WATER CONSERVATION PLAN

FOR THE

ROSE HILL
SPECIAL UTILITY DISTRICT

KAUFMAN COUNTY, TEXAS

MAY 2022

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1. INTRODUCTION AND OBJECTIVES

This document has been prepared from the January 2019 model Water Conservation Plan (WCP), available for use for the North Texas Municipal Water District (NTMWD) Customers. The model plan was prepared pursuant to Texas Commission on Environmental Quality (TCEQ) rules. Some material is based on the existing water conservation plans listed in Appendix A.

Water supply has always been a key issue in the development of Texas. In recent years, the increasing population and economic development of North Central Texas have led to growing demands for water supplies. At the same time, local and less expensive sources of water supply are largely already developed. Additional supplies to meet future demands will be expensive and difficult to secure. Severe drought conditions in recent years have highlighted the importance of efficient use of our existing supplies to 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 TCEQ has developed guidelines and requirements governing the development of water conservation and drought contingency plans for municipal uses by public water suppliers.[2] The TCEQ guidelines and requirements for wholesale suppliers are included in Appendix B. The North Texas Municipal Water District ("NTMWD or District") has developed this Model Water Conservation Plan to be consistent with TCEQ guidelines and requirements. The best management practices established by the Water Conservation Implementation Task Force3 were also considered in the development of the water conservation measures.

This Model Water Conservation Plan includes measures that are intended to result in ongoing, long-term water savings. This plan replaces the previous plans dated August 2004, April 2006, March 2008 and April 2014.

The objectives of this water conservation plan are as follows:

- To reduce water consumption from the levels that would prevail without conservation efforts.
- To reduce the loss and waste of water.
- To improve efficiency in the use of water.
- Encourage efficient outdoor water use.
- To maximize the level of recycling and reuse in the water supply.
- To extend the life of current water supplies by reducing the rate of growth in demand.

The water conservation plan presented in this document is a Model Water Conservation Plan intended for adoption by the NTMWD Member Cities and Customers. In order to adopt this plan, each Member City and Customer will need to do the following:

- Complete the water utility profile (provided in Appendix C).
- Set five-year and ten-year goals for per capita water use.
- Adopt ordinance(s) or regulation(s) approving the model plan.
- Complete the annual water conservation implementation report (in Appendix J).

The water utility profile, goals, and ordinance(s) or regulations should be provided to NTMWD in draft form for review and comments. Final adopted versions should also be provided to NTMWD, as well as TCEQ and should be attached to the adopted water conservation plan as Appendix G. This Model Water Conservation Plan includes all the elements of such plans required by TCEQ. Some elements of this model plan go beyond TCEQ requirements. Any water supplier wishing to adjust elements of the Model Water Conservation Plan should coordinate with NTMWD.

[1] Superscripted numbers match references listed in Appendix A.

2. DEFINITIONS AND ABBREVIATIONS

1. ATHLETIC FIELD means a public sports competition field, the essential feature of which is turf grass, used primarily for organized sports practice, competition or exhibition events for schools; professional sports and league play sanctioned by the utility providing retail water supply.
2. COOL SEASON GRASSES are varieties of turf grass that grow best in cool climates primarily in northern and central regions of the U.S. Cool season grasses include perennial and annual rye grass, Kentucky blue grass and fescues.
3. CUSTOMERS include those entities to whom NTMWD provides wholesale water that are not members of NTMWD.
4. DRIP IRRIGATION is a type of micro-irrigation system that operates at low pressure and delivers water in slow, small drips to individual plants or groups of plants through a network of plastic conduits and emitters; also called trickle irrigation.
5. EVAPOTRANSPIRATION (ET) represents the amount of water lost from plant material to evaporation and transpiration. The amount of ET can be estimated based on the temperature, wind, and relative humidity.
6. ET/SMART CONTROLLERS are irrigation controllers that adjust their schedule and run times based on weather (ET) data. These controllers are designed to replace the amount of water lost to evapotranspiration.
7. IRRIGATION SYSTEM means a permanently installed, custom-made, site-specific system of delivering water generally for landscape irrigation via a system of pipes or other conduits installed below ground.
8. LANDSCAPE means any plant material on a property, including any tree, shrub, vine, herb, flower, succulent, ground cover, grass or turf species, that is growing or has been planted out of doors.
9. MEMBER CITIES include the cities of Allen, Farmersville, Forney, Frisco, Garland, McKinney, Mesquite, Plano, Princeton, Richardson, Rockwall, Royse City, and Wylie, Texas, which are members of NTMWD.
10. MUNICIPAL USE means the use of potable water provided by a public water supplier as well as the use of treated wastewater effluent for residential, commercial, industrial, agricultural, institutional, and wholesale uses.
11. REGULATED IRRIGATION PROPERTY means any (customer class, i.e. commercial) property that uses (over a certain amount) of water or more for irrigation purposes in a single calendar year or is greater than (certain size).
12. RESIDENTIAL GALLONS PER CAPITA PER DAY means (Residential GPCD) the total gallons sold for residential use by a public water supplier divided by the residential population served and then divided by the number of days in the year.

13. RETAIL CUSTOMERS include those customers to whom the utility provides retail water from a water meter.

14. TOTAL GALLONS PER CAPITA PER DAY (Total GPCD) means the total amount of water diverted and/or pumped for potable use divided by the total permanent population divided by the days of the year. Diversion volumes of reuse as defined in TAC 288.1 shall be credited against total diversion volumes for the purposes of calculating GPCD for targets and goals.

15. WATER CONSERVATION PLAN means the Member City or Customer water conservation plan approved and adopted by the utility.

Abbreviations

Abbreviation	Full Nomenclature
BMP	Best Management Practices
NTMWD or District	North Texas Municipal Water District
TCEQ	Texas Commission on Environmental Quality
TWDB	Texas Water Development Board
WCAC	Water Conservation Advisory Council
WCP	Water Conservation Plan

3. REGULATORY BASIS FOR WATER CONSERVATION PLAN

3.1 TCEQ Rules Governing Conservation Plans

The TCEQ rules governing development of water conservation plans for municipal uses by public water suppliers are contained in Title 30, Chapter 288, Subchapter A, Section 288.2 of the Texas Administrative Code, which is included in Appendix B. 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." 2 The water conservation plan elements required by the TCEQ water conservation rules that are covered in this water conservation plan are listed below.

Minimum Conservation Plan Requirements

The minimum requirements in the Texas Administrative Code for Water Conservation Plans for Municipal Uses by Public Water Suppliers are covered in this water conservation plan as follows:

Rule	Subject	Section
288.2(a)(1)(A)	Utility Profile	Section 4 & Appx C
288.2(a)(1)(B)	Record Management System	Section 6.1.5
288.2(a)(1)(C)	Specific, Quantified Goals	Section 5
288.2(a)(1)(D)	Accurate Metering	Section 6.1.1
288.2(a)(1)(E)	Universal Metering	Section 6.1.2
288.2(a)(1)(F)	Determination and Control of Water Loss	Section 6.1.3
288.2(a)(1)(G)	Public Education and Information Program	Section 6.2
288.2(a)(1)(H)	Non-Promotional Water Rate Structure	Section 6.6
288.2(a)(1)(I)	Reservoir System Operation Plan	Section 6.3
288.2(a)(1)(J)	Means of Implementation and Enforcement	Section 8
288.2(a)(1)(K)	Coordination with Regional Water Planning Group	Section 6.4 & Appx F
288.20(c)	Review & Update of Plan	Section 9

Conservation Additional Requirements (Population over 5,000)

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

Rule	Subject	Section
288.2(a)(2)(A)	Leak Detection, Repair, and Water Loss Accounting	Sections 6.1.4
288.2(a)(2)(B)	Requirement for Water Conservation Plans by Wholesale Customers	Section 6.5

Additional Conservation Strategies

The TCEQ requires that a water conservation implementation report be completed and submitted on an annual basis. The template for this report is included in Appendix J.

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

Rule	Subject	Section
288.2(a)(3)(A)	Conservation Oriented Water Rates	Section 6.6
288.2(a)(3)(F)	Considerations for Landscape Water Management Regulations	Section 7.4 & Appx E

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

Rule	Subject	Section
288.2(a)(3)(B)	Ordinances, Plumbing Codes or Rules on Water-Conserving Fixtures	Section 7.1
288.2(a)(3)(C)	Replacement or Retrofit of Water-Conserving Plumbing Fixtures	Section 7.5
288.2(a)(3)(D)	Reuse and Recycling of Wastewater	Section 7.2
288.2(a)(3)(F)	Considerations for Landscape Water Management Regulations	Section 7.3, 7.4
288.2(a)(3)(G)	Monitoring Method	Section 7.6
288.2(a)(3)(H)	Additional Conservation Ordinance Provisions	Section 7.5

3.2 Guidance and Methodology for Reporting on Water Conservation and Water Use

In addition to TCEQ rules regarding water conservation, this plan also incorporates elements of the Guidance and Methodology for Reporting on Water Conservation and Water Use developed by TWDB and TCEQ5, in consultation with the WCAC (the "Guidance"). The Guidance was developed in response to a charge by the 82nd Texas Legislature to develop water use and calculation methodology and guidance for preparation of water use reports and water conservation plans in accordance with TCEQ rules.

4. WATER UTILITY PROFILE

Appendix C to this Model Water Conservation Plan is a template water utility profile based on the format recommended by the TCEQ. In adopting this Model Water Conservation Plan, each Member City and Customer will provide a draft water utility profile to NTMWD for review and comment. A final water utility profile will be provided to NTMWD as well as to TCEQ.

5. SPECIFICATION OF WATER CONSERVATION GOALS

- TCEQ rules require the adoption of specific water conservation goals for a water conservation plan. As part of plan adoption, each Member City and Customer must develop 5-year and 10-year goals for water savings, including goals for per capita municipal use and for water loss programs. These goals should be submitted to NTMWD in draft form for review. The goals for this water conservation plan include the following:
- Maintain the total and residential per capita water use below the specified amount in gallons per capita per day in a dry year, as shown in the completed Table 5-1. NTMWD will publish the amount of reuse to be is calculating the credit for reuse.
- Maintain the water loss percentage in the system below 12 percent annually in 2018 and subsequent years, as discussed in Section 6.1.3. (The 12 percent goal for water loss is recommended but is not required. Systems with long distances between customers, such as rural systems, may adopt a higher percent nonrevenue water goal.)
- Implement and maintain a program of universal metering and meter replacement and repair, as discussed in Section 6.1.2.
- Increase efficient water usage through a water conservation ordinance, order or resolution as discussed in Section 7.4 and Appendix E. (This ordinance is required by NTMWD.)
- Decrease waste in lawn irrigation by implementation and enforcement of landscape water management regulations, as discussed in Section 7.5. (These landscape water management regulations are recommended but are not required.)
- Raise public awareness of water conservation and encourage responsible public behavior by a public education and information program, as discussed in Section 6.2.
- Develop a system specific strategy to conserve water during peak demands, thereby reducing the peak use.

Table 5-1 Five-Year and Ten-Year Per Capita Water Use Goals (GPCD)

Description	Current Average (GPCD)	5-Year Goal (GPCD)	10-Year Goal (GPCD)
Current 5-Year Average Total Per Capita Use with Credit for Reuse			
Current 5-Year Average Residential Per Capita Use	69.05	67.57	66.09
Water Loss (GPCD)[1]	2.68	3.50	3.11
Water Loss (Percentage)[2]	4.01%	5.18%	4.71%
Expected Reduction due to Low-Flow Plumbing Fixtures			
Projected Reduction Due to Elements in this Plan			
Water Conservation Goals (with credit for reuse)			

1. Water Loss GPCD = (Total Water Loss ÷ Permanent Population) ÷ 365
2. Water Loss Percentage = (Total Water Loss ÷Total Gallons in System) x 100; or (Water Loss GPCD ÷ Total GPCD) x 100

6. BASIC WATER CONSERVATION STRATEGIES

6.1 Metering, Water Use Records, Control of Water Loss, and Leak Detection and Repair

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

6.1.1 Accurate Metering of Treated Water Deliveries from NTMWD

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

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

The provision of water to all customers, including public and governmental users, should be metered. In many cases, Member Cities and Customers already meter retail and wholesale water users. For those Member Cities and Customers who do not currently meter all internal water uses, as well as all subsequent users.

Rose Hill SUD test and replace their customer meters on a regular basis. All customer meters should be replaced on a minimum of a 15-year cycle. Those who do not currently have a meter testing and replacement program should implement such a program.

6.1.3 Determination and Control of Water Loss

Total water loss is the difference between water delivered to Rose Hill SUD from NTMWD (and other supplies, if applicable) and metered water sales to customers plus authorized for use but not sold. (Authorized for use but not sold would include use for firefighting, releases for flushing of lines, uses associated with new construction, etc.) Total water loss includes two categories:

- Apparent Losses – Includes inaccuracies in customer meters (customer meters tend to run more slowly as they age and under-report actual use); Losses due to illegal connections and theft (included in Appendix H); accounts that are being used but have not yet been added to the billing system.
- Real Losses – Includes physical losses from the system or mains, reported breaks and leaks, storage overflow and unreported losses.

Measures to control water loss should be part of the routine operations of Rose Hill SUD. Maintenance crews and personnel should look for and report evidence of leaks in the water distribution system. A leak detection and repair program is described in Section 6.1.4 below. Meter readers should watch for and report signs of illegal connections so that they can be quickly addressed.

Total water loss should be calculated in accordance with the provisions of Appendix J. With the measures described in this plan, Rose Hill SUD should maintain a water loss percentage below 12 percent each year. If total water loss exceeds this goal, the Member City or Customer should implement a more intensive audit to determine the source(s) of loss and to reduce the water loss. The annual conservation report described below is the primary tool that should be used to monitor water loss.

As advance metering technology advances utilities that have these systems should consider as a BMP utilizing the capabilities of theses system to provide leak alerts. Retail customers whose accounts demonstrate leaks can be notified by their water provider of potential leak situations for account holder remediation.

6.1.4 Leak Detection and Repair

As described above, district crews and personnel should look for and report evidence of leaks in the water distribution system. Areas of the water distribution system in which numerous leaks and line breaks occur should be targeted for replacement as funds are available.

6.1.5 Record Management System

As required by TAC Title 30, Chapter 288, Section 288.2(a)(1)(B), a record management system should allow for the separation of water sales and uses into residential, commercial, public/institutional, and industrial categories. This information should be included in an annual water conservation report, as described in Section 7.6 below. Those entities whose record management systems do not currently comply with this requirement should move to implement such a system within the next five years.

6.2 Continuing Public Education and Information Campaign

The continuing public education and information campaign on water conservation includes the following elements:

- Utilize the "Water IQ: Know Your Water" and other public education materials produced by NTMWD.
- Utilize the "Water4Otter" campaign for students.
- Insert water conservation information with water bills. Inserts will include material developed by Rose Hill SUD's staff and material obtained from the TWDB, 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 Rose Hill SUD's staff and staff of NTMWD are available to make presentations on the importance of water conservation and ways to save water.
- Promote the Texas Smartscape web site (www.txsmartscape.com) and provide water conservation brochures and other water conservation materials available to the public at Rose Hill SUD's district office and other public places.
- Make information on water conservation available on the Rose Hill SUD's website (if applicable) and include links to the "Water IQ: Know Your Water" website, Texas Smartscape website and to information on water conservation on the TWDB and TCEQ web sites and other resources.
- NTMWD is an EPA Water Sense Partner and participates in the EPA Water Sense sponsored "Fix a Leak Week." NTMWD encourages all member cities and customers to become EPA Water Sense Partners.
- Utilize the Water My Yard website and encourage customers to sign-up to receive weekly watering advice.

6.3 NTMWD System Operation Plan

Rose Hill SUD purchases treated water from NTMWD and does not have surface water supplies for which to implement a reservoir system operations plan. NTMWD operates multiple sources of water supply as a system. The operation of the reservoir system is intended to optimize the use of the District's sources (within the constraints of existing water rights) while minimizing energy use cost for pumping, maintaining water quality, minimizing potential impacts on recreational users of the reservoirs and fish and wildlife.

6.4 Coordination with Regional Water Planning Group and NTMWD

Appendix F includes a letter sent to the Chair of the Region C water planning group with this model water conservation plan. The adopted ordinance(s) or regulation(s) and the adopted water utility profile will be sent to the Chair of the appropriate Water Planning Group and to NTMWD.

6.5 Requirement for Water Conservation Plans by Wholesale Customers

Every contract for the wholesale sale of water by Rose Hill SUD that is entered into, renewed, or extended after the adoption of this water conservation plan will include a requirement that the

wholesale customer and any wholesale customers of that wholesale customer develop and implement a water conservation plan meeting the requirements of Title 30, Chapter 288, of the Texas Administrative Code. This requirement extends to each successive wholesale customer in the resale of the water.

6.6 Increasing Block Water Rate Structure

Rose Hill SUD has adopted an increasing block rate water structure that is intended to encourage water conservation and to discourage excessive use and waste of water. An example water rate structure is as follows:

Residential Rates

1. Monthly minimum charge. This can (but does not have to) include up to 2,000 gallons water use with no additional charge.
2. Base charge per 1,000 gallons up to the approximate average residential use.
3. 2nd tier (from the average to 2 times the approximate average) at 1.25 to 2.0 times the base charge.
4. 3rd tier (above 2 times the approximate average) at 1.25 to 2.0 times the 2nd tier.
5. Additional tiers with further increases if desired.
6. The residential rate can also include a lower tier for basic household use up to 4,000 gallons per month or a determined basic use.

Commercial/Industrial Rates

Commercial/Industrial rates should include at least 2 tiers, with rates for the 2nd tier set at 1.25 to 2.0 times that of the first tier. Higher water rates for commercial irrigation use are encouraged, but not required

7. ENHANCED WATER CONSERVATION STRATEGIES

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

The state has required water-conserving fixtures in new construction and renovations since 1992. The state standards call for flows of no more than 2.5 gallons per minute (gpm) for faucets, 2.5 gpm for showerheads. As of January 1, 2014, the state requires maximum average flow rates of 1.28 gallons per flush (gpf) for toilets and 0.5 gpf for urinals. Similar standards are now required under federal law. These state and federal standards assure that all new construction and renovations will use water-conserving fixtures. Rebate programs to encourage replacement of older fixtures with water conservation programs are discussed in Section 7.5.

7.2 Reuse and Recycling of Wastewater

The Rose Hill SUD does not own or operate a wastewater treatment plant. Their wastewater is treated by individual septic tanks.

7.3 Interactive Weather Stations / Water My Yard Program

NTMWD has developed the Water My Yard program to install weather stations throughout its service area in order to provide consumers with a weekly e-mail and information through the "Water My Yard" website to assist consumers in determining an adequate amount of supplemental water to maintain healthy grass in a specific location. This service represents the largest network of weather stations providing ET-based irrigation recommendations in the State of Texas, and provides the public advanced information regarding outdoor irrigation needs, thereby reducing water use. Through a series of selections on the type of irrigation system a consumer has, a weekly email is provided that will determine how long (in minutes) an irrigation system needs to run based on the past seven days of weather. This recommendation provides the actual amount of supplemental water that is required for a healthy lawn based on research of the Texas A&M Agrilife Extension Service and proven technologies. This innovative program has been available to those within the NTMWD service area since May 2013. The city/utility will encourage customers to subscribe to weekly watering updates through Water My Yard or other similar program in an effort to reduce outdoor water consumption.

7.4 Compulsory Landscape and Water Management Measures

The following landscape water management measures are required by the NTMWD for this plan. These measures represent minimum measures to be implemented and enforced in order to irrigate the landscape appropriately, and are to remain in effect on a permanent basis unless water resource management stages are declared.

1. Landscape Water Management Measures

- • Limit landscape watering with sprinklers or irrigation systems at each service address to no more than two days per week (April 1 – October 31), with education that less than twice per week is usually adequate. (NTMWD has identified assigning designated watering days as a BMP and suggests implementing a watering schedule as part of this measure). Additional watering of landscape may be provided by hand-held hose with shutoff nozzle, use of dedicated irrigation drip zones. An exception is allowed for landscape associated with new construction that may be watered as necessary for 30 days from the installation of new landscape features.
- Limit landscape watering with sprinklers or irrigation systems at each service address to no more than one day per week beginning November 1 and ending March 31 of each year, with education that less than once per week is usually adequate.
- Estimated savings from the year-round watering restrictions, mentioned above, since the District terminated drought stages in 2015 is approximately 2.5 to 3.5 percent on an average annualized basis.
- Prohibit lawn irrigation watering from 10 AM to 6 PM (April 1 – October 31).
- Prohibit the use or irrigation systems that water impervious surfaces. (Wind-driven water drift will be taken into consideration.)
- Prohibit outdoor watering during precipitation or freeze events.
- Prohibit use of poorly maintained sprinkler systems that waste water.
- Prohibit excess water runoff or other obvious waste.

- Require rain and freeze sensors and/or ET or Smart controllers on all new irrigation systems. Rain and freeze sensors and/or ET or Smart controllers must be maintained to function properly.
- Prohibit overseeding, sodding, sprigging, broadcasting or plugging with cool season grasses or watering cool season grasses, except for golf courses and athletic fields.
- Require that irrigation systems be inspected at the same time as initial backflow preventer inspection.
- Requirement that all new irrigation systems be in compliance with state design and installation regulations (Texas Administrative Code Title 30, Chapter 344).
- Require the owner of a regulated irrigation property to obtain an evaluation of any permanently installed irrigation system on a periodic basis. The irrigation evaluation shall be conducted by a licensed irrigator in the State of Texas and be submitted to the local water provider (i.e., city, water supply corporation).

2. Additional Water Management Measures

- Prohibit the use of potable water to fill or refill residential, amenity, and any other natural or manmade ponds. A pond is considered to be a still body of water with a surface area of 500 square feet or more.
- Non–commercial car washing can be done only when using a water hose with a shut-off nozzle.
- Hotels and motels shall offer a linen reuse water conservation option to customers.
- Restaurants, bars, and other commercial food or beverage establishments may not provide drinking water to customers unless a specific request is made by the customer for drinking water.

Rose Hill SUD is responsible for developing regulations, ordinances, policies, or procedures for enforcement of water conservation guidelines.

Appendix E is a summary of considerations for landscape water management regulations adopted as part of the development of this water conservation plan. These regulations are intended to minimize waste in landscape irrigation. Appendix E includes the required landscape water measures laid out in this section.

7.5 Additional Water Conservation Measures (Not Required)

NTMWD also urges its Member Cities and Customers to consider including the following additional water conservation measures from the NTMWD Model Water Conservation Plan in their plans: Member Cities and Customers are responsible for developing regulations, ordinances, policies, or procedures for enforcement of water conservation guidelines.

1. Landscape Water Management Regulations

- Requirement that all existing irrigation systems be retrofitted with rain and freeze sensors and/or ET or Smart controllers capable of multiple programming. Rain and freeze sensors and/or ET or Smart controllers must be maintained to function properly.
- Requirement that all new athletic fields be irrigated by a separate irrigation system from surrounding areas.

- Implementation of other measures to encourage off-peak water use.

2. Landscape Ordinance

- Landscape ordinances are developed by districts to guide developers in landscaping requirements for the district. A sample landscape ordinance is provided in Appendix I and is intended as a guideline for adopting a landscape ordinance to promote water efficient landscape design.
- Native, drought tolerant or adaptive plants should be encouraged.
- Drip irrigation systems should be promoted.
- ET/Smart controllers that only allow sprinkler systems to irrigate when necessary should be promoted.

3. Water Audits

- Water audits are useful in finding ways in which water can be used more efficiently at a specific location. NTMWD recommends that Member Cities and Customers offer water audits to customers.

4. Rebates

- In addition to the conservation measures described above, the NTMWD also recommends the following water conservation incentive programs for consideration by Member Cities and Customers:
  - Low-flow toilet replacement and rebate programs,
  - Rebates for rain/freeze sensors and/or ET or Smart controllers,
  - Low-flow showerhead and sink aerators replacement programs or rebates,
  - Water efficient clothes washer rebates,
  - Pressure reducing valve installation programs or rebates,
  - Rain barrel rebates,
  - Pool covers,
  - On-demand hot water heater rebates, and/or
  - Other water conservation incentive programs.

7.6 Monitoring of Effectiveness and Efficiency - NTMWD Annual Water Conservation Report

Appendix D is a form that should be used in the development of an annual water conservation report by Rose Hill SUD. This form should be completed by March 31 of the following year and used to monitor the effectiveness and efficiency of the water conservation program and to plan conservation-related activities for the next year. The form records the water use by category, per capita municipal use, and total water loss for the current year and compares them to historical values. As part of the development of Appendix D, Rose Hill SUD will complete the tracking tool by March 31 of the following year and submit them to NTWMD. The annual water conservation report should be sent to NTMWD, which will monitor Rose Hill SUD's water conservation trends.

7.7 Water Conservation Implementation Report

Appendix J includes the TCEQ-required water conservation implementation report. The report is due to the TCEQ by May 1 of every year. This report lists the various water conservation strategies that have been implemented, including the date the strategy was implemented. The report also calls for the five-year and ten-year per capita water use goals from the previous water conservation plan. The reporting entity must answer whether or not these goals have been met and if not, why not. The amount of water saved is also requested.

8. IMPLEMENTATION AND ENFORCEMENT OF THE WATER CONSERVATION PLAN

Appendix G contains a draft ordinance, order, or resolution which may be tailored to meet Rose Hill SUD's needs and may be adopted by the board of directors regarding the Model Water Conservation Plan. The ordinance designates responsible officials to implement and enforce the water conservation plan. Appendix E, the considerations for landscape water management regulations, also includes information about enforcement. Appendix H includes a copy of an ordinance, order, or resolution that may be adopted related to illegal connections and water theft.

9. REVIEW AND UPDATE OF WATER CONSERVATION PLAN

TCEQ requires that the water conservation plans be updated every five years. The plan will be updated as required and as appropriate based on new or updated information.

APPENDIX A

LIST OF REFERENCES

APPENDIX A

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1. Texas Commission on Environmental Quality Water Conservation Implementation Report. https://www.tceq.texas.gov/assets/public/permitting/forms/20645.pdf

2. Title 30 of the Texas Administrative Code, Part 1, Chapter 288, Subchapter A, Rules 288.1 and 288.5, and Subchapter B, Rule 288.22, downloaded from http://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=288, November 2019.

3. Water Conservation Implementation Task Force: "Texas Water Development Board Report 362, Water Conservation Best Management Practices Guide," prepared for the Texas Water Development Board, Austin, November 2004.

4. Texas Water Development Board, Texas Commission on Environmental Quality, Water Conservation Advisory Council: Guidance and Methodology for Reporting on Water Conservation and Water Use, December 2012

5. Freese and Nichols, INC.: Model Water Conservation Plan for NTMWD Members Cities and Customers, prepared for the North Texas Municipal Water District, Fort Worth, March 2014.

6. Definitions from City of Austin Water Conservation and Drought Contingency Ordinance adopted August 16, 2012.

7. Definition from City of San Antonio Water Conservation Ordinance adopted 2005. http://saws.org/conservation/ordinance/docs/Ch34_Ordinance_2009.pdf

8. Definition developed by Freese and Nichols Inc.

9. Freese and Nichols Inc., Alan Plummer and Associates, CP & Y Inc. and Cooksey Communications. "2011 Region C Regional Water Plan""

APPENDIX B

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES ON MUNICIPAL WATER CONSERVATION PLANS

APPENDIX B

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULESON MUNICIPAL WATER CONSERVATION PLANS

Texas Administrative Code

TITLE 30	ENVIRONMENTAL QUALITY
PART 1	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 288	WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS
SUBCHAPTER A	WATER CONSERVATION PLANS
RULE §288.1	**Definitions**

The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise.

(1) Agricultural or Agriculture--Any of the following activities:

(A) cultivating the soil to produce crops for human food, animal feed, or planting seed or for the production of fibers;

(B) the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or non-soil media by a nursery grower;

(C) raising, feeding, or keeping animals for breeding purposes or for the production of food or fiber, leather, pelts, or other tangible products having a commercial value;

(D) raising or keeping equine animals;

(E) wildlife management; and

(F) planting cover crops, including cover crops cultivated for transplantation, or leaving land idle for the purpose of participating in any governmental program or normal crop or livestock rotation procedure.

(2) Agricultural use--Any use or activity involving agriculture, including irrigation.

(3) Best management practices--Voluntary efficiency measures that save a quantifiable amount of water, either directly or indirectly, and that can be implemented within a specific time frame.

(4) Conservation--Those practices, techniques, and technologies 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 water supply is made available for future or alternative uses.

(5) Commercial use--The use of water by a place of business, such as a hotel, restaurant, or office building. This does not include multi-family residences or agricultural, industrial, or institutional users.

(6) Drought contingency plan--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).

(7) Industrial use--The use of water in processes designed to convert materials of a lower order of value into forms having greater usability and commercial value, and the development of power by means other than hydroelectric, but does not include agricultural use.

(8) Institutional use--The use of water by an establishment dedicated to public service, such as a school, university, church, hospital, nursing home, prison or government facility. All facilities dedicated to public service are considered institutional regardless of ownership.

(9) Irrigation--The agricultural use of water for the irrigation of crops, trees, and pastureland, including, but not limited to, golf courses and parks which do not receive water from a public water supplier.

(10) Irrigation water use efficiency--The percentage of that amount of irrigation water which is beneficially used by agriculture crops or other vegetation relative to the amount of water diverted from the source(s) of supply. Beneficial uses of water for irrigation purposes include, but are not limited to, evapotranspiration needs for vegetative maintenance and growth, salinity management, and leaching requirements associated with irrigation.

(11) Mining use--The use of water for mining processes including hydraulic use, drilling, washing sand and gravel, and oil field re-pressuring.

(12) Municipal use--The use of potable water provided by a public water supplier as well as the use of sewage effluent for residential, commercial, industrial, agricultural, institutional, and wholesale uses.

(13) Nursery grower--A person engaged in the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or nonsoil media, who grows more than 50% of the products that the person either sells or leases, regardless of the variety sold, leased, or grown. For the purpose of this definition, grow means the actual cultivation or propagation of the product beyond the mere holding or maintaining of the item prior to sale or lease, and typically includes activities associated with the production or multiplying of stock such as the development of new plants from cuttings, grafts, plugs, or seedlings.

(14) Pollution--The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property, or to the public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

(15) Public water supplier--An individual or entity that supplies water to the public for human consumption.

(16) Regional water planning group--A group established by the Texas Water Development Board to prepare a regional water plan under Texas Water Code, §16.053.

(17) Residential gallons per capita per day--The total gallons sold for residential use by a public water supplier divided by the residential population served and then divided by the number of days in the year.

(18) Residential use--The use of water that is billed to single and multi-family residences, which applies to indoor and outdoor uses.

(19) Retail public water supplier--An individual or entity that for compensation supplies water to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants when that water is not resold to or used by others.

(20) Reuse--The authorized use for one or more beneficial purposes of use of water that remains unconsumed after the water is used for the original purpose of use and before that water is either disposed of or discharged or otherwise allowed to flow into a watercourse, lake, or other body of state-owned water.

(21) Total use--The volume of raw or potable water provided by a public water supplier to billed customer sectors or nonrevenue uses and the volume lost during conveyance, treatment, or transmission of that water.

(22) Total gallons per capita per day (GPCD)--The total amount of water diverted and/or pumped for potable use divided by the total permanent population divided by the days of the year. Diversion volumes of reuse as defined in this chapter shall be credited against total diversion volumes for the purposes of calculating GPCD for targets and goals.

(23) Water conservation coordinator--The person designated by a retail public water supplier that is responsible for implementing a water conservation plan.

(24) Water conservation plan--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).

(25) Wholesale public water supplier--An individual or entity that for compensation supplies water to another for resale to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants as an incident of that employee service or tenancy when that water is not resold to or used by others, or an individual or entity that conveys water to another individual or entity, but does not own the right to the water which is conveyed, whether or not for a delivery fee.

(26) Wholesale use--Water sold from one entity or public water supplier to other retail water purveyors for resale to individual customers.

Source Note: The provisions of this §288.1 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective August 15, 2002, 27 TexReg 7146; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective January 10, 2008, 33 TexReg 193; amended to be effective December 6, 2012, 37 TexReg 9515; amended to be effective August 16, 2018, 43 TexReg 5218

Texas Administrative Code

TITLE 30	ENVIRONMENTAL QUALITY
PART 1	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 288	WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS
SUBCHAPTER A	WATER CONSERVATION PLANS
RULE §288.2	**Water Conservation Plans for Municipal Uses by Public Water Suppliers**

(a) A water conservation plan for municipal water use by public water suppliers must provide information in response to the following. If the plan does not provide information for each requirement, the public water supplier shall include in the plan an explanation of why the requirement is not applicable.

(1) Minimum requirements. All water conservation plans for municipal uses by public water suppliers must include the following elements:

(A) a utility profile in accordance with the Texas Water Use Methodology, including, but not limited to, information regarding population and customer data, water use data (including total gallons per capita per day (GPCD) and residential GPCD), water supply system data, and wastewater system data;

(B) a record management system which allows for the classification of water sales and uses into the most detailed level of water use data currently available to it, including, if possible, the sectors listed in clauses (i) - (vi) of this subparagraph. Any new billing system purchased by a public water supplier must be capable of reporting detailed water use data as described in clauses (i) - (vi) of this subparagraph:

(i) residential;

(I) single family;

(II) multi-family;

(ii) commercial;

(iii) institutional;

(iv) industrial;

(v) agricultural; and,

(vi) wholesale.

(C) specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal use in total GPCD and residential GPCD. The goals established by a public water supplier under this subparagraph are not enforceable;

(D) metering device(s), within an accuracy of plus or minus 5.0% in order to measure and account for the amount of water diverted from the source of supply;

(E) a program for universal metering of both customer and public uses of water, for meter testing and repair, and for periodic meter replacement;

(F) measures to determine and control water loss (for example, periodic visual inspections along distribution lines; annual or monthly audit of the water system to determine illegal connections; abandoned services; etc.);

(G) a program of continuing public education and information regarding water conservation;

(H) a water rate structure which is not "promotional," i.e., a rate structure which is cost-based and which does not encourage the excessive use of water;

(I) a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin in order to optimize available water supplies; and

(J) a means of implementation and enforcement which shall be evidenced by:

(i) a copy of the ordinance, resolution, or tariff indicating official adoption of the water conservation plan by the water supplier; and

(ii) a description of the authority by which the water supplier will implement and enforce the conservation plan; and

(K) documentation of coordination with the regional water planning groups for the service area of the public water supplier in order to ensure consistency with the appropriate approved regional water plans.

(2) Additional content requirements. Water conservation plans for municipal uses by public drinking water suppliers serving a current population of 5,000 or more and/or a projected population of 5,000 or more within the next ten years subsequent to the effective date of the plan must include the following elements:

(A) a program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system;

(B) a requirement in every wholesale water supply contract entered into or renewed after official adoption of the plan (by either ordinance, resolution, or tariff), and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements in this chapter. If the customer intends to resell the water, the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with the provisions of this chapter.

(3) Additional conservation strategies. Any combination of the following strategies shall be selected by the water supplier, in addition to the minimum requirements in paragraphs (1) and (2) of this subsection, if they are necessary to achieve the stated water conservation goals of the plan. The commission may require that any of the following strategies be implemented by the water supplier if the commission determines that the strategy is necessary to achieve the goals of the water conservation plan:

(A) conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;

(B) adoption of ordinances, plumbing codes, and/or rules requiring water-conserving plumbing fixtures to be installed in new structures and existing structures undergoing substantial modification or addition;

(C) a program for the replacement or retrofit of water-conserving plumbing fixtures in existing structures;

(D) reuse and/or recycling of wastewater and/or graywater;

(E) a program for pressure control and/or reduction in the distribution system and/or for customer connections;

(F) a program and/or ordinance(s) for landscape water management;

(G) a method for monitoring the effectiveness and efficiency of the water conservation plan; and

(H) any other water conservation practice, method, or technique which the water supplier shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

(b) A water conservation plan prepared in accordance with 31 TAC §363.15 (relating to Required Water Conservation Plan) of the Texas Water Development Board and substantially meeting the requirements of this section and other applicable commission rules may be submitted to meet application requirements in accordance with a memorandum of understanding between the commission and the Texas Water Development Board.

(c) A public water supplier for municipal use shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or updated information. The public water supplier for municipal use shall review and update the next revision of its water conservation plan every five years to coincide with the regional water planning group.

Source Note: The provisions of this §288.2 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective December 6, 2012, 37 TexReg 9515

APPENDIX C

TCEQ WATER UTILITY PROFILE

Texas Commission on Environmental Quality

Water Availability Division
Mc-160, P.O. Box 13087 Austin, Texas 78711-3087
Telephone (512) 239-4600, Fax (512) 239-2214

Utility Profile and Water Conservation Plan Requirements For Municipal Water Use By Retail Public Water Suppliers

This form is provided to assist retail public water suppliers in water conservation plan assistance in completing this form or in developing your plan, please contact the Conservation staff of the Resource Protection Team in the Water Availability Division at (512) 239-4600.

Water users can find best management practices (BMPs) at the Texas Water Development Board's website http://www.twdb.texas.gov/conservation/BMPs/index.asp. The practices are broken out into sectors such as Agriculture, Commercial and Institutional, Industrial, Municipal and Wholesale. BMPs are voluntary measures that water users use to develop the required components of Title 30, Texas Administrative Code, Chapter 288. BMPs can also be implemented in addition to the rule requirements to achieve water conservation goals.

Contact Information

Name of Water Supplier:	Rose Hill Special Utility District	
Address:	1377 CR 274, Terrell TX 75160	
Telephone Number:	(972) 932-3077	Fax: ( )
Water Right No.(s):	n/a	
Regional Water Planning Group:	C	
Water Conservation Coordinator (or person responsible for implementing conservation program):	Nanci Essary	Phone: (972) 932-3077
Form Completed by:	Nanci Essary	
Title:	General Manager	
Signature:	Nanci Essary	Date: 05/24/2022

A water conservation plan for municipal use by retail public water suppliers must include the following requirements (as detailed in 30 TAC Section 288.2). If the plan does not provide information for each requirement, you must include in the plan an explanation of why the requirement is not applicable.

I. POPULATION AND CUSTOMER DATA

A. Population and Service Area Data

1. Attach a copy of your service-area map and, if applicable, a copy of your Certificate of Convenience and Necessity (CCN).
2. Service area size (in square miles): 40.6
   (Please attach a copy of service-area map)
3. Current population of service area: 4,674
4. Current population served for:
   a. Water 4,674
   b. Wastewater 0
5. Population served for previous five years:

Year	Population
2021	4,644
2020	4,548
2019	4,482
2018	4,356
2017	4,320

6. Projected population for service area in the following decades:

Year	Population
2030	5,628
2040	6,968
2050	8,627
2060	10,681
2070	13,224

7. List source or method for the calculation of current and projected population size.

Historical Rose Hill SUD growth for the past 3 years at 2.16% average per year.

B. Customer Data

Senate Bill 181 requires that uniform consistent methodologies for calculating water use and conservation be developed and available to retail water providers and certain other water use sectors as a guide for preparation of water use reports, water conservation plans, and reports on water conservation efforts. A water system must provide the most detailed level of customer

and water use data available to it, however, any new billing system purchased must be capable of reporting data for each of the sectors listed below. More guidance can be found at: http://www.twdb.texas.gov/conservation/doc/SB181Guidance.pdf

1. Quantified 5-year and 10-year goals for water savings:

	Historic 5-year Average	*Baseline*	*5-year goal for year 2027*	*10-year goal for year 2032*
Total GPCD	69.05	66.82	67.57	66.09
Residential GPCD	54.65	54.49	53.76	52.87
Water Loss GPCD	3.89	2.68	3.50	3.11
Water Loss Percentage	5.61%	4.01%	5.18%	4.71%

Notes:
Total GPCD = (Total Gallons in System ÷ Permanent Population) ÷ 365
Residential GPCD = (Gallons Used for Residential Use ÷ Residential Population) ÷ 365
Water Loss GPCD = (Total Water Loss ÷ Permanent Population) ÷ 365
Water Loss Percentage = (Total Water Loss ÷ Total Gallons in System) x 100; or (Water Loss GPCD ÷ Total GPCD) x 100

2. Current number of active connections. Check whether multi-family service is counted as ☒ Residential or ☐ Commercial?

Treated Water Users	*Metered*	*Non-Metered*	*Totals*
Residential	1,649	0	1,649
Single-Family	1,649	0	1,649
Multi-Family	0	0	0
Commercial	36	0	36
Industrial/Mining	0	0	0
Institutional	0	0	0
Agriculture	0	0	0
Other/Wholesale	0	0	0

3. List the number of new connections per year for most recent three years.

Year	2021	2020	2019
Treated Water Users			
Residential	92	66	125
Single-Family	92	66	125
Multi-Family	0	0	0
Commercial	4	0	1
Industrial/Mining	0	0	0
Institutional	0	0	0

Agriculture	0	0	0
Other/Wholesale	0	0	0

4. List of annual water use for the five highest volume customers.

Customer	*Use (1,000 gal/year)*	*Treated or Raw Water*
Terrell RV Park	998.750	Treated
Southern Cross of Terrell LLC	464.740	Treated
Huneycutt, Norman	428.140	Treated
Carney, Richard	377.680	Treated
Mean Machine Ranch, LLC	371.430	Treated

II. WATER USE DATA FOR SERVICE AREA

A. Water Accounting Data

1. List the amount of water use for the previous five years (in 1,000 gallons).

Indicate whether this is ☐ diverted or ☒ treated water.

Year	2021	2020	2019	2018	2017
Month					
January	6,290,000	7,428,000	6,993,000	8,352,000	6,917,000
February	10,260,000	5,814,000	6,649,000	7,076,000	5,850,000
March	7,640,000	9,055,000	7,896,000	8,950,000	6,738,000
April	8,650,000	8,773,000	7,012,000	8,493,000	6,982,000
May	7,620,000	7,553,000	8,063,000	10,385,000	8,446,000
June	10,060,000	11,341,000	7,107,000	12,531,000	7,639,000
July	10,150,000	12,821,000	12,639,000	14,851,000	9,752,000
August	11,590,000	15,841,000	18,430,000	12,437,000	10,382,000
September	11,380,000	9,426,000	15,335,000	9,098,000	11,746,000
October	10,860,000	10,523,000	10,573,000	8,294,000	9,540,000
November	8,800,000	7,819,000	8,401,000	8,095,000	9,285,000
December	9,970,000	8,489,000	6,902,000	8,074,000	9,155,000
Totals	**113,270,000**	**114,883,000**	**116,000,000**	**116,636,000**	**102,432,000**

2. Describe how the above figures were determined (e.g, from a master meter located at the point of a diversion from the source or located at a point where raw water enters the treatment plant, or from water sales).

   Master meters at the purchase point.

3. Amount of water (in 1,000 gallons) delivered/sold as recorded by the following account types for the past five years.

Year	2021	2020	2019	2018	2017
Account Types					
Residential	95,597,000	96,011,000	87,409,000	87,290,000	82,946,000
Single-Family	95,597,000	96,011,000	87,409,000	87,290,000	82,946,000
Multi-Family	0	0	0	0	0
Commercial	3,237,000	2,837,000	3,197,000	3,095,000	2,810,000
Industrial/Mining	0	0	0	0	0
Institutional	0	0	0	0	0
Agriculture	0	0	0	0	0
Other/Wholesale	0	0	0	0	0

4. List the previous records for water loss for the past five years (the difference between water diverted or treated and water delivered or sold).

Year	*Amount (gallons)*	*Percent %*
2021	4,545,000	4.01%
2020	6,489,000	5.65%
2019	6,619,000	5.71%
2018	8,149,000	6.99%
2017	5,833,000	5.69%

B. Projected Water Demands

1. If applicable, attach or cite projected water supply demands from the applicable Regional Water Planning Group for the next ten years using information such as population trends, historical water use, and economic growth in the service area over the next ten years and any additional water supply requirements from such growth.

   TWDB - 2021 Regional Water Plan - Water Demand Projections for 2020-2070
   Municipal Water User Group Summary in Acre-Feet – in year 2030 will be 523 (170,420,296 gallons).

III. WATER SUPPLY SYSTEM DATA

A. Water Supply Sources

1. List all current water supply sources and the amounts authorized (in acre feet) with each.

Water Type	*Source*	*Amount Authorized*
Surface Water	NTWMD (purchased treated)	n/a
Groundwater	n/a	n/a
Other	n/a	n/a

B. Treatment and Distribution System (if providing treated water)

1. Design daily capacity of system (MGD): 1.1246 MGD
2. Storage capacity (MGD):
   a. Elevated 0.40 MGD
   b. Ground 0.50 MGD
3. If surface water, do you recycle filter backwash to the head of the plant?

☐ Yes ☐ No If yes, approximate amount (MGD):

APPENDIX D

NTMWD MEMBER CITY AND CUSTOMER ANNUAL WATER CONSERVATION REPORT

Insert Report Here

APPENDIX E

CONSIDERATIONS FOR LANDSCAPE WATER MANAGEMENT REGULATIONS

a) Purpose

The purpose of these proposed landscape water management regulations is to provide a consistent mechanism for preventing the waste of water resources. To enact these provisions, entities must verify legal authority to adopt such provisions, and must promulgate valid rules, orders, or ordinances.

b) Required Measures

The following landscape water conservation measures are required to be included in the landscape management regulations adopted and enforced in this plan.

(1) Lawn and Landscape Irrigation Restrictions

(a) A person commits an offense if the person irrigates, waters, or knowingly or recklessly causes or allows the irrigation or watering of any lawn or landscape located on any property owned, leased, or managed by the person between the hours of 10:00 a.m. and 6:00 p.m. from April 1 through October 31 of any year.

(b) A person commits an offense if the person knowingly or recklessly irrigates, waters, or causes or allows the irrigation or watering of lawn or landscape located on any property owned, leased, or managed by that person in such a manner that causes:

(i) over-watering lawn or landscape, such that a constant stream of water overflows from the lawn or landscape onto a street or other drainage area; or

(ii) irrigating lawn or landscape during any form of precipitation or freezing conditions. This restriction applies to all forms of irrigation, including automatic sprinkler systems; or

(iii) the irrigation of impervious surfaces or other non-irrigated areas, wind driven water drift taken into consideration.

(c) A person commits an offense if the person knowingly or recklessly allows the irrigation or watering of any lawn or landscape located on any property owned, leased, or managed by the person more than two days per week.

(2) Rain and Freeze Sensors and/or ET or Smart Controllers

Any new irrigation system installed on or after November 4, 2004, must be equipped with rain and freeze sensing devices and/or ET or Smart controllers in compliance with state design and installation regulations.

(a) A person commits an offense on property owned, leased or managed if the person:

(i) knowingly or recklessly installs or allows the installation of new irrigation systems in violation of Subsection B.2.a; or

(ii) knowingly or recklessly operates or allows the operation of an irrigation system that does not comply with Subsection B.2.a.

(3) Filling or Refilling of Ponds

A person commits an offense if the person knowingly or recklessly fills or refills any natural or manmade pond located on any property owned, leased, or managed by the person by introducing any treated water to fill or refill the pond. This does not restrict the filling or maintenance of pond levels by the effect of natural water runoff or the introduction of well water into the pond. A pond is considered to be a still body of water with a surface area of 500 square feet or more.

(4) Washing of Vehicles

A person commits an offense if the person knowingly or recklessly washes a vehicle without using a water hose with a shut-off nozzle on any property owned, leased, or managed by the person.

(5) Enforcement

Each entity will develop its own set of penalties for violations of the ordinance, order, or resolution. The ordinance, order, or resolution will designate the responsible official(s) to implement and enforce the landscape water conservation measures.

c) Recommended Measures

(1) Lawn and Landscape Irrigation Restrictions

(a) A person commits an offense if the person knowingly or recklessly operates a lawn or irrigation system or device on property that the person owns, leases, or manages that:

(i) has broken or missing sprinkler head(s); or

(ii) has not been properly maintained to prevent the waste of water.

(b) A person commits an offense if the person knowingly or recklessly over seeds a lawn with rye or winter grass on property that the person owns, leases, or manages. Golf courses and public athletic fields are exempt from this restriction.

(c) All new athletic fields must have separate irrigation systems that are capable of irrigating the playing fields separately from other open spaces.

(2) Rain and Freeze Sensors

(a) Existing irrigation systems must be retrofitted with similar rain and freeze sensors and be capable of multiprogramming within 5 years.

d) Variances

(1) In special cases, variances may be granted to persons demonstrating extreme hardship or need. Variances may be granted under the following circumstances:

(a) the applicant must sign a compliance agreement agreeing to irrigate or water the lawn and/or landscape only in the amount and manner permitted by the variance; and

(b) the variance must not cause an immediate significant reduction to the water supply; and

(c) the extreme hardship or need requiring the variance must relate to the health, safety, or welfare of the person making the request; and

(d) the health, safety, and welfare of the public and the person making the request must not be adversely affected by the requested variance.

(2) A variance will be revoked upon a finding that:

(a) the applicant can no longer demonstrate extreme hardship or need; or

(b) the terms of the compliance agreement are violated; or

(c) the health, safety, or welfare of the public or other persons requires revocation.

APPENDIX F

LETTER TO REGION C WATER PLANNING GROUPS

APPENDIX F

LETTER TO REGION C WATER PLANNING GROUPS

Rose Hill SUD

May 24, 2022

Region C Water Planning Group
c/o Trinity River Authority
P.O. Box 60
Arlington, TX 76004

Subject: Rose Hill Special Utility District Water Conservation Plan

Dear Ms. Puckett:

Enclosed please find a copy of the recently updated Water Conservation Plan for the Rose Hill Special Utility District. I am submitting a copy of this plan to the Region C Water Planning Group in accordance with the Texas Water Development Board and Texas Commission on Environmental Quality rules. The Board of the Rose Hill Special Utility District adopted the plan on May 24, 2022

Sincerely,

Nanci Essary

Nanci Essary, General Manager
Rose Hill SUD
1377 CR 274
Terrell, TX 75160
972-932-3077

APPENDIX G

ADOPTION OF WATER CONSERVATION PLAN

APPENDIX G

ADOPTION OF WATER CONSERVATION PLAN

Rose Hill Special Utility District Order Adopting Water Conservation Plan

Order No. 2022-05

AN ORDER ADOPTING A WATER CONSERVATION PLAN FOR THE ROSE HILL SPECIAL UTILITY DISTRICT TO PROMOTE THE RESPONSIBLE USE OF WATER AND TO PROVIDE FOR PENALTIES AND/OR THE DISCONNECTION OF WATER SERVICE FOR NONCOMPLIANCE WITH THE PROVISIONS OF THE WATER CONSERVATION PLAN.

WHEREAS, the Rose Hill Special Utility District (the "District"), recognizes that the amount of water available to its water customers is limited; and

WHEREAS, the recognizes that due to natural limitations, drought conditions, system failures and other acts of God which may occur, the District cannot guarantee an uninterrupted water supply for all purposes at all times; and

WHEREAS, the Water Code and the regulations of the Texas Commission on Environmental Quality (the "Commission") require that the District adopt a Water Conservation Plan; and

WHEREAS, the District has determined an urgent need in the best interest of the public to adopt a Water Conservation Plan; and

WHEREAS, pursuant to Chapter 65 of the Water Code, the District is authorized to adopt such policies necessary to accomplish the purposes for which it was created, including but not limited to the preservation and conservation of water resources; and

WHEREAS, the Board of Directors of the District desires to adopt the North Texas Municipal Water District (the "NTMWD") Model Water Conservation Plan as official District policy for the conservation of water.

NOW THEREFORE, BE IT ORDERED BY THE BOARD OF DIRECTORS OF THE ROSE HILL SPECIAL UTILITY DISTRICT THAT:

Section 1. The Board of Directors hereby approves and adopts the NTMWD Model Water Conservation Plan (the "Plan"), attached hereto as Addendum A. The District commits to implement the requirements and procedures set forth in the adopted Plan.

Section 2. Any customer, defined pursuant to 30 Tex. Admin. Code Chapter 291, failing to comply with the provisions of the Plan shall be subject to a monetary fine as allowed by law, and/or discontinuance of water service by the District. Proof of a culpable mental state is not required for a conviction of an offense under this section. Each day a customer fails to comply with the Plan

is a separate violation. The District's authority to seek injunctive or other civil relief available under the law is not limited by this section.

Section 3. The Board of Directors does hereby find and declare that sufficient written notice of the date, hour, place and subject of the meeting adopting this Order was posted at a designated place convenient to the public for the time required by law preceding the meeting, that such place of posting was readily accessible at all times to the general public, and that all of the foregoing was done as required by law at all times during which this Order and the subject matter thereof has been discussed, considered and formally acted upon. The Board of Directors further ratifies, approves and confirms such written notice and the posting thereof.

Section 4. The General Manager or his/her designee is hereby directed to file a copy of the Plan and this Ordinance with the Commission in accordance with Title 30, Chapter 288 of the Texas Administrative Code.

Section 5. Should any paragraph, sentence, clause, phrase or word of this Order be declared unconstitutional or invalid for any reason, the remainder of this Order shall not be affected.

Section 6. Order No. 2011-01, adopted on August 23, 2011 is hereby repealed.

Approved and adopted by the Board of Directors on this 24th day of May, 2022.

Randy Reznicek
President, Board of Directors
Rose Hill Special Utility District

Attest:

Harold Ross
Secretary/Treasurer, Board of Directors
Rose Hill Special Utility District

APPENDIX H

ILLEGAL WATER CONNECTIONS AND THEFT OF WATER

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ILLEGAL WATER CONNECTIONS AND THEFT OF WATER

Rose Hill Special Utility District Order
Pertaining to Illegal Water Connections and Theft of Water

Order No. 2022-06

AN ORDER PERTAINING TO ILLEGAL WATER CONNECTIONS AND/OR THE THEFT OF WATER RELATED TO THE WATER SUPPLY FOR THE ROSE HILL SPECIAL UTILITY DISTRICT.

WHEREAS, the Rose Hill Special Utility District (the "District"), recognizes that the amount of water available to its water customers is limited; and

WHEREAS, pursuant to Chapter 65 of the Water Code, the District is authorized to adopt such policies necessary to preserve and conserve available water supplies; and

WHEREAS, the District seeks to adopt an order pertaining to illegal water connections and theft of water.

NOW THEREFORE, BE IT ORDERED BY THE BOARD OF DIRECTORS OF THE ROSE HILL SPECIAL UTILITY DISTRICT THAT:

Section 1. The Board of Directors hereby approves and adopts this Order as described herein.

Section 2. A person commits an offense of theft of water by any of the following actions:

(a) A person may not knowingly tamper, connect to, or alter any component of the District's water system including valves, meters, meter boxes, lids, hydrants, lines, pump stations, ground storage tanks, and elevated storage tanks. This shall include direct or indirect efforts to initiate or restore water service without the approval of the District.

(b) If, without the written consent of the District, the person knowingly causes, suffers or allows the initiation or restoration of water service to the property after termination of service(s). For purposes of this section, it shall be assumed that the owner, occupant, or person in control of the property caused, suffered, or allowed the unlawful initiation or restoration of service(s).

(c) A person may not knowingly make or cause a false report to be made to the District of a reading of a water meter installed for metered billing.

(d) A person commits a separate offense each day that the person performs an act prohibited by this section or fails to perform an act required by this section.

Section 3. An offense under this Order is punishable in accordance with the District's rules and policies regarding rates and may result in disconnection of service.

Section 4. The Board of Directors does hereby find and declare that sufficient written notice of the date, hour, place and subject of the meeting considering this Order was posted at a designated place convenient to the public for the time required by law preceding this meeting, that such place of posting was readily accessible at all times to the general public, and that all of the foregoing was done as required by law at all times during which this Order, and the subject matter thereof has been discussed, considered and formally acted upon. The Board of Directors further ratifies, approves and confirms such written notice and the posting thereof.

Section 4. The General Manager or his/her designee is hereby directed to file a copy of the Plan and this Ordinance with the Commission in accordance with Title 30, Chapter 288 of the Texas Administrative Code.

Section 5. Should any paragraph, sentence, clause, phrase or word of this Order be declared unconstitutional or invalid for any reason, the remainder of this Order shall not be affected.

Section 6. Order No. 2011-02A adopted on August 23, 2011, is hereby repealed.

Approved and adopted by the Board of Directors on this 24th day of May, 2022.

Randy Rezineck
President, Board of Directors
Rose Hill Special Utility District

Attest:

Harold Ross
Secretary/Treasurer, Board of Directors
Rose Hill Special Utility District

APPENDIX I

SAMPLE LANDSCAPE ORDINANCE

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SAMPLE LANDSCAPE ORDINANCE

1. PURPOSE

Landscaping is accepted as adding value to property and is in the interest of the general welfare of the District. The provision of landscaped areas also serves to increase the amount of a property that is devoted to pervious surface area which, in turn, helps to reduce the amount of impervious surface area, storm water runoff, and consequent nonpoint pollution in local waterways. Therefore, landscaping is hereafter required of new development, including single and two family uses. Single and two family use requirements are less in scope than those for other uses such as multi family, commercial, institutional, and industrial development. Landscape requirements for these uses are set forth herein.

IV. SCOPE AND ENFORCEMENT

The standards and criteria contained within this Section are deemed to be minimum standards and shall apply to all new or altered construction occurring within the District exceeding thirty percent (30%) of the original floor and/or site area. Additionally, any use requiring a Conditional Use Provision (CUP) zoning designation must comply with these landscape standards unless special landscaping standards are otherwise provided for in the ordinance establishing the CUP district. The provisions of this Section shall be administered and enforced by the District Manager or his/her designee. If at any time after the issuance of a certificate of occupancy, the approved landscaping is found to be not in conformance with the standards and criteria of this Section, the District Manager (or his/her designee) shall issue notice to the owner, citing the violation and describing what action is required to comply with this Section. The owner, tenant or agent shall have thirty (30) calendar days from date of said notice to establish/restore the landscaping, as required. If the landscaping is not established/restored within the allotted time, then such person shall be in violation of this Ordinance.

V. PERMITS

No permits shall be issued for building, paving, grading or construction until a detailed landscape plan is submitted and approved by the District Manager or his/her designee, along with the site plan and engineering/construction plans. A landscape plan shall be required as part of the site plan submission, as required in Section __. The landscape plan may be shown on the site plan (provided the site plan remains clear and legible) or may be drawn on a separate sheet. Prior to the issuance of a certificate of occupancy for any building or structure, all screening and landscaping shall be in place in accordance with the landscape plan. In any case in which a certificate of occupancy is sought at a season of the year in which the District Manager, or his/her designee, determines that it would be impractical to plant trees, shrubs or groundcover, or to successfully establish turf areas, a temporary certificate of occupancy may be issued provided a letter of agreement from the property owner is submitted that states when the installation shall occur. All landscaping required by the landscaping plan shall be installed within six (6) months of the date of the issuance of the certificate of occupancy.

VI. LANDSCAPE PLAN

Prior to the issuance of a building, paving, grading or construction permit for any use other than single family detached or two family dwellings, a landscape plan shall be submitted to the District Manager, or his/her designee. The District Manager, or his/her designee, shall review such plans and shall approve same if the plans are in accordance with the criteria of these regulations. If the plans are not in conformance, they shall be disapproved and shall be accompanied by a written statement setting forth the changes necessary for compliance. The landscape plan shall be prepared and by a person knowledgeable in plant material usage and landscape design (e.g., landscape architect, landscape contractor, landscape designer, etc.). For all uses other than single and two family uses, the landscape plan shall be sealed by a registered landscape architect and shall contain the following minimum information:

A. Minimum scale of one inch (1") equals fifty feet (50'); show scale in both written and graphic form.

B. Trunk location and caliper size, drip line location, and species of all trees to be preserved. Tree stamps or standard symbols shall not be used unless they indicate true size and location of trees and drip lines.

C. Location of all plant and landscaping material to be used, including plants, paving, benches, screens, fountains, statues, earthen berms, ponds (to include depth of water), topography of site, or other landscape features.

D. Species and common names of all plant materials to be used.

E. Size of all plant material to be used (container size, planted height, etc.)

F. Spacing of plant material where appropriate.

G. Layout and description of irrigation, sprinkler, or water systems including location of water sources.

H. Name and address of the person(s) responsible for the preparation of the landscape plan.

I. North arrow/symbol, and a small map indicating location of the property.

K. Date of the landscape plan.

VII. GENERAL STANDARDS

The following criteria and standards shall apply to landscape materials and installation:

A. All required landscaped open areas shall be completely covered with living plant material or landscape mulch materials such as shredded hardwood mulch or decomposed granite

B. Plant materials shall conform to the standards of the approved plant list for the District and the current edition of the "American Standard for Nursery Stock" (as amended), published by the American Association of Nurserymen. Grass seed, sod and other material shall be clean and free of weeds and noxious pests and insects.

C. Large trees shall have an average spread of crown of greater than fifteen feet (15') at maturity. Trees having a lesser average mature crown of fifteen feet (15') may be substituted by grouping the same so as to create the equivalent of fifteen feet (15') of crown

spread. Large trees shall be a minimum of three inches (3") in caliper measured six inches (6") above the ground and ten feet (10') in height at time of planting. Small trees shall be a minimum of two inches (2") in caliper measured six inches (6") above the ground and eight feet (8') In height at time of planting.

D. Shrubs not of a dwarf variety shall be a minimum of two feet (2') in height when measured immediately after planting. Hedges, where installed for screening purposes, shall be planted and maintained so as to form a continuous, unbroken, solid visual screen which will be six feet (6') high within three (3) years after time of planting (except for parking lot/headlight screens, which shall form a continuous, solid visual screen three feet high within two years after planting).

E. Vines not intended as ground cover shall be a minimum of two feet (2') in height immediately after planting and may be used in conjunction with fences, screens, or walls to meet landscape screening requirements as set forth.

F. Grass areas shall be sodded, plugged, sprigged, hydro mulched and/or seeded, except that solid sod shall be used in swales, earthen berms or other areas subject to erosion.

G. Ground covers used in lieu of grass in whole and in part shall be planted in such a manner as to present a finished appearance and complete coverage within one (1) year of planting.

H. All automatic, underground irrigation system shall have freeze and rain sensors to prevent watering at inappropriate times. Landscaped areas having less than four (4) feet in width shall be irrigated by underground tubing or other capillary system but not by aboveground spray. All required landscape planting shall be required to be maintained in a healthy, living and growing condition. Irrigation equipment (except for controllers and weather stations) shall not be visible from public streets or walkways.

I. Earthen berms shall have side slopes not to exceed 33.3 percent (three feet (3') of horizontal distance for each one foot (1') of vertical height). All berms shall contain necessary drainage provisions as may be required by the District's Engineer.

VIII. MINIMUM LANDSCAPING REQUIREMENTS FOR ALL USES OTHER THAN SINGLE- AND TWO-FAMILY RESIDENTIAL DEVELOPMENTS

A. For all uses other than single and two-family uses, at least twenty percent (20%) of the street yard shall be permanently landscaped area. The street yard shall be defined as the area between the building front and the front property line. For gasoline service stations, the requirement is a minimum of fifteen percent (15%) landscaped area for the entire site, including a six hundred (600) square foot landscaped area at the street intersection corner (if any), which can be counted toward the fifteen percent (15%) requirement.

B. A minimum fifteen foot (15') landscape buffer adjacent to the right-of-way of any major thoroughfare is required. Corner lots fronting two (2) major thoroughfares shall provide the appropriate required landscape buffer on both street frontages. All other street frontages shall observe a minimum ten foot (10') landscape buffer. One (1) large shade tree shall be required per forty (40) linear feet (or portion thereof) of street frontage. Trees may be grouped or clustered to facilitate site design and to provide an aesthetically pleasing, natural looking planting arrangement. The landscaped buffer area may be included in the required street yard landscape area percentage.

C. Landscape areas within parking lots should generally be at least one parking space in size, with no landscape area less than fifty (50) square feet in area. Landscape areas shall be no less than five feet (5') wide and shall equal a total of at least sixteen (16) square feet per parking space. There shall be a landscaped area with at least one (1) large tree within sixty feet (60') of every parking space. There shall be a minimum of one (1) large tree planted in the parking area for every ten (10) parking spaces for parking lots having more than twenty (20) spaces. Within parking lots, landscape areas should be located to define parking areas and to assist in clarifying appropriate circulation patterns. A landscape island shall be located at the terminus of all parking rows and shall contain at least one tree. All landscape areas shall be protected by a monolithic concrete curb or wheel stops, and shall remain free of trash, litter, and car bumper overhangs. The area of parking lot landscaping islands shall be in addition to the required street yard landscape area percentage.

D. All existing trees which are to be preserved shall be provided with undisturbed, permeable surface area under and extending outward to the existing dripline of the tree. All new trees shall be provided with a permeable surface under the dripline a minimum of five feet (5') by five feet (5').

E. A minimum of fifty percent (50%) of the total trees required for the property shall be large shade trees as specified on the District's approved plant list. Large trees shall not be used under existing or proposed overhead utility lines.

F. Necessary driveways from the public right-of-way shall be permitted through all required landscaping in accordance with District regulations.

IX. MINIMUM LANDSCAPING REQUIREMENTS FOR SINGLE-FAMILY AND TWO- FAMILY DEVELOPMENTS

A. For all single family and two family developments, each residential lot shall be planted with at least one (1) large tree having a minimum caliper of three inches (3") in the front yard; and one (1) large tree having a minimum caliper of three inches (3") in the back yard; and one (1) small tree having a minimum caliper of two inches (2") in the front yard; and two (2) small trees having a minimum caliper of two inches (2") in the back yard. Trees shall be from the District's approved plant list.

B. Only small trees from the District's approved plant list shall be allowed to be planted between the street curb and the right-of-way, unless otherwise specifically approved as part of a Planned Development (PD).

X. SIGHT DISTANCE AND VISIBILITY

Rigid compliance with these landscaping requirements shall not be such as to cause visibility obstructions and/or blind corners at intersections. Whenever an intersection of two (2) or more public right-of-way occurs, a triangular visibility area, as described below, shall be created. Landscape planting within the triangular visibility area shall be designed to provide unobstructed cross visibility at a level between thirty inches (30") and seven feet (7') measured above top of curb. Trees may be permitted in this area provided they are trimmed in such that lateral limbs or foliage extend into the cross visibility area. The triangular areas are:

A. The areas of property on both sides of the intersection of an alley access way and public right-of-way shall have a triangular visibility area with two (2) sides of each triangle being a minimum of ten feet (10') in length from the point of intersection and the third side being a line connecting the ends of the other two (2) sides.

B. The areas of property located at a corner formed by the intersection of two (2) or more public right-of-ways (or a private driveway onto a public road) shall have a triangular visibility area with two (2) sides of each triangle being a minimum of twenty five feet (25') in length along the right-of-way lines (or along the driveway curb line and the road right-of-way line) from the point of the intersection and the third side being a line connecting the ends of the other two (2) sides. In the event other visibility obstructions are apparent in the proposed landscape plan, as determined by the District Manager or his/her designee, the requirements set forth herein may be reduced to the extent to remove the conflict.

XI. SAMPLE RECOMMENDED PLANT LIST

These native/adapted plants exhibit a combination of outstanding characteristics in low water use, low maintenance, disease and insect resistance, and appearance.

Large Trees
Bur Oak
Cedar Elm
Chinquapin Oak
Lacebark Elm
Live Oak
Shumard Oak
Texas Ash

Medium Trees
Lacey Oak
Little Gem Magnolia
Shantung Maple
Texas Pistache

Narrow-Leaf Trees
Arizona Cypress
Bald Cypress
Deodar Cedar
Eastern Red Cedar
Spartan Juniper

Small Trees
Crepe Myrtle
Desert Willow
Possumhaw Holly
Redbud
Savannah Holly
Texas Mountain Laurel
Texas Persimmon
Tree Yaupon Holly
Vitex/Chaste Tree

Tall Shrubs
Nellie R. Stevens Holly
Oleander
Wax Myrtle
Yew

Medium/Small Shrubs
Agave
Boxleaf Euonymus
Compact Eleagnus
Compact Texas Sage
Dwarf Burford Holly
Dwarf Yaupon Holly
Dwarf Oleander
Indian Hawthorne
Knock-Out Red/Pink Rose
Lorapetalum
Red Yucca
Sandankwa Viburnum
Softleaf Yucca
Spineless Prickly Pear
Upright Rosemary

Perennials
Autumn Pink/Maroon Sage
Black-Eyed Susan
Blue Plumbago
Gayfeather
Indian Blanket
Purple Coneflower
Russian Sage
Skeletonleaf Goldeneye
Texas Lantana

Ornamental Grasses
Big Muhly
Dwarf Fountain Grass
Mexican Feathergrass

Groundcover/Vines
Carolina Jessamine
Crossvine
Liriope/Giant Liriope
Trailing Rosemary

Turf
Bermuda Grass
Buffalo Grass
Zoysia

APPENDIX J

TCEQ WATER CONSERVATION IMPLEMENTATION REPORT

Note: This report is not applicable to Rose Hill SUD as the district does not meet TCEQ's requirements of:

1. Water Right Holders of 1,000 acre-feet or more for municipal, industrial, and other non-irrigation uses.
2. Water Right Holders of 10,000 acre-feet or more for irrigation uses.