

WATER CONSERVATION PLAN

FOR

TRAVIS COUNTY W.C.&I.D. POINT VENTURE



March 2024

Project #: TRAVI-023-0001

SUBMITTED BY: Trihydro Corporation

5508 Highway 290 West, Suite 201, Austin, TX 78735

PREPARED FOR: Travis County Water Control and Improvement District Point Venture

18606 Venture Drive, Point Venture, TX 78645

SOLUTIONS YOU CAN COUNT ON. PEOPLE YOU CAN TRUST.

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- B. WCID POINT VENTURE SERVICE AREA
- C. TWDB UTILITY PROFILE
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- E. LCRA CONSERVATION LANDSCAPING GUIDELINES

1.0 INTRODUCTION

1.1 PLANNING AREA DESCRIPTION

Travis County Water Control and Improvement District Point Venture (the District) is a political subdivision of the State of Texas and serves the residents of the Village of Point Venture (the Village). The District was created to purchase, construct, operate, and maintain all works, improvements, and facilities necessary for the treatment, supply, and distribution of water, the collection and treatment of sanitary sewer, drainage conveyance, and the disposal of reclaimed water. The District was created on October 14, 1970 by order of the Texas Water Rights Commission, predecessor to the Texas Commission on Environmental Quality (TCEQ) and confirmed on November 27, 1970. The District operates under the provisions set forth in Title 4 Chapters 49 and 51 of the Texas Water Code and TCEQ Chapter 293. The District is a registered public water system in the State of Texas and is listed as Public Water System (PWS) ID No. 2270038. The District provides water to customers in the Village by Certificate of Convenience and Necessity (CCN) No. 10296, as shown in Attachment A.

The District is located on the north shore of Lake Travis in northwestern Travis County, approximately 17 miles northwest of Austin, Texas and approximately 7 miles south of the intersection of Farm-to-Market (FM) Road 1431 and Lohman Ford Road. The District is bounded on the north by Travis County Municipal Utility District (MUD) No. 10 and on the south, east, and west sides by Lake Travis. The entire District lies within the jurisdictional boundaries of the Village. The District's service area is shown in Attachment B. Originally a second family home and vacation destination, the Village overtime is slowly transitioning to primarily a residential and retirement community, covering an area of approximately 1,002 acres with an estimated population of 1,521, per the 2022 U.S. Census Bureau American Community Survey (ACS) 5-Year population estimates. During peak holiday weekends (i.e., Memorial Day & Labor Day) and the summer months of June through August, the District's sees an increase to its water capital use due to favorable conditions for recreational activities on the lake.

1.2 WATER AND WASTEWATER SYSTEM DESCRIPTION

The District withdraws raw water from Lake Travis. The District has an existing contract, effective May 23, 2013, with the Lower Colorado River Authority (LCRA) to purchase and use LCRA's firm raw water for municipal use. This contract allows for a maximum annual authorized diversion of 285 acre-feet per year. The District is currently working with LCRA to increase the authorized withdrawal amount. The raw water is treated at the District's water treatment plant (WTP). Wastewater is treated at the District's wastewater treatment plant (WWTP) and discharged to the Point Venture Property Owner's Association (POA) Golf Course for irrigation.

The existing WTP has a treatment capacity of 0.95 million gallons per day (MGD), which will meet TCEQ requirements at full build-out with no further capacity required. The existing WWTP has a capacity of 0.10 MGD. A project is under construction to build a new 0.15 MGD WWTP. Combing the two plants will result in a total treatment capacity of 0.25 MGD, which will meet TCEQ requirements at full build-out.

The District meters all connections in the service area and monitors the uses. The unaccounted-for losses of water and the meter testing in the District are also accounted for on a monthly basis. For the purpose of this Water Conservation Plan (WCP), the water accounting and use data is utilized up to the end of 2023.

2.0 PLAN GOALS

The District purchases raw water from LCRA and recognizes that there is no guarantee that the required quantity of raw water from Lake Travis will be available at all times. These plans are consistent with the LCRA's Rules for Water Conservation, Emergency Management and Nonpoint Source Pollution Abatement Plans.

2.1 NEEDS

The continual growth of the District has created a need to add water production capacity. A reduction in the rate of consumption will also be pursued. In addition, system losses should be systematically reduced through incorporation of checks and balances along with monitoring the unaccounted-for water losses and meter rework and replacement program. Growth has also increased chances of pollution. With proper training, education, and implementation we can reduce this risk.

2.2 GOALS

The overall goal of the WCP is primarily to achieve resource conservation. The immediate goals are to reduce water system consumption and water loss by five percent (5%) over a five year period. Over ten years, we plan to reduce the unaccounted for water and add more water reuse in order to increase conservation by an additional 5% in (gpcd). Achieving these goals will extend the life of the water facility and protect Texas Water Ways.

A.	System Water Loss Goals
	5 Year 5% Reduction Reduce Water Loss from 17.6% to 16.7%
	10 Year 10% Reduction Reduce Water Loss from 17.6% to 15.8%
B.	Gallons per Capita per Day (gpcd) Total Goals
	5 Year 5% Reduction Reduce Consumption from 146 gpcd to 139 gpcd
	10 Year 10% Reduction Reduce Consumption from 146 gpcd to 132 gpcd
C.	Gallons per Capita per Day (gpcd) Residential Goals
	5 Year 5% Reduction Reduce Consumption from 102 gpcd to 97 gpcd
	10 Year 10% Reduction Reduce Consumption from 102 gpcd to 92 gpcd

3.0 WATER CONSERVATION PLAN ELEMENTS

The District promotes this WCP through public education and information including mail outs with the monthly water bills. Pamphlets are available and offered to everyone at the District's office. These pamphlets cover "Be Water Wise at Home", "Landscape Irrigation", "Mulching and Composting", "Guide to Yard Care" and "Rain Harvesting with Rain Barrels." These pamphlets are made available through the Texas Water Development Board (TWDB), LCRA, and TCEQ's Take Care of Texas.

The District also keeps residents informed of water conservation measures through an email distribution list. In addition, the POA also mails quarterly newsletters to all at the property owners concerning water conservation or any other District information they need to know.

3.1 CONSERVATION ORIENTED WATER RATE STRUCTURE

The District has established water rates that are extremely conservation oriented. Each customer is charged a Base Rate as determined by the size of the meter and a Volume Rate as determined by the actual water usage. Customers shall refer to the District's current rate order for base and volume rates: <u>Amended Rate Order 1-25-2024 - Effective 3-1-2024.pdf</u>. There is no differentiation between residential and commercial rates.

3.2 UNIVERSAL METERING AND METER REPAIR REPLACEMENT

A program for testing, repairing and replacement of the residential and commercial meters throughout the District is continuing. This program along with the conservation plan should reduce the consumption by more than the targeted 10% value.

All meters that did not have flow indicators have been replaced. The District's billing department will notify the manager if there is unusual usage on a particular water meter, in which case the meter is tested for accuracy. If found to be faulty, it is replaced and the meter will be repaired, if possible, for future use. The District's test equipment will only handle the smaller meters, so anything over one inch has to go out for testing and repairs.

The District is also pursuing with upgrading the water meter registers at the Townhomes to be able to identify leaks instantaneously, since the Townhomes are more susceptible to line freezing. This will also allow the District to decrease water losses and track water usages for the Townhomes.

3.3 LEAK DETECTION AND REPAIR PROGRAM

The District completed a water line replacement project for approximately 10,670 feet of water lines. In this 2015 Bond initiative, the District replaced aging 6 inch lines with 8 inch lines and completed mapping of these new lines. In addition, the District upgraded a total of 35 fire hydrant assemblies.

The District also continues to cross-check the Production vs. Consumption in an effort to narrow the gap and eliminate water losses due to leaks and theft of service. Increased citizen awareness in spotting leaks has enhanced this effort.

To further conserve and reduce water loss, the District completes the TWDB's Water Loss Audit every five years to evaluate the water distribution system and determine if water loss control measures are to be implemented.

3.4 WATER CONSERVING LANDSCAPING

The District promotes and recommends LCRA's Landscaping Guidelines for any new or substantially retrofitted landscape, as shown in Attachment E. The District also encourages residents to seek LCRA residential outdoor rebates. LCRA provides rebates of 50 percent of the total cost, up to \$600 per residential property, for irrigation evaluations, retrofitting or replacing irrigation system equipment, new pool filters and covers, aeration, compost and mulch, and soil testing. Information about the rebates may be found at https://www.lcra.org/water/watersmart/.

3.5 WATER DISTRIBUTION SYSTEM AND RESIDENTIAL PRESSURE CONTROL

The water distribution system is designed with two pressure planes. Pressure planes are isolated areas of a distribution system that maintain a specific hydraulic grade for a particular service area. The hydraulic grade of a pressure plane is equal to the water service elevation of a tank servicing the area during static conditions (i.e., no water being pumped through the system). Pressure planes are arranged so that a reasonable range of operating pressures exist in each area. Per TCEQ, reasonable operating pressures range from 35 to 80 pounds per inch (psi). A water master plan was recently completed which recommended the existing Augusta Standpipe serving the Lower Pressure Plane be replaced to address deficiencies in elevated storage requirements and alleviate low pressure problem areas. This recommended improvement would provide a minimum 45 psi to each homeowners' meter box. Additionally, other recommendations included installing a pressure reducing valve assembly and a 6 inch water line to increase fire flow availability within the two pressure planes and to provide psi residual pressures during 1,000 gallons per minute (gpm) fire hydrant flows.

3.6 WATER RECYCLING AND REUSE PROGRAM

The District's WWTP discharges effluent, or reclaimed water, into the existing 2.1 millon gallon (MG) and 3.0 MG effluent storage tanks and two effluent storage ponds at a total capacity of 3.85 acre-feet. The effluent is then pumped

into various distribution lines, spray heads, and field controllers and disposed of onto the POA Golf Course via spray/surface irrigation. The recycling of wastewater effluent is beneficial to the community. Currently, the District is permitted through TCEQ to dispose effluent at a daily average flow not to exceed 100,000 gallons per day onto 48-acres of the golf course, via spray irrigation.

3.7 WATER SAVING PLUMBING CODE

The District follows the Village's adopted International Plumbing Code, 2012 Edition. The Edition includes a section on water conservation and stipulates that all new and rehabilitated structures shall incorporate the water conserving plumbing fixtures outlined in the code. Local plumbers will be encouraged to furnish and install water saving fixtures per the District's plumbing code. These fixtures will include but not be limited to: low-flow water closets and shower heads and spring closing sink faucets.

3.8 REGIONAL WATER PLANNING COORDINATION

The District will provide a copy of this WCP to TWDB Region K Planning Group (Region K) and will coordinate with Region K to complete occasional requests for information to assist in the development of the next water plan.

3.9 MEANS OF IMPLEMENTATION AND ENFORCEMENT

The District will be responsible for implementing the WCP. The District will be responsible for all record keeping and for verifying that the program is working. In conjunction with the WCP, the District will perform the following tasks:

 A. Adoption of a resolution and supporting this WCP and its goals. Resolution included in Attachment D.

3.10 PROVISIONS FOR PERIODIC REVIEW AND EVALUATIONS OF THE WCP

The District will be responsible for preparing and submitting an annual report to the Board. This report will be presented and approved by the Board and forwarded to TWDB for approval. The report shall include:

- A. The effectiveness of the WCP at conserving water.
- B. Public acceptance of the WCP.
- WCP implementation milestone accomplishment.

EXHIBIT A WCID POINT VENTURE CERTIFICATE OF CONVENIENCE AND NECESSITY MAP



CERTIFICATE OF CONVENIENCE AND NECESSITY (CCN) MAP

EXHIBIT B

WCID POINT VENTURE SERVICE AREA

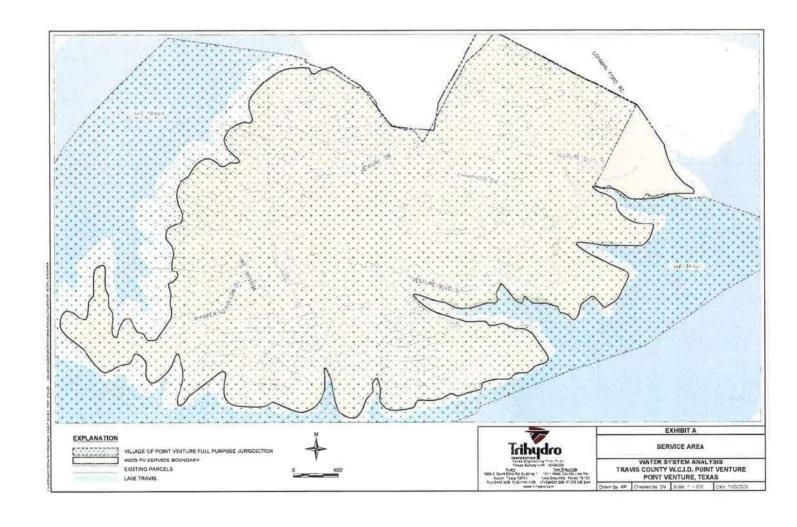


EXHIBIT C

TWDB UTILITY PROFILE

TEXAS WATER DEVELOPMENT BOARD

UTILITY PROFILE

The purpose of the Utility Profile is to assist with water conservation plan development and to ensure that important information and data be considered when preparing your water conservation plan and its target and goals. Please complete all questions as completely and objectively as possible. See *Water Conservation Plan Guidance Checklist* (WRD-022) for information on other water conservation provisions. You may contact the Municipal Water Conservation Unit of the TWDB at 512-936-2391 for assistance.

APPLICANT I	DATA
Name of Utility: TRAVIS COUNTY WCID POINT V	ENTURE
Address & Zip: 18606 VENTURE DR., POINT VEN	TURE, TX 78645
Telephone Number: (512) 267-1641 Fax: (512) 26	7-0818
Form Completed By: <u>David Alexander Vargas, P.E.</u>	Title: Assistant Project Engineer
Signature:	Date: 3/21/2024
Name and Phone Number of Person/Department resprogram:	sponsible for implementing a water conservation
Name: Steve Tabaska, Board President	Phone: 512-267-1641
UTILITY DA	ATA .
Form Completed By: David Alexander Vargas, P.E. Signature: Name and Phone Number of Person/Department resprogram:	7-0818 Title: Assistant Project Engineer Date: 3/21/2024 sponsible for implementing a water conservation Phone: 512-267-1641

I. CUSTOMER DATA

A. Population and Service Area Data

- 1. Please attach a copy of your Certificate of Convenience and Necessity (CCN) from the TCEQ
- 2. Service area size (acres): 1,002

- 3. Current population of service area: 1535
- 4. Current population served by utility: a: water 1535 b: wastewater 1535
- 5. Population served by water utility 6. Projected population for for the previous five years: service area in the following decades:

<u>Year</u>	Population	Year	Population
2019	1031	2030	1638
2020	1260	2040	1638
2021	1531	2050	1638
2022	1521	2060	1638
2023	1530	2070	1638

7. List source(s)/method(s) for the calculation of current and projected population:

Estimated to build out would occur in Year 2029.

There are approximately 1,155 parcels located in the Village.

Using connection data since 2005, U.S. Census ACS Population Data, and a linear future growth trend provides this forecast.

B. Active Connections

1. Current number of active connections by user type. If not a separate classification, check whether multi-family service is counted as Residential X or Commercial

Treated Water Users	Metered	Not-Metered	Total
Residential-Single-Family	922	0	922
Commercial-Irrigation	29	0	29
Commercial	10	0	10
Industrial	0	0	0
Other-District Facilities	12	0	12

2. List the net number of new connections per year for most recent three years:

	<u>2021</u>	<u>2022</u>	<u>2023</u>
Residential-Single-Family	39	25	12
Commercial-Irrigation	0	0	0
Commercial	0	3	0
Industrial	0	0	0
Public	0	0	0
Other-District Facilities	0	0	0

C. High Volume Customers

List annual water use for the five highest volume retail and wholesale customers (Please indicate if treated or raw water delivery.)

	Customer	<u>Use (1000 gal./yr.)</u>	Treated OR Raw
(1)	POA	2794	Treated
(2)	TOWN HOUSE	2454	Treated
(3)	Captain Pete's	1128	Treated
(4)	WfI-H20	526	Treated
(5)	Ameritex	508	Treated

II. WATER USE DATA FOR SERVICE AREA

A. Water Accounting Data

Total

1. Amount of water use for previous five years (in 1,000 gal.):

Please indicate: Diverted Water X Treated Water 2019¹ 2020^{1} 2021 2022 2023 Year 5438 3789 4533 January Х Х 6272 3898 February 3637 Х Х March 4465 4398 4828 X X April 6084 5974 5805 X \mathbf{x} 5196 5634 5406 May Х Х 5748 7925 7363 June Х Х 10246 6891 8895 July Х х 10776 August 7418 8929 X Х 9132 September 7527 7140 Х Х 5983 7545 8284 October Х х November 5522 6100 5397 Х Х 4615 5491 December X х 4536

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

Raw water meter located at the water treatment plant.

X

2. Amount of water (in 1,000 gallons) delivered (sold) as recorded by the following account types (See #1, Appendix A) for the past five years.

71080

74581

81159

Year	Residential	Commercial	<u>Industrial</u>	Wholesale	Other	Total Sold
2023	57668	2144	-		7042	66854
2022	58803	1034	-	. 	6889	66726
2021	53126	570	-	*	6606	60302
2020^{1}	X	X	-	: - :	X	X
2019^{1}	X	X	-	-	x	X

¹2019 and 2020 data unavailable.

- 3. List previous five years records for water loss (See #2, Appendix A)
- 4. List previous five years records for annual peak-to-average daily use ratio (See #3, Appendix A)

Year	Amount (gal.)	<u>Year</u>	Avg. MGD	Peak MGD	Ratio
2023	14,305,000	2023	0.222	0.348	1.568
2022	7,855,000	2022	0.204	0.288	1.412
2021	10,778,000	2021	0.195	0.251	1.287
2020^{1}	X	2020^{1}	X	X	X
2019^{1}	x	2019^{1}	X	X	X

5. Total per capita water use for previous five years (See #4, Appendix A):

<u>Year</u>	Population	Total Diverted (or Treated Less Wholesale Sales (1,000 gal.)	Per Capita (gpcd)
2023	1530	81159	146
2022	1521	74581	135
2021	1531	71080	128
2020^{1}	1260	X	x
2019^{1}	1031	x	X

6. Seasonal water use for the previous five years (in gallons per person per day) (See #5, Appendix A):

		Base Per	Summer Per
Year	Population	Capita Use	Capita Use
2023	1530	102	206
2022	1521	88	188
2021	1531	118	146
2020^{1}	1260	X	X
2019^{1}	1031	X	X

B. Projected Water Demands

Project water supply requirements for at least the next ten years using population trends, historical water use, and economic growth, etc. Indicate sources of data and how projected water demands were determined. Attach additional sheets if necessary.

Average LUEs (living unit equivalents) added to the water system over the past five years from 2018-2022 was 29 LUEs per year. This was used to predict future growth of the water system and determine full build out to occur in 2029.

¹²⁰¹⁹ and 2020 data unavailable.

III. WATER SUPPLY SYSTEM

A. Water Supply Sources

List all current water supply sources and the amounts available with each

	Source	Amount Available
Surface Water:	Lake Travis	285 ac-ft per yr
Groundwater:	N/A	N/A
Contracts:	N/A	N/A
Other:	N/A	N/A

B. Treatment and Distribution System

- 1. Design daily capacity of system: 1.0 MGD
- 2. Storage Capacity: Elevated <u>.06 MG</u>, Ground <u>0.280 MG</u>
- 3. If surface water, do you recycle filter backwash to the head of the plant? Yes X No __. If yes, approximately 0.06 MGD.
- 4. Please describe the water system. Include the number of treatment plants, wells, and storage tanks. If possible, include a sketch of the system layout.

Water system consists of a 700 gpm raw water intake, a 0.50 MGD conventional clarifier and gravity filter media system WTP, a 0.50 Trident packaged adsorption clarifier and mixed media filter WTP, 0.22 MG Clearwell storage, 660 gpm high service pump station discharging into Lower Pressure Plane and feeding into a 0.296 MG standpipe, and a 469 gpm transfer pump station discharging into Upper Pressure Plane and feeding into a 0.05 MG spheroid elevated storage tank.

IV. WASTEWATER UTILITY SYSTEM

A. Wastewater System Data

- 1. Design capacity of wastewater treatment plant(s): <u>0.10 MGD</u>
- Is treated effluent used for irrigation on-site <u>NO</u>, off-site <u>YES</u>, plant washdown <u>YES</u>, or chlorination/dechlorination <u>YES</u>?
 If yes, approximately <u>3.280,000</u> gallons per month. Could this be substituted for potable water now being used in these areas? <u>NO</u>
- 3. Briefly describe the wastewater system(s) of the area serviced by the water utility. Describe how treated wastewater is disposed of. Where applicable, identify treatment plant(s) with the TCEQ name and number, the operator, owner, and, if wastewater is discharged, the receiving stream. Please provide a sketch or map which locates the plant(s) and discharge points or disposal sites.

Approximately 11 miles of pressure sewer collection lines, 3 off-site lift stations, 0.10 MGD conventional activated sludge WWTP, 3 MG welded steel effluent storage tank, 2.1 MG concrete effluent storage tank, 1.255 MG total capacity effluent storage ponds, spray irrigation golf course, and sludge haul-off by WWTS. Currently constructing a new 0.15 MGD conventional activated sludge WWTP including replacement of 2 off-site lift stations, and renovations to the existing 0.10 MGD WWTP.

B. Wastewater Data for Service Area

- 1. Percent of water service area served by wastewater system: 100 %
- 2. Monthly volume treated for previous three years (in 1,000 gallons):

<u>Year</u>	<u>2021</u>	<u> 2022</u>	<u>2023</u>
January	2421	2294	1887
February	2375	2103	1499
March	2561	2508	1701
April	2556	2440	1778
May	3044	2577	1760
June	3094	2535	1788
July	2978	3308	1969
August	2521	3048	1849
September	2510	2324	1939
October	2624	2550	1887
November	2356	2181	1979
December	2392	2084	2003
Total	31432	29952	22039

Appendix A Definitions of Utility Profile Terms

- Residential sales should include water sold to residential (Single and Multi-Family) class customers only.

 Industrial sales should include water sold to manufacturing and other heavy industry.

 Commercial sales should include water sold to all retail businesses, offices, hospitals, etc.

 Wholesale sales should include water sold to another utility for a resale to the public for human consumption.
- 2. Water Loss is the difference between water a utility purchases or produces and the amount of water that it can account for in sales and other known uses for a given period. Water loss can result from:
 - 1. inaccurate or incomplete record keeping;
 - 2. meter error;
 - 3. unmetered uses such as firefighting, line flushing, and water for public buildings and water treatment plants;
 - 4. leaks; and
 - 5. water theft and unauthorized use.
- 3. The **peak-day to average-day ratio** is calculated by dividing the maximum daily pumpage (in million gallons per day) by the average daily pumpage. Average daily pumpage is the total pumpage for the year (as reported in Section IIA1, p. 4) divided by 365 and expressed in million gallons per day.
- 4. Total use in gallons per capita per day is defined as total average daily amount of water diverted or pumped for treatment for potable use by a public water supply system. The calculation is made by dividing the water diverted or pumped for treatment for potable use by population served. Indirect reuse volumes shall be credited against total diversion volumes for the purpose of calculation gallons per capita per day for targets and goals developed for the water conservation plan. Total water use is calculated by subtracting the wholesale sales from the total water diverted or treated (as reported in Section IIA1).
- 5. Seasonal water use is the difference between base (winter) daily per capita use and summer daily per capita use. To calculate the base daily per capita use, average the monthly diversions for December, January, and February, and divide this average by 30. Then divide this figure by the population. To calculate the summer daily per capita use, use the months of June, July, and August.

EXHIBIT D

WCID POINT VENTURE ORDER AND RESOLUTION

RESOLUTION ADOPTING WATER CONSERVATION PLAN

STATE OF TEXAS §

COUNTY OF TRAVIS §

TRAVIS COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT – POINT VENTURE

WHEREAS, Travis County Water Control and Improvement District – Point Venture (the "District") has reviewed the District's current Water Conservation Plan and has determined amendments are needed.

NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF TRAVIS COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT – POINT VENTURE THAT:

Section 1. The Water Conservation Plan attached hereto is hereby approved and adopted by and on behalf of the District and replaces the District's prior Water Conservation Plan as approved on February 16, 2019.

<u>Section 2</u>. The District's agents and consultants are authorized and directed to take all actions necessary to implement the Water Conservation Plan.

ADOPTED this 28th day of March, 2024.

Steve Tabaska

President, Board of Directors

ATTEST:

Manuel Macias

Secretary, Board of Directors



Travis County Water

31/Control & 50-wcp-2024

Improvement

District
Point Venture

EXHIBIT E

LCRA CONSERVATION LANDSCAPING GUIDELINES



Thin soils, hot weather and periodic droughts punctuated by torrential downpours make gardening in Central and South Texas a challenge. Incorporate LCRA's WaterSmart landscape guidelines to plan and create a well-designed, water-efficient landscape.



DESIGN FOR SUCCESS

- Plant turf on no more than 50%, or up to 7,000 square feet, of the landscape.
- Limit automatic spray irrigation for each home or business to 2.5 times the foundation footprint – or a 12,000-square-foot maximum.

PREPARE YOUR SOIL

- Use at least 6 inches of topsoil in planted areas.
- Use native soil from the site, or a fertile, easily crumbled soil/compost blend.
- Incorporate topsoil into 2 to 3 inches of the existing surface to enable water to drain adequately.

IRRIGATE EFFICIENTLY

Automated irrigation systems aren't necessary for a thriving landscape. If you choose to install an automated system, a licensed irrigator must install it according to state regulations.

Irrigation system guidelines:

- Use drip irrigation for landscaped areas.
 Turf may be irrigated with drip, but it is not required.
- Set up separate zones for turf and areas planted with shrubs, trees or perennials.
- Create hydrozones for plants with similar watering needs.
- Design the system to prevent overspray onto hardscapes.
- Equip sprinkler zones at the bottom of sloped terrain along curbs, sidewalks, driveways and other hardscapes with devices to prevent lowhead drainage after the sprinkler zone is turned off. Those devices may include in-line check valves and sprinkler heads with check valves.

Recommended irrigation system features:

- A rain sensor, soil moisture sensor or weather sensor to stop the irrigation cycle during and after a rainfall event.
- In-line pressure regulators, flow control valves or sprinkler devices equipped with pressure regulation stems or nozzles to maintain efficient water flow.
- A controller featuring multiple start times, rain sensor capability, a water budget feature and a non-volatile memory in case of a power outage.

Use low-volume irrigation on median strips, parking islands and landscape areas less than 10 feet wide to avoid runoff and overspray.

CHOOSE PLANTS WISELY

Use native and drought-tolerant plants and turf that require little watering. Avoid invasive plants.

PLANT PREPPING, PLACEMENT AND SPACING

Proper plant placement and spacing is critical to plant health and long-term landscape quality.

- Consider the mature height and width of plants before planting them.
- Dig a hole for a plant or tree two to three times wider than the plant's root ball or plant's container.
- Blend existing soil with compost before sodding or seeding with turf grass.





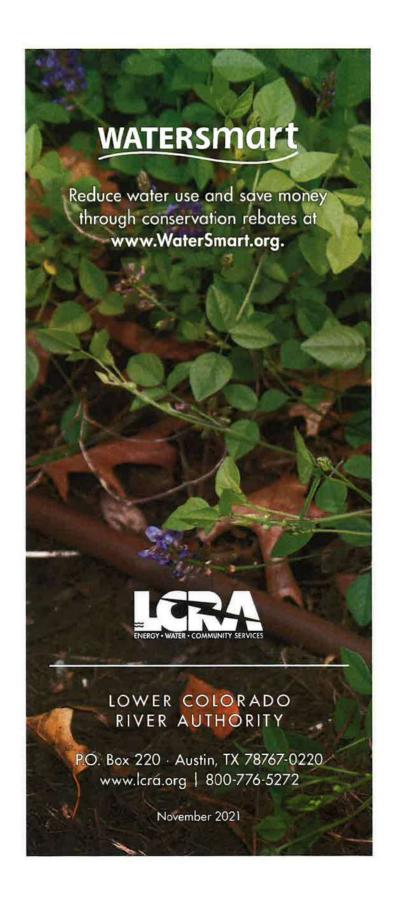
USE MULCH

- Finish areas planted with trees, perennials and shrubs with a 2- to 4-inch deep layer of high quality 50/50 blend of organic mulch and compost.
- Use wood chip mulch free of man-made debris, shredded into coarse pieces from 1 to 3 inches.
- Use rock mulch only temporarily in planting beds until achieving full plant coverage, or as permanent mulch in areas with native shrubs and perennials.



MAINTAIN YOUR LANDSCAPE

- Replenish mulch a minimum of every two years in the fall and spring.
- Aerate turf grass within the first year of construction and twice a year afterward.
- Topdress turf grass with quality compost twice a year.
- Set your automatic irrigation system back to a normal schedule after the establishment period.



CONSERVATION LANDSCAPING GUIDANCE

Conservation landscaping is characterized by deep high-quality soil, less turf and more native plants.

Conservation landscaping:

- Requires less water and can save up to 70% on outdoor watering costs.
- Eliminates the need to apply fungicides, pesticides and synthetic fertilizer.
- Reduces moving and maintenance time by a third.
- Does not require an irrigation system.
- Uses deep, high-quality soil to provide the foundation a healthy landscape needs to grow.
- Uses native and well-adapted plants that thrive in Texas' tough climate.
- Uses a design that ensures proper placement and spacing of plants.





GUIDANCE FOR CONSERVATION LANDSCAPING

Soil

- Minimum soil depth: 6 to 8 inches.
- Use healthy, native soil: a minimum 20% compost and less than 20% clay. Soil should be filtered of materials larger than 1 inch diameter (stones, stumps, roots, etc.).
- Do not use sandy loam. Caliche is not considered soil.



Turf

- Choose a recommended turf species based on the slope of the lawn.
 - Slopes less than 20%: blue grama, buffalo grass, curly mesquite, bermuda, zoysia or shortgrass prairie seed mixes.
 - Slopes greater than 20%: bunch grasses and shortgrass prairie seed mixes.
- Maintain grass on the highest mower setting (around 3 inches) to maximize root growth and water retention.





Plants and trees

- Choose native and well-adapted plants. Browse the <u>Grow Green</u> <u>Native and Adapted Landscape</u> <u>Plants Guide</u> for plants native to the Edwards Plateau.
- Add 2 to 4 inches of a high-quality organic mulch/compost blend to landscape beds to protect plant roots and retain soil moisture. Reapply mulch annually.
- Avoid using rock instead of mulch.
 Rock creates higher localized temperatures.
- Place new trees strategically to provide shade from the afternoon sun.









Conservation Landscaping Design Example



Edwards Plateau native shade trees, such as Texas Red Oak



Blue grama, buffalo grass, curly mesquite, bermuda, zoysia or shortgrass prairie seed mixes



A biodiverse selection of Edwards Plateau native shrubs, forbs, fruiting plants and grasses









For more information

Visit www.lcra.org/hlwo or contact LCRA at hlwo@lcra.org.



