistance of $500,000 or more from TWDB

☑ Have 3,300 or more retail connections

☐ Have a surface water right with TCEQ

A. Population and Service Area Data

1. Current service area size in square miles: 47

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

Attached file(s):

File Name	File Description
WaterServiceArea_And_ETJ.pdf	Water Service Area Map

2. Historical service area population for the previous five years, starting with the most current year.

Year	Historical Population Served By Retail Water Service	Historical Population Served By Wholesale Water Service	Historical Population Served By Wastewater Water Service
2018	143,949	1	143,949
2017	143,060	4,505	143,060
2016	142,950	4,480	142,950
2015	142,230	4,480	142,230
2014	142,210	3,950	142,210

3. Projected service area population for the following decades.

Year	Projected Population Served By Retail Water Service	Projected Population Served By Wholesale Water Service	Projected Population Served By Wastewater Water Service
2020	149,262	5,000	149,262
2030	157,259	7,997	157,259
2040	190,912	8,000	190,912
2050	195,000	8,000	195,000
2060	200,000	9,000	200,000

4. Described source(s)/method(s) for estimating current and projected populations.

The population from 2014 to 2018 are from the census data. 2020 to 2060 is just a guess.

Texas Water Development Board

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

B. System Input

System input data for the previous five years.

Total System Input = Self-supplied + Imported – Exported

Year	Water Produced in Gallons	Purchased/Imported Water in Gallons	Exported Water in Gallons	Total System Input	Total GPCD
2018	0	6,196,614,444	437,165,556	5,759,448,888	110
2017	0	5,781,558,333	318,277,083	5,463,281,250	105
2016	0	5,600,714,000	175,162,000	5,425,552,000	104
2015	0	5,922,801,000	166,144,000	5,756,657,000	111
2014	0	5,254,180,000	139,346,000	5,114,834,000	99
Historic Average	0	5,751,173,555	247,218,928	5,503,954,628	106

C. Water Supply System

Attached file(s):

File Name	File Description
ISO Pump Station and Water Towers.xls	Mesquite Pump Station and Water Towers list

1. Designed daily capacity of system in gallons: 83,500,000

2. Storage Capacity

   2a. Elevated storage in gallons: 95,000,000

   2b. Ground storage in gallons: 24,500,000

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

D. Projected Demands

1. The estimated water supply requirements for the next ten years using population trends, historical water use, economic growth, etc.

Year	Population	Water Demand (gallons)
2020	159,848	7,701,476,640
2021	162,738	7,840,716,840
2022	165,681	7,982,510,580
2023	168,667	8,126,376,060
2024	170,185	8,087,191,200
2025	171,716	8,159,944,320
2026	173,261	8,347,714,980
2027	174,820	8,244,511,200
2028	176,393	8,318,693,880
2029	177,980	8,329,464,000

2. Description of source data and how projected water demands were determined.

Population taken from City of Mesquite's 2011 Master Water Plan developed by Freeman-Millican Inc. Projections were backed up in the plan three years to account for very low growth during the past economic downturn. Water demands were calculated using the five and ten year goals for gpcd taken from the previously adopted 2010 City of Mesquite Utility Profile GPCD Goals. These GPCDs were 141 by 2015 and 132 by 2020. By

E. High Volume Customers

1. The annual water use for the five highest volume **RETAIL customers.**

Customer	Water Use Category	Annual Water Use	Treated or Raw
Pepsi Bottling Co	Industrial	5,072,596,000	Treated
Mesquite ISD	Institutional	1,456,559,000	Treated
City of Mesquite	Institutional	931,514,000	Treated
Town East Mall	Commercial	546,833,000	Treated

2. The annual water use for the five highest volume **WHOLESALE customers.**

Customer	Water Use Category	Annual Water Use	Treated or Raw
Kaufman Co. MUD #12	Municipal	245,373,000	Treated

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

F. Utility Data Comment Section

Additional comments about utility data.

Attached file(s):

File Name	File Description
Projected growth 2019.xlsx	Projected growth

Section II: System Data

A. Retail Water Supplier Connections

1. List of active retail connections by major water use category.

Water Use Category Type	Total Retail Connections (Active + Inactive)	Percent of Total Connections
Residential - Single Family	37,881	69.16 %
Residential - Multi-Family	13,714	25.04 %
Industrial	33	0.06 %
Commercial	2,837	5.18 %
Institutional	310	0.57 %
Agricultural	0	0.00 %
Total	54,775	100.00 %

2. Net number of new retail connections by water use category for the previous five years.

	Net Number of New Retail Connections						
Year	**Residential - Single Family**	**Residential - Multi-Family**	**Industrial**	**Commercial**	**Institutional**	**Agricultural**	**Total**
2018	54	140	0	44	5	0	243
2017	65	0	0	19	0	0	84
2016	28	45	0	43	3	0	119
2015	24	211	1	22	3	0	261
2014	1	0	0	5	0	0	6

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

B. Accounting Data

The previous five years' gallons of RETAIL water provided in each major water use category.

Year	Residential - Single Family	Residential - Multi-Family	Industrial	Commercial	Institutional	Agricultural	Total
2018	2,561,646,900	789,875,500	582,469,300	840,925,800	218,862,100	0	4,993,779,600
2017	2,485,954,000	787,375,100	166,680,750	774,518,600	678,130,400	0	4,892,658,850
2016	2,553,860,000	803,088,400	431,396,000	804,426,800	367,485,900	0	4,960,257,100
2015	2,741,449,800	796,375,300	454,711,900	838,532,300	290,281,600	0	5,121,350,900
2014	2,539,430,900	749,225,000	290,550,900	776,568,700	214,880,200	0	4,570,655,700

C. Residential Water Use

The previous five years residential GPCD for single family and multi-family units.

Year	Total Residential GPCD
2018	64
2017	63
2016	64
2015	68
2014	63
Historic Average	64

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

D. Annual and Seasonal Water Use

1. The previous five years' gallons of treated water provided to RETAIL customers.

Month	Total Gallons of Treated Water				
	2018	2017	2016	2015	2014
January	422,628	418,332	412,666	402,754	407,098
February	370,178	370,118	392,246	354,137	365,635
March	432,000	445,431	428,143	405,128	419,734
April	454,024	443,151	436,530	405,154	421,245
May	542,884	508,548	450,814	405,568	477,956
June	605,860	497,135	509,087	465,182	483,947
July	700,110	553,027	634,575	639,753	536,753
August	665,880	544,855	639,594	774,637	581,700
September	554,693	581,685	562,573	696,126	558,201
October	482,030	529,183	529,412	653,059	486,078
November	418,445	459,223	443,124	437,014	410,605
December	417,951	436,712	418,615	417,340	409,968
Total	6,066,683	5,787,400	5,857,379	6,055,852	5,558,920

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

2. The previous five years' gallons of raw water provided to RETAIL customers.

Month	Total Gallons of Raw Water				
	2018	2017	2016	2015	2014
January	0				
February	0				
March	0				
April	0				
May	0				
June	0				
July	0				
August	0				
September	0				
October	0				
November	0				
December	0				
Total	0				

3. Summary of seasonal and annual water use.

	Summer RETAIL (Treated + Raw)	Total RETAIL (Treated + Raw)
2018	1,971,850	6,066,683
2017	1,595,017	5,787,400
2016	1,783,256	5,857,379
2015	1,879,572	6,055,852
2014	1,602,400	5,558,920
Average in Gallons	1,766,419.00	5,865,246.80

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

E. Water Loss

Water Loss data for the previous five years.

Year	Total Water Loss in Gallons	Water Loss in GPCD	Water Loss as a Percentage
2018	614,956,155	12	10.68 %
2017	452,390,796	9	8.28 %
2016	260,237,109	5	4.79 %
2015	411,359,304	8	7.15 %
2014	370,803,708	7	7.25 %
Average	421,949,414	8	7.63 %

F. Peak Day Use

Average Daily Water Use and Peak Day Water Use for the previous five years.

Year	Average Daily Use (gal)	Peak Day Use (gal)	Ratio (peak/avg)
2018	16,621	21433	1.2895
2017	15,855	17337	1.0935
2016	16,047	19383	1.2079
2015	16,591	20430	1.2314
2014	15,229	17417	1.1437

G. Summary of Historic Water Use

Water Use Category	Historic Average	Percent of Connections	Percent of Water Use
Residential - Single Family	2,576,468,320	69.16 %	52.50 %
Residential - Multi-Family	785,187,860	25.04 %	16.00 %
Industrial	385,161,770	0.06 %	7.85 %
Commercial	806,994,440	5.18 %	16.44 %
Institutional	353,928,040	0.57 %	7.21 %
Agricultural	0	0.00 %	0.00 %

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

H. System Data Comment Section

Section III: Wastewater System Data

A. Wastewater System Data

1. Design capacity of wastewater treatment plant(s) in gallons per day:

2. List of active wastewater connections by major water use category.

Water Use Category	Metered	Unmetered	Total Connections	Percent of Total Connections
Municipal			0	0.00 %
Industrial			0	0.00 %
Commercial			0	0.00 %
Institutional			0	0.00 %
Agricultural			0	0.00 %
Total			0	100.00 %

3. Percentage of water serviced by the wastewater system: 100.00 %

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

4. Number of gallons of wastewater that was treated by the utility for the previous five years.

Month	Total Gallons of Treated Water				
	2018	2017	2016	2015	2014
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
Total					

5. Could treated wastewater be substituted for potable water?

( ) Yes (•) No

B. Reuse Data

1. Data by type of recycling and reuse activities implemented during the current reporting period.

Type of Reuse	Total Annual Volume (in gallons)
On-site Irrigation	
Plant wash down	
Chlorination/de-chlorination	
Industrial	
Landscape irrigation (park,golf courses)	0
Agricultural	
Discharge to surface water	0
Evaporation Pond	0
Other	
Total	0

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

C. Wastewater System Data Comment

Additional comments and files to support or explain wastewater system data listed below.

APPENDIX D

Letters to Region C and Region D Water Planning Groups

MESQUITE
TEXAS
Real. Texas. Service.

July 2, 2019

Mr. Kevin Ward
Chair, Region C Water Planning Group
Trinity River Authority
P.O. Box 60
Arlington, Texas 76004

Re: **2019 Water Conservation Plan and 2019 Drought Contingency & Emergency Management Plan for the City of Mesquite, Texas**

Dear Mr. Ward:

Enclosed please find a copy of the recently adopted Water Conservation Plan and the Drought Contingency and Emergency Management Plan for the City of Mesquite, Texas.

This Plan is being submitted 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 Mesquite City Council adopted these plans through Ordinance 4691 on July 1, 2019. Should you have any questions, please direct them to Kathy Fonville, Sustainability Program Coordinator, at 972-329-8300.

Sincerely,

Tim Abbott, Manager
Utilities Division

Enclosures

cc: Resource Protection Team, TCEQ
Texas Water Development Board
Region D Water Planning Group
North Texas Municipal Water District

MESQUITE
TEXAS
Real. Texas. Service.

July 2, 2019

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

Re: **2019 Water Conservation Plan and 2019 Drought Contingency & Emergency Management Plan for the City of Mesquite, Texas**

Dear Ms. Price:

Enclosed please find a copy of the recently adopted Water Conservation Plan and the Drought Contingency & Emergency Management Plan for the City of Mesquite, Texas.

This Plan is being submitted 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 Mesquite City Council adopted these plans through Ordinance 4691 on July 1, 2019. Should you have any questions, please direct them to Kathy Fonville, Sustainability Program Coordinator, at 972-329-8300.

Sincerely,

Tim Abbott, Manager
Utilities Division

Enclosures

cc: Resource Protection Team, TCEQ
Texas Water Development Board
Region C Water Planning Group
North Texas Municipal Water District

APPENDIX E

MESQUITE
TEXAS
Real. Texas. Service.

WATER & SEWER RATES
2018/19

WATER RATES:

Minimum Bill: (based on meter size)

0.625 inch meter	$14.44
1.000 inch meter	$20.06
1.500 inch meter	$26.72
2.000 inch meter	$33.39
3.000 inch meter	$40.06
4.000 inch meter	$46.73
6.000-inch meter	$52.29

Tiered Rates: (amount per 1,000 gallons billed)

0 – 1,000 gallons	$0.00
1,001 – 5,000 gallons	$6.27
5,001 – 10,000 gallons	$6.74
10,001 – 50,000 gallons	$7.08
50,001 – 70,000 gallons	$7.41
70,001 – 500,000 gallons	$7.75
Over 500,000 gallons	$6.41

SEWER RATES:

Minimum Bill: (includes first 1,000 gallons)

All customers	$15.76

Tiered Rates: (amount per 1,000 gallons billed)

0 – 1,000 gallons	$0.00
Over 1,000 gallons	$6.19

NOTE: Residential customers are capped at 8,000 gallons for sewer usage.