

City of Plano
Water Management Plan

Table of Contents Will Be Updated Before Adoption

TABLE OF CONTENTS

1. INTRODUCTION AND OBJECTIVES	3
2. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES	8
2.1 Conservation Plans	8
2.2 Drought Contingency Plans.....	9
3. WATER CONSERVATION UTILITY PROFILE.....	11
4. SPECIFICATION OF WATER CONSERVATION GOALS	12
5. METERING, WATER USE RECORDS, CONTROL OF WATER LOSS, AND LEAK DETECTION AND REPAIR.....	13
5.1 Accurate Metering of Treated Water Deliveries from NTMWD.....	13
5.2 Metering of Customer and Public Uses and Meter Testing, Repair, and Replacement	13
5.3 Determination and Control of Water Loss	13
5.4 Leak Detection and Repair.....	14
5.5 Monitoring of Effectiveness and Efficiency – NTMWD Member City and Customer Annual Water Conservation Report	14
5.6 Water Conservation Implementation Report	14
6. CONTINUING PUBLIC EDUCATION AND INFORMATION CAMPAIGN.....	15
7. WATER RATE STRUCTURE	17
8. OTHER WATER CONSERVATION MEASURES	18
8.1 NTMWD System Operation Plan.....	18
8.2 Reuse and Recycling of Wastewater	18
8.3 Ordinances, Plumbing Codes, or Rules on Water-Conserving Fixtures	18
8.4 Landscape Water Management Measures	18
8.5 Additional Water Conservation Measures	20
8.6 Rebates and Free Distribution of Water Conserving Devices	20
8.7 Requirement for Water Conservation Plans by Wholesale Customers.....	20
9. IMPLEMENTATION OF THE DROUGHT CONTINGENCY & WATER EMERGENCY RESPONSE PLAN.....	22
10. COORDINATION WITH THE REGIONAL WATER PLANNING GROUP AND NTMWD.....	23
11. REVIEW AND UPDATE OF WATER MANAGEMENT PLAN	24
12. IMPLEMENTATION AND ENFORCEMENT OF THE WATER MANAGEMENT PLAN.....	25

APPENDICES

APPENDIX A	List of References
APPENDIX B	Water Conservation Utility Profile
APPENDIX C	Water Conservation Incentive Program
APPENDIX D	NTMWD Member City and Customer Annual Water Conservation Report

1. INTRODUCTION AND OBJECTIVES

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

Recognizing the need for efficient use of existing water supplies, the Texas Commission on Environmental Quality (TCEQ) has developed guidelines and requirements governing the development of water conservation and drought contingency plans for public water suppliers. The TCEQ established guidelines and requirements are in Texas Administrative Code Title 30, Part 1, Chapter 288 Subchapter A, Rule §288.2 and Texas Administrative Code Title 30, Part 1, Chapter 288 Subchapter B, Rule §288.20. The best management practices established by the Water Conservation Implementation Task Force, established pursuant to SB1094 by the 78th Legislature, were also considered in the development of the water conservation measures. The Water Management Plan for the City of Plano was developed in concert with the NTMWD's water conservation and drought contingency and water emergency response plans.

The water conservation sections of this plan are intended as a year-round water efficiency plan and include measures that are designed to result in ongoing, long-term water savings. 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.
- To document 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 drought contingency and water emergency response sections of this plan address strategies designed to temporarily reduce water use in response to specific conditions. The purpose of this drought contingency and water emergency response plan is as follows:

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

The NTMWD supplies treated water to its Member Cities and Customers. The water conservation and drought contingency sections of this document were modeled after plans developed by NTMWD in consultation with its Member Cities. In concert with the adoption of this plan, the City of Plano is required to do the following:

- Complete the Water Conservation Utility Profile (TWDB Form - 1965R).
- Complete the Water Conservation Implementation Report (TWDB Form - 1969).
- Set five-year and ten-year goals for per capita water use (Section 4).
- Adopt a resolution approving the plan

This plan includes all elements required by TCEQ. The final adopted version of the Water Management Plan, including appendices will also be provided to NTMWD, as well as TCEQ and Region C Planning Group.

This Water Management Plan applies to all users of the City of Plano water supply.

Definitions:

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, or sanctioned league play.

Central Controlled Irrigation Systems means large scale, technically advanced systems used to water large or multiple sites from a central location. This advanced technology can monitor and adapt system operation and irrigation run times in response to conditions in the system or surrounding areas (weather conditions, pipe breaks, etc.). These systems may also be easily programmed (individually or globally) to reduce flow rates or the amount of water applied to meet conservation needs; required reduction percentages; and provide historical data or reports. The City central irrigation system uses multiple weather stations throughout the city to collect real-time climatological data. This data is then available to the computer to automatically shut down the system when weather conditions warrant.

Cool Season Grasses refers to the 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.

Customer means a person, company or other entity connected to the City's water system and contracting with the City of Plano to receive potable water service.

Drip Irrigation means micro-irrigation with low volume (measured in gallons per hour) and low-pressure release of water to a specific root zone through point source emitters or pressure compensating in-line drippers. This does not include micro-sprayers or misters.

Foundation means area that includes first 24" of soil from foundation slab.

Fugitive water means the pumping, flow, release, escape, or leakage of any water from any pipe, valve, faucet, connection, diversion, well, from any water supply, transport, storage disposal or delivery system of a facility onto adjacent property or the public right-of-way.

Irrigation System means a site-specific system of delivering water, generally for landscape irrigation, via a system of pipes or other conduits installed below ground.

Landscape means natural plant materials around buildings or on grounds (i.e., trees, shrubbery, grasses and flowers) but excludes athletic fields and high use areas.

Potable water means any public water supply that has been investigated and approved by the TCEQ as satisfactory for drinking, culinary and domestic purposes.

Public Health and Safety means such amount of water as necessary to sustain human life, reasonable standards of hygiene and sanitation, and fire suppression.

Soaker Hose means a perforated or permeable garden-type hose that is laid above ground and provides irrigation at a slow and constant rate.

Sprinkler means an above ground irrigation device that may be attached to a garden hose or in-ground irrigation system. This includes spray heads, rotor heads, and oscillating devices.

Wholesale customers purchase water at a discounted rate either directly from NTMWD or from a NTMWD water system Member City. Plano is a wholesale customer of NTMWD.

Responsibilities:

(a) The Director of Public Works is responsible for:

- ❖ Advising the City Manager in issues related to water conservation and drought and water emergency issues.
- ❖ Developing and maintaining the Water Management Plan and Drought and Emergency Response Plan in conformance with the most current NTMWD Model Plan and TCEQ guidelines and policies.
- ❖ Implementing programs to reduce and control water loss, calculating and reporting unaccounted for water, and keeping water loss under 12%. When water loss exceeds state standards, the City will intensify water loss control programs.
- ❖ Assuring that City ordinances are maintained to continue to support future revisions to the NTMWD Model Plan, City Plan, TCEQ guidelines, and legislative mandate.
- ❖ Preparing and submitting all required reports, water utility profiles, and tabular materials related to water conservation in the formats and media required by the City Plan and/or NTMWD, TCEQ, and/or the Texas Water Development Board (TWDB).
- ❖ Continuing the City's Water and Sewer Fund financial programming to support a residential meter replacement cycle of no more than 10 years and conducting a regular large meter testing program on no less than a 5-year cycle.

- ❖ Supporting the City's goal of reducing municipal gallons per capita per day (gpcd) to ~~18590~~ gpcd within a 10-year period.
- ❖ Providing NTMWD and the Chair of the Region C water planning group the City's adopted resolution and drought contingency ordinance.
- ❖ Managing the administrative processing and follow-up associated with City customer variance requests.
- ❖ Managing the administrative processing and follow-up associated with enforcement of all water conservation and drought contingency and water emergency response provisions of the drought contingency ordinance.
- ❖ Managing the program that allows the pursuit of administrative remedies for violations of water conservation and drought water use restrictions by non-single family water account holders.

(b) The Director of Environmental Health and Sustainability is responsible for:

- ❖ Developing and presenting water conservation educational and informational programs.
- ❖ Developing water conservation promotional activities including a water conservation incentive program.
- ❖ Developing and distributing the Consumer Confidence Report (CCR) to meet federal and state requirements.
- ❖ Notifying the public of the initiation of any drought and emergency response stage.
- ❖ Assuring that education materials are maintained to continue to support future revisions to the NTMWD Model Plan, City Plan, TCEQ guidelines, and legislative mandate.

(c) The Director of Finance is responsible for:

- ❖ Assuring the City continues its program of universal metering and billing.
- ❖ Assuring that the City water billing/records management system includes water usage classes and capabilities to sort/separate differing classes and categories of water usage as required by the NTMWD Model Plan and Texas Administrative Code (TAC) Title 30, Part I, Chapter 288, Subchapter A, Rule 288.2(a)(2)(b).

(d) The Chief Building Official is responsible for:

- ❖ Enforcing the requirements of the International Plumbing Code (IPC) in residential and commercial facilities.
- ❖ As part of the building permit and building inspection programs, enforcing requirements for landscape irrigation system design in accordance with state design and installation standards and the inclusion of freeze and rain sensors on all new irrigation systems (City of Plano Code of Ordinances §6-561). This requires irrigation system design submission by builders for review by the building official staff and inspection of the irrigation systems as part of the building inspection program.

(e) Planning Department is responsible for:

- ❖ Maintaining and enforcing the Zoning Ordinance's landscape and irrigation plan requirements through the development review process.
- ❖ Implementing procedures to allow developers to delay the installation of landscaping during drought contingency watering restrictions.

(f) Parks and Recreation Department is responsible for:

- ❖ Operating and maintaining a central controlled irrigation system, other city irrigation systems to ensure conservation of water, and efficient use of irrigation to meet the needs of city site users. Safety and usability for recreational users of irrigated city sites shall be considered a priority.
- ❖ Installing and maintaining landscapes and managing natural and man-made park resources in a sustainable manner suitable for the scope and scale of the assets. Demonstration of conservation measures meaningful to residential scale shall be incorporated into sites and practices when feasible.

2. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES

2.1 Conservation Plans

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

Minimum Conservation Plan Requirements

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

- 288.2(a)(1)(A) – Utility Profile – Section 3
- 288.2(a)(1)(B) – ~~Record Management System~~ Specification of Goals – Section 5.45.2
- 288.2(a)(1)(C) – Specific, Quantified Goals – Section 4
- 288.2(a)(1)(D) – Accurate Metering – Sections 5.1 and 5.2
- 288.2(a)(1)(E) – Universal Metering – Section 5.2
- 288.2(a)(1)(F) – Determination and Control of Unaccounted Water – Section 5.4
- 288.2(a)(1)(G) – Public Education and Information Program – Section 6
- 288.2(a)(1)(H) – Non-Promotional Water Rate Structure – Section 7
- 288.2(a)(1)(I) – Reservoir System Operation Plan – Section 8.1
- 288.2(a)(1)(J) – Means of Implementation and Enforcement – Section 12
- 288.2(a)(1)(K) – Coordination with Regional Water Planning Group – Section 10
- 288.2(c) – Review and Update of Plan – Section 11

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 5.1 through 5.4
- ~~288.2(a)(2)(B) – Record Management System – Section 5.2~~
- ~~288.2(a)(2)(C) – Requirement for Water Conservation Plans by Wholesale Customers – Section 8.7~~

Additional Conservation Strategies

The TCEQ requires that a water conservation implementation report be completed and submitted on an annual basis.

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

- 288.2(a)(3)(F) – Considerations for Landscape Water Management Regulations – Section 8.4 and enacting a resolution and/or ordinance(s)

TCEQ rules also include optional, but not required, conservation strategies, which may be adopted by suppliers. The NTMWD recommends that the following strategies be included in the Member City and Customer water conservation plans:

- 288.2(a)(3)(A) – Conservation Oriented Water Rates – Section 7
- 288.2(a)(3)(B) – Ordinances, Plumbing Codes or Rules on Water-Conserving Fixtures – Section 8.3
- 288.2(a)(3)(C) – Replacement or Retrofit of Water-Conserving Plumbing Fixtures – Section 8.6
- 288.2(a)(3)(D) – Reuse and Recycling of Wastewater – Section 8.2
- 288.2(a)(3)(G) – Monitoring Method – Section 5.5
- 288.2(a)(3)(H) – Additional Conservation Ordinance Provisions – Section 8.5 and 8.6

2.2 Drought Contingency Plans

The TCEQ rules governing development of drought contingency plans for public water suppliers are contained in Title 30, Part 1, Chapter 288, Subchapter B, Rule 288.20 of the Texas Administrative Code. For the purpose of these rules, a drought contingency and water emergency response plan is defined as “a strategy or combination of strategies for temporary supply and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies.” The elements in the TCEQ drought contingency rules covered in this conservation plan are listed below.

Minimum Requirements

TCEQ’s minimum requirements for drought contingency plans are addressed in the adopted Drought and Emergency Response Plan in the City of Plano Municipal Code §21-53 through §21-60.2:

- 288.20(a)(1)(A) – Provisions to Inform the Public and Provide Opportunity for Public Input
- 288.20(a)(1)(B) – Provisions for Continuing Public Education and Information
- 288.20(a)(1)(C) – Coordination with the Regional Water Planning Group – Section 10
- 288.20(a)(1)(D) – Criteria for Initiation and Termination of Drought Stages
- 288.20(a)(1)(E) – Drought and Emergency Response Stages
- 288.20(a)(1)(F) – Specific, Quantified Targets for Water Use Reductions
- 288.20(a)(1)(G) – Water Supply and Demand Management Measures for Each Stage
- 288.20(a)(1)(H) – Procedures for Initiation and Termination of Drought Stages

- 288.20(a)(1)(I) - Procedures for Granting Variances
- 288.20(a)(1)(J) - Procedures for Enforcement of Mandatory Restrictions
- 288.20(a)(3) – Consultation with Wholesale Supplier
- 288.20(b) – Notification of Implementation of Mandatory Measures
- 288.20(c) – Review and Update of Plan – Section 11

3. WATER CONSERVATION UTILITY PROFILE

The Water Conservation Utility Profile must be completed as a requirement of the Water Management Plan. The completed Utility Profile for Retail Water Supplier (TWDB Form No.1965-R) is included in **Appendix B**

4. 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, the City of Plano must develop 5-year and 10-year goals for per capita municipal use. These goals should be submitted to NTMWD. The goals for this water management plan include the following:

- Maintain the per capita municipal water use below the specified amount in gallons per capita per day in a dry year, as shown in the completed Table 4.1.
- Maintain the level of unaccounted water in the system below 12%, as discussed in Section 5.4.
- Implement and maintain a program of universal metering and meter replacement and repair, as discussed in Section 5.2.
- Decrease waste in lawn irrigation by implementation and enforcement of landscape water management regulations, as discussed in Section 8.4 and City of Plano Zoning Ordinance Article 3.1200: Landscaping Requirements.
- Increase efficient water usage as discussed in Sections 8.5 and 8.6.
- Raise public awareness of water conservation and encourage responsible public behavior by a public education and information program, as discussed in Section 6.
- Develop a system specific strategy to conserve water during peak demands, thereby reducing the peak use.

Table 4.1
Five-Year and Ten-Year Municipal Per Capita Water Use Goals (gpcd)
TABLE INCLUDES DRAFT GOALS FOR PUBLIC COMMENT

Description	Historic 5-Year Average ¹	Baseline ²	5-Year Goal for year 2024	10-Year Goal for year 2029
Total GPCD ³	<u>201</u>	<u>219</u>	<u>190</u>	<u>185</u>
Residential GPCD ⁴	<u>92</u>	<u>95</u>	<u>88</u>	<u>86</u>
Water Loss (GPCD) ⁵	<u>31</u>	<u>24</u>	<u>21</u>	<u>19</u>
Water Loss (Percentage) ⁶	<u>16%</u>	<u>11%</u>	<u>11%</u>	<u>10%</u>

1. The Historic 5-yr Average includes [water consumption from 2019 through 2023](#).
2. The [goals and guidance established in the Texas Water Development Board – Region C 2021 Water Plan were used to determine the Baseline GPCD and Water Loss percentage](#).
3. Total GPCD = (Total Gallons in System ÷ Permanent Population) ÷ 365
4. Residential GPCD = (Gallons Used for Residential Use ÷ Residential Population) ÷ 365
5. Water Loss GPCD = (Total Water Loss ÷ Permanent Population) ÷ 365
6. Water Loss Percentage = (Total Water Loss ÷ Total Gallons in System) x 100; or (Water Loss GPCD ÷ Total GPCD) x 100

5. 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 unaccounted water.

5.1 Accurate Metering of Treated Water Deliveries from NTMWD

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

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

The provision of water to all customers, including public and governmental users, will be metered in the City of Plano. The City of Plano tests and/or replaces their residential customer meters in accordance with Sec. 4.2.8 of AWWA C700-95 and M-6, Water Meters – Selection, Installation, Testing and Maintenance Record Management System. All residential customer meters will be budgeted to be replaced on a minimum of a 10 to 15-year cycle. Additionally, large meters will be regularly tested on no less than a 5-year interval and either maintained or replaced when their test flow is outside standards established by AWWA.

As required by TAC Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2(a)(1)(B), the City of Plano will maintain a customer billing and record management system that allows for the separation of water sales and uses into residential, commercial, public/institutional, and industrial categories. This information will be included in an annual water conservation report, as described in Section 5.6 below.

5.3 Determination and Control of Water Loss

The Texas Water Development Board utilizes a methodology derived from the American Water Works Association (AWWA) and the International Water Association (IWA). This new standard uses terminology such as authorized consumption, real loss, apparent loss, and non-revenue water. Total water loss, as reported to TCEQ, includes two categories:

- Apparent Losses – Water that has been consumed but not properly measured or billed. These losses represent under-registered or under-billed water that occurs via customer meter inaccuracies, systematic data handling errors in the customer billing system, and unauthorized consumption due to illegal connections and theft.
- Real Losses – These are physical losses from the pressurized water distribution system, including water mains and all appurtenances (for example, valves and hydrants) and customer service connection piping. Real losses represent water that is lost from the distribution system prior to reaching the customer destination.

Measures to control apparent and real water losses will be part of the routine operations of the City of Plano. Maintenance crews and personnel will look for and report evidence of leaks in the water distribution system. A leak detection and repair program is described in

Section 5.4 below. Meter service technicians, building inspectors, and all City crews will watch for and report signs of illegal connections, so they can be quickly addressed.

The Water Audit Worksheet, provided by TCEQ, is a "top down" audit of a utility's system using existing estimations and records. This audit will be completed annually using the Water Loss Audit Worksheets available from the Texas Water Development Board online at <https://www.twdb.texas.gov/conservation/municipal/waterloss/index.asp>. With the measures described in this plan, the City of Plano should maintain unaccounted water below 12%. If unaccounted water exceeds this goal, the City of Plano will implement a more intensive audit to determine the source(s) of and reduce the unaccounted water. The annual conservation report described below is the primary tool that should be used to monitor unaccounted water.

5.4 Leak Detection and Repair

As described above, city 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. The Parks and Recreation Department's central irrigation system uses sub-metering and real-time data collection to monitor for leaks, line breaks, and malfunctions. The system automatically shuts down when leaks are detected, then automatically generates reports for these occurrences so they may be followed up by field technicians.

5.5 Monitoring of Effectiveness and Efficiency – NTMWD Member City and Customer Annual Water Conservation Report

The City of Plano will complete the NTMWD Member City and Customer Annual Water Conservation Report (**Appendix D**) by March 31 each year and will use this report to monitor the effectiveness and efficiency of the water conservation program and to plan conservation-related activities for the next year. The form records the water use by category, per capita municipal use, and unaccounted water for the current year and compares them to historical values. The annual water conservation report should be sent to NTMWD, which will monitor NTMWD Member Cities' and Customers' water conservation trends.

The City of Plano will consider using the Texas Water Development Board's Water Conservation Tracking Tool to assess existing water conservation initiatives and potential future initiatives.

5.6 Water Conservation Implementation Report

The TCEQ-required Water Conservation Plan Annual Implementation Report (TWDB Form No. 1966) is due to the TCEQ by May 1 of every year. This report lists the various water conservation strategies that have been implemented, including the date the strategy was implemented. The report also calls for the five-year and ten-year per capita water use goals from the previous water conservation plan. The reporting entity must answer whether or not these goals have been met and if not, why not. The amount of water saved is also requested

6. CONTINUING PUBLIC EDUCATION AND INFORMATION CAMPAIGN

The public education and information campaign on water conservation is carried out primarily by the Water Education Coordinator, a full-time staff member within the Sustainability and Environmental Education Division (SEED) of the Environmental Health and Sustainability Department. SEED's mission is to educate and engage the community in sustainable practices and environmental stewardship.

The Water Education Coordinator works with SEED staff and other City of Plano staff to develop classes, workshops, events, presentations, exhibits, communications campaigns, rebate programs and other resources that promote efficient water use. SEED notifies local organizations, schools, and civic groups that its staff and NTMWD's staff are available to provide presentations on the importance of water conservation and ways to save water.

The Water Education Coordinator develops and maintains a website designed to educate residents on the importance of water conservation and ways to save water. This includes access to real-time water use data through the Customer & Utility Services online portal, recommended seasonal watering guidelines and schedules and links to other helpful resources, including the TWDB, TCEQ, EPA WaterSense and others.

The Water Education Coordinator develops utility bill inserts, electronic and print newsletter articles and social media campaigns to share water conservation information, garner trust and encourage interaction. These include material developed by the Environmental Health and Sustainability Department, [Communication and Media Relations Departments](#), and material obtained from the TWDB, the TCEQ, EPA WaterSense, and other sources. The City of Plano encourages local media coverage of water conservation issues and the importance of water conservation.

The Water Education Coordinator utilizes "Water IQ: Know Your Water", "Water4Otter" "Water My Yard" and other public education materials produced by the NTMWD as appropriate for targeted audiences. ~~SEED staff actively promote~~ The following websites Texas Smartscape (www.txsmartscape.com), Water Is Awesome (www.waterisawesome.com), Texas A&M AgriLife (Water – Texas A&M Agrilife Extension Service (tamu.edu)) as well as other regional resources, are used to as professional references to make water conservation brochures and other materials available to the public.

The Water Education Coordinator and the SEED staff actively promote water conservation with the use of evapotranspiration(ET)-based weekly watering advice and recommendations. Landscapes frequently require less watering than the year-round water schedule allows. This measure can be particularly useful for customers using automated landscape irrigation systems. Services used include but are not limited to:

- Water My Yard – Water my Yard is an online platform where homeowners can sign up to receive weekly watering recommendations based on their location and a few specifications about their sprinkler system. Users can then choose to accept the recommendations by email, text, or both. Sponsored by NTMWD and Texas A&M AgriLife Extension Service (WaterMyYard.org).
- Water Is Awesome Weekly Watering Advice – Weekly provides weekly watering recommendations for most of North Texas based on data from weather stations scattered throughout the DFW area. The recommendations are distributed by email and text every week and are provided in inches of water needed and the number of minutes necessary to apply that amount of water for spray, rotor, and multi-stream sprinklers. Irrigation recommendations are sent out via email and text on a weekly basis, detailing the required inches of water and the corresponding

duration in minutes for applying that volume of water through spray, rotor, and multi-stream sprinklers. Advice service is available for all of North Central Texas and sponsored by DWU (Dallas Water Utilities) and TRWD. (<https://waterisawesome.com/weekly-watering-advice>).

The Water Education Coordinator develops and maintains partnerships with regional and national like-minded entities. These include the Water Efficiency Network of North Texas (WENNT), Texas A&M AgriLife ~~Water University~~, the Dallas Irrigation Association, the North Central Texas Council of Governments (NCTCOG), EPA WaterSense, American Water Works Association (AWWA), and others.

SEED offers free classes and workshops, including ~~a multi-part, in-person~~ Sprinkler Spruce Up ~~class series~~workshops, ~~a hands-on~~ Fix-a-Leak ~~Week~~ workshops, and additional seasonal classes on water-efficient gardening ~~topics and other topics~~. The Water Education Coordinator and SEED staff will host “pop-up” water education events. These events aim to encourage water-efficient practices, distribute literature on water conservation, and raise awareness and maintenance through promotional items.

SEED maintains a set of online learning modules, which allow users to work through interactive online courses at their convenience. One of these focuses on DIY residential sprinkler repairs. SEED is piloting additional online learning options, including webinars and video clips.

SEED hosts an annual WaterWise Landscape Tour. Residents can visit beautiful, sustainable Plano landscapes that thrived in the summer heat with minimal irrigation. This event introduces attendees to plants and practices that are suitable for North Texas as well as resources to help them incorporate those plants and practices into their own yards.

SEED promotes and participates in the National Wildlife Habitat Garden for Wildlife™ program. This campaign advocates sustainable gardening techniques such as eliminating the use of chemical pesticides and fertilizers, conservation of water and planting native species. This program is open to home owners, schools, as well as private and public institutions.

The City of Plano is ~~an~~ a multi-year award-winning EPA WaterSense partner. SEED continues to strive for award-worthy excellence by promoting EPA WaterSense campaigns, resources, and products.

The Water Education Coordinator oversees the Water Conservation Incentive Program. This includes free conservation items for City of Plano residents and the Water Rebate Program. See Appendix C for details and guidelines.

In addition, trained water meter technicians provide face-to-face communication with residents concerning proper irrigation system design and operation and other conservation practices.

7. WATER RATE STRUCTURE

The City of Plano will continue to bill customers using an increasing block rate water structure that is intended to encourage water conservation and discourage excessive use and waste of water. See City of Plano Code of Ordinances §21-147 establishing an increasing block rate structure and minimum charge and base charges for all tiers for residential and commercial/industrial water rates.

8. OTHER WATER CONSERVATION MEASURES

8.1 NTMWD System Operation Plan

Member Cities and Customers of NTMWD purchase treated water from NTMWD and do not have surface water supplies requiring implementation of a system operation plan. NTMWD's permits do allow some coordinated operation of its water supply sources, and NTMWD is seeking additional water rights for coordinated operation to optimize its available water supplies.

8.2 Reuse and Recycling of Wastewater

The City of Plano does not own or operate its own wastewater treatment plants. The wastewater is treated by NTMWD. NTMWD currently has the largest wastewater reuse program in the state. NTMWD also provides treated effluent from its wastewater treatment plants available for direct reuse for landscape irrigation and industrial use. In Plano, Pecan Hollow Golf Course, Los Rios Park (currently not active but is in place for future opportunity), and the PIT Soccer Complex use or can use wastewater effluent for irrigation.

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

State and federal standards have 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, and 3.0 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. These state and federal standards assure that all new construction and renovations will use water-conserving fixtures. As it deems appropriate, the City of Plano will continue to implement ordinances, plumbing codes, and rules for water conserving fixtures as they evolve through relevant building codes and State of Texas requirements. The current plumbing code is adopted in the City of Plano Code of Ordinances §§ 6-236 - 6-239.

8.4 Landscape Water Management Measures

The City of Plano adopts the following basic landscape water conservation measures as required by NTMWD:

- Per the Water Waste; Excess Flow Ordinance, the City of Plano restricts irrigation with sprinklers between the hours of 10 am to 6 pm from April 1 to October 31 of each year. To protect public safety during a freeze event, the City of Plano restricts irrigation with sprinklers any time other than between the hours of 10 am to 6 pm from November 1 to March 31 of each year.
- The City of Plano encourages limiting irrigation with sprinklers to a maximum of twice per week between April 1 and October 31 when not in a drought stage that further limits watering days.
- The City of Plano encourages limiting irrigation with sprinklers to no more than one day per week between November 1 and March 31.

- The City of Plano encourages customers to adhere to designated watering days based on the last digit of their service address.

Service Address	Spring/Summer (April 1 to October 31)	Fall/Winter (November 1 to March 31)
Even (Ends in 0,2,4,6, or 8)	Mondays and Thursdays	Thursdays
Odd (Ends in 1,3,5,7, or 9)	Tuesdays and Fridays	Tuesdays

No person or operation shall cause or permit the flow of excess or fugitive water onto any adjacent property or public right-of-way. This includes watering impervious surfaces and watering during a precipitation or freeze event as stated in the City of Plano Code of Ordinances §21-52.

- The City of Plano discourages the planting of cool season grasses.
- The City of Plano discourages the planting of new landscapes or replacement of existing landscapes during summer months.

Soaker hoses should be utilized only within a tree's dripline or within 24" of a foundation. The City has adopted landscape regulations as part of its Zoning Ordinance in Article 3.1200 (Landscaping Requirements). The requirements are intended to minimize waste in landscape irrigation by requiring:

- Submission of a water budget with landscape plans for new commercial development
- Rain sensors on irrigation systems
- Irrigation system zones to water plants based on similar water needs
- Trees and plants suitable for local soil and climate conditions
- Landscape designs that conserve water through creative design and that comply with the following principles:
 - Soil protection and improvement
 - Careful selection and design of turf areas
 - Use of site-appropriate plan materials with water conservation in mind
 - Use of mulch around all plant materials and areas that are not turf or hardscape

In addition, the adopted plumbing codes in the City of Plano Code of Ordinances §6-561 require:

- New irrigation systems meeting detailed requirements of use of drip and low flow irrigation, distribution uniformity (75 percent), low-angle spray heads, designs in accordance with TCEQ
- No spray heads allowed between street and sidewalk planting areas of both residential and commercial properties

- Installation and inspection for irrigation systems that include an evaluation of the system for the distribution uniformity
- Rain and freeze sensors are required on all new irrigation systems. Rain and freeze sensors must be maintained to function properly

8.5 Additional Water Conservation Measures

- Promote proper maintenance of irrigation systems and sprinklers
- Promote the use of drip irrigation that is properly designed, installed and scheduled.
- Encourage customers to only seek the services of TCEQ licensed irrigators when they pursue contracted irrigation system design or repair. Partner with the Dallas Irrigation Association to promote vetted resources and contractors.
- “At home” car washing can be done only when using a water hose with a shut-off nozzle.
- Charity car washes are allowed only if they use hoses with shut-off nozzles.
- Promote outdoor water efficiency on website, including water conserving irrigation systems.
- Customer & Utility Services, a division of the Finance department, reads water meters using advanced metering infrastructure (AMI) technology. This system can provide hourly water usage data which customers can view through their online portal account. The City has continuous outreach programs and resources designed to educate customers how to use their data to reduce water waste and identify leaks.
- The Water Education Coordinator will continue working in conjunction with the Finance Department to create educational materials to inform customers about utilizing online meter data for monitoring and minimizing water usage, addressing typical plumbing leaks, and adopting more effective outdoor irrigation techniques. Additionally, efforts will be made by the Water Education Coordinator to reach out to residential customers with excessively high water consumption to inform them of their water usage and offer prompt education and solutions to mitigate their water consumption.
- The City of Plano will consider adding ordinances that regulate water use for splash pads, car washes and ponds. Splash pads and car washes will require recirculating systems, and ponds will be prohibited from using potable water.

8.6 Rebates and Free Distribution of Water Conserving Devices

The Water Conservation Incentive Program is described in **Appendix C**. The items may change from time to time as the program evolves. The appendix will be modified as these changes occur.

The City offers partial credit for leak repair with sufficient documentation.

8.7 Requirement for Water Conservation Plans by Wholesale Customers

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

9. IMPLEMENTATION OF THE DROUGHT CONTINGENCY & WATER EMERGENCY RESPONSE PLAN

A drought is defined as 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. In the absence of drought response measures, water demands tend to increase during a drought due to the need for additional outdoor irrigation. The severity of a drought depends on the degree of depletion of supplies and on the relationship of demand to available supplies. The NTMWD considers a drought to end when all of its supply reservoirs refill to the conservation storage pool.

City of Plano Code of Ordinances §§ 21-53 - 21-60.2 establish procedures and criteria for declaring a water emergency and implementing and terminating drought response stages, procedures for requesting variances, and establishing administrative remedies and fees and criminal penalties for violating the restrictions.

**10. COORDINATION WITH THE REGIONAL WATER PLANNING GROUP AND
NTMWD**

The City of Plano will send a copy of this water management plan, the resolution adopting the plan, and the water utility profile to the NTMWD and the Chair of the Region C Water Planning Group.

11. REVIEW AND UPDATE OF WATER MANAGEMENT PLAN

As required by TCEQ rules, the City of Plano will review the Water Management Plan, including the Drought Contingency and Water Emergency Response Ordinance, every five years. The plan will be updated as appropriate based on new or updated information.

12. IMPLEMENTATION AND ENFORCEMENT OF THE WATER MANAGEMENT PLAN

A resolution adopted by the City Council regarding the Water Management Plan on April ___, 2024. The following ordinances are also included as part of the Water Management Plan:

- Landscape Water Management Regulation – City of Plano Zoning Ordinance Article 17: Landscaping and Tree Preservation
- Illegal Water Connections and Theft of Water – City of Plano Code of Ordinances §21-17 and §21-18
- Water Rates - City of Plano Code of Ordinances §21-147
- Drought Contingency & Water Emergency Response - City of Plano Code of Ordinances §§21-53 -21-60.2
- Plumbing Code - City of Plano Code of Ordinances §§6-236 - 6-239 and §6-561
- Water Waste; Excess Flow - City of Plano Code of Ordinances §21-47 through §21- 52

**APPENDIX A
LIST OF REFERENCES**

- (1) Texas Commission on Environmental Quality Water Conservation Implementation Report. https://www.tceq.texas.gov/permitting/water_rights/wr_technical-resources/conserve.html
- (2) Title 30 of the Texas Administrative Code, Part 1, Chapter 288, Subchapter A, Rules 288.20, 288.2, and 288.5, downloaded from [https://texreg.sos.state.tx.us/public/readtac\\$ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=288](https://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=288), April 2023
- (3) 2024 North Texas Municipal Water District Water Conservation Plan <https://www.ntmwd.com/documents/2024-ntmwd-water-conservation-plan-pdf/> January 2024
- (4) 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
- (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.: Model Water Conservation Plan for NTMWD Members Cities and Customers, prepared for the North Texas Municipal Water District, Fort Worth, January 2019
- (7) Freese and Nichols, Alan Plummer Associates, Inc., CP&Y Inc., Cooksey Communications. “2021 Region C Water Plan”

APPENDIX B
WATER CONSERVATION UTILITY PROFILE
TO BE UPDATED

APPENDIX C WATER CONSERVATION INCENTIVE PROGRAM

The Water Conservation Incentive Program includes two components, as outlined below:

1. Free Water Conservation Items

The City of Plano offers residents free water conservation and quality items. ~~that are~~ These items are available at the Customer and Utility Service counter at the Municipal Center and at the Sustainability and Environmental Education office from 8am to 5pm, Monday through Friday ~~at the Municipal Center.~~ The following list is an example of items offered, contingent upon their availability, seasonality, and ongoing events or promotions held throughout the year.

~~Following is the list of items available and a description of each item:~~

- ~~• Low-Flow Shower Head: This self-cleaning shower head features a non-aerating spray, meaning less temperature loss and hot water energy savings.~~
- ~~• Toilet Leak Detection Tablets: These dye tablets are used to check for a leak between the toilet tank and bowl.~~
- ~~• Drain Snake: A thin, flexible cable that you insert in an opening to break up or remove a clog in pipes.~~
- ~~• Shower/Drain Covers: Used to prevent hair or other debris from entering sewer and causing plumbing problems.~~
- ~~• Shower Timer: A simple and effective tool to help customers shorten showers, reduce water usage and save money.~~
- ~~• Dish/Pan Squeegee Scraper: Used to remove FOG from pans and dishes prior to rising – keeps FOG from entering sewer and clogging pipes.~~
- ~~• FOG Bags: Storage bags for FOG – keeps FOG from entering sewer and clogging pipes.~~
- ~~• Pet Waste Dispenser and Refill Bags: Protects Stormwater runoff and water quality.~~

Other items are available seasonally, ~~such as~~ including soil moisture meters, faucet covers for winter and garden kneeling pads embossed with water-efficient landscaping practices.

2. Water Conservation Rebate Program

Program Eligibility and Guidelines

Eligibility:

- Participant must currently own their home and have a City of Plano water
- utility account in good standing for the property where installation of
- qualifying item occurred.
- Eligibility is limited to residential homes only; commercial buildings are not
- eligible.
- To meet eligibility guidelines, items ~~must~~ should be purchased from a
- retailer
- located within the City of Plano.

- The City of Plano reserves the right to terminate or modify the water conservation rebate program at any time.

Process:

- Resident may apply online or mails the receipt and application to City of Plano Water Conservation Rebate Program- located at 4200 W. Plano Parkway, Plano, TX 75093.
- Completed applications must be received by the City of Plano within 120 days of purchase of eligible water conserving item.
- Utility credits will be processed in the order they are received on a first-come first-served basis.
- The City issues a credit on resident's utility bill within 30 days of receipt of completed application.

WaterSense Approved, High Efficiency Toilets (HETs)

Eligibility:

- Only homes built in 1994 or earlier are eligible for the program.
- Only new, EPA WaterSense labeled high efficiency models of toilets (HET) will be eligible for utility credit.
- New high efficiency qualifying toilet (average of 1.28 gallons per flush) must replace an older, inefficient toilet (using greater than 1.6 gallons per flush). Residence must not already have low-flow or high efficiency toilets (HET's) installed.

Process:

- Resident must first purchase and install qualified toilet from local retailer.
- Rebate Applications are available online at www.livegreeninplano.com or www.plano.gov/waterrebates.
- Once installed, the resident must submit a copy of the receipt and application within 120 days of purchase date.
- Complete application will be sent to City of Plano Water Conservation Rebate Program by mail, email, fax, or hand delivery.
- Credits will be issued to the utility bill for the following amounts:
 - \$100 for the first toilet
 - \$75 for the second toilet
 - \$50 for the third toilet
- If required documentation has not been provided, rebate will be denied.

Rain/Freeze Sensor and EPA WaterSense Labeled Smart/ET Controllers

Eligibility:

- New irrigation systems are not eligible for this program.
- Irrigation system must not already have a rain and freeze sensor device installed.
- Only new rain and freeze sensors and controllers purchased from a retailer located within the City of Plano will be eligible for rebate. The City of Plano does not require an irrigation permit to retrofit an irrigation system for a rain and freeze sensor or a controller.

Process:

- Resident must select, purchase, and install rain/freeze sensor or controller from a retailer within Plano.
- Rebate Applications are available online at www.livegreeninplano.com or www.plano.gov/waterrebates.

- Resident must mail in rebate application and proof of purchase no later than 120 days from date of purchase.
- If installed by a licensed irrigation professional, resident must submit proof of installation, including license number of irrigation professional.
- Complete application will be sent to City of Plano Water Conservation Rebate Program by mail, e-mail, fax or hand delivery.
- The City of Plano will issue a \$50 water utility credit to resident's utility bill for the purchase and installation of a rain freeze sensor or controller.
- If a licensed irrigation profession installed the device and proof of the installation including the irrigator's license number, then a total of \$75 water utility credit will be issued to the resident's utility bill.
- If required documentation has not been provided, rebate will be denied.

Pressure Reducing Valve (PRV)

Eligibility:

- Eligibility is limited to single-family detached homes, townhomes, duplexes and condos that were built before January 1, 2013.
- Apartments and commercial properties are not eligible at this time.
- Applicant must currently own the dwelling and have a City of Plano water utility account in good financial standing for the property where the PRV is installed.
- Water Pressure must exceed 80 psi according to the PRV Eligibility Map at plano.gov/PRVMap.
- PRV should reduce pressure below 80 psi at residence. If it is not possible to reduce water pressure below 80 psi, PRV should be installed according to manufacturer's guidelines for maximum pressure reduction.
- PRV must reduce pressure to the house. PRVs that reduce pressure only to irrigation systems are not eligible for rebate.
- Limit one PRV rebate per residential address.
- ~~PRV must be installed after October 1, 2015 to be eligible for rebate.~~
- PRV must be installed by a licensed plumber that is registered in the City of Plano.
- PRV ~~must~~ should be purchased from a retailer located within the City of Plano.
- If the installation of the valve includes installing expansion tanks at the water heaters, then a Miscellaneous Simple Permit Application should be submitted to the City of Plano Building Inspections Department prior to installation. If the installation of the PRV does not include installation of expansion tanks, then no permit is necessary. Miscellaneous Simple Permit Application can be downloaded from www.buildinginspections.org.

Process:

- The City of Plano will issue a rebate for 50% of the PRV, associated parts, and installation costs. The maximum PRV rebate is \$500. Tax is not included.
- Rebate Applications are available online at www.livegreeninplano.com or www.plano.gov/waterrebates.
- Completed applications and itemized invoice for PRV, associated parts, and installation must be received by the City of Plano within 120 days of the installation of the PRV. Plumber's license number and installation date must be on the invoice.

- Complete application will be sent to City of Plano Water Conservation Rebate Program by mail, e-mail, fax or hand delivery.

APPENDIX D
NTMWD MEMBER CITY AND CUSTOMER ANNUAL WATER CONSERVATION REPORT
TO BE UPDATED