

# ***EXHIBIT 'A'***

## **WATER CONSERVATION PLAN**

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## **UTILITY PROFILE**

The City of Grand Prairie Water Utility System serves approximately 204,972 residents and has an area within the corporate limits of 81.10 square miles. In addition, there are 18.47 square miles of extra-territorial jurisdiction, not currently being served but expected to develop within the next several years and will be served with water and wastewater by the city. The number of connections is 78,813 including some 28,457 “extra units”, most of which are apartment units. Average annual water usage in 2023 was 27.6 MGD with a peak usage of 47.2 MGD.

The geography and general layout of the city has important impacts upon the utility. The long linear configuration of the city (encompassing 28 miles north to south and ranging from 2 miles to over 8 miles wide from east to west and divided in the approximate center by Joe Pool Lake) presents difficulties in providing and maintaining the utility infrastructure. For this reason, the city is divided into two service areas, the North Sector, in Dallas and Tarrant Counties is north of and encompassing the lake area. The South Sector is south of the lake, with some corporate boundaries in Ellis County and ETJ in Ellis and Johnson counties.

The City of Grand Prairie has multiple water connections for regular supply. Water supply sources include two connections to the City of Dallas (Capacity = 38.8 MGD), one to the City of Fort Worth (Capacity = 2.5 MGD), one to the City of Midlothian (Capacity = 2.0 MGD), one to City of Mansfield (Capacity = 12 MGD), and three (3) Trinity wells (Estimated Capacity = 3 MGD) for emergency use.

A wholesale treated water contract with the city of Midlothian will serve developing subdivisions in the extreme southern and eastern limits of the City and extra territorial jurisdiction (ETJ). These contracts will provide 2 MGD to the portion of the City south of Joe Pool Lake.

A wholesale treated water contract with the City of Mansfield will supply up to 6 MGD to the southern and western portions of the City and ETJ. This contract will at some future date also provide an additional 6 MGD treated water to the adjacent Johnson County Special Utility District (JCSUD) on a wholesale basis through a Grand Prairie pipeline.

A wholesale water Contract with the City of Arlington is in place for emergency use.

Wastewater treatment is provided by two plants, owned and operated by the Trinity River Authority (TRA). The Northern portion of the city is served by the TRA Central Wastewater Treatment Plant while the Southern area is served by the TRA Mountain Creek Facility.

## **WATER CONSERVATION TARGETS AND GOALS**

The Texas Water Conservation Task Force recommended achieving 140 GPCD or less gallons per capita per year. As the report acknowledges, such a “one size fits all” does not

take into account the various demographics and variability of distribution systems. However, Grand Prairie has achieved this goal as noted below with an average annual 129 GPCD over the last 5 years despite significant population growth.

There are several important factors to be considered in the City of Grand Prairie for setting water conservation goals. These include, but are not necessarily limited to, impacts on revenue, customer convenience, and especially water quality.

#### Revenue:

The impact of revenue includes not only the impact of reduced water usage but the continuation of the “Take or Pay” elements of the wholesale water contracts, impacting some 75% of the cost of water. Such changes are expected to continue regardless of reductions in water usage. While growth may offset some of this impact, it is nevertheless a valid concern and we expect that the impact on revenue will be negative, resulting in some off setting rate increases. However, the larger concern over the general availability of water must not be lost over the question of increased rates that will likely result from effective conservation efforts.

#### Customer Convenience & Acceptance:

The issue of customer convenience is one of gaining customer acceptance and is mitigated with the proliferation of automatic irrigation systems. We expect that when conservation and accompanying public education programs are applied statewide, customers will adapt to any added inconvenience. However, issues associated with water quality issues, discussed below, will have an impact on the willingness of the customer to accept mandated conservation measures.

#### Water Quality:

Of greatest concern to the City is the impact on water quality. We have demonstrated that lowered water consumption coupled with warm water temperatures may cause excessive bacterial growth resulting in water quality violations. In the case of Grand Prairie, this is exacerbated by the distance from the water treatment plants, resulting in high water age. This water quality has been improved with the implementation of upgraded treatment processes by Dallas. Dallas also rehabbed their transmission line that supplies our north entry point in 2022, and this new transmission line has significantly decreased the water age and improved the water quality. Since the activation of the connections from Midlothian and Mansfield, we have experienced an increase in water quality in the southern parts of Grand Prairie. In addition to these improvements, we have built the South Sector Pump Station to move and improve water going to the new development in the southern sector.

One of the remedies we have available is unidirectional flushing of the system to displace aged water and increase chloramine residuals. Unidirectional flushing, which is a program designed to displace aged water while minimizing water waste, nevertheless has negatively impacted the City’s ongoing water conservation program. Customers, who would otherwise be conscientious about water conservation have difficulty understanding why they are restricted from watering while fire hydrants are being flushed “wasting” thousands and in some cases millions of gallons of water. We

have explanations of why we are flushing fire hydrants on our City website and in our annual Water Quality Reports. The other remedy we have is chlorination boosting stations. We have added and are continuing to add additional chlorination boosting stations to help raise and stabilize disinfectant residuals.

History:

Municipal Water Demand

The City of Grand Prairie has had an on-going water conservation program for several years which we believe has been effective in controlling the per capita usage that inevitably comes with the relatively high growth rates of the City and associated demands of new lawn and landscape installations. The city continues to maintain relative per capita usage as reported in the previous five years despite recognizing significant growth. In 2014 – 2018 the GPCD were 129, 126, 133, 130, and 134 respectively. The table below shows data from 2019 through 2023.

**TABLE 1. Municipal Water Demand 2019-2023**

<u>Year</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
<u>Peak GPCD</u>	<u>210 GPD</u>	<u>203 GPD</u>	<u>175 GPD</u>	<u>218 GPD</u>	<u>230 GPD</u>
<u>Annual Average GPCD</u>	<u>132</u>	<u>129</u>	<u>119</u>	<u>132</u>	<u>134</u>
<u>Peak Day (MGD)</u>	<u>40.2 MGD</u>	<u>39.3 MGD</u>	<u>35.2 MGD</u>	<u>44.2 MGD</u>	<u>47.2 MGD</u>
<u>Average Day (MGD)</u>	<u>25.2 MGD</u>	<u>24.9 MGD</u>	<u>23.8 MGD</u>	<u>26.7 MGD</u>	<u>27.4 MGD</u>
<u>Peaking Factor</u>	<u>1.60</u>	<u>1.58</u>	<u>1.48</u>	<u>1.66</u>	<u>1.72</u>

Whereas many water conservation programs focus only on water supply, we believe that the water quality issues coupled with an already relatively low per capita water use creates a situation wherein we must carefully manage water demands paying close attention to water quality issues as well as supply.

**Municipal v. Unaccounted for Water Loss:**

Municipal Water Use is calculated by taking the difference in total water usage and subtracting unmetered water used for various municipal purposes such as fire fighting, street cleaning, sanitary sewer flushing and most significantly water system flushing for water quality purposes.

Unaccounted for water is the difference in the Municipal Use plus unmetered use and total water use. Unaccounted for water is assumed to be due to leaks, thefts and meter inaccuracies.

**TABLE 2**

Year	Total Water Use	Total Billed	Unmetered Water Use	Unaccounted* for Usage	Percent Unaccounted*
2019	9,221,591,165	7,418,335,000	398,931,809	1,404,324,356	15.23%
2020	9,089,759,969	7,478,063,000	331,382,500	1,280,314,469	14.09%
2021	8,716,928,650	7,182,043,000	203,076,691	1,331,808,959	15.28%
2022	9,767,278,621	8,306,579,000	151,382,471	1,309,317,150	13.41%
2023	10,009,839,749	7,965,665,000	318,461,801	1,725,712,948	17.24%

**Specific Targets:**

The specific goals below are based on a 1% reduction in each 5-year period. While this is a more conservative number than recommended by the State’s Water Conservation Task Force, we believe it is realistic since we have had a conservation program in place for many years and have effectively kept the per capita usage stable, even as the city was experiencing growth.

**TABLE 3**

	Historic 5 Year Average	Baseline	5-Year Goal for Year <u>2029</u>	10-Year Goal for Year <u>2034</u>
Total GPCD <sup>1</sup>	130	138.00	131.31	124.93
Residential GPCD <sup>2</sup>	72.69	75.35	71.70	68.22
Water Loss (GPCD) <sup>3</sup>	20.31	4.34	4.12	3.92
Water Loss (Percentage) <sup>4</sup>	15.49%	3.14%	3.13%	3.14%

<sup>1</sup> Total GPCD = (Total Gallons in System/Permanent Population)/365

<sup>2</sup> Residential GPCD = (Gallons Used for Residential Use/Residential Population)/365

<sup>3</sup> Water Loss GPCD = (Total Water Loss/Permanent Population)/365

<sup>4</sup> Water Loss Percentage = (Total Water Loss/Total Gallons in System) \*100; or (Water Loss GPCD/Total GPCD) \*100

**IMPLEMENTATION PLAN SCHEDULE:**

The implementation plan is already in place. The following indicates the existing elements as well as planned dates for future implementation:

Public Education	Implemented
Conservation Pricing	Implemented
Universal Metering	Implemented
Moisture and Freeze Sensors	
A. Commercial, residential And governmental	Implemented
B. Residential	Implemented
Wind Sensors	
A. Residential (new)	Implemented
Landscape Ordinance (incl, Conservation)	Implemented
Xeriscape of City Facilities	Implemented
Year round 6PM-10AM Irrigation	Implemented
Rainwater Harvesting	Implemented
Impervious Service Prohibition	Implemented
Comprehensive Leak Detection	Implemented
Automated Metering Infrastructure Program	Implemented
H2Know Outreach Program	Implemented

The above will be evaluated annually for effectiveness with changes proposed as needed to achieve specified goals.

**TRACKING IMPLEMENTATION AND EFFECTIVENESS:**

The AGPCD will be tracked annually, and the implementation plan adjusted with modifications to existing and proposed measures as well as consideration of imposition of new measures if necessary. Reductions of AGPCD assume normal weather conditions and changes to the plan will be based on effectiveness during a normal weather period. Therefore, if during any one year having a normal weather pattern, AGPCD is not reduced by at least 1% modification to the plan will be considered.

**MASTER METER TO MEASURE AND ACCOUNT FOR THE AMOUNT OF WATER DIVERTED FROM THE SOURCES OF SUPPLY:**

Currently, sources of Supply are Dallas (85%), Fort Worth (7%), Midlothian (6%) and Mansfield (2%). Each of these sources is metered with accuracy tested each year.

## **PROGRAM OF UNIVERSAL METERING; TESTING, REPAIR AND REPLACEMENT:**

The city requires all connections to be metered, including public uses except for firefighting and the unidirectional system flushing program. Neither of these programs will allow for the restrictions imposed by a meter. In the case of firefighting, the time to set up metering and the flow restriction imposed by such is not acceptable. In the case of the unidirectional flushing program, we are trying to achieve maximum velocity on the water stream to create a “scrubbing” effect on the pipe walls making metering impractical. However, a pitot tube is used to measure the flow rate and that is multiplied times the time of flow to estimate usage.

## **AUTOMATED METERING INFRASTRUCTURE PROGRAM:**

The city implemented an Automated Metering Infrastructure Program that replaced all older meters in the system and upgraded all other meters to remote read as well as provide hourly meter readings. This has improved metering accuracy while enabling customers to track their water usage and detect water leaks. H2Know is our outreach program that allows customers direct access to their water data where they can set up leak alerts, high usage alerts, and goals.

## **MEASURES TO DETERMINE AND CONTROL WATER LOSS:**

Periodic visual inspections of critical pipeline routes are routine.

Comparisons of water purchased/produced versus that sold (or otherwise accounted for) are done monthly.

Public Education programs make customers more aware of wasted water and prompt reporting is the norm.

## **LEAK DETECTION, REPAIR AND WATER LOSS ACCOUNTING PROGRAM:**

Leak detection utilizing correlation equipment is performed periodically on a routine basis and particularly where suspected leaks are not apparent at the surface or are difficult to locate. Repairs are, of course, done as soon as the leak is discovered.

## **PUBLIC EDUCATION AND INFORMATION:**

The city employs a full-time person in the water utility to provide employee training and public education.

Features of the Public Education Program on water conservation include:

1. #WaterSmartWednesday on social media (Facebook, Instagram, & X); share water conservation information.

2. Informational booths with distribution of Water Conservation literature and give-away items at community events to include various devices such as rain gauges, water bottles, moisture meters, hose timers, toilet flapper replacements, toilet leak dye tabs, pencils, and pens. .
3. Web site information – City Website and WFAA-TV Website.
4. Participate in water conservation website campaigns such as Holiday FOG (fats, oils, grease) Funnel Giveaway, A Day Without Water, National Mayor’s Challenge for Water Conservation.
5. Rain barrel classes for rainwater harvesting 2-3 times per year.
6. Water Smart landscaping classes at least 6-8 times per year and an annual native & adaptive plant tour at Water Utility Operations Building
7. Newspaper ads featuring water conservation information during summer months.
8. Local Cable TV programming year-round (GPTV)
9. Speaker’s Bureau for local clubs and other organizations/cities, such as WENNT (Water Efficiency Network of North Texas).
10. H2Know Outreach Program

**WATER RATE STRUCTURE:**

The city utilizes a tiered “inverted” rate structure for residential use. Industrial, Commercial, Governmental, and Multi-Family uses are competitively priced but not tiered. Tiered rates are difficult due to the differences in the water demands for different types of businesses. However, future considerations include requiring the use of native and adaptive plants (xeriscape) in commercial, industrial and governmental landscape plans.

The water rate is based on an annual cost of service study with adjustments made to the tiers to encourage water conservation (the following effective Oct. 1, 2023; subject to annual change).

<b><u>WATER</u></b>	<b><u>RATE</u></b>
<b><u>RESIDENTIAL</u></b>	<b><u>PER 1,000</u></b>
<b><u>GALLONS</u></b>	<b><u>GALLONS</u></b>
0 – 3,000 Total Usage	\$0.12
<u>When total usage is more than 3,000 Gallons</u>	
0 – 10,000 Gallons	\$4.50
11 – 20,000 Gallons	\$6.00
21 – 30,000 Gallons	\$9.13
Over 30,000 Gallons	\$11.41
 <b>COMMERCIAL</b>	 \$5.66
<b>INDUSTRIAL</b>	<b>\$5.66</b>



GOVERNMENTAL	\$4.77
Multi-Family	\$5.66
FIRE HYDRANTS	\$10.63

**WATER MINIMUMS BASED ON METER SIZE**

5/8" METER	\$17.72
1" METER	\$22.80
1 1/4" METER	\$27.26
1 1/2 " METER	\$29.60
2" METER	\$51.45
3" METER	\$159.49
4" METER	\$197.71
6" METER	\$296.42
8" METER	\$412.56
10" METER	\$430.44
12" METER	\$452.90
Extra Units	\$2.69
Multi-Family Add's Units	\$17.72

**MEANS OF ENFORCEMENT:**

Copies of the Water Rate Ordinance and Resolution adopting the Water Conservation Plan are attached.

Authority to enforce the plan is by virtue of the Code Compliance powers of the City.

**REGIONAL PLANNING GROUP NOTIFICATION:**

A copy of this plan along with appropriate ordinances and resolutions has been transmitted to the Region C Water Planning Group as evidenced by the letter attached hereto.

**DROUGHT CONTINGENCY PLAN:**

The latest version of the City's Drought Contingency Plan, aka "Emergency Water Use Plan" is provided herewith. It has been developed following guidelines of the Texas Water Development Board.

**ADDITIONAL WATER CONSERVATION STRATEGIES:**

The city has, when needed, utilized pressure control during peak usage times to reduce the amount of water usage and preserve storage. This remains an option.