

City of Waco
2019 Water Conservation &
Drought Contingency Plan



A – 2019 Water Conservation Plan

B – 2019 Drought Contingency Plan

A

City of Waco

Water Conservation Plan

2019

The City of Waco Water Conservation Plan is intended to enable the city to meet or exceed its own water conservation goals, including: quantified 5 and 10 year GPCD targets and in general, reduce consumption, loss, waste and peak demand while improving water use efficiency and extending the life of the water supply and system.

Water Conservation
Plan: Updated for
2019

CITY OF WACO WATER CONSERVATION PLAN

1.	INTRODUCTION AND OBJECTIVES.....	1
2.	UTILITY PROFILE.....	1
3.	SPECIFIC, QUANTIFIED 5 & 10-YEAR TARGETS	7
4.	IMPLEMENTATION	8
5.	METHOD FOR TRACKING IMPLEMENTATION AND EFFECTIVENESS	9
6.	METHOD FOR MEASURING WATER DIVERTED FROM SOURCE	9
7.	UNIVERSAL METERING.....	10
8.	MEASURING AND CONTROLLING WATER LOSS	10
9.	LEAK DETECTION AND REPAIR	10
10.	CONTINUING PUBLIC EDUCATION AND INFORMATION.....	10
11.	NON-PROMOTIONAL WATER RATE STRUCTURE.....	11
12.	RESERVOIR SYSTEMS OPERATIONS PLAN	12
13.	WHOLESALE WATER CONTRACT PROVISIONS	12
14.	AGRICULTURAL WATER USE	12
15.	IMPLEMENTATION AND ENFORCEMENT	12
16.	COORDINATION WITH REGIONAL WATER PLANNING GROUP	12
17.	CCN MAP	13

Appendix A – City of Waco Ordinance No. 2014 – XXX

Appendix B – Copy of Transmittal Letter to Brazos G Regional Planning Group

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 in Region G have led to growing demands for water. Additional supplies to meet higher demands will be expensive and difficult to develop. Therefore, it is important that we make efficient use of 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 Waco has adopted this water conservation and drought contingency plan pursuant to TAC Title 30, Part 1, Chapter 288. The objectives of the water conservation plan are:

- To reduce water consumption
- To reduce the loss and waste of water
- To reduce summertime peak demand
- To improve efficiency in the use of water
- To extend the life of current water supplies

2. UTILITY PROFILE

Current Service Area: 99 square miles

Current Population of Service Area: 137,801

Served by Water and Wastewater: 137,801

Historical Population

Year	Historical Population Served by Retail Water Service	Historical Population Served by Wholesale Water Service	Historical Population Served by Wastewater Service
2014	132,384	53,909	132,384
2015	133,722	54,449	133,722
2016	135,072	54,994	135,072
2017	136,436	55,544	136,436
2018	137,801	56,100	137,801

Projected Populations

Year	Projected Population Served by Retail Water Service	Projected Population Served by Wholesale Water Service	Projected Population Served by Wastewater Service
2020	140,557	57,222	140,557
2030	154,613	62,944	154,613
2040	170,075	69,238	170,075
2050	187,083	76,162	187,083
2060	205,791	83,778	205,791

Population and projected populations calculated using U.S. Census data and assuming 1% growth annually, which has been approximate growth for the previous 30 years.

Historical System Input

Year	Self-Supplied Water in Gallons	Purchased/Imported Water in Gallons	Exported Water in Gallons	Total System Input	Total GCPD
2014	11,953,475,325	0	1,086,517,700	10,866,957,625	237
2015	11,521,589,656	0	1,035,560,340	10,486,029,316	207
2016	12,690,845,926	0	782,424,600	11,908,421,326	215
2017	11,909,094,190	0	854,049,700	11,055,044,490	207
2018	11,372,793,939	0	1,148,884,184	10223909755	203
Historic 5 Yr. Average	11,889,559,807	0	981,487,305	10,908,072,502	214

Historical water use data reflects treated water, determined from master meter at the point where treated water leaves the treatment plant and enters the distribution system.

Water Supply System

Designed Daily Capacity of System: 90 MGD
 Elevated Storage: 20.5 million gallons
 Ground Storage: 10.6 million gallons

Water Supply Sources

Water Supply Source	Source Type*	Total Gallons
Lake Waco	Surface	25,700,000,000
Trinity Aquifer	Ground	289,168,943
Brazos River	Surface	1,800,000,000

Projected Demands

Year	Population	Water Demand (gallons)
2020	194,199	11,733,844,471
2021	196,141	11,780,779,849
2022	198,102	11,827,902,968
2023	200,083	11,875,214,580
2024	202,083	11,922,715,438
2025	204,103	11,970,406,299
2026	206,144	12,018,287,924
2027	208,205	12,066,361,075
2028	210,287	12,114,626,519
2029	212,389	12,163,085,025

Projected populations calculated using U.S. Census data and assuming 1% growth annually, which has been approximate growth for the previous 30 years. Projected water demands calculated using 0.4% increase annually which is slightly higher than historical trends to account for anticipated economic growth in the downtown/river area.

High Volume Retail Customers

Retail Customer	Water Use Category	Annual Water Use	Treated or Raw
Cargill Meat Solutions	Industrial	258,177,200	Treated
Coca Cola North America	Industrial	256,075,000	Treated
Pilgrim's Pride Corporation	Industrial	224,895,000	Treated
Mars Chocolate North America	Industrial	131,130,000	Treated
Huck Fasteners	Industrial	73,916,000	Treated

Wholesale Customers

Wholesale Customer	Contracted Amount (Acre Ft)	Previous year Amount of Water Delivered (Acre Ft)
Hewitt		306.63
Lacy Lakeview	1120.14	794.14
Robinson	561	545.32
West	1120.14	151.11
Woodway	1120.14	1,565.22
Central Bosque	96.68	92.87
Bold Springs	560.07	0.00

Wholesale Customer Service Area Specific, Quantified 5 & 10 Year Targets for Water Savings

	5-year goal	10-year goal
TOTAL GCPD	196	176
Water Loss Percentage	8%	7%

Retail Connections

Water Use Category	Active Retail Connections			% of Total Connections
	Metered	Unmetered	Total Connections	
Residential - Single Family	37599		37599	87%
Residential - Multi Family	849		849	2%
Industrial	64		64	0%
Commercial	4600		4600	11%
Institutional	0		0	0%
Agricultural	0		0	0%
TOTAL	43112		43112	

New Retail Connections Historically

Water Use Category	Net number of New Retail Connections				
	2014	2015	2016	2017	2108
Residential - Single Family	0	536	564	362	515
Residential - Multi Family	132	558	51	25	9
Industrial	0	36	0	0	2
Commercial	0	0	0	0	677
Institutional	0	0	0	0	0
Agricultural	0	0	0	0	0
TOTAL	132	1130	615	387	1203

Historic Water Use

Water Use Category	Total Gallons of Retail Water				
	2014	2015	2016	2017	2108
Residential - Single Family	3,932,373,520	3,266,095,230	3,257,036,500	3,264,384,860	4,261,772,800
Residential - Multi Family	819,112,800	827,255,600	841,296,400	843,148,600	52,177,900
Industrial	963,615,100	1,120,681,600	1,053,618,600	1,094,750,700	1,067,748,000
Commercial	3,477,654,400	2,500,786,424	3,781,496,000	3,234,052,700	3,861,849,000
Institutional	0	0	0	0	0
Agricultural	0	0	0	0	0
TOTAL	9,192,755,820	7,714,818,854	8,933,447,500	8,436,336,860	9,243,547,700

Residential GPCD

Water Use Category	Residential GPCD				
	2014	2015	2016	2017	2108
Residential - Single Family	99	86	85	82	86
Residential - Multi-Family					

Seasonal Water Use

Month	Total Gallons of Treated Retail Water				
	2014	2015	2016	2017	2108
January	602,153,900	539,444,800	569,741,600	578,023,000	605,623,500
February	594,958,300	517,196,200	564,911,200	574,244,500	553,944,200
March	566,343,800	494,039,200	585,119,800	579,560,900	559,327,600
April	632,541,200	565,732,500	670,263,400	642,959,100	588,297,100
May	775,654,300	585,940,600	557,512,400	683,643,300	790,576,300
June	811,978,100	609,908,100	644,380,200	853,553,800	982,069,000
July	801,305,000	827,465,900	952,940,600	902,281,300	1,110,627,700
August	974,082,100	1,183,320,800	1,065,732,100	925,534,200	1,205,749,400
September	1,025,761,800	1,152,005,500	956,842,800	1,008,325,000	1,713,016,300
October	848,059,800	1,132,403,200	934,469,300	868,428,100	1,023,174,100
November	781,767,100	780,983,400	808,262,700	710,849,400	619,169,700
December	573,519,200	558,690,200	641,019,100	651,652,200	508,447,000
TOTAL	8,988,124,600	8,947,130,400	8,951,195,200	8,979,054,800	10,260,021,900

Seasonal Raw Water Use

Month	Total Gallons of Raw Retail Water				
	2014	2015	2016	2017	2108
January	59,391,000	65,439,000	55,676,000	45,716,000	37,206,000
February	52,251,000	61,252,000	49,443,000	38,309,000	11,986,000
March	51,214,000	58,978,000	52,064,000	42,688,000	30,908,000
April	51,739,000	64,529,000	65,346,000	49,215,000	40,752,000
May	53,983,000	70,733,000	40,317,700	43,718,000	41,810,000
June	60,130,000	63,996,000	42,183,700	53,947,000	55,124,000
July	57,037,000	65,169,000	80,904,600	50,315,000	36,727,000
August	64,905,000	61,984,000	42,487,000	46,151,000	45,511,000
September	48,635,000	57,370,000	40,163,000	41,156,000	50,587,000
October	62,896,000	64,247,000	38,588,000	33,663,000	45,312,000
November	51,827,000	54,181,000	51,066,000	40,498,000	53,520,000
December	51,840,000	55,130,000	54,456,000	35,410,000	50,889,000
TOTAL	665,848,000	743,008,000	612,695,000	520,786,000	500,332,000

Seasonal vs. Annual Water Use

Water Use	Seasonal and Annual Water Use					Average in Gallons
	2014	2015	2016	2017	2018	
Summer Retail (Treated + Raw)	2,769,437,200	2,811,843,800	2,828,628,200	2,831,782,300	3,435,808,100	2,935,499,920
						5yr Average
TOTAL Retail (Treated + Raw)	9,653,972,600	9,690,138,400	9,563,890,200	9,499,840,800	10,760,353,900	9,833,639,180
						5yr Average

Water Loss

Year	Total Water Loss in Gallons	Water Loss in GPCD	Water Loss %
2014	1,110,090,955	23	10%
2015	186,507,166	35	17%
2016	1,098,663,683	21	10%
2017	1,549,303,812	29	14%
2018	742,427,292	13	7%
5 year average	937,398,582	24.2	12%

Peak Water Use

Year	Average Daily use (gal)	Peak Day Use (gal)	Ratio (peak/avg)
2014	27,642,000	46,115,000	1.67
2015	28,402,000	49,702,000	1.75
2016	28,180,000	54,076,000	1.92
2017	25,986,000	41,504,000	1.60
2018	30,053,000	49,269,000	1.64

Wastewater System

Design Capacity of Wastewater Treatment Plants: 46.5 MGD
 Percentage of Water Serviced by Wastewater System: 99%

Description of Wastewater Systems of Wholesale Customer Areas

With the exception of Bold Springs and Central Bosque, all wastewater systems of wholesale customer areas, while separate collections systems, all feed into the Waco Metropolitan Regional Sewerage System for transportation to and treatment at one of two wastewater treatment plants. Bold Springs and Central Bosque remain completely reliant on individual septic systems.

Wastewater Connections

Water Use Category	Active Wastewater Connections			% of Total Connections
	Metered	Unmetered	Total Connections	
Municipal		39,995	39,995	90%
Industrial		65	65	0%
Commercial		3328	3328	10%
Institutional		0	0	0%
Agricultural		0	0	0%
TOTAL	0	43,388	43,388	

Historic Gallons of Wastewater Treated

Month	Total Gallons of Treated Wastewater				
	2014	2015	2016	2017	2108
January	569,616,800	591,897,200	747,961,700	523,728,000	479,494,800
February	492,243,000	525,333,100	598,532,100	514,985,000	455,198,400
March	545,208,100	726,138,300	899,243,800	586,325,000	566,635,400
April	508,880,300	712,596,800	786,029,300	583,570,800	511,948,700
May	630,545,100	1,052,360,000	858,790,800	517,203,300	498,596,800
June	657,041,900	938,250,000	815,867,100	514,461,300	456,120,500
July	538,838,100	605,774,000	518,075,400	495,948,600	479,384,500
August	537,437,000	529,168,600	562,188,500	533,587,200	492,191,000
September	522,017,400	507,938,000	481,863,300	447,645,200	524,518,100
October	542,980,500	689,635,500	483,693,100	449,199,200	885,032,000
November	540,048,500	992,028,300	512,721,500	437,797,800	767,159,300
December	512,830,500	968,745,900	508,600,500	475,432,500	798,168,300
TOTAL	6,597,687,200	8,839,865,700	7,773,567,100	6,079,883,900	6,914,447,800

Reuse Information

Type of Reuse	Total Annual Volume (in gallons)
Industrial	3,551,899,000

3. SPECIFIC, QUANTIFIED 5 & 10-YEAR TARGETS

The projected reductions are shown at 5 and 10 year increments as required by HB 2660. These targets and goals will be updated every five years, or whenever the Water Conservation Plan is revised.

	Historic 5-yr Average	Baseline	5-yr Goal for 2024	10-yr Goal for 2029
TOTAL GPCD	214	226	196	176
Residential GCPD	88	74	64	64
Water Loss (GPCD)	26	16	15	13
Water Loss Percentage	12%	7%	8%	7%

4. IMPLEMENTATION

- Metering and measuring the amount of raw water diverted from Lake Waco will continue as an essential part of city's treatment process control and reporting requirements.
- The meter replacement program will be maintained, replacing all meters within 8 years or 1.5 million gallons. Accuracy of meters and fail rates will be continually monitored and appropriate adjustments made to the replacement program.
- Annual water audits to determine water loss will continue to be conducted. The city will continue maintaining accurate records of leaks, repairs, flushing, construction and firefighting exercises. The city will continue monitoring daily diversion amounts with daily water treatment production to determine water loss prior to distribution. Production amounts will also be compared to metered consumption to determine distribution loss.
- Leaking water lines will continue to be repaired or replaced as quickly as is possible. On-call, after-hours crews will continue responding to leaks at all hours. In situations where repair is not immediately possible, water loss will be mitigated by reduction of pressure.
- The city will continue efforts to inform and educate the public on water conservation issues. In addition to year-round efforts, each year, as the high-use season of summer approaches, these efforts will be increased and expanded. Just prior to and during the summer months, press releases will be issued regarding the city's conservation and drought contingency plans, multiple notices will be inserted in all customer bills, items promoting conservation will also be offered as "give-away" items at the customer service center and any public events or speaking engagements.
- The current non-promotional, inclining block rate will continue to be the rate structure for the City of Waco. The rate structure will be evaluated on an ongoing basis and adjustments will be made as appropriate.

5. METHOD FOR TRACKING IMPLEMENTATION AND EFFECTIVENESS

Overall progress toward conservation goals of reducing consumption, loss, waste and peak demand and improving efficiency of usage will be evaluated annually when the water conservation annual report is completed. The following methods will be used to evaluate individual portions of the plan:

- Records regarding meter replacement will be maintained and examined annually. Failure rates, along with “re-read” work orders (orders to re-read a meter are automatically generated whenever there is a high or low discrepancy outside normal variance), leaks and meter model/make will be compared in order to evaluate the replacement cycle.
- Water loss accounting will be evaluated by periodically examining multi-year loss trends, with the specific goal of identifying any discrepancies or variances and determining the cause.
- Leak detection and repair will be evaluated annually by examining comprehensive records showing number of leaks, locations, time before repair, estimated loss of water through leak, estimated loss of water through flushing. This information will be compared to water loss information for the same time period.
- Public information and education efforts will be evaluated by documenting actions, such as: number of press releases issued, number of stories written or produced, number of interviews given, number of bill inserts sent, number of presentations given and number and location of advertisements placed. This information will then be evaluated with consumption during the same time period and compared against data from previous years.
- The city’s water rate structure will continue to be evaluated by examining consumption trends. Records will be kept on consumption for each rate class. This information will be compared, along with cost of service considerations, with historic trends and adjustments will be made to the rate structure as appropriate.

6. METHOD FOR MEASURING WATER DIVERTED FROM SOURCE

Raw water diversions from Lake Waco are metered, calculated, and tracked at least daily as part of the treatment process control and reporting agreement with the U.S. Army Corps of Engineers. A spreadsheet of water use (treated water) is updated on a daily basis.

7. UNIVERSAL METERING

The City maintains meters to ensure that accurate readings (meters registering at an accuracy of no less than ninety-five percent (95%) or no higher than one hundred five percent (105%) expressed as a percentage of the full scale of the meter and performing to American Water Works Association water metering standards) are being recorded. This ensures fair and equitable billing and reduces unaccounted for water. The most common size meter in the City is 5/8", which are replaced at 1.5 million gallons of usage.

The City of Waco requires meters for all connections and bills by volume of use. The City collects and tabulates metered water usage data on Commercial, Industrial, Residential (Single-Family, Multi-Family, and Duplex), Municipal and Wholesale accounts. Further, the City collects data on dedicated irrigation meters for all the above-mentioned classes.

8. MEASURING AND CONTROLLING WATER LOSS

The City of Waco performs periodic visual inspections along distribution lines as well as maintaining accurate water leak and repair records. The City also measures and collects data on firefighting, construction, and main flushing. Annual internal audits of water usage are conducted to determine water loss.

9. LEAK DETECTION AND REPAIR

Measures to control unaccounted water are part of the routine operations of the City of Waco. Meter readers and operations crews watch for and report signs of illegal connections so they can be addressed quickly. Crews and personnel look for and report evidence of leaks in the water distribution system. Repair crews respond quickly to repair leaks reported by the public and city personnel. The city has 70 full-time distribution line employees and two on-call crews after hours responding to all leaks as quickly as possible. Areas of the water distribution system in which numerous leaks and line breaks occur are targeted for replacement as funds are available.

10. CONTINUING PUBLIC EDUCATION AND INFORMATION

The City of Waco's water utility will produce written materials in the form of

- Brochures
- Newsletter articles
- Media releases
- Public service announcements.

These are distributed to the customers, the local media, and to nonprofit local organizations such as neighborhood associations and civic improvement organizations so they may educate their members as well.

The water utility ensures that multimedia materials are also available through the utility's web site, <http://www.wacowater.com/>. The information is also broadcast over the city public access channel, and in cooperation with local media outlets for the release of information for both television and radio audiences.

Specific efforts include:

- Interactive screens on the city's web site
- Interviews with city experts in irrigation and plant water demand on the local access channel
- Interviews with city water utility management on the local access channel and with local television stations
- Press conferences to promote key educational programs
- Press events, such as giveaways or educational events focused on reducing water use
- Booths at public events sponsored by neighborhood associations, civic organizations, not-for-profit education groups, and other city departments.

The water utility creates and distributes promotional items encouraging water conservation on a regular basis.

11. NON-PROMOTIONAL WATER RATE STRUCTURE

Waco's conservation water rate is an increasing block rate, which increases as the quantity used increases. Prices per thousand gallons increase at specific "tiers" in consumption. Each tier of the rate structure is designed to send a price signal to consumers as their discretionary consumption of water increases.

Residential Water Rates (Inside City)		Residential Water Rates (Outside City)	
<i>Rate is based on meter size + usage tier</i>		<i>Rate is based on meter size + usage tier</i>	
5/8 inch meter	\$20.24	5/8 inch meter	\$23.28
1 inch meter	\$32.69	1 inch meter	\$37.59
1.5 inch meter	\$47.08	1.5 inch meter	\$54.14
2 inch meter	\$64.88	2 inch meter	\$74.61
3 inch meter	\$102.43	3 inch meter	\$117.79
0-15,000 Gallons	\$3.32 <i>per 1,000</i>	0-15,000 Gallons	\$3.82 <i>per 1,000</i>
15,001-25,000 Gallons	\$4.16 <i>per 1,000</i>	15,001-25,000 Gallons	\$4.78 <i>per 1,000</i>
Over 25,000 Gallons	\$5.77 <i>per 1,000</i>	Over 25,000 Gallons	\$6.64 <i>per 1,000</i>

12. RESERVOIR SYSTEMS OPERATIONS PLAN

A reservoir systems operations plan is not applicable to the City of Waco. The operation of the reservoir systems is conducted by the Army Corps of Engineers.

13. WHOLESALE WATER CONTRACT PROVISIONS

For every water supply contract or wholesale water supply contract entered into or renewed or extended after official adoption of the water conservation plan, each successive wholesale customer is contractually obliged to develop and implement a water conservation plan or water conservation measures in accordance with 30 TAC Chapter 288. If the customer intends to resell the water, then the customer is contractually obligated to ensure that the contract for the resale of the water has 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 30 TAC Chapter 288. Customers with older contracts not requiring water conservation provisions are asked to voluntarily implement a water conservation plan or water conservation measures similar to those implemented by the City of Waco.

14. AGRICULTURAL WATER USE

Agricultural use is for golf course and sports field irrigation, not for irrigation in the production of crops, so no production process is applicable to the City of Waco's Plan. Therefore the City does not intend to use state-of-the-art equipment or process modifications to improve water use efficiency. The amount of usage will remain constant. The City does not anticipate any water savings because the intent is to use all acre feet (per year) allowed for irrigation; therefore the City does not have specific, quantified five-year and ten-year targets for water savings. The City uses meters that are within an accuracy of plus or minus 5.0% to measure and account for the amount of water diverted from the source of the supply. City staff monitors the meters on a monthly basis in order to detect, repair and account for water loss in the water distribution system. 30 TAC §§ 288.4(a)(2) and (a)(3) are not applicable to the City of Waco.

15. IMPLEMENTATION AND ENFORCEMENT

This plan is part of an ordinance approved by the City of Waco City Council. A copy of the ordinance is provided in Appendix A.

16. COORDINATION WITH REGIONAL WATER PLANNING GROUP

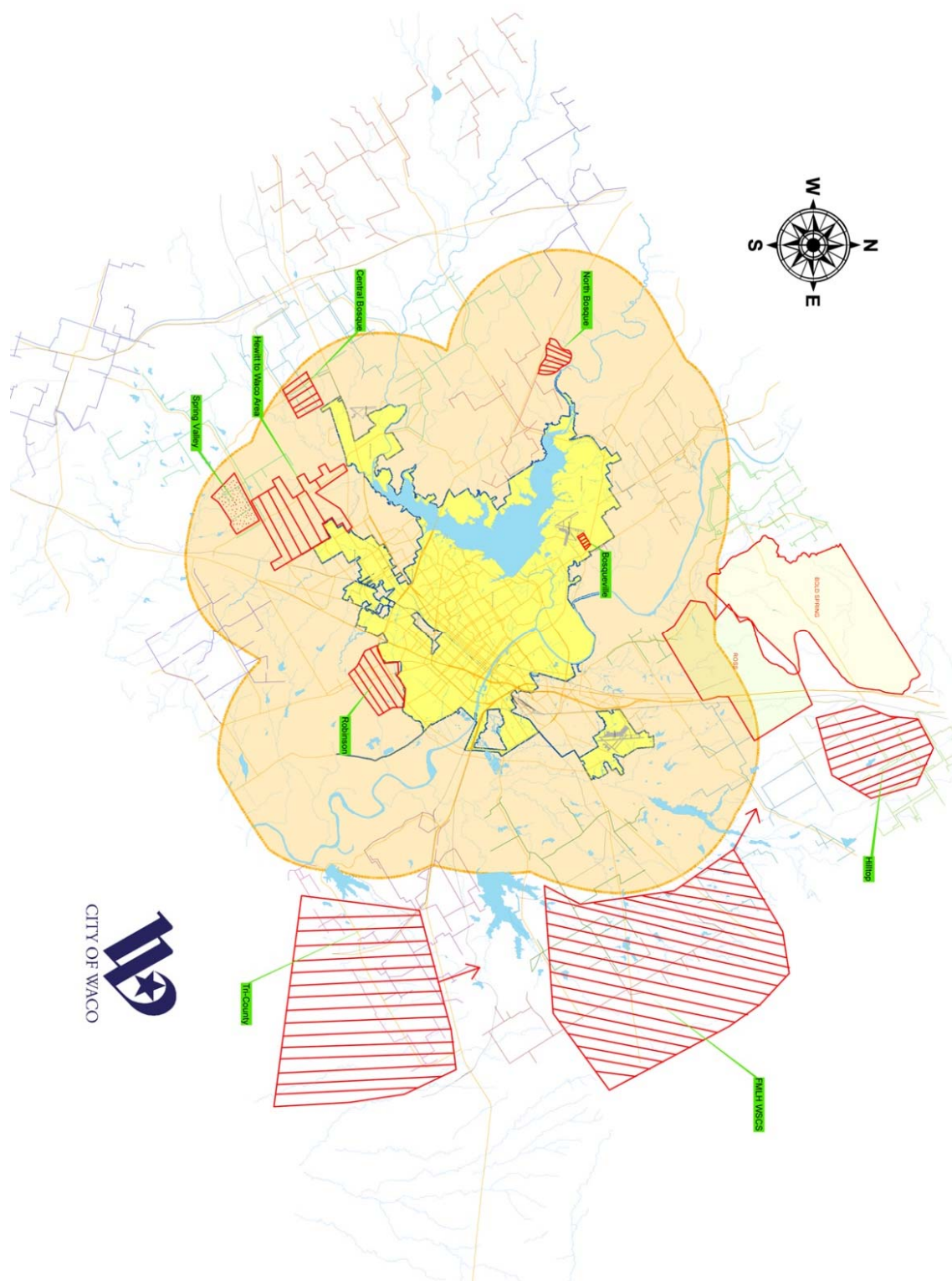
The service area of the City of Waco is located within the Brazos G Regional Planning area and the City of Waco has provided a copy of this Water Conservation and Drought

Contingency Plan to the Region Planning Group (RPG). A copy of the transmittal letter to the planning group is provided in Appendix B.

This Plan is consistent with Waco's role as a leader in water supply planning in the RPG, and meets the standards for water conservation planning in TAC Chapter 288.

17. CCN MAP

(following page)



APPENDIX A

Copy of Transmittal Letter to Brazos G Regional Planning Group



Water Utility Services

P.O. Box 2570
Waco, Texas 76702-2570
254 / 750-8040
Fax: 254 / 750-8032

May 1, 2019

Wayne Wilson, Chair – Brazos G RWPG
CIO
Trey Buzbee
Brazos River Authority
P.O. Box 7555
Waco, TX 76714

Re: Amended City of Waco Water Conservation Plan Information for the Region G Planning Group

Dear Wayne,

Recently, the City of Waco amended its Water Conservation Plan for the 5 year update. The Drought Contingency Plan was not changed for this update. This plan is consistent with Waco's role as a leader in water supply planning in Region G and meets the standards for water conservation planning in TAC Chapter 28.

Enclosed you will find copies of the amended Water Conservation and Drought Contingency Plan. If any additional information is needed for the Planning Group, please contact the City of Waco Water Utilities Department at 254-750-8040.

Sincerely,

Lisa Tyer
Director, Water Utilities Services

B

City of Waco

Drought Contingency Plan

2019

The City of Waco Drought Contingency Plan is intended to conserve the available water supply and protect the integrity of water supply facilities, with particular regard to domestic water use, to sanitation and fire protection, and to protect and preserve public health, welfare and safety to minimize the adverse impacts of water supply shortage or other water supply emergency conditions.

Drought Contingency
Plan: Updated for 2019

CITY OF WACO DROUGHT CONTINGENCY PLAN

SECTION I: DECLARATION OF POLICY, PURPOSE, AND INTENT	1
SECTION II: PUBLIC INVOLVEMENT	1
SECTION III: PUBLIC EDUCATION AND NOTIFICATION	1
SECTION IV: WHOLESALE CONTRACT PROVISIONS	1
SECTION V: COORDINATION WITH REGIONAL WATER PLANNING GROUPS	1
SECTION VI: AUTHORIZATION.....	2
SECTION VII: APPLICATION	2
SECTION VIII: DEFINITIONS	2
SECTION IX: CRITERIA FOR INITIATION AND TERMINATION OF DROUGHT RESPONSE	
STAGES	3
TRIGGERING STAGES, RESPONSES AND GOALS	4
<i>Stage 1 Triggers – MILD Water Shortage</i>	<i>4</i>
<i>Stage 1 Responses</i>	<i>5</i>
<i>Stage 1 Goal.....</i>	<i>5</i>
<i>Stage 2 Triggers – MODERATE Water Shortage</i>	<i>5</i>
<i>Stage 2 Responses</i>	<i>6</i>
<i>Stage 2 Goal.....</i>	<i>6</i>
<i>Stage 3 Triggers – SEVERE Water Shortage</i>	<i>6</i>
<i>Stage 3 Responses</i>	<i>7</i>
<i>Stage 3 Goal.....</i>	<i>8</i>
<i>Stage 4 Triggers – EMERGENCY Water Shortage.....</i>	<i>8</i>
<i>Stage 4 Responses</i>	<i>9</i>
<i>Stage 4 Goal.....</i>	<i>9</i>
SECTION X: ENFORCEMENT.....	9
SECTION XI: VARIANCES.....	10
SECTION XII: STATE MANDATED WATER RESTRICTIONS	11
Appendix A – City of Waco Ordinance No. 2014 – XXX	

Section I: Declaration of Policy, Purpose, and Intent

In order to conserve the available water supply and protect the integrity of water supply facilities, with particular regard to domestic water use, to sanitation and fire protection, and to protect and preserve public health, welfare, and safety to minimize the adverse impacts of water supply shortage or other water supply emergency conditions, the City of Waco hereby adopts the following regulations and restrictions on the delivery and consumption of water through Ordinance No. 2014 – 206. A copy is attached as appendix A.

Water uses regulated or prohibited under this Drought Contingency Plan (the Plan) are considered to be non-essential and continuation of such uses during times of water shortage or other emergency water supply condition are deemed to constitute a waste of water which subjects the offender(s) to penalties as defined in Section IX of this plan.

Section II: Public Involvement

Opportunity for the public to provide input into the preparation of the Plan was provided by the City of Waco by means of a public meeting and by publishing the Plan on the Water Utility Services website (www.wacowater.com). A public notice was provided regarding a public meeting, which was held to accept input on the Plan. Additionally, citizens were invited to send comments electronically after viewing the Plan online.

Section III: Public Education and Notification

The City of Waco will provide the public with information about the Plan, including information about the conditions under which each stage of the Plan is to be initiated or terminated and the drought response measures to be implemented in each stage. This information will be provided by means of press releases, bill inserts, presentations to community organizations, website updates and other outreach methods as appropriate. Upon implementation and/or termination of any stage of the plan, the public will be notified through local media and website updates.

Section IV: Wholesale Contract Provisions

All wholesale water contracts entered into, renewed or extended after adoption of this plan, shall include a provision that in case of a shortage of water resulting from drought, the water to be distributed shall be divided in accordance with Texas Water Code, §11.039.

Section V: Coordination with Regional Water Planning Groups

The service area of the City of Waco is located within the Brazos G Regional Water Planning Group. The City of Waco has provided a copy of this Plan to the Brazos G Regional Water Planning Group.

Section VI: Authorization

The City Manager or his/her designee is hereby authorized and directed to implement the applicable provisions of this Plan upon determination that such implementation is necessary to protect public health, safety, and welfare. The City Manager or his/her designee shall have the authority to initiate or terminate drought or other water supply emergency response measures as described in this Plan.

Section VII: Application

The provisions of this Plan shall apply to all persons, customers, and property utilizing water provided by the City of Waco. The terms “person” and “customer” as used in the Plan include individuals, corporations, partnerships, associations, and all other legal entities.

Section VIII: Definitions

For the purposes of this Plan, the following definitions shall apply:

Aesthetic water use: water use for ornamental or decorative purposes such as fountains, reflecting pools, and water gardens.

Commercial and institutional water use: water use, which is integral to the operations of commercial and non-profit establishments and governmental entities such as retail establishments, hotels and motels, restaurants, and office buildings.

Conservation: those [triggering conditions] practices, techniques, and technologies greater than the baseline conservation practices, that reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water or increase the recycling and reuse of water so that a supply is conserved and made available for future or alternative uses. Baseline conservation practices are those actions expected from customers as good citizens; including, but not limited to:

- Turning off or re-programming automatic sprinkler systems during precipitation events or in soil-saturated conditions;
- Implementing landscape irrigation to maximize impact, e.g., not irrigating in the afternoon or highest evaporative loss hours;

Customer: any person, company, or organization using water supplied by the City of Waco.

Domestic water use: water use for personal needs or for household or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or for cleaning a residence, business, industry, or institution.

Even number address: street addresses, box numbers, or rural postal route numbers ending in 0, 2, 4, 6, or 8 and locations without addresses.

Industrial water use: the use of water in processes designed to convert materials of lower value into forms having greater usability and value.

Landscape irrigation use: water used for the irrigation and maintenance of landscaped areas, whether publicly or privately owned, including residential and commercial lawns, gardens, golf courses, parks, and rights-of-way and medians.

Mean Sea Level (msl): the level of the ocean's surface, especially the level halfway between high and low tide, used as a standard in reckoning land elevation or sea depths.

Non-essential water use: water uses that are neither essential nor required for the protection of public, health, safety, and welfare, including:

- (a) irrigation of landscape areas, including parks, athletic fields, and golf courses, except otherwise provided under this Plan;
- (b) use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle;
- (c) use of water to wash down any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;
- (d) use of water to wash down buildings or structures for purposes other than immediate fire protection;
- (e) flushing gutters or permitting water to run or accumulate in any gutter or street;
- (f) use of water to fill, refill, or add to any indoor or outdoor swimming pools or Jacuzzi-type pools;
- (g) use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life;
- (h) failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s); and
- (i) use of water from hydrants for construction purposes or any other purposes other than fire fighting.

Odd numbered address: street addresses, box numbers, or rural postal route numbers ending in 1, 3, 5, 7, or 9.

Water shortage emergency: a condition in which the ordinary water demands and requirements of the City's wholesale and retail customers cannot be met such that there would be insufficient water for human consumption, public health (sanitation), and fire protection. A water shortage emergency may be limited in either areal or temporal extent.

Section IX: Criteria for Initiation and Termination of Drought Response Stages

The City Manager or his/her designee shall monitor water supply and/or demand conditions on a daily basis and shall determine when conditions warrant initiation or termination of each stage of the Plan, that is, when the specified triggers are reached.

Criteria triggering the implementation of various stages of the Drought Contingency Plan, include, but are not limited to, the following:

1. General, geographical, or weather related condition or emergency, including but not limited to drought conditions resulting in a decrease in the Lake Waco reservoir level
2. Water system failures/emergencies (i.e., pressure zone deficiencies, chemical spills, broken water mains, power outages, electrical failures, failures of storage tanks or other equipment, treatment plant breakdown, and water contamination)
3. An inability to recover approximately ninety (90) percent of water stored in all Storage facilities within a defined period
4. A catastrophic decrease in the Lake Waco reservoir level and/or delivery capabilities resulting in an inability, presently or in the immediate future, to recover resources sufficient to provide services necessary for the public health and welfare

The level of the Lake Waco reservoir shall be determined based on the official reading by the U.S. Army Corps of Engineers and stated as an elevation above mean sea level (msl).

Triggering Stages, Responses and Goals

Generally. Should a water shortage emergency occur, the City Manager may exercise his or her discretion to: 1) request special voluntary water restrictions, 2) initiate Stages 1 - 4 mandatory restrictions, and/or 3) prohibit wastage and restrict certain uses of water deemed nonessential during the emergency. Initiation of a specific Stage is dependent on climatic and water system conditions, and does NOT necessarily require a progression from Stage One through Stage Three to reach Stage Four.

Pro rata curtailment of water delivery to wholesale water customers, as provided in Texas Water Code, §11.039, may be triggered by criteria within or without the plan and may be implemented during in any stage of the plan.

The City of Waco has no alternative source of water from which to draw or make use of as a water supply management measure during a water shortage.

Stage 1 Triggers – MILD Water Shortage

1. Criteria for implementation of Stage 1. The city manager shall implement stage 1 restrictions when:
 - (a) The Lake Waco reservoir level decreases to 455 msl (at which the reservoir is at about 72% of its capacity).

- (b) Weather forecasts and stream flow conditions, in the opinion of the city manager, warrant restrictions on the use of water.
- 2. Criteria for termination - Stage 1 shall be terminated at the discretion of the City Manager.

Stage 1 Responses

Mandatory restrictions – Upon implementation by the city, the following restrictions shall apply unless specifically exempted:

- 1. The city shall limit use of water for municipal purposes to those activities necessary to maintain the public health, safety and welfare and any computer-controlled irrigation systems that incorporate evapotranspiration data in setting irrigation run times.
- 2. The city shall monitor “excessive watering” and issue notifications to customers. “Excessive watering” occurs where run-off extends for a distance greater than ten (10) feet from the customer’s property or where there is washing or hosing down of buildings, sidewalks, driveways, patios, porches, parking surfaces or other paved surfaces. Criminal penalties do not apply during Stage 1 restrictions.

Stage 1 Goal

Reduction of previous three-year average daily use by 1%

Stage 2 Triggers – MODERATE Water Shortage

- 1. Criteria for implementation of Stage 2. The city manager shall implement stage 2 restrictions when:
 - (a) The Lake Waco reservoir level decreases to 452 msl (at which the reservoir is at about 60% of its capacity)
 - (b) There is an inability to recover approximately ninety (90) percent of water stored in all storage facilities within a twenty-four (24) hour period. Upon recommendation of the City Manager, Stage 2 response procedures shall become effective.
 - (c) Weather forecasts and stream flow conditions, in the opinion of the city manager, warrant restrictions on the use of water.
- 2. Criteria for termination - Stage 2 shall be terminated at the discretion of the City Manager.

Stage 2 Responses

Mandatory restrictions – Upon implementation by the city, the following restrictions shall apply unless specifically exempted:

1. All landscape and other outdoor water usage at each service address shall be limited to two days a week based on the last digit in the meter service address or the type of connection; however, landscape and outdoor water usage is prohibited from 6:00 A.M. to 7:00 P.M.

Last Digit Address Residential:	Allowed Landscape Water Days
---------------------------------	------------------------------

Odd	Tuesday and Saturday
-----	----------------------

Even	Wednesday and Sunday
------	----------------------

All Non-Residential accounts	Monday and Friday
------------------------------	-------------------

Thursday – No Watering, Storage Recovery day

2. Apartments, office building complexes, or other properties containing multiple addresses, will be identified by the lowest physical street address number. Where there are no numbers, a number will be assigned by the Building Official. Criminal penalties do apply during Stage 2 restrictions.
3. Watering of newly installed landscaping is exempt from Stage 2 restrictions for no more than one month from the date of planting. After the first month, the landscape water day's schedule and hourly restrictions must be followed.

Stage 2 Goal

Reduction of previous three-year average daily use by 5%

Stage 3 Triggers – SEVERE Water Shortage

1. Criteria for implementation of Stage 3. The city manager shall implement stage 3 restrictions when:
 - (a) The Lake Waco reservoir level to 449 msl (at which the reservoir is at about 50% of its capacity) or inability to recover approximately ninety (90) percent of water stored in all storage facilities within a thirty (30) hour period.
 - (b) Weather forecasts and stream flow conditions, in the opinion of the city manager, warrant restrictions on the use of water.
 - (c) The total amount of water available, as determined by the water utilities director, to the city from its developed water sources is less than a 24-month supply.

2. Criteria for Termination – Stage 3 shall be terminated at the discretion of the City Manager.

Stage 3 Responses

Mandatory restrictions – Upon implementation by the city, the following restrictions shall apply unless specifically exempted:

1. All landscape and outdoor water usage at each service address shall continue according to the landscape water days schedule identified below; however, landscape and outdoor water usage is prohibited from 6:00 A.M. to 7:00 P.M.

Last Digit Address:	Allowed Landscape Water Day
0, 1	Monday
2, 3	Tuesday
4, 5	Wednesday
6, 7	Thursday
8, 9	Friday
Saturday and Sunday – No Watering, Storage Recovery days	

2. Apartments, office building complexes, or other property containing multiple addresses will be identified by the lowest physical address number. Where there are no numbers, a number will be assigned by the Building Official.
3. Existing swimming pools, hot tubs, spas, ornamental ponds and fountains may be replenished with a hand-held hose to maintain operational purposes only.
4. Permitting of new swimming pools, hot tubs, spas, ornamental ponds or fountain construction is **prohibited**, except that those previously permitted or under construction at the time Stage 3 restrictions are initiated may complete construction and may be filled one time only. Filling occurs when an amount of water equal to at least seventy-five (75) percent of the water capacity is placed in the structure or facility.
5. Excessive water run-off from any landscaped area onto streets, alleys, or parking lots is prohibited. Run-off is excessive when it extends for a distance greater than ten (10) feet from the customer's property.
6. Washing or hosing down of buildings, sidewalks, driveways, patios, porches, parking areas, or other paved surfaces is prohibited.

Exceptions:

- (a) Commercial landscape nurseries are exempt from Stage 3

restrictions (except for restrictions on hours when watering may occur), but all such nurseries shall cease using water to clean pavement and sidewalk areas except for health and safety reasons.

- (b) Commercial full-service or self-service car wash facilities, including those at service stations and automobile dealership facilities, shall cease using water to clean pavement and sidewalk areas except for health and safety reasons and are exempt from Stage 3 restrictions if they meet one or more of the following conditions:
 - (i) Commercial car wash facilities using conveyORIZED, touchless, and / or rollover in-bay technology if they reuse a minimum of fifty percent of water from previous vehicle rinses in subsequent washes.
 - (ii) Commercial car wash facilities using reverse osmosis to produce water rinse with a lower mineral content if they incorporate the unused concentrate in subsequent vehicle washes.
 - (iii) Self-service spray wands used that emit no more than three gallons of water per minute.
- (c) Golf course landscape watering is exempt from Stage 3 restrictions so long as golf course irrigation systems are operated with a computer controlled irrigation system that incorporates evapotranspiration data in setting irrigation run times.

Stage 3 Goal

Reduction of previous three-year average daily use by 7%

Stage 4 Triggers – EMERGENCY Water Shortage

1. Requirements for implementation of Stage 4. The city manager shall implement stage 4 restrictions when:
 - (a) The Lake Waco reservoir level to 445 msl (at which the reservoir is at about 40% of its capacity)
 - (b) There is a determination by the City Manager that catastrophically decreasing lake reservoir levels and/or delivery capabilities with an inability to recover to provide services necessary for public health, safety, and welfare exist.
 - (c) Weather forecasts and stream flow conditions, in the opinion of the city manager, warrant restrictions on the use of water.
 - (d) The total amount of water available, as determined by the water

utilities director, to the city from its developed water sources is less than a 12-month supply.

2. Criteria for termination – Stage 4 shall be terminated at the discretion of the City Manager.

Stage 4 Responses

Mandatory restrictions – Upon implementation by the city, the following restrictions shall apply unless specifically exempted:

1. Any and all outdoor/landscaping water usage is prohibited until the emergency is alleviated. This applies to all metered water users using the city's public water supply and includes all residential (single or multi-family), commercial (car wash, nurseries, business), recreational (public/private golf courses, parks, athletic fields), religious, health care, school and municipal entities.
2. Use of water for municipal purposes shall be limited to only those activities necessary to maintain the public health, safety and welfare, as determined by the city.
3. Use of water from fire hydrants is prohibited except for fire fighting and health and safety related activities.

Stage 4 Goal

Reduction of previous three-year average daily use by 10%

Section X: Enforcement

1. No person shall intentionally, knowingly, recklessly or with criminal negligence allow the use of water from the city for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of this Division or in an amount in excess of that permitted by the drought response stage in effect at the time pursuant to action taken by the city, in accordance with provisions of this Division.
2. Any person, including a person classified as a water customer of the city, in apparent control of the property where a violation occurs or originates shall be presumed to be the violator, and proof that the violation occurred on the person's property shall constitute a rebuttable presumption that the person in apparent control of the property committed the violation, but any such person shall have the right to show that he/she did not commit the violation. Parents shall be presumed to be responsible for violations of

their minor children, but any such parent may be excused if he/she proves that he/she had previously directed the child not to use the water as it was used in violation of this plan and that the parent could not have reasonably known of the violation. Proof that the notices required under Section 26-94 have been given shall constitute a rebuttal presumption that the person has knowledge of and/or is aware of the declaration of a drought or emergency contingency stage, but such presumption may be rebutted by evidence that the person was out of city at the time of the declaration and could not reasonably have become aware of the declaration since returning to the city.

3. Any person who violates this Division is guilty of a misdemeanor and upon conviction shall be punished by a fine as provided in Section 1-14, General Penalty. Each day that one or more of the provisions in this plan is violated shall constitute a separate offense.
4. If a person is observed violating a Stage 2 or greater restriction, including but not limited to vehicle washing, landscape watering, or construction water use, for a second time, the city shall, upon due notice to the customer, be authorized to discontinue water service to the premises where such violations occur.
5. If a person is convicted of three (3) or more distinct violations of this Division, the city shall, upon due notice to the customer, be authorized to discontinue water service to the premises where such violations occur.
6. Services discontinued under such circumstances shall be restored only upon payment of reconnection charge established by city policy and any other costs incurred by the city in discontinuing service. In addition, suitable assurance must be given to the city that the same action shall not be repeated while the plan is in effect.
7. The City is entitled to pursue all other criminal and civil remedies to which it is entitled under statutes or other ordinances. Compliance with this Division may also be sought through injunctive relief in the district court.

Section XI: Variances

1. A customer may file an application for a variance from this plan for the property receiving water service with the City Manager. The City Manager may determine the proper information and require that the applicant provide such information to evaluate the variance request.
2. The City Manager may grant a variance from the Plan upon his/her determination that special circumstances exist that upon strict enforcement

of the plan will adversely affect the health, sanitation, or fire protection for the public or the applicant.

3. Variances granted under this section will expire upon escalation of the plan to the next higher phase or termination of the plan.

Section XII: State Mandated Water Restrictions

1. If a State agency with jurisdiction over water rights and use lawfully orders that drought response restrictions on water usage be imposed, the water restrictions shall be implemented, regardless of whether any of the criteria for implementation stated in Sec. 26-97 or Sec. 26-98 have been met.
2. The city manager shall notify the public of the implementation of the state mandated restrictions as provided in Sec. 26-94. Said notice shall set out the specific restrictions to be implemented.
3. No person shall intentionally, knowingly, recklessly, or with criminal negligence allow the use of water from the city for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner:
 - (a) Contrary to the notice issued under subsection 2 above; or
 - (b) Contrary to the state mandated restriction; or
 - (c) In excess of state mandated usage limits.
4. If a violation of the mandated restriction occurs, notice of the violation may be given as provided in Sec. 26-95 and the violation may be punished as provided in Sec. 26-96.