



CITY OF DENISON 2023 WATER CONSERVATION PLAN



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WATER CONSERVATION PLAN FOR CITY OF DENISON, TEXAS

1. Introduction and Objectives

Denison, Texas, is located in northeastern Grayson County on U.S. Highway 75, just 75 miles north of Dallas and 4 miles south of the Texas / Oklahoma border. State Highway 120 passes through Denison from east to west and State Highway 84 borders northern Denison, providing direct access to Lake Texoma, which is the 12th largest man-made lake in the U.S. According to the US Census Bureau, as of July 1, 2022, Denison's population was 26,328.

The Dean Rylant Water Treatment Plant is located near Lake Randell and is currently rated to treat up to 12.8 million gallons of water per day. On an annual average basis, the plant treats 4.6 million gallons per day. The Dean Rylant Plant uses a conventional sedimentation-filtration treatment system.

Water supply has always been a key issue in the development of Texas. In recent years, the increasing population and economic development in the region have led to growing demands for water. At the same time, local and less expensive sources of water supply are largely developed. Additional supplies to meet higher demands in the future 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 Denison has adopted this water conservation plan pursuant to TCEQ guidelines and requirements.

The objectives of the 2023 Water Conservation Plan are:

- To reduce water consumption
- To reduce the loss and waste of water
- To identify the quantity of water reuse
- To improve efficiency in the use of water

The 2019 Water Conservation Plan set a five-year goal of 160 gallons per capita per day (gpcd) in 2023, and a 10-year goal of 155 gpcd in 2028.

In this Plan, Denison sets goals to reduce consumption to **179** gpcd within five years and to **174** gpcd by 2032, which is in line with the 2021 Region C Water Plan, Section 5B.6.1 "**Per Capita Water Use with Implementation of the Recommended Plan**" and shows continuing commitment to achieving the long-term goal of 154 gpcd by 2060. Denison will continue to monitor progress toward these goals and may employ a variety of selected strategies, as needed, to help achieve these goals. Denison's 2023 Water Conservation Plan will achieve significant conservation savings to help extend the life of existing supplies without burdening the customer with unnecessary additional costs.

While Denison will continue many of the ongoing strategies it has already employed, the new strategies introduced in this Plan focus on reducing discretionary water use. Details of these new strategies are provided in the Plan.

By achieving the 2032 goal of 174 gpcd, Denison expects to see reductions in annual water consumption that are equivalent to 102.6 million gallons per year. With these reductions, conservation becomes a key strategy to meet the needs of a growing population.

2. Texas Commission on Environmental Quality Rules

2.1 Conservation Plans

The Texas Commission on Environmental Quality (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.

A water conservation plan may be a separate document identified as such or may be contained within another water management document(s).

According to TCEQ rules, water conservation plans for public water suppliers must have a certain minimum content (Section 3) and must have additional content for public water suppliers that are projected to supply 5,000 or more people in the next ten years (Section 4) and may have additional optional content (Section 5).

2.2 Minimum Required Water Conservation Plan Content

The minimum requirements in the Texas Administrative Code for water conservation plans for public drinking water suppliers covered in this report are as follows:

- §288.2(a)(1)(A) – Utility Profile – Section 3.1 and Appendix C
- §288.2(a)(1)(B) – Specification of Goals Before 2023 – Section 3.2
- §288.2(a)(1)(C) – Specification of Goals After 2023 – Section 3.2
- §288.2(a)(1)(D) – Accurate Metering – Sections 3.3 and 3.4
- §288.2(a)(1)(E) – Universal Metering – Section 3.4
- §288.2(a)(1)(F) – Determination and Control of Water Loss – Section 5.4
- §288.2(a)(1)(G) – Public Education and Information Program –Section 3.6
- §288.2(a)(1)(H) – Non-Promotional Water Rate Structure – Section 3.7
- §288.2(a)(1)(I) – Reservoir System Operation Plan – Section 3.8
- §288.2(a)(1)(J) – Means of Implementing and Enforcement – Section 3.9
- §288.2(a)(1)(K) – Coordination with Regional Water Planning Group – Section 3.10

2.3 Additional Required Water Conservation Plan Content

Title 30 of the Texas Administration Code also includes additional requirements for water conservation plans for public drinking water suppliers which serve a population of 5,000 or more and/or a projected population of 5,000 or more within the next 10 years:

- §288.2(a)(2)(A) – Leak Detection, Repair and Water Loss Accounting – Section 5.4
- §288.2(a)(2)(B) – Requirement that Wholesale Customers Develop and Implement a Water Conservation Plan – Section 2.4

The Texas Administrative Code lists additional conservation strategies that are optional for water systems. The City of Denison has adopted these referenced strategies:

- §288.2(a)(3)(A) – Conservation-Oriented Water rates – Section 5.2
- §288.2(a)(3)(B) – Ordinances, Plumbing Codes or Rules on Water-Conserving Fixtures – Section

5.7

- §288.2(a)(3)(D) – Reuse and Recycling of Wastewater - Section 5.8
- §288.2(a)(2)(F) – Considerations for Landscape Water Management Regulations – Section 5.6
- §288.2(a)(3)(E) – Pressure Control and/or Reduction – Section 5.4
- §288.2(a)(3)(F) – Landscape Water Management Ordinance – Section 5.6
- §288.2(a)(3)(G) – Monitoring Method – Section 5.3

2.4 Wholesale Conservation Contract Requirements

TCEQ requires that every wholesale water supply contract entered into or renewed after official adoption of the plan, and including any contract extension, implement a water conservation plan or water conservation measures.

Wholesale water customers of the City of Denison are required to 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. This requirement is also extended to each successive wholesale customer in the resale of water.

2.5 Drought Contingency Plans (Drought and Water Emergency Management Plan)

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, which is included in Appendix B. For the purpose of these rules, a drought contingency 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. A drought contingency plan may be a separate document identified as such or may be contained within another water management document(s).”

Denison’s drought contingency plan entitled the Drought and Water Emergency Management Plan is provided in Appendix E.

3. Utility Profile Summary

Denison is a city in Grayson County, Texas, United States, located in northeastern Grayson County on U.S. Highway 75, just 75 miles north of Dallas and 4 miles south of the Texas / Oklahoma border. Denison is part of the Texoma region and is one of two principal cities in the Sherman–Denison metropolitan statistical area.

The City of Denison owns and operates its own treatment and distribution system and is the sole provider of water to its residents. The city owns all of the water rights to city-owned Lake Randell, and a substantial amount of water-rights storage in Lake Texoma.

The Dean Rylant Water Treatment Plant is located near Lake Randell and is currently rated to treat up to 12.8 million gallons of water per day. On an annual average basis, the plant treats 4.6 million gallons per day. The Dean Rylant Plant uses a conventional sedimentation-filtration treatment system.

Appendix B to this water conservation plan provides a water utility profile for the City of Denison, based on the format recommended by the TCEQ. Section 3.1 summarizes key facts from the Water Utility Profile.

3.1 Water Use Data

Water Service Area: 35 square miles

Miles of Distribution Pipe: Approximately 250 miles

Population:

Current 2022 Population = 26,328

Projected 2027 Population = 36,756 (Calculated based on as part of updates to the 2026 Region C Population Projections)

Projected 2060 Population = 87,113 (Calculated based on as part of updates to the 2026 Region C Population Projections)

Connections:

2022 Connections =13,168

Total Increase in Connections in Last Five Years = 1,973

Information on Water Use for the Last Five Years

Table 3.1 - Municipal Per Capita, Unaccounted Water and Peak Day to Average Day Ratio

Year	Use (Million Gallons)	Estimated Population*	Municipal per Capita use (gpcd)	Unaccounted Water (Million Gallons)	Peak Day to Average Day Use
2022	1,690,248,283	26,328	176	79,966,292	2.1:1
2021	1,616,601,992	24,479	181	297,332,752	1.9:1
2020	1,456,688,296	25,529	156	241,070,198	1.9:1
2019	1,403,646,887	22,682	170	143,785,305	1.8:1
2018	1,514,404,993	22,682	183	313,295,507	2:1

*Source of population estimate is Texas Water Development Board Water Use Surveys.

Water Supply Source(s):

- Lake Randell
- Lake Texoma

Treatment and Distribution System:

Treatment Plant Capacity = 12.8 million gallons/day Elevated Storage = 3.975 million gallons

Ground Storage = 4.38 million gallons

2022 Total Annual Wastewater Flow = 952.4 million gallons

3.2 Record Management System

As required by TAC Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2(a)(2)(B), the City of Denison records water pumped, water delivered, and water sold; estimates for water losses; and allows for the separation of water sales and uses into residential (single, multifamily), commercial, institutional, industrial, agricultural and wholesale categories. Usage information for these categories will be included in each annual conservation report submitted to the Texas Water Development Board (TWDB).

3.3 Reservoir System Operation Plan

The City of Denison has the following rights to divert water from city-owned Lake Randell and from Lake Texoma:

- Up to 5,280 acre-feet per year based on the natural yield of Lake Randell
- Up to 36,604 acre-feet per year from Lake Texoma

4. Water Conservation Goals and Planning Process

Although Denison encourages conservation and appropriate use of all water resources within the region, the specific water conservation goals described in this plan apply only to Denison direct water customers. Denison water conservation goals include the following:

- 1) Maintain the per capita water use at or below the 2018 level of 184 gpcd and achieve 5- and 10-year targets in gallons per capita per day, as described in Section 4.1.
- 2) Continue to maintain the meter replacement and repair program as discussed in Section 5.3.
- 3) Maintain the level of unaccounted water in the system below 10 percent on a five-year average basis, as discussed below and in Section 5.4
- 4) Continue to raise public awareness of regional water sources, water conservation behaviors and encourage responsible water use through public education and information programs, as discussed in Section 5.5.
- 5) Develop a system of specific strategies to conserve water during emergency and drought periods as well as mitigate peak demands, thereby reducing peak use.
- 6) Develop strategies for reducing water usage by City Departments and other public institution water users.

4.1 Five-Year and Ten-Year Targets and Goals

Table 3.2 shows historical and projected per capita municipal and residential water use for the City of Denison. Water use is shown in units of gallons per capita per day (GPCD). Per capita municipal water use is calculated as the total use less wholesale sales to other municipal suppliers divided by the total population. Per capita residential water use is residential water use divided by population.

Projected per capita municipal uses were obtained from the TWDB and interpolated to match the appropriate years for the five-year and ten-year goals. The TWDB projections are applicable for a dry year, in which outdoor water use would be high. Per capita municipal water use in a year with normal or high precipitation during the summer should be less than projected here.

Table 3.2 shows the projected per capita water use after implementation of the water conservation and drought contingency plan.

Table 3.2 - Projected Per Capita Use Water Use Goals

Description	Highest Historical		Five-Year (2028) Goal	Ten-Year (2033) Goal
	Year	GPCD	GPCD	GPCD
Historical Use and Water Use Goals	2018	184	179	174
Highest Per Capita Residential Use	2022	120	115	110
Projected Reduction in Municipal Use Due to Water Conservation Measures in this Plan	-	-	5	10

(Baseline data is set by 2018’s Total GPCD of 184- Highest Year 2018-2022)

The City of Denison water conservation goals include the following:

- Achieve 2028 per capita municipal water use of 179 GPCD or less, as shown in Table 3.2.
- Achieve 2033 per capita municipal water use of 174 GPCD or less.
- Implement and maintain a meter replacement program (Section 5.3)
- Keep the level of water loss in the system less than 18 GPCD in 2023 and subsequent years (Section 5.4).
- Raise public awareness of water conservation and encourage responsible public behavior through a public education and information program, as discussed in Section 5.5

4.2 Method for Tracking the Implementation and Effectiveness of the Plan

Annually, Denison measures consumption and tracks changes for customer use in gallons per capita per day. This information will be used to gauge effectiveness of programs to achieve consumption reductions desired and, if performance is below target, to alter, change or introduce new programs.

Programs are based on TCEQ and TWDB best management practices, and the Denison 2023 Water Conservation Plan includes details of:

- Programs that have been implemented in the past (benefits continue)
- Programs currently in implementation
- Programs scheduled for implementation
- Programs currently under consideration for implementation

Denison water conservation efforts are ongoing and new programs are developed and evaluated annually. Programs are designed and budgets are developed based on planned participation. Where applicable, these programs are evaluated in terms of annual water savings, project life and cost per unit of water saved. These programs serve as tools for achieving both short-term and long-term reductions in per capita consumption and are selected based on their potential for reducing water use at the lowest cost per unit of water saved.

4.3 Coordination with Regional Water Planning Group

To be in compliance with §288.2(a)(1)(K) of the Texas administrative code, a copy of this plan will be sent to the Chair of the Region C Water Planning Group for coordination purposes.

4.4 Plan Review and Update

TCEQ requires that water conservation plans be reviewed and updated every five years to coincide with the regional water planning process. Denison reviews and updates its Water Conservation Plan to coincide with the Region C Water Planning process. With this document, Denison has updated its Water Conservation Plan for 2023. In addition, it will continually reassess opportunities to improve water efficiency and conservation based on new or updated information.

4.5 Enforcement Procedure and Plan Adoption









This 2023 Water Conservation Plan was posted in advance and presented at Denison’s City Council meeting on _____ 2023, allowing for public comment. The City of Denison formally approved a resolution to adopt the plan at the _____ - meeting. That resolution is in Appendix _____.


5. Best Management Practices (BMPs) – TCEQ and TWDB

The following section lists water conservation strategies that are required or recommended as Best Management Practices (BMPs) by the TCEQ and the TWDB for municipal water utilities.

The programs listed in the chart below indicate whether they were previously employed, currently employed or whether they will be considered to meet future per capita reduction goals. Previously implemented programs, such as toilet and washing machine replacement programs, will continue to have a significant impact on per capita water use well after the program phases out.

Table 5.1 Best Management Practices

TWDB and/or TCEQ BMP Reference	Best Management Practice Description	Previously Implemented	Currently Employed	For Future Consideration
TWDB BMP 2.1  	Conservation Coordinator		√	
TWDB BMP 3.1  	Conservation Oriented Water Rates		√	
TWDB BMP 4.1  	Metering of All New Connections and Retrofit of Existing Connections		√	
TWDB BMP 4.2  	System Wide Leak Detection and Repair		√	

	<p align="center">Outdoor Watering Schedule</p>			<p align="center">v</p>
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5.1 Conservation Coordinator – TWDB BMP 2.1

The City of Denison Conservation Coordinator is responsible for:

Promoting an understanding of the importance of water conservation and appreciation for total water management among customers and next-generation customers.

- Serving as a liaison with the TWDB on conservation issues and ensuring that the utility develops and implements its five-year Water Conservation Plan.
- Taking customer reports of water waste and coordinating with the Code Compliance team, which handles enforcement.

5.2 Conservation Oriented Water Rates – TWDB BMP 3.1

TCEQ requires municipal utilities to have a Non-Promotional Water Rate Structure. Denison has an inclining rate structure where the unit price increases as water consumption increases. The utility uses pricing as both a demand management tool and a way to generate revenue.

The following provides a high-level overview of residential water rates, and illustrates the tiered rate structure that applies to all commercial and residential water users. Full details of rates that became effective on December 1, 2022, are provided in Appendix C.

Per inside Residential living unit, there will be a minimum base charge per month based on meter size, which includes the first 1,000 gallons of consumption.

Table 5.2 - Residential Monthly Base Rates by Meter Size

Residential Base Rate	12/1/22	12/1/23	12/1/24	12/1/25	12/1/26
1" Meter & Below	\$29.16	\$31.49	\$34.01	\$36.73	\$39.67
1 ½" Meter	\$33.83	\$41.57	\$50.34	\$60.24	\$71.41
2" Meter	\$40.24	\$55.43	\$72.79	\$92.57	\$115.05
3" Meter	\$87.48	\$157.46	\$238.09	\$330.60	\$436.39
4" Meter & Up	\$104.98	\$195.26	\$299.31	\$418.76	\$555.41

Per inside Residential living unit, there will be a volume rate per 1,000 gallons over the first 1,000 gallons per month.

Table 5.3 - Residential Water Rates per 1,000 Gallons

Residential Volume Rate	12/1/22	12/1/23	12/1/24	12/1/25	12/1/26
1,000 – 5,000 Gallons	\$3.4442	\$3.7198	\$4.0173	\$4.3387	\$4.6858
5,001 – 10,000 Gallons	\$4.3053	\$4.6497	\$5.0217	\$5.4234	\$5.8573
10,001 Gallons & Above	\$5.3816	\$5.8121	\$6.2771	\$6.7793	\$7.3216

5.3 Metering of All New Connections and Retrofit of Existing Connections - TWDB BMP 4.1

Raw water and treated water pumpage for all customers of the City of Denison, including public and governmental users, is metered. The raw water and finished water meters, located at the water treatment plant, are calibrated every 12 months. Meter calibration is performed by qualified personnel to maintain the required accuracy and are repaired and/or replaced as needed.

Water usage for all customers of the City of Denison is metered. As part of its water conservation program, the City of Denison operates a meter replacement program that will replace every meter on a 15-year cycle. In addition, meters registering any unusual or questionable readings are tested and repaired to restore full functionality.

5.4 System Wide Leak Detection and Repair - TWDB BMP 4.2

Water loss is the difference between finished water produced from the water treatment plant and metered deliveries to customers. (This includes authorized but unmetered uses such as firefighting and releases for flushing of lines.) Water Loss can include several categories:

Inaccuracies in customer meters (customer meters tend to run more slowly as they age and under-report actual use)

Losses due to water main breaks and leaks in the water distribution system

Losses due to illegal connections

Other

The City of Denison conducts a water audit annually using the format recommended by the TWDB. The audit divides water losses into apparent losses and real losses. Apparent water losses include water that was actually used but not accounted for, such as customer meter errors or theft. Accounting for apparent losses decreases the City's utility revenue but does not reduce water usage. Real losses include leakage and overflows at the water treatment plant. Identifying and preventing real losses decreases a utility's costs and decreases water usage. The City will target real losses under this conservation strategy.

As shown in Appendix A, water loss for the City of Denison has varied from 17% to 4% in the last five years. With the measures described in this plan, the City of Denison intends to continue reducing water losses to reach and maintain an average of 10% loss or less. If water loss exceeds this goal, the City of Denison will implement a more intensive audit to determine the source(s) of water loss and reduce the unaccounted water. A more intense audit will consist of one or any combination of the following actions:

- Evaluation of the automated meter read system
- Investigation of problematic meters
- Investigation of how the amount of water used in the flushing program
- Investigation of water loss due to main breaks
- Coordination with Fire Department to determine water usage by Fire Department
- Fire service monitoring for all businesses
- Testing of suspect metering devices

Measures to control water loss are part of the routine operations of the City of Denison. Meter readers 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. Maintenance crews respond quickly to repair leaks reported by the public and city personnel. The City of Denison's annual budget is approximately \$800,000 per year to repair and replace water distribution lines and the City uses up to three distribution line maintenance crews. Areas of the water distribution system in which numerous leaks and line breaks occur are targeted for replacement as funds are available. To reduce real water losses, the City of Denison will maintain a proactive water loss program. As part of this program, the city will implement the following actions:

- Conduct regular inspections of all water main fittings and connections.
- Use a water modeling program.
- Monitor individual pressure zones.
- Conduct continuous monitoring of water demand of all pressure planes.

- Install temporary leak noise detectors and loggers.
- Operate pressure zones based on topography.
- Limit surges in pressure.

5.5 Continuing Public Education and Information Campaign

The continuing public education and information campaign on water conservation for the City of Denison includes the following elements:

- Promote the City's water conservation measures (presented in Sections 3, 4 and 5).
- Include inserts on water conservation with water bills or mail outs at least twice per year. Inserts will include material developed by City of Denison staff and material obtained from the TWDB, the TCEQ, and other sources.
- Encourage local media coverage of water conservation issues and the importance of water conservation.
- Notify local organizations, schools, and civic groups that City of Denison staff is available to make presentations on the importance of water conservation and ways to save water.
- Make the Texas Smartscape CD, water conservation brochures, and other water conservation materials available to the public at the Denison Public Library and other public places.
- Make information on water conservation available online at www.cityofdenison.com and include links to the Texas Smartscape website and to information on water conservation on the TWDB and TCEQ websites.

5.6 Outdoor Watering Schedule - TWDB BMP 5.6

In periods of drought and/or emergency, utilities often employ watering restrictions as an immediate response for reducing non-essential water uses such as irrigation for landscaped areas. Once certain conditions are triggered, utilities enforce these restrictions on a mandatory basis, as set forth in their drought or water emergency contingency plans. Utilities typically rescind these temporary restrictions when water supply levels return to normal. This can cause a rebound in water usage and send a message that high water use landscape practices should return.

Permanent, year-round watering restrictions deliver several benefits to the utility and broader community. Given that all regions in Texas are prone to drought, keeping water restrictions in place on a full-time basis is a proactive strategy for helping utilities meet their current and future municipal water needs. Having permanent, agreed upon landscape watering regulations also provides stability for the landscape and irrigation industries by incentivizing customers to select plants and technologies for long-term efficiency. A permanent outdoor watering schedule also avoids the challenge of negative perceptions that some community leaders associate with "drought restriction" landscape measures. A long-term efficiency regulation need not be seen as a deprivation message, but instead reflects the value a community places on water efficiency.

If the implementation of permanent watering schedules is effective, then drought-emergency restrictions might rarely be required.

A mandatory outdoor watering schedule generally limits the number of days per week and the hours during which customers can use water for irrigation purposes as well as the specific water delivery technologies. Utilities can enforce mandatory outdoor watering schedules by adopting these provisions as part of an ordinance or rule. This BMP is designed to help utilities develop deeper outdoor water savings and promote proper outdoor watering practices year-round. Utilities experiencing high seasonal water usage can benefit the most from implementation of this BMP; however, all utilities can use outdoor watering schedules to promote more efficient landscaping and irrigation practices as well as consistent customer messaging.

Denison does not currently implement year-round, mandatory watering restrictions. However, such restrictions are included as mandatory measures during drought stages 2, 3, 4 and 5. Additionally, water customers are encouraged to voluntarily implement irrigation schedules consistent with efficient outdoor watering practices.

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

The 1992 Federal Energy Policy Act has required water-conserving fixtures in new construction and renovations since 1992. These standards call for flows of no more than 2.2 gallons per minute (gpm) for faucets, 2.5 gpm for showerheads, and 1.6 gallons per flush for toilets.

In addition, Texas House Bill 2667, which was signed into law by Governor Rick Perry on June 19, 2009, mandated that toilet and urinal manufacturers phase in High Efficiency Toilets (HETs), starting with 50 percent of in-state sales by January 1, 2010, and culminating with 100 percent by January 1, 2014. An HET is defined as a water closet that uses no more than 1.28 gallons of water per flush (GPF), or 20 percent less than the 1.6-GPF models mandated by the National Energy Policy Act of 1992 (EPAAct).

These state and federal standards assure that all new construction and renovations in the City of Denison are equipped with water-conserving fixtures.

In addition, federal rules requiring energy-conserving clothes washers by 2007 are expected to assure that new clothes washers in the City of Denison will be water-efficient.

5.8 Reuse and Recycling of Wastewater

The City of Denison does not currently reuse or recycle wastewater effluent produced from either of the two wastewater plants owned by the city.

Appendix A: List of References

City of Denison Water and Wastewater Rates, accessed online at

https://www.cityofdenison.com/sites/default/files/fileattachments/utilities/page/12535/ordinance_5253_revised.pdf

City of Denison Water Conservation Plan, adopted by the City of Denison City Council, February 18, 2019

https://www.cityofdenison.com/sites/default/files/fileattachments/water_amp_wastewater/page/7411/denison_water_conservation_plan_2019_ord._no._4987.pdf

City of Denison. Water Conservation ordinance (Section 5-330) for City of Denison, accessed online at

https://library.municode.com/tx/denison/codes/code_of_ordinances?nodeId=COOR_CH5BUBURE_ARTIIIIBUCOST_S5-330WACO

Texas Commission on Environmental Quality: "Model Drought Contingency Plan," accessed online at

https://www.tceq.texas.gov/permitting/water_rights/wr_technical-resources/contingency.html

Texas Commission on Environmental Quality: "Water Utility Profile," accessed online at Surface Water Rights and Availability - Texas Commission on Environmental Quality - www.tceq.texas.gov

Texas Water Development Board "Water Conservation Implementation Task Force Report to the 79th Legislature,"

accessed online at https://www.twdb.texas.gov/conservation/resources/doc/WCITF_Leg_Report.pdf

Texas Water Development Board. "Water Conservation Best Management Practices Guide", Water Conservation Implementation Task Force, Texas Water Development Board Report 362; accessed online at

<https://www.twdb.texas.gov/conservation/BMPs/index.asp>

Texas Water Development Board: "Water Demand Projections, 2021 Regional Water Plan Data," accessed online at

<https://www.twdb.texas.gov/waterplanning/rwp/plans/2021/index.asp>

Title 30 of the Texas Administrative Code, Part 1, Chapter 288, Subchapter A, Rule 288.1 and 288.2, and Subchapter B, Rule 288.20, accessed online at

[https://texreg.sos.state.tx.us/public/readtac\\$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=30&pt=1&ch=288&rl=2](https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=30&pt=1&ch=288&rl=2)

The following water conservation and drought contingency plans and related documents were reviewed in the development of this plan.

City Denison 2019 Water Conservation Plan, accessed online at:

https://www.cityofdenison.com/sites/default/files/fileattachments/water_amp_wastewater/page/7411/denison_water_conservation_plan_2019_ord._no._4987.pdf

City of Fort Worth 2019 Water Conservation Plan, accessed online at: [water-conservation-plan-2019.pdf](#) (fortworthtexas.gov)

El Paso Water Utilities 2019 Water Conservation Plan, accessed online at El Paso Water 2019 Water Conservation Plan (squarespace.com)

San Antonio Water Conservation and Drought Contingency Plan, accessed online at Conservation Plan - San Antonio Water System (saws.org)

Appendix B: Water Loss Audit

TEXAS WATER DEVELOPMENT BOARD
 P.O. BOX 13231, CAPITOL STATION
 AUSTIN, TX 78711-3231
2022 WATER AUDIT REPORT

A. Water Utility General Information

1. Water Utility Name CITY OF DENISON

1a. Regional Water Planning Area C

1b. Address PO BOX 347
DENISON, TX 75021-0347

2. Contact Information

2a. Name Angus Evans Have you completed Water Loss Auditor Training?
 Yes

2b. Telephone Number (903) 464-4480 No

2c. Email Address aevans@cityofdenison.com

3. Reporting Period

3a. Start Date 01/01/2022

3b. End Date 12/31/2022

4. Source Water Utilization

4a. Surface Water	<u>100.00</u>	%
4b. Ground Water	<u>0.00</u>	%

5. Population Served

5a. Retail Population Served	<u>24,479</u>	
5b. Wholesale Population Served	<u>6,726</u>	Assessment Scale

6. Utility's Length of Main Lines 260.00 miles 4

7. Total Retail Metered Connections - Active and Inactive 13,168

7b. Service Connections 13,168 4

8. Number of Wholesale Connections Served 6

9. Service Connection Density 50.65 connections per mile

10. Average Yearly System Operating Pressure 40.00 psi 3.5

11. Volume Units of Measure Gallons

B. System Input Volume

12. Volume of Water Intake	<u>1,995,083,000</u>	gallons
13. Produced Water	<u>1,950,070,000</u>	gallons <u>4</u>
13a. Production Meter Accuracy	<u>99.93</u>	% <u>4.5</u>
13b. Corrected Input Volume	<u>1,951,436,005</u>	gallons
14. Total Treated Purchased Water	<u>0</u>	gallons <u>N/A</u>
14a. Treated Purchased Water Meter Accuracy	<u>0.00</u>	% <u>N/A</u>

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TEXAS WATER DEVELOPMENT BOARD
 P.O. BOX 13231, CAPITOL STATION
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2022 WATER AUDIT REPORT

14b. Corrected Treated Purchased Water Volume	0	gallons	
15. Total Treated Wholesale Water Sales	268,566,721	gallons	4
15a. Treated Wholesale Water Meter Accuracy	99.85	%	2.5
15b. Corrected Treated Wholesale Water Sales Volume	268,970,176	gallons	
16. Total System Input Volume Line 13b + Line 14b - Line 15b	1,682,465,829	gallons	
C. Authorized Consumption			Assessment Scale
17. Billed Metered	1,598,503,279	gallons	3.5
18. Billed Unmetered	0	gallons	5
19. Unbilled Metered	0	gallons	4.5
20. Unbilled Unmetered	3,996,258	gallons	2.5
21. Total Authorized Consumption	1,602,499,537	gallons	
D. Water Losses			
22. Water Losses Line 16 - Line 21	79,966,292	gallons	
E. Apparent Losses			
23. Average Customer Meter Accuracy	99.85	%	3.5
24. Customer Meter Accuracy Loss	2,401,357	gallons	
25. Systematic Data Handling Discrepancy	3,996,258	gallons	2.5
26. Unauthorized Consumption	3,996,258	gallons	2.5
27. Total Apparent Losses	10,393,873	gallons	
F. Real Losses			
28. Reported Breaks and Leaks	471,015	gallons	3
29. Unreported Loss	69,101,404	gallons	1.5
30. Total Real Losses Line 28 + Line 29	69,572,419	gallons	
31. Total Water Losses Line 27 + Line 30	79,966,292	gallons	
32. Non-Revenue Water Line 31 + Line 19 + Line 20	83,962,550	gallons	
G. Technical Performance Indicator for Apparent Loss			
33. Apparent Losses Normalized Line 27 / Line 7b / 365	2.16	gallons lost per connection per day	

TEXAS WATER DEVELOPMENT BOARD
 P.O. BOX 13231, CAPITOL STATION
 AUSTIN, TX 78711-3231
2022 WATER AUDIT REPORT

H. Technical Performance Indicators for Real Loss

34. Real Loss Volume	69,572,419	gallons
Line 30		
35. Unavoidable Annual Real Losses Volume	49,374,280	gallons
(5.41 * Line 6 + (Line 7b * 0.15)) * 365 * Line 10		
36. Infrastructure Leakage Index	1.41	I.L.I
Line 34 / Line 35		
37. Real Losses Normalized - Service Connections	14.48	gallons lost per connection per day
Line 34 / Line 7b / 365		
38. Real Losses Normalized - Main Lines	0.00	gallons lost per mile per day
Line 34 / Line 6 / 365		

I. Financial Performance Indicators

			Assessment Scale
39. Total Apparent Losses	10,393,873	gallons	
Line 27			
40. Retail Price of Water	0.00344	\$/gallons	4
41. Cost of Apparent Losses	\$35,755		
Line 39 x Line 40			
42. Total Real Losses	69,572,419	gallons	
Line 30			
43. Variable Production Cost of Water	0.001058	\$/gallons	4
44. Cost of Real Losses	\$73,468		
Line 42 x Line 43			
45. Total Cost Impact of Apparent and Real Losses	\$109,223		
Line 41 + Line 44			
46. Total Assessment Score	73		

J. System Losses and Gallons Per Capita per Day (GPCD)

47. Total Water Loss per Connection per Day	16.64	gallons
Line 22 / Line 7b / 365	188	
48. GPCD Input		
Line 16 / Line 5a / 365	9	
49. GPCD Loss		
Line 31 / Line 5a / 365		

K. Wholesale Factor Adjustments

50. Percent of Treated Wholesale Water Traveling through General Distribution System	100.00	%
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TEXAS WATER DEVELOPMENT BOARD
 P.O. BOX 13231, CAPITOL STATION
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2022 WATER AUDIT REPORT

51. Volume of Treated Wholesale Water Traveling through General Distribution System (Line 50/100) * Line 15b	288,970,176	gallons
52. Wholesale Factor Line 15b / (Line 13b + Line 14b)	0.14	
53. Adjusted Real Loss Volume ((1 - Line 52) x (Line 30 * Line 50 / 100)) + (Line 30 - (Line 30 * Line 50/100))	59,832,280	gallons
54. Adjusted Cost of Real Losses ((1 - Line 52) x (Line 44 * Line 50 / 100)) + (Line 44 - (Line 44 * Line 50/100))	\$63,182	
55. Adjusted Total Water Loss Volume ((1 - Line 52) x (Line 31 * Line 50 / 100)) + (Line 31 - (Line 31 * Line 50/100))	68,771,011	gallons
56. Adjusted Total Cost Impact of Apparent and Real Losses ((1 - Line 52) x (Line 45 * Line 50 / 100)) + (Line 45 - (Line 45 * Line 50/100))	\$93,932	
57. Adjusted Real Loss Per Connection ((1 - Line 52) x (Line 37 * Line 50 / 100)) + (Line 37 - (Line 37 * Line 50/100))	12.45	gallons lost per connection per day
58. Adjusted Real Loss Per Mile ((1 - Line 52) x (Line 38 * Line 50 / 100)) + (Line 38 - (Line 38 * Line 50/100))	0.00	gallons lost per mile per day
59. Adjusted Infrastructure Leakage Index ((1 - Line 52) x (Line 36 * Line 50 / 100)) + (Line 36 - (Line 36 * Line 50/100))	1.21	I.L.I
60. Adjusted Total Water Loss Per Connection Per Day (((1 - Line 52) x (Line 37 * Line 50 / 100)) + (Line 37 - (Line 37 * Line 50/100))) + Line 33	14.61	gallons
61. Adjusted GPCD Loss ((1 - Line 52) x (Line 49 * Line 50 / 100)) + (Line 49 - (Line 49 * Line 50/100))	8	

Comments

Appendix C: Water/Sewer Rates

ORDINANCE NO. 5253

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF DENISON, TEXAS ESTABLISHING REVISED RATES AND CHARGES FOR WATER AND SEWER SERVICE; ESTABLISHING AN EFFECTIVE DATE; REPEALING ALL ORDINANCES OR PARTS THEREOF IN CONFLICT HERewith; PROVIDING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING A CONTINUATION CLAUSE; AND FINDING AND DETERMINING THE MEETING AT WHICH THIS ORDINANCE IS ADOPTED TO BE OPEN TO THE PUBLIC AS REQUIRED BY LAW.

WHEREAS, the Denison Municipal Code, Chapter 26, Section 26-238 provides that the City Council shall from time to time establish rates and charges for water service; and

WHEREAS, the City Council has determined that a five-year rate plan is necessary in order to ensure financing for capital improvements to the water service system; and

WHEREAS, under the five-year rate plan, water consumption rates and the monthly water and sewer base rates will increase each year on December 1 without further council action; and

WHEREAS, the previous rate structure did not adequately allocate capital improvement costs among Residential, Commercial and Industrial water users; and

WHEREAS, the City Council has determined that water and sewer rates for Apartments should be combined with other Residential users; and

WHEREAS, the City Council has determined that water and sewer use should be measured in gallons rather than cubic feet; and

WHEREAS, the City would benefit from certain water users, specifically Industrial users, being placed on a tiered water consumption rate structure; and

WHEREAS, the City Council establishes that Industrial users shall mean a user who consistently uses 3,750,000 gallons or more of treated water per month for the purpose of manufacturing a good or service for distribution and sale, or as approved by the City Manager;

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

SECTION 1: That the monthly rates and charges for water service inside the city limits of the City of Denison as established by Ordinance No. 5028 be amended as follows:

Per inside Residential living unit, there will be a minimum base charge per month based on meter size, which includes the first 1,000 gallons of consumption.

Residential Base Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1" Meter and Below	\$29.16	\$31.49	\$34.01	\$36.73	\$39.67
1 ½" Meter	\$33.83	\$41.57	\$50.34	\$60.24	\$71.41
2" Meter	\$40.24	\$55.43	\$72.79	\$92.57	\$115.05
3" Meter	\$87.48	\$157.46	\$238.09	\$330.60	\$436.39
4" Meter & up	\$104.98	\$195.26	\$299.31	\$418.76	\$555.41

Per inside Residential living unit, there will be a volume rate per 1,000 gallons consumption over the first 1,000 gallons per month.

Residential Volume Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1,000-5,000	\$3.4442	\$3.7198	\$4.0173	\$4.3387	\$4.6858
5,001-10,000	\$4.3053	\$4.6497	\$5.0217	\$5.4234	\$5.8573
10,001-Above	\$5.3816	\$5.8121	\$6.2771	\$6.7793	\$7.3216

Per inside Commercial user, there will be a minimum base charge per month based on meter size, which includes the first 1,000 gallons of consumption.

Commercial Base Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1" Meter and Below	\$54.00	\$58.32	\$62.99	\$68.02	\$73.47
1 ½" Meter	\$62.64	\$76.98	\$93.22	\$111.56	\$132.24
2" Meter	\$74.52	\$102.64	\$134.79	\$171.42	\$213.05
3" Meter	\$162.00	\$291.60	\$440.90	\$612.22	\$808.13
4" Meter & up	\$194.40	\$361.58	\$554.27	\$775.48	\$1,028.53

Per inside Commercial user, there will be a volume rate per 1,000 gallons consumption over the first 1,000 gallons per month.

Commercial Volume Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1,000-25,000	\$4.5568	\$4.9214	\$5.3151	\$5.7403	\$6.1995
25,001-50,000	\$5.6961	\$6.1517	\$6.6439	\$7.1754	\$7.7494
50,001-Above	\$7.1201	\$7.6897	\$8.3048	\$8.9692	\$9.6868

Per inside Industrial user, there will be a minimum base charge per month based on meter size, which includes the first 1,000 gallons of consumption.

Industrial Base Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1" Meter and Below	\$91.80	\$99.14	\$107.08	\$115.64	\$124.89
1 ½" Meter	\$106.49	\$130.87	\$158.47	\$189.65	\$224.81
2" Meter	\$126.68	\$174.49	\$229.14	\$291.42	\$362.19
3" Meter	\$275.40	\$495.72	\$749.53	\$1,040.77	\$1,373.82
4" Meter & up	\$330.48	\$614.69	\$942.26	\$1,318.31	\$1,748.50

Per inside Industrial user, there will be a tiered rate for consumption over the first 1,000 gallons per month.

Industrial Volume Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1,001-3,750,000	\$4.0375	\$4.3605	\$4.7093	\$5.0861	\$5.4929
3,750,001-7,500,000	\$3.8700	\$4.1796	\$4.5139	\$4.8750	\$5.2650
7,500,001-Above	\$3.7025	\$3.9987	\$4.3185	\$4.6640	\$5.0372

SECTION 2: That the monthly rates and charges for sewer service inside the city limits of the City of Denison, as established by Ordinance No. 5028 be amended as follows:

Per inside Residential living unit, there will be a minimum base charge per month based on meter size, which includes the first 1,000 gallons of consumption.

Residential Base Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1" Meter and Below	\$28.75	\$33.06	\$38.02	\$42.20	\$46.00
1 ½" Meter	\$33.35	\$43.64	\$56.27	\$69.22	\$82.80
2" Meter	\$39.68	\$58.19	\$81.37	\$106.35	\$133.41
3" Meter	\$86.25	\$165.31	\$266.15	\$379.84	\$506.03
4" Meter & up	\$103.50	\$204.99	\$334.59	\$481.13	\$644.04

Per inside Residential living unit, there will be a volume rate per 1,000 gallons consumption over the first 1,000 gallons per month.

Residential Volume Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
Per 1,000	\$3.0369	\$3.4925	\$4.0163	\$4.4581	\$4.8594

Per inside Commercial user, there will be a minimum base charge per month based on meter size, which includes the first 1,000 gallons of consumption.

Commercial Base Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1" Meter and Below	\$57.50	\$66.13	\$76.04	\$84.41	\$92.01
1 ½" Meter	\$66.70	\$87.29	\$112.54	\$138.43	\$165.61
2" Meter	\$79.35	\$116.38	\$162.73	\$212.71	\$266.82
3" Meter	\$172.50	\$330.63	\$532.31	\$759.68	\$1,012.06
4" Meter & up	\$207.00	\$409.98	\$669.19	\$962.26	\$1,288.07

Per inside Commercial user, there will be a volume rate per 1,000 gallons consumption over the first 1,000 gallons per month.

Commercial Volume Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
Per 1,000	\$4.6560	\$5.3544	\$6.1576	\$6.8349	\$7.4500

Per inside Industrial user, there will be a minimum base charge per month based on meter size, which includes the first 1,000 gallons of consumption.

Industrial Base Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1" Meter and Below	\$95.45	\$109.77	\$126.23	\$140.12	\$152.73
1 ½" Meter	\$110.72	\$144.89	\$186.82	\$229.79	\$274.91
2" Meter	\$131.72	\$193.19	\$270.14	\$353.10	\$442.91
3" Meter	\$286.35	\$548.84	\$883.63	\$1,261.06	\$1,680.02
4" Meter & up	\$343.62	\$680.56	\$1,110.85	\$1,597.35	\$2,138.20

Per inside Industrial user, there will be a volume rate per 1,000 gallons of consumption over the first 1,000 gallons per month.

Industrial Volume Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
Per 1,000	\$4.6560	\$5.3544	\$6.1576	\$6.8349	\$7.4500

SECTION 3: That the monthly rates and charges for water service outside the city limits of the City of Denison, as established by Ordinance No. 5028 be amended as follows:

Per outside Residential living unit, there will be a minimum base charge per month based on meter size, which includes the first 1,000 gallons of consumption.

Residential Base Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1" Meter and Below	\$56.00	\$56.00	\$56.00	\$56.00	\$59.51
1 ½" Meter	\$56.00	\$62.36	\$75.51	\$90.36	\$107.12
2" Meter	\$60.36	\$83.15	\$109.19	\$138.86	\$172.58
3" Meter	\$131.22	\$236.19	\$357.14	\$495.90	\$654.59
4" Meter & up	\$157.47	\$292.89	\$448.97	\$628.14	\$833.12

Per outside Residential living unit, there will be a volume rate per 1,000 gallons consumption over the first 1,000 gallons per month.

Residential Volume Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1,000-5,000	\$6.5376	\$6.5376	\$6.5376	\$6.5376	\$7.0287
5,001-10,000	\$6.5376	\$6.9746	\$7.5326	\$8.1351	\$8.7860
10,001-Above	\$8.0724	\$8.7182	\$9.4157	\$10.1690	\$10.9824

Per outside Commercial user, there will be a minimum base charge per month based on meter size, which includes the first 1,000 gallons of consumption.

Commercial Base Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1" Meter and Below	\$100.00	\$100.00	\$100.00	\$102.03	\$110.21

1 ½" Meter	\$100.00	\$115.47	\$139.83	\$167.34	\$198.36
2" Meter	\$111.78	\$153.96	\$202.19	\$257.13	\$319.58
3" Meter	\$243.00	\$437.40	\$661.35	\$918.33	\$1,212.20
4" Meter & up	\$291.60	\$542.37	\$831.41	\$1,163.22	\$1,542.80

Per outside Commercial user, there will be a volume rate per 1,000 gallons consumption over the first 1,000 gallons per month.

Commercial Volume Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1,000-25,000	\$8.4386	\$8.4386	\$8.4386	\$8.6105	\$9.2993
25,001-50,000	\$8.5442	\$9.2276	\$9.9659	\$10.7631	\$11.6241
50,001-Above	\$10.6802	\$11.5346	\$12.4572	\$13.4538	\$14.5302

Per outside Industrial user, there will be a minimum base charge per month based on meter size, which includes the first 1,000 gallons of consumption.

Industrial Base Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1" Meter and Below	\$170.00	\$170.00	\$170.00	\$173.46	\$187.34
1 ½" Meter	\$170.00	\$196.31	\$237.71	\$284.48	\$337.22
2" Meter	\$190.02	\$261.74	\$343.71	\$437.13	\$543.29
3" Meter	\$413.10	\$743.58	\$1,124.30	\$1,561.16	\$2,060.73
4" Meter & up	\$495.72	\$922.04	\$1,413.39	\$1,977.47	\$2,622.75

Per Outside Industrial user, there will be a tiered rate for consumption over the first 1,000 gallons per month.

Tiered Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1,001 – 3,750,000	\$7.4768	\$7.4768	\$7.4768	\$7.6292	\$8.2394
3,750,001 – 7,500,000	\$7.1666	\$7.1666	\$7.1666	\$7.3125	\$7.8975
7,500,001 & up	\$6.8564	\$6.8564	\$6.8564	\$6.9960	\$7.5558

SECTION 4: That the monthly rates and charges for sewer service outside the city limits of the City of Denison, as established by Ordinance No. 5028 be amended as follows:

Per outside Residential living unit, there will be a minimum base charge per month based on meter size, which includes the first 1,000 gallons of consumption.

Residential Base Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1" Meter and Below	\$52.00	\$52.00	\$57.03	\$63.30	\$69.00
1 ½" Meter	\$52.00	\$65.46	\$84.41	\$103.83	\$124.20
2" Meter	\$59.52	\$87.29	\$122.06	\$159.53	\$200.12
3" Meter	\$129.38	\$247.97	\$399.23	\$569.76	\$759.05
4" Meter & up	\$155.25	\$307.49	\$501.89	\$721.70	\$966.06

Per outside Residential living unit, there will be a volume rate per 1,000 gallons consumption over the first 1,000 gallons per month.

Residential Volume Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
Per 1,000	\$5.4136	\$5.4136	\$6.0245	\$6.6872	\$7.2891

Per outside Commercial user, there will be a minimum base charge per month based on meter size, which includes the first 1,000 gallons of consumption.

Commercial Base Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1" Meter and Below	\$100.00	\$100.00	\$100.00	\$126.62	\$138.02
1 ½" Meter	\$100.00	\$130.94	\$168.81	\$207.65	\$248.42
2" Meter	\$119.03	\$174.57	\$244.10	\$319.07	\$400.23
3" Meter	\$258.75	\$495.95	\$798.47	\$1,139.52	\$1,518.09
4" Meter & up	\$310.50	\$614.97	\$1,003.79	\$1,443.39	\$1,932.11

Per outside Commercial user, there will be a volume rate per 1,000 gallons consumption over the first 1,000 gallons per month.

Commercial Volume Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
Per 1,000	\$8.0974	\$8.0974	\$9.2364	\$10.2524	\$11.1750

Per outside Industrial user, there will be a minimum base charge per month based on meter size, which includes the first 1,000 gallons of consumption.

Industrial Base Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
1" Meter and Below	\$166.00	\$166.00	\$189.35	\$210.18	\$229.10
1 1/2" Meter	\$166.00	\$217.34	\$280.23	\$344.69	\$412.37
2" Meter	\$197.58	\$289.79	\$405.21	\$529.65	\$664.37
3" Meter	\$429.53	\$823.26	\$1,325.45	\$1,891.59	\$2,520.03
4" Meter & up	\$515.43	\$1,020.84	\$1,666.28	\$2,396.03	\$3,207.30

Per Outside Industrial user, there will be a volume rate per 1,000 gallons of consumption over the first 1,000 gallons per month.

Industrial Volume Rate	12/1/2022	12/1/2023	12/1/2024	12/1/2025	12/1/2026
Per 1,000	\$8.0974	\$8.0974	\$9.2364	\$10.2524	\$11.1750

SECTION 5: That the rates and charges herein adopted shall be effective and implemented on all statements for water and sewer service rendered on or after January 1, 2023.

SECTION 6: Severability. If any provision, section, subsection, sentence, clause or the application of same to any person or set of circumstances for any reason is held to be unconstitutional, void or invalid or for any reason unenforceable, the validity of the remaining portions of this ordinance or the application thereby shall remain in effect, it being the intent of the City Council of the City of Denison, Texas, in adopting this ordinance, that no portion thereof or provision contained herein shall become inoperative or fail by any reasons of unconstitutionality of any other portion or provision.

SECTION 7: Repealer. All ordinances, parts of ordinances, resolutions, and parts of resolutions in conflict with this ordinance are hereby repealed to the extent of conflict with this ordinance.

SECTION 8: Continuation. That nothing in this ordinance (or any code adopted herein) shall be construed to affect any suit or proceeding pending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinance hereby repealed by this ordinance and such prior law is continued in effect for purposes of such pending matter.

SECTION 9: Publishing and Effective Date. This ordinance shall be published and become effective according to law.

SECTION 10: Open Meeting. That it is hereby officially found and determined that the meeting at which this ordinance was passed was open to the public as required by law, and that public notice of the time, place, and purpose of said meeting was given all as required by Section 551.041, Texas Government Code.

AND IT IS SO ORDERED.

On motion by Mayor Pro Tem Crawley, seconded by Council Member Spiegel, the above and foregoing ordinance was passed and approved on this the 12th day of December 2022, by the following vote:

Ayes: Hander, Thorne, Gott, Doty, Crawley and Spiegel

Nays:

Abstentions:

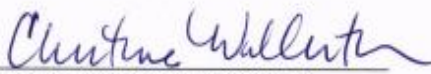
Absent: Courtright

At a regular called meeting December 12, 2022.



JANET GOTT, MAYOR

ATTEST:



Christine Wallentine, City Clerk

Appendix D: Utility Profile

Section I. Contact Information

Name of Utility: City of Denison

Public Water Supply Identification Number (PWS ID): TX0910003

Certificate of Convenience and Necessity (CCN) Number: Surface Water Right ID 10204

Number: 20077

Wastewater ID Number:

Contact: Ronnie Bates

Title: Director of Public Works

Address: 300 W Main Street City: Denison State: TX

Zip Code: 75021 Email: rbates@cityofdenison.com

Telephone Number: 903-465-2720 x2441 Date:

Is this person the designated Conservation Coordinator? Yes No

Coordinator: First Name: Ronnie Last Name: Bates Title: Director of Public Works

Address: 300 W Main Street City: Denison 75020

Email: rbates@cityofdenison.com Telephone Number: 903-465-2720

Regional Water Planning Group: C
Groundwater Conservation District:

Our records indicate that you:

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

Have 3,300 or more retail connections Have a surface water right with TCEQ

A. Population and Service Area Data

1. Current service area size in square miles: 23

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

Year	Historical Population Served By Retail Water Service	Historical Population Served By Wholesale Water Service	Historical Population Served By Wastewater Water Service
2022	26,328	6,681	26,328
2021	24,479	6,576	24,479
2020	25,529	6,471	25,529
2019	22,682	6,366	22,682
2018	22,682	6,261	22,682

3. Projected service area population for the following decades.

Year	Projected Population Served By Retail Water Service	Projected Population Served By Wholesale Water Service	Projected Population Served By Wastewater Water Service
2030	49,484	7,515	30,410
2040	70,783	8,731	30,768
2050	78,948	9,649	33,805
2060	87,113	10,664	39,346
2070	95,278	11,451	52,403

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

Current and projected numbers were derived from annual conservation report, the 2021 Region C Water Plan, and from the updates resulting from the 2026 Region C water projections.

Attached file(s):

File Name	File Description

Water System Master Plan service area Map.pdf

Service area map



B. System Input

System input data for the previous five years.

Total System Input = Self-supplied + Imported – Exported

Year	Water Produced in Gallons	Purchased/Imported Water in Gallons	Exported Water in Gallons	Total System Input	Total GPCD
2022	1,953,840,000	0	263,591,717	1,690,248,283	176
2021	1,823,790,000	0	207,188,008	1,616,601,992	181
2020	1,653,272,000	0	196,583,704	1,456,688,296	156
2019	1,576,690,000	0	173,043,113	1,403,646,887	170
2018	1,692,007,000	0	177,602,007	1,514,404,993	183
Historic 5-year Average	1,739,919,800	0	203,601,710	1,536,318,090	173

- 1. Designed daily capacity of system in gallons - **12,800,000 Gallons**
- 2. Storage Capacity 2a. Elevated storage in gallons: **3,975,000 Gallons**
- 2b. Ground storage in gallons: **4,380,000 Gallons**

C. Projected Demands

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

Year	Population	Water Demand Annual Average (gallons)
2023	28,554	1,690,556,091
2024	29,784	1,763,362,037
2025	31,013	1,836,167,983
2026	32,243	1,908,973,929
2027	36,756	2,176,184,352
2028	41,270	2,443,394,775
2029	45,783	2,710,605,199

2030	50,296	2,977,815,622
2031	54,396	3,220,561,455
2032	58,496	3,463,307,287

2. Description of source data and how projected water demands were determined. – The water demand was calculated by multiplying projected per capita demand by projected population.

D. High Volume Customers

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

Customer	Water Use Category	Annual Water Use	Treated or Raw
Ruiz Foods	Industrial	113,979,969	Treated
Kwikset	Industrial	39,151,555	Treated
Denison Independent School District	Institutional	34,080,395	Treated
Texoma Medical Center	Institutional	30,839,958	Treated
Greystone Apartments	Multifamily Residential	11,988,400	Treated

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

Customer	Water Use Category	Annual Water Use	Treated or Raw
City of Pottsboro	Municipality	164,720,000	Treated
Oak Ridge South Gale WSC	Water Utility	63,730,000	Treated
Thompson Heights	Residential Subdivision	14,360,000	Treated
Rocky Point Estates (Monarch Utilities)	Residential Subdivision	8,500,000	Treated
Northern Hills	Residential Subdivision	7,410,000	Treated

E. Utility Data Comment Section

Additional comments about utility data.

Section II: Water System Data

A. Retail Water Supplier Connections

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

Water Use Category Type	Total Retail Connections (Active + Inactive)	Percent of Total Connections
Residential - Single Family	10,867	82.5%
Residential - Multi-Family	1,274	9.67%
Industrial	5	.05%
Commercial	1,013	7.7%
Institutional	9	.08%
Agricultural	0	0%
Total	13,168	100%

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

Year	Net Number of New Retail Connections						
	Residential - Single Family	Residential - Multi-Family	Industrial	Commercial	Institutional	Agricultural	Total
2022	1,085	0	0	0	0	0	1,085
2021	216	156	-13	30	-122	0	267
2020	107	0	11	-168	131	0	81
2019	360	36	-6	137	-103	0	424
2018	64	36	13	-125	103	0	91

B. Accounting Data

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

Year	Residential Single Family	Residential - Multi-Family	Industrial	Commercial	Institutional	Agricultural	Total
2022	1,019,645,269	42,728,939	157,476,621	279,000,000	99,652,450	0	1,598,503,279
2021	631,092,128	56,223,885	171,686,228	279,096,275	159,333,659	0	1,297,432,175
2020	568,728,810	43,972,030	170,890,789	255,954,122	73,005,794	0	1,112,551,545

2019	569,320,680	44,731,791	247,422,586	370,831,190	0	0	1,232,306,247
2018	619,949,986	50,928,560	174,532,892	232,200,017	96,122,802	0	1,173,734,257

C. Residential Water Use

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

Year	Residential - Single Family	Residential - Multi-Family	Total Residential
2022			
2021	71	48	119
2020	65	43	108
2019	66	44	110
2018	75	52	127
Historical Average	69	47	116

D. Annual and Seasonal Water Use

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

Month	Total Gallons of Treated Water				
	2022	2021	2020	2019	2018
January	98,629,002	100,218,157	92,146,227	97,539,416	109,228,600
February	90,944,684	126,213,818	87,543,217	85,880,438	88,316,343
March	101,673,662	113,542,991	90,801,170	98,393,694	99,232,801
April	110,751,446	122,297,807	94,965,192	97,968,771	97,743,089
May	123,999,084	118,624,788	107,945,007	107,589,205	127,532,259
June	164,160,727	145,595,810	151,647,271	123,248,376	154,371,387
July	249,218,317	198,678,914	163,581,032	163,405,150	192,302,607
August	188,451,156	170,535,667	171,882,700	166,754,408	176,258,382
September	157,995,594	159,639,514	122,676,065	148,510,544	138,720,267
October	155,527,779	137,932,206	149,285,641	124,200,259	130,888,779
November	108,601,584	116,954,595	116,583,294	95,115,692	103,013,263
December	140,295,248	106,367,725	107,631,480	95,040,934	96,797,216



Total	1,690,248,283	1,616,601,992	1,456,688,296	1,403,646,887	1,514,404,993
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2. The previous five years' gallons of raw water provided to RETAIL customers. NO RAW WATER PROVIDED TO RETAIL CUSTOMERS*

Month	Total Gallons of Raw Water				
	2022	2021	2020	2019	2018
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
Total					

3. Summary of seasonal and annual water use.

	Summer RETAIL (Treated + Raw)	Total RETAIL (Treated + Raw)
2022	601,830,200	1,690,248,283
2021	514,810,391	1,616,601,992
2020	487,111,003	1,456,688,296
2019	453,407,934	1,403,646,887
2018	522,932,376	1,514,404,993
Average in Gallons	516,018,381	1,536,318,090



E. Water Loss

Water Loss data for the previous five years.

Year	Total Water Loss in Gallons	Water Loss in GPCD	Water Loss as a Percentage
2022	79,966,292	9	4.75%
2021	297,332,752	33	18.38 %
2020	241,070,198	26	17.26 %
2019	143,785,305	17	10.16 %
2018	313,295,507	38	20.52 %
Average	215,090,011	25	12.6%

F. Peak Day Use

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

Year	Average Daily Use (gal)	Peak Day Use (gal)	Ratio (peak/avg)
2022	5,353,000	11,050,000	2.06
2021	4,997,000	9,650,000	1.93
2020	4,517,000	8,620,000	1.91
2019	4,320,000	7,710,000	1.78
2018	4,636,000	9,320,000	2.01

G. Summary of Historic Water Use

Water Use Category	Historical Average (Gal)	Percent of Connections	Percent of Water Use
Residential - Single Family	681,747,375	82.5%	53%
Residential - Multi-Family	47,717,041	9.7%	4%
Industrial	184,401,823	0.1%	14%
Commercial	283,416,321	7.7%	22%
Institutional	85,622,941	0.1%	7%
Agricultural	0	0%	0%

H. System Data Comment Section

Section III: Wastewater System Data

Wastewater System Data

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

6,412,000

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

Water Use Category	Metered	Unmetered	Total Connections	Percent of Total Connections
Municipal	10,867	0	10,867	82.5%
Industrial	1,274	0	1,274	9.67%
Commercial	5	0	5	.05%
Institutional	1,013	0	1,013	7.7%
Agricultural	0	0	0	0
TOTAL	13,159	0	13,159	100%

3. Percentage of water serviced by the wastewater system: **100%**

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

Month	Total Gallons of Treated Water				
	2022	2021	2020	2019	2018
January	75,860,000	88,352,000	129,081,000	126,463,000	75,990,000
February	71,020,000	78,730,000	131,497,000	98,465,000	101,317,000
March	83,160,000	98,705,000	152,582,000	124,306,000	124,662,000
April	91,970,000	99,707,000	116,495,000	128,712,000	98,297,000
May	91,220,000	153,668,000	130,462,000	164,637,000	84,950,000
June	80,200,000	131,845,000	94,858,000	91,679,000	68,772,000
July	66,810,000	83,465,000	80,415,000	82,431,000	68,265,000
August	68,760,000	90,283,000	73,296,000	77,082,000	76,856,000
September	63,280,000	71,070,000	83,303,000	72,139,000	83,893,000
October	68,650,000	70,435,000	75,298,000	79,300,000	141,963,000
November	99,700,000	72,575,000	72,647,000	96,539,000	101,847,000

December	91,730,000	68,890,000	79,291,000	92,777,000	124,451,000
Total	952,360,000	1,107,725,000	1,219,225,000	1,234,530,000	1,151,263,000

5. Could treated wastewater be substituted for potable

water? Yes No

B. Reuse Data

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

Type of Reuse	Total Annual Volume (in gallons)
On-site Irrigation	
Plant wash down	52,000,000
Chlorination/de-chlorination	
Industrial	
Landscape irrigation (park, golf courses)	
Agricultural	
Discharge to surface water	
Evaporation Pond	
Other	
Total	52,000,000

C. Wastewater System Data Comment

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

Appendix E: Drought Contingency Plan