NORTH HARRIS COUNTY REGIONAL WATER AUTHORITY

CONNECTIONS

Securing Water For Our Future

Summer 2021

North Harris County
REGIONAL WATER
Authority

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The North Harris County Regional Water Authority (NHCRWA) was created by the 76th Texas Legislature and was confirmed by a public vote in January 2000. The primary mission of the NHCRWA was to secure adequate surface water and develop a system to facilitate the transition to surface water in compliance with the Harris-Galveston Subsidence District's mandated groundwater reduction timeframe.

Soil, Seeds, and Sun Mother Nature to the Rescue!

A little more than a year ago, the COVID-19 pandemic gripped the US in a stranglehold. Lockdowns put millions out of work. People were cut off from social and family gatherings, leaving many older people isolated and alone. As headlines warned of toilet paper and food shortages, Americans became increasingly anxious and depressed. Many parents—in addition to their professional careers — had to fill the unfamiliar role of teachers homeschooling their kids. And they needed something creative to occupy and teach the youngsters.

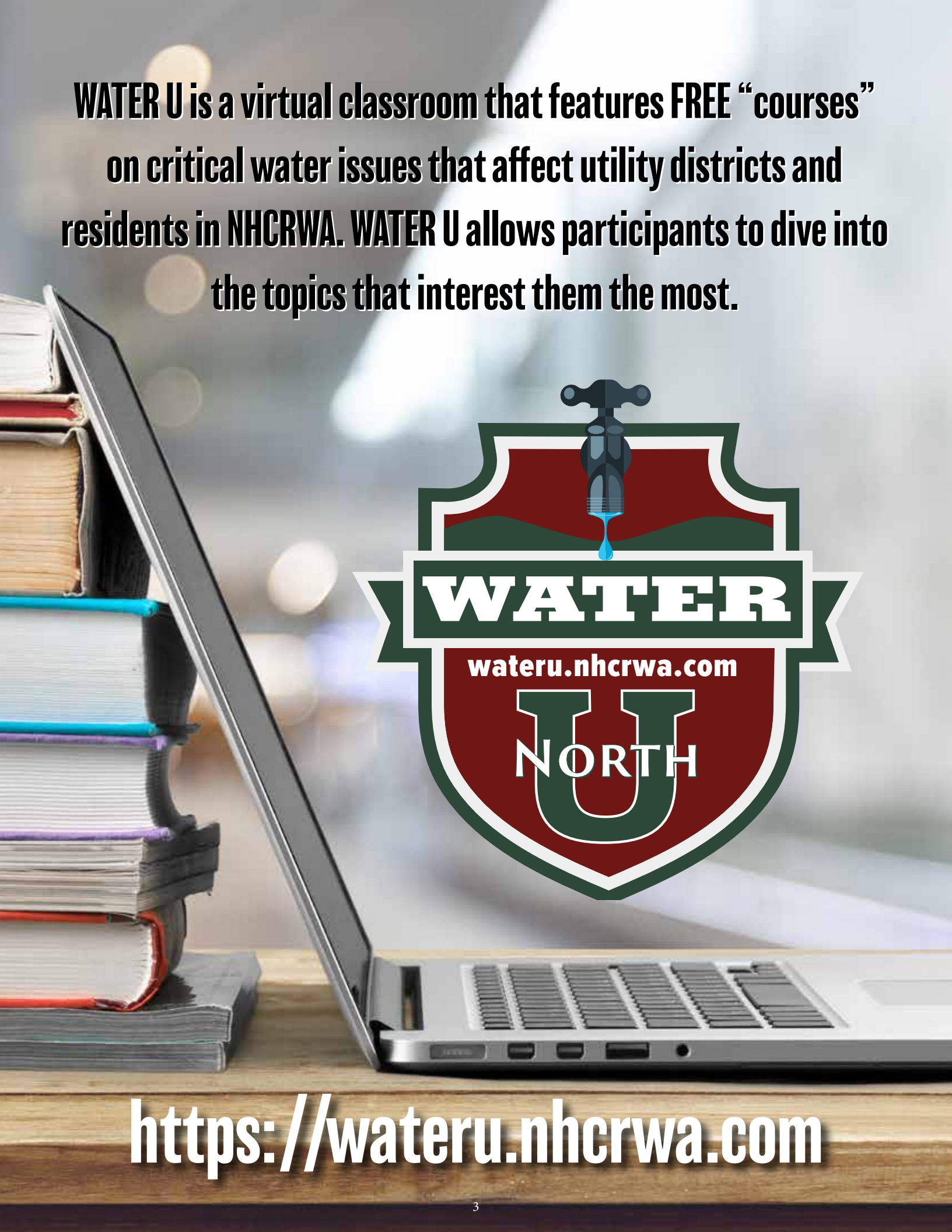
In response, record numbers of people turned to Mother Nature, picked up their rakes and shovels, and began cultivating "coronavirus victory gardens" in their neighborhoods. In a matter of weeks, seeds, seedlings, and fruit trees sold out online and at gardening centers.

As it turns out, the compulsion to garden is actually a great idea. Gardening is one of the healthiest hobbies you can adopt. According to Rutgers University professor Joel Flagler, "there are certain, stabilizing forces in gardening that can ground us when we are feeling shaky, uncertain, or even terrified. It's the predictable rhythms of the garden that are very comforting right now."

Gardening is not only adept at burning calories but it also strengthens joints and increases flexibility because you're constantly getting up and down, stretching, bending, and reaching to plant the seedlings or pull the weeds. And the physical and mental health benefits increase from there…as legions of folks discovered as they developed green thumbs.

Then on Valentines Day, adding insult to injury, the horrific Winter Storm Uri attacked southeast Texas with a vengeance…wreaking havoc with plants, pipes. and property. Texans are a resilient bunch, however, and are on the rebound. Spring temperatures and bountiful rain have helped to restore damaged greenery and encourage new plantings.

This issue of CONNECTIONS offers articles that encourage folks to get outside and get their hands dirty helping Mother Nature – and to do it in such a way that will use a finite natural resource – water – more efficiently, as well.


WATER U is a virtual classroom that features FREE "courses" on critical water issues that affect utility districts and residents in NHCRWA. WATER U allows participants to dive into the topics that interest them the most.
WATER
wateru.nhcrwa.com
U
NORTH
https://wateru.nhcrwa.com

Texas A&M Garden experts to the rescue

Help freeze-damaged plants recover from Winter Storm Uri

Residents weathered February's extreme freezing temps and the abundant interruptions of electricity, as they watched anxiously post freeze to see if the wildflowers or favorites like Meyer Lemon trees would return and survive Winter Storm Uri's wrath. Some plants did show signs of life but sadly, some did not... or at the very least their flowering was delayed by several weeks. This meant that food sources for the gardens' most important residents - the pollinators - were not available so they could not do their critical job.

Pollinators not only include butterflies and bees, but also birds, bats, moths and small animals who obtain nectar and pollen from flowers, trees and woody shrubs. The landscape horticulturists at Texas A&M recommend that gardeners plant already-flowering annuals or very fastgrowing perennials that tend to bloom the first year to provide immediate relief to help the pollinators recover from the freeze and get to work .

Michael Arnold Ph.D., director of The Gardens at Texas A&M University, suggests that sweet alyssum and pot marigolds will do well, as will herbs - like basil, sage and borage - which are excellent for bees. Other plants to consider, he said, are catnip, larkspur and Mexican heather which bloom relatively quickly from seed. It's a good time for sunflowers -they're fast growing and bloom early.

Arnold said that Uri's pollinator rescue could be a great starting point for homeowners to consider providing garden spaces that attract and support pollinators year round. Keep in mind, he pointed out, when choosing flowers not to select the varieties that just appeal to the eye. Flower structure is important to what attracts and benefits a pollinator.

For additional information on this and other important gardening topics, visit online https://gardens.tamu.edu/.

North Harris County
REGIONAL WATER
Authority

SEVEN QUICK AND EASY IRRIGATION TIPS

WATER U
wateru.nhcrwa.com
NORTH

WATER LESS SAVE MORE

Are you over watering your yard?

Water lawns in the early morning.

Install rain sensors on sprinkler systems.

Fix leaky faucets and hoses... they waste water and money.

Water the grass.
NOT the sidewalk and street.

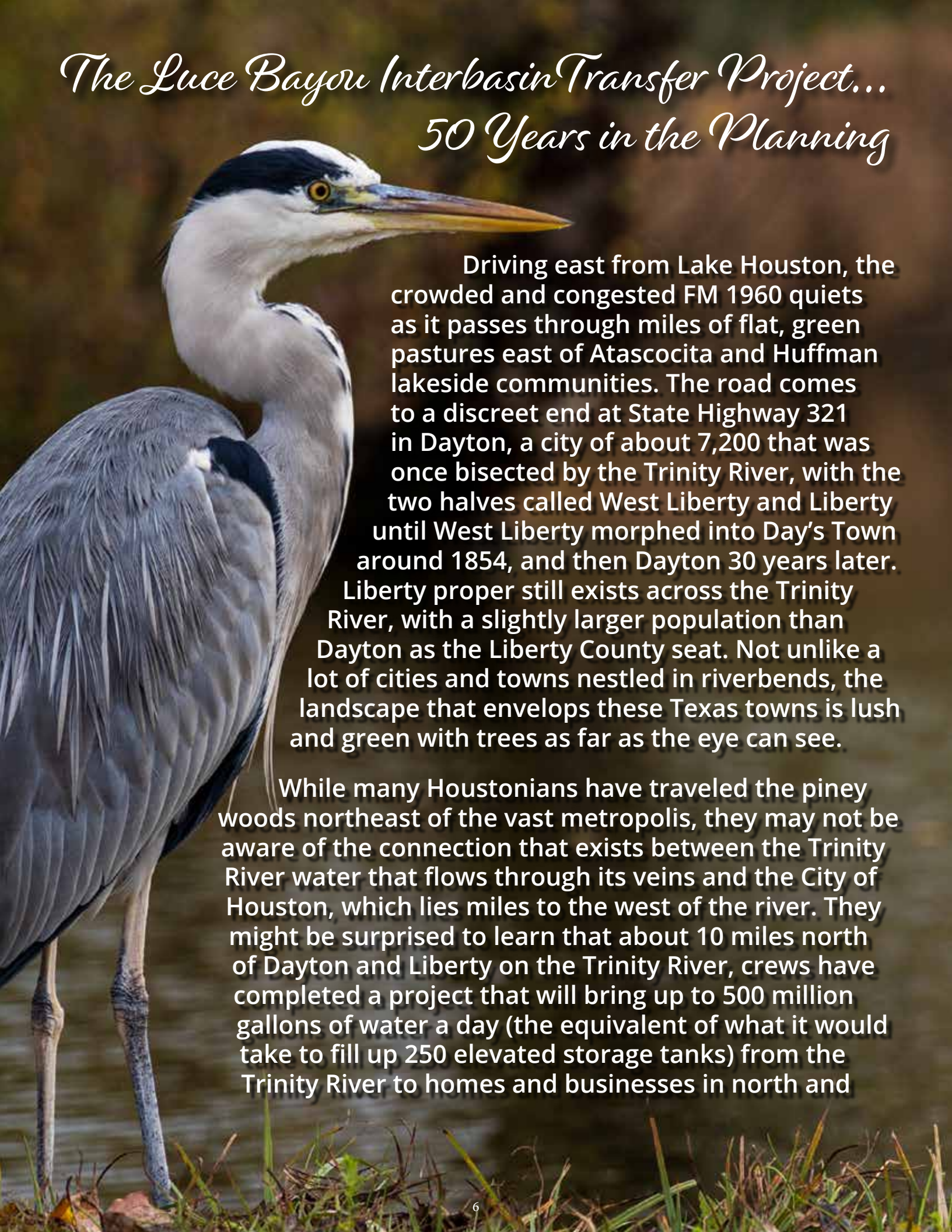
Plan water cycles according to each type of plant or grass.

Watering in the heat of the day can waste up to 65 percent of the water.

Use a broom to clear away debris, instead of using the hose.

Learn more by visiting
wateru.nhcrwa.com

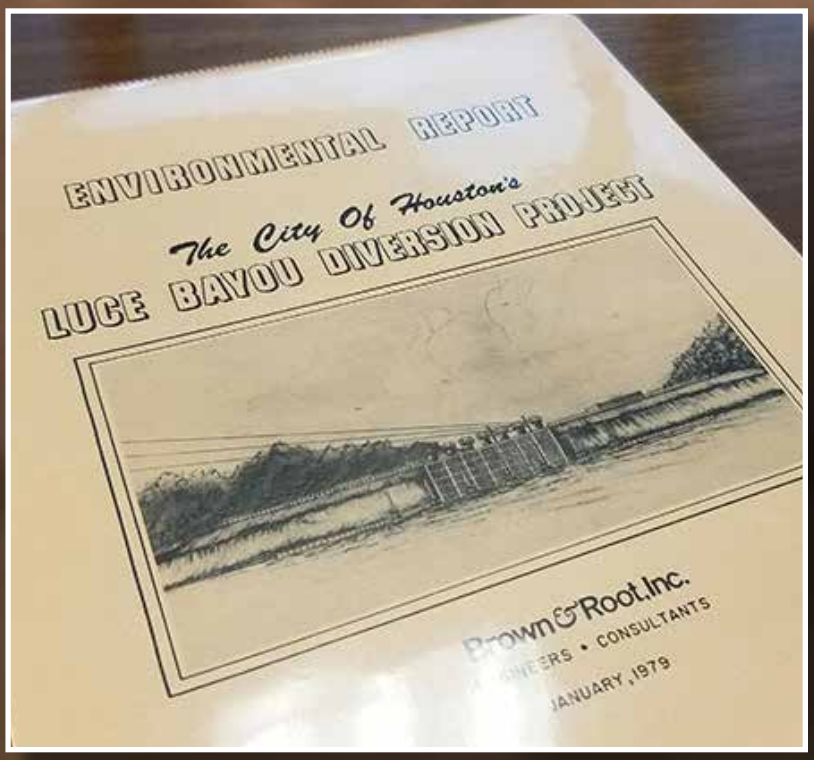
The Luce Bayou Interbasin Transfer Project... 50 Years in the Planning



Driving east from Lake Houston, the crowded and congested FM 1960 quiets as it passes through miles of flat, green pastures east of Atascocita and Huffman lakeside communities. The road comes to a discreet end at State Highway 321 in Dayton, a city of about 7,200 that was once bisected by the Trinity River, with the two halves called West Liberty and Liberty until West Liberty morphed into Day's Town around 1854, and then Dayton 30 years later. Liberty proper still exists across the Trinity River, with a slightly larger population than Dayton as the Liberty County seat. Not unlike a lot of cities and towns nestled in riverbends, the landscape that envelops these Texas towns is lush and green with trees as far as the eye can see.

While many Houstonians have traveled the piney woods northeast of the vast metropolis, they may not be aware of the connection that exists between the Trinity River water that flows through its veins and the City of Houston, which lies miles to the west of the river. They might be surprised to learn that about 10 miles north of Dayton and Liberty on the Trinity River, crews have completed a project that will bring up to 500 million gallons of water a day (the equivalent of what it would take to fill up 250 elevated storage tanks) from the Trinity River to homes and businesses in north and

west Harris County, north Fort Bend County, and Houston. Why? Because the city and its suburbs need it. In this context, the term "need it," means, "they won't be able to survive without it."



1979 Environmental Report

If the water is that important, then how does the City of Houston get it from Point A (Trinity River) to Point B (Lake Houston) so that it can be delivered to current and future water users in unincorporated Harris County, which now has almost as many residents as the city itself? It is a question that Houston's forefathers pondered long ago... and came up with a clever plan that is being carried out today.

A portion of the Luce Bayou Canal system in Liberty County, Texas

Luce Bayou Interbasin Transfer Project Groundbreaking Ceremony held at May Park in Huffman, Texas on February 24, 2017.

The $350 million Luce Bayou Interbasin Transfer Project is a complex name for a straightforward and well-planned water delivery project that held a Groundbreaking Ceremony on February 24, 2017. The Coastal Water Authority (CWA), a conservation and reclamation district created by the State in 1967, is managing the project in its role as the City of Houston's surface water provider. The city owns the water and the CWA builds, operates, and maintains the systems, and gets the water where it needs to go. The City of Houston, North Harris County Regional Water Authority, West Harris County Regional Water Authority, Central Harris County Regional Water Authority, and North Fort Bend Water Authority are partners in the Luce Bayou project and are paying their fair share for equipment and pipelines that will treat, transport, and deliver the water from Lake Houston to points beyond.

"Water is the fuel that drives the economic engine," said Houston Mayor Sylvester Turner at the project's groundbreaking ceremony. "Without it, not only will you not grow, but you will be paralyzed where you are."

Turner said he is grateful that the regional partners are working together, because otherwise it would be difficult to carry out the

City of Houston Mayor Sylvester Turner

massive Luce Bayou project.

"If we can dream it we can do it, and we are getting it done," Turner said.

The North Harris County Regional Water Authority (NHCRWA) is currently planning the system of pipelines and pumping and storage equipment that will deliver a portion of that surface water to Municipal Utility Districts (MUDs) in north and northwest Harris County, according to Jimmie Schindewolf, the NHCRWA's previous general manager. The NHCRWA and partner water providers have identified opportunities to share costs where there is common ground.

"It makes sense for us to collaborate with partners who have the same end goal that we have, which is to secure an ample, long-term supply of water for our residents and businesses," Schindewolf said. "We are grateful to the west and central authorities, City of Houston

and Coastal Water Authority for doing their part to ensure a successful conversion to surface water throughout Harris County."

Capers Ridge Pump Station - December 2020

Crews constructed the 90-acre Capers Ridge Pump Station on the river's west bank that will divert up to 500 million gallons of water a day from the river and pump it into side-by-side pipelines that could each easily fit a Ford F150 pickup truck with room to spare (8 feet in diameter). The water will flow underground through these dual pipelines for about 3.6 miles to a 20-acre storage and sedimentation basin near the secluded FM 1008, and then into a 100-foot-wide canal that runs 23.5 miles in a slightly southwestern direction across former rice paddies to the northeastern tip of Lake Houston.

A Project 80 Years In The Making

The Luce Bayou project dates back to the late 1930s, when visionary Houston leaders realized the need to identify water sources for future Houstonians. Like fortune-tellers, they gazed into their crystal ball and saw people flocking to the city by the bay in search of the American dream. They realized that the water they were pumping from underground sources would not satisfy the appetite of future generations, and that waiting 20, 30 or even 50 years to find other water sources could mean real problems for their successors. They looked north, south, east and west for options.

The saltwater to the southeast in Galveston Bay was plentiful, but expensive to convert to drinking water, and there was the issue of pumping it uphill to where it was needed. Nearby rivers flowing from places north had potential. The San Jacinto River and its two "forks" flowed directly through Harris County on their winding pathways to Galveston Bay. The Trinity River to the east had potential also.

The planets started to align when former Houston Mayor Richard

H. Fonville wrote a personal check to purchase the land that is now Lake Houston during his 1937-38 term in office. Next, the city acquired water rights in both rivers, and by 1973 had created three reservoirs – Lake Conroe on the San Jacinto River's West Fork in north Montgomery County, Lake Houston on the San Jacinto River's East Fork in northeast Harris County, and Lake Livingston on the Trinity River near Huntsville. Wayne Klotz, the Coastal Water Authority's board president, said the Luce Bayou project is the culmination of that 80-year effort to provide water to the Houston region.

Why Water From The Trinity River?

Why was there a need to build this project and to get water from the Trinity River when there are two lakes in Houston's backyard (Conroe and Houston), and in Lake Livingston just outside of Huntsville? The answer is somewhat complicated. In Houston's early days, its water supply came from wells that pumped water from underground aquifers, and that took its toll on the very land that homes and businesses were built on. As the water underneath diminished, the ground above began to compact and sink – or subside – into the empty space where water was once stored naturally. Fast forward through some very rough times in terms of sinking land and even a neighborhood disappearing into the Ship Channel, and city leaders started proactively taking steps to replace groundwater with surface water from lakes and rivers.

In 1975, the Texas Legislature created the Harris-Galveston Subsidence District (HGSD) to regulate groundwater usage in Houston and Galveston counties to prevent additional land subsidence. The HGSD set deadlines for Harris County water providers to convert to primarily using surface water by 2035. That meant building a huge network of pipelines and pumping stations, and an enormous water treatment plant on Lake Houston, to get the surface water to hundreds of small Municipal Utility Districts that supplied water to neighborhoods in north, central and west Harris County, and north Fort Bend County.

HARRIS-GALVESTON SUBSIDENCE DISTRICT

The water in the three existing reservoirs is sufficient for current water customers for several decades. Beyond that, water supplies in the three lakes could fall short of what water suppliers need to convert their water users, particularly if the region falls into drought mode. With regional planners predicting that Harris County will add another 2 million residents by 2040, it is necessary to use the untapped capacity the City of Houston owns in the Trinity River to quench that added thirst.

It is important to plan NOW to build the system that will deliver the water THEN.

In 2005, the City of Houston tasked the CWA with planning, building, and operating the Luce Bayou project. It was a logical move, as the CWA is already delivering 640 million gallons of water a day from the Trinity River to customers in east and southeast Harris County, and is a regional intermediary that can bring the project pieces and partners together because it does not sell or buy water.

“The CWA is the largest water authority in Texas that doesn’t own water,” said Klotz.

The Project Won’t Touch Luce Bayou

Though Luce Bayou is a key component of the LBITP moniker, it is important to note that the project did not disturb the natural drainage channel that is known as Luce Bayou, which meanders from the Sam Houston National Forest south to the East Fork of the San Jacinto River near upper Lake Houston.

Don Ripley, CWA's Executive Director, said that the in-depth environmental studies carried out long before any dirt was turned on Luce Bayou found that using the bayou as an avenue to carry the water from the Trinity River to Lake Houston could disturb its natural environment. The Coastal Water Authority would be required to make up for – or mitigate – those changes, which would mean the project's cost would skyrocket. The alternative was digging a new canal to carry water from the pipelines to the lake. The canal runs parallel with Luce Bayou, with the two approaching each other near FM 2100 where the bayou drains into the East Fork of the San Jacinto River.

So, if the bayou is no longer part of the project, why is Luce Bayou still part of the project's name? It is a nod to the project's history, which is impressive and extensive. The concept of transporting water from the Trinity River through Luce Bayou was envisioned early in the The City of Houston's history, and in fact, was mentioned as a future option for water management in an article in the Houston Chronicle in 1938. In the 1970s, a population boom spurred by Houston's red-hot oil and gas market prompted Houston city leaders to move the Luce Bayou concept to the project planning stage. The plan that emerged in the early 1980s supported moving water through Luce Bayou because no environmental studies had yet been carried out, and the concept made sense.

The vision gained traction after the City of Houston obtained a permit allowing the transfer of up to 940,000 acre-feet of water from the Trinity River Pump station materials Basin to the San Jacinto River Basin each year (one acre foot equals 326,000 gallons, enough to serve two typical Texas families for one year).

Ripley said the Luce Bayou project plan was shelved in the mid-1980s because of the oil bust that followed the boom.

"There was no demand for the project at that time because the population growth that was once projected was not there anymore," Ripley explained. "The plan was put on the shelf for close to 30 years."

Time to Face the Music

The Luce Bayou project was resurrected for two reasons: One, of course, was the need to set the wheels in motion to secure more water for future generations; and the other involves the not uncomplicated matter of weaning Harris County water providers and users off groundwater. Ripley said the recently completed project mirrors the water demand, which has shifted to north and the west over the years.

After breaking ground on the project in October 2016, construction started immediately on the Capers Ridge Pump Station and the canal's first segment. The entire project – pump station, canal, and pipelines was completed on time and on budget, and celebrated by a Ribbon Cutting Ceremony on June 15, 2021.

NHCRWA PRESIDENT, ALAN RENDL, RECEIVES PRESTIGIOUS AWBD VISIONS AWARD

For two and a half decades, Alan Rendl has personified WATER during his service as a Water Board Director, as a community leader and advocate, and as a Director and President of the North Harris County Regional Water Authority. Recently, Rendl was recognized for his exceptional service as the recipient of the prestigious Association of Water Board Directors' 2021 VISIONS Award.

After 35 years as a career executive with Exxon, he retired in 1995. Alan took an active role in regional water issues, and served as chairman of the North Harris County Water Issues and Annexation Reform Group; and as director of the North Harris County Water Users Association. He led the fight during the 1997 and 1999 Texas Legislative sessions to pass responsible legislation to give north Harris County voters control over their own future water supplies. Since the NHCRWA was created in 2000 and ratified by public election, Rendl has served as the Authority's spokesperson before community, education, and business organizations.

Alan's commitment to ensuring the area has an adequate supply of potable water into the future aligns him with AWBD's support of Texas water district operations through education, unification, and advocacy, and identified him as a viable candidate for the AWBD award. The presentation took place at the AWBD 2021 Annual Conference in San Antonio June 19, 2021.

Alan J. Rendl (left), Mike Rozell, 1st Vice President of AWBD Board of Trustees.

Luce Bayou Interbasin Transfer Project

Ribbon-cutting Celebration

Photo by Astrit Hudson - Clifford Group, Inc.

Mayor Sylvester Turner joined the Coastal Water Authority, the Texas Water Development Board, Houston Public Works leadership, the Regional Water Authorities, and community members from the Lake Houston area on June 15, 2021 for a ribbon-cutting celebrating the completion of the Luce Bayou Interbasin Transfer Project (LBITP).

The $381 million project is considered the region's most important water supply project and represents the culmination of more than 50 years of effort by local leaders.

The LBITP is a key component to support the expansion of the Northeast Water Purification Plant and ensures the water supply keeps pace with the ever-growing demand generated by businesses and residential development.

"The Luce Bayou Interbasin Transfer Project is helping to meet water supply demands of a growing population," said Mayor Turner. "I thank everyone here today and all the water authorities for their collaboration in making this project a reality. The LBITP is a testament to our region's commitment to building a more prosperous and abundant future for generations to come."

The new pump station will transfer 240 million gallons of water each day from Trinity River to Lake Houston and the Northeast Water Purification Plant.

The future expansion will eventually transfer 500 million gallons of water every day and will provide water for Harris and Fort Bend Counties, where population is expected to increase by 3 million people by 2050.

HAVE YOU FALLEN OUT OF LOVE WITH YOUR LAWN?

Texans' obsession with our lawns has become almost as intense as our passion for automobiles! Many folks cannot imagine a yard being anything but a vast expanse of turfgrass. We go to great expense to plant exactly the right variety; to poison any "weed" that has the temerity to pop up within it; then feed it with expensive fertilizers to get it to grow; and, as soon as it does, we cut it off and haul away the clippings.

According to the USDA Agricultural Research Service (National Turfgrass Research Institute), turfgrass covers nearly 50 million acres in the U.S. and the turfgrass industry has an estimated annual value of $58 billion. These statistics certainly substantiate the steadfast affection we have for our suburban lawns.

Some homeowner associations mandate that each property have a lawn, specify what may, or may not, be planted, and instruct how it must appear. Financial penalties can be exacted for non-compliance with these rules, and it is not uncommon for neighbors to get upset with those who do not comply. We have become used to seeing green 'islands' in the middle of our roads and it simply does not occur to us – if we think about it at all — that there could be any alternative.

The funny thing is that lawns are a fairly new element in American landscaping. In the past, fields were what you saw as you looked out across the landscape. Nearer to houses there would be kitchen gardens, various forms of gravel paths connected out-buildings, and alleys of trees, shading groundcovers underneath. City houses may have had no front lawn at all; built instead with front porches that came right up to the walkways. The idea of putting as much effort into growing grass as we do today would have been laughable to homeowners of less than a century ago, who only put such dollars and time into growing their food or cash crops.

As suburbs developed after WWII, and we moved off the family farm into neighborhoods, there was more leisure time and discretionary dollars to invest in "better homes and gardens". In fact, a whole new genre of consumer media appeared to teach us how to express our new prosperity. What better way to demonstrate our new status than by creating a lush, green landscape? Never mind that it would have to be constantly watered, groomed and kept weed-free by a host of workers…

Today, with the rising cost of water, perhaps it's time to re-think this love affair and divorce that water-intensive, thirsty lawn – or at least negotiate a separation.

Hurricanes, droughts, and ice storms, Oh My!

Our community's current landscape has suffered three-fold extremes: the recent horrific freezes, prolonged, above-average heat, and – as if that wasn't enough to kill anything still growing – we survived a drought at least as severe as the benchmark one in the 1950's.

Many of the lawns that managed to endure these extremes did so after being saved by radical life-support measures. In addition to the time and cost of all the extraordinary maintenance, they sucked up more water than any other plants in the yard, and much more than we used in our homes. Water, we now have learned, is one of our most precious and costly resources. Why would we keep pouring it on a plant that will take all that is offered and still crave more just to satisfy some misplaced obsession with lush lawns?

Explore the Alternatives…

So what satisfactory options are available to sustain that coveted "street appeal"…but not cost us so much in time and dollars?

Here are some attractive options:

- Expanses of groundcovers can replace whole sections of lawn and provide a very pleasing look. Some of these plants for our area are:
  - Powderpuff Mimosa (Mimosa strigillosa);
  - Mondo/Monkey Grass (Ophiopogon japonicum);
  - Periwinkle (Vinca minor),
  - Ajuga (Ajuga reptans);
  - Star or Confederate jasmine (Trachelospermum jasminoides)
- Adding some stepping stones within your lawn area, in rows or checkerboard patterns, can offer both more access through newly landscaped areas and or create paths around your beds to facilitate maintenance.
- Widen your existing walkways with bricks or pavers and "open up" the appearance of an entry. There are many color and texture options available at local garden centers that will add new elements to the existing yard.
- Here's a great idea: minimize turfgrass areas! Consider expanding landscaped beds into the lawn area – even an extra foot will help a lot—with a new border of groundcovers (see above) or taller, drought-tolerant, native plants — hollies, ferns, or even a wide edging of decorative fieldstones or river rock.

Investing in one, or a combination of these simple options will pay you back in more efficient lawn and landscape water use…and lowering the monthly water bill associated with it. Make it a habit to **USE LESS… SAVE MORE!**

AJUGA

MIMOSA

MONDO/MONKEY GRASS

STAR JASMINE

PERIWINKLE

20 tips conserving water and energy... and saving money in the process!

There have been times in this land of plenty when it has been necessary to curb our voracious appetites for finite natural resources. It is not that we're running out of energy or water – there is a greater supply of fossil fuels (oil, natural gas and coal) available yet to be discovered and harnessed in this country than we have used up to this point in our history. And, we have the same amount of water on the planet that has been here since the dawn of time, but most of it is not drinkable… and we have drawn down the supply in our underground aquifers faster that it can be renewed.

The more we understand about how we use energy and water in our homes, the more we realize that very often saving one resource results in saving the other. For example, many of the things that use the most water around the house also have a high energy consumption… case in point, water heaters and the many ways hot water is used.

There is an urgency to steward these dwindling resources and to exercise caution about utilizing them more efficiently so that supplies can be stretched into the future. Cost is also a formidable driving force toward conservation practices. As energy costs rise, the research and development necessary to bring alternatives online increases correspondingly; witness the recent expansions in the use of wind turbines and solar power options as viable parts of the energy mix.

While the cost of water is nowhere near the same annual investment required to cool, heat, light and power our homes, water bills are rising dramatically and the days of cheap and plentiful water are history. The days of wasteful practices and habits, however, should be history, as well. Did you know, for example, that more water is wasted in our homes each year through unrepaired leaks than the amount of water we drink?

DOUBLE UP AND SAVE TWICE...

The best place to start is the top…with the worst water and energy users in the household. According to the US Department of Energy, water heating and appliances and lighting use just about half of the energy we consume at home. If we match up these same categories with water consumption, we can determine our joint conservation targets pretty quickly. Basically, they are the things/activities/appliances that use hot water. While there are long lists of ways that water and energy can be conserved, we'll concentrate on the 'two-fers' here.

IN HOT WATER...

There are four basic ways to take charge of your water heating bills: don't heat the water so hot; insulate the water heater; use less; or upgrade the equipment to a newer, more efficient model.

- Lower the temperature setting on the water heater to 120 degrees…that temperature will prevent bacteria from building up and will still be sufficient to generate enough comfortable hot water for most uses.
- Add an insulation 'jacket' to the tank and wrap any exposed pipes to knock off up to 15 percent of the hot water costs.
- About every three months, drain off a quart of water from the tank to remove any sediment that impedes heat transfer and lowers the efficiency of the hot water heater. Be sure to follow the manufacturer's instructions to accomplish this.
- Time for a new hot water heater? Don't wait until it fails before replacing it; and take time to research energy and water efficiency and performance. Look for the Energy Star and EnergyGuide labels* which list key information you'll want to consider when making a purchase decision.

Let's start with using less. At home, hot water is generally used in three rooms — the bathroom, laundry room and the kitchen – and there are some great conservation options in each room. Here's how hot water use breaks out: 32 percent of the heated water is used in washing clothes; 20 percent goes down the shower drain; another 20 percent is used for bathing (sink and bathtub use); and automatic dishwashing consumes 12 percent, which leaves 5 percent for preparing food and 4 percent for washing hands.

THE BATHROOM...

- Start with the obvious…fix leaky faucets and plumbing joints. Wasting water is bad enough, but if it is HOT water, the cost goes up. Fixing a leaky faucet/fixture can save 20 gallons a day for every leak stopped.
- In the shower: install a low-flow shower head. You don't have to sacrifice pressure and 'designer' spray cycles – even the efficient new heads have them. Restricting the flow can cut shower water use in half, and save 500 to 800 gallons a month. Here's an amazing factoid: a five-minute shower with a low-flow showerhead would save enough water in a year to fill a 15-ft. aboveground pool… or about 4550 gallons. If everyone in the US did this, we'd save enough water to fill about 2,100 Giants Stadiums!

- Install aerators on the faucets. Surprisingly, faucets account for about 15 percent of the indoor water use, and they usually flow at twice the rate necessary to get the job done. If aerators are added to both bathroom and kitchen sinks, about 1000 gallons of water a year can be saved…and much of that is energy-intensive hot water. While you're at the sink, turn off the water while brushing your teeth or shaving. It may seem like such a little amount of water (three gallons on average for either activity), but it adds up to an annual savings of 2,880 gallons.
- Take shorter showers – even a one or two minute reduction can save up to 700 gallons a month. A lengthy shower will really 'fire up' a hot water heater. Consider adding a plastic container or bucket at the side of the shower to capture unused water. This can be used to flush the toilet or to water houseplants if it isn't soapy, or for household cleaning chores if it is.

THE LAUNDRY ROOM...

Appliances account for about 1/5th of your household energy consumption, and two of these (washer and dryer) are usually found in the laundry room. About 90 percent of the energy used by the washing machine is to heat the water, so this provides the best conservation options: use less – or cooler – water.

- With the many choices of cold water detergents on the market today, 'warm' or 'hot' water settings can usually be reserved for really dirty clothes or for combating stubborn stains.
- Use your washing machine only with full loads and with the minimum water setting to get the job done.
- Wash bulky bedding and/or towels separately from lighter-weight clothing items. This will help the dryer work more efficiently. While the dryer doesn't use water directly, maximizing its performance is key to cutting energy costs.
- When it is time to purchase a new washing machine, there are some great high efficiency choices out there today. Always check for the Energy Star and EnergyGuide labels in making your decision. The new front-loading, horizontal-axis models generally save energy and water. The older top-loading vertical-axis models immerse the items in a full tub of water, and then agitate it through the wash cycle and spin it through the rinse cycle. The new high efficiency (He) style doesn't have to fill the tub so full, and tumbles laundry repeatedly through fast cycles, similar to the motion in a clothes dryer, using about half the water in the process. Thanks to the fast spin cycles, the He type is also able to get more water out of the clean laundry, which reduces the time and energy needed for drying.

THE KITCHEN...

There are basically two hot water consumers in the kitchen: the dishwasher and the sink. Thanks to the National Appliance Energy Conservation Act of 1987, manufacturers made significant water- and energy-efficiency improvements to dishwashers by reducing hot water use, which accounts for most of the energy used by the appliance.

- Today, installing a 7.0 gallon per load (gpl) dishwasher to replace a model that used 9.5 to 12.0 gpl will save an estimated 2.6 kWh per household[1], per day. This adds up to a 940 kWh savings per household, per year.
- A dishwasher uses energy for several functions: heating water for cleaning and sanitization; to run the motor; and to operate the heater or fan to dry the dishes. Making setting adjustments offers several good options for conserving water and energy, so be sure to check the manufacturer's instructions and owner's manual to discover ways to tailor energy and water cycles needed for a particular load.
- Since a heating element is generally used to dry the dishes at the end of the washing cycle – and requires about 7 percent of the energy used by the machine – choose the no-heat drying option if available, or simply turn off the dishwasher, open the door, and allow the dishes to dry themselves.
- Scrape, don't pre-wash the dishes. Studies show that most people continue to pre-wash before loading items into the dishwasher, even though models built in the last 5-10 years do a great job cleaning even heavily soiled dishes. If you feel like you simply must pre-rinse, use cold water.
- Wash only full loads. The dishwasher uses the same amount of water whether it is full or not, and this practice really saves energy, too.
- Select the 'light-wash' option if there is one. Experts say that it is rarely necessary to use the normal setting on a dishwasher. This light-wash option cleans just as well and can reduce the water use up to 55 percent. That could translate into an annual savings of 2,860 gallons of water.
- At the kitchen sink – don't let the water run until it gets hot if you're using it for cooking; that's heating it twice. Add a faucet aerator; less hot water saves both energy and water.
- Since almost 50 percent of American households have a garbage disposal in the kitchen, here is yet another way to SAVE at the sink. Use the disposal less, and the garbage more – even better, COMPOST! This would save between 50 and 150 gallons a month. If you must use the disposal, run it with cold water.

There are hundreds of ways to conserve energy and water at home, and these suggestions have focused on situations when both options occur together. The more conscious we become of the way we use water and energy in and around our homes, the more ways we will find to use them efficiently. The bottom line, of course, is that saving these precious natural resources saves us money, too. Use less, save more. And that's not such a bad deal.

[1] Per 2.64 person household

What is the NHCRWA Fee on my water bill, and why does it change each month?

While not all water bills look exactly the same, most of the information they contain is similar. On some part of the bill, there will be a breakdown of costs incurred during the last billing cycle -- broken down into charges for "Water", "Sewer", and the "Regional Water Authority".

The Water and Authority items are based on the amount of water used (measured in thousand gallon increments). Here's how it works.

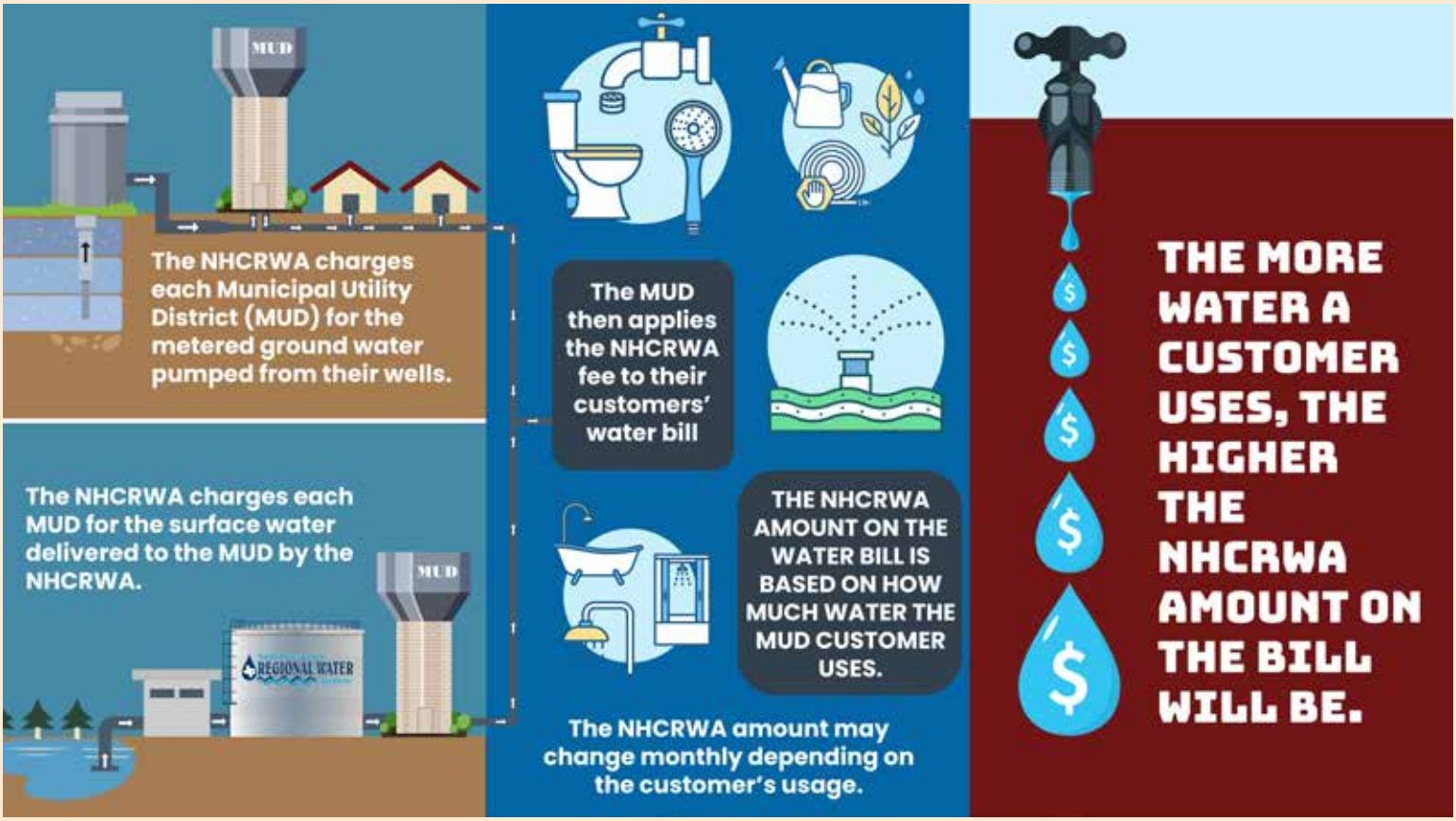
- The NHCRWA charges each MUD for the (metered) groundwater they pump from their well(s) and the surface water delivered to them by the Authority.
- The NHCRWA does not bill any individual home owner/customer for the water they use; that is the responsibility of the MUD.

CURRENT READ	TOTAL USAGE	THIS MONTH DIST AVG
175	10,000 Gallons	7,020 Gallons

ACCOUNT SUMMARY

Description		Amount
Previous Balance		$121.65
Payment Received		($121.65)
Beginning Balance		$0.00
Current Billing		
Water Charges		$26.52
Sewer Charges		$26.00
No. Harris Co Reg Wtr Authority		$47.30
Total Current Billing Charges		$99.82
Due date applies to current charges only.	TOTAL DUE BY 02/19/20	$99.82
	TOTAL DUE AFTER 02/19/20	$109.80

- Based on meter readings, the District in turn applies the RWA fee to their customers' bills based on how much water they use, so the amount may change monthly. (Current RWA rate times gallons used = RWA amount on the bill.) Bottom line, the more water a customer uses, the higher the total RWA amount will be.
- Do the math. If the RWA amount is higher than the "formula", contact your MUD to request an explanation of the surcharge.



What to Know About BOIL WATER NOTICES

During the recent Winter Storm Uri, Boil Water Notices were issued by the City of Houston, the Authority, and various public water systems. Below are some questions the Authority received and responses to those questions.

Q. What is a Boil Water Notice (BWN)?

A. A BWN is a notification that advises residents to boil their tap water used for consumption due to the potential for contamination. BWNs are issued by water utilities or health agencies as a precaution to protect water users from drinking water that may have been contaminated with disease-causing organisms. They are issued when an unexpected circumstance has triggered a potential for biological contamination of water in a public water system.

The BWN instructs consumers to boil all water used for drinking, cooking, food preparation, brushing teeth, and making ice. Bathing or showering is typically safe as long as no water is accidentally ingested. The most sensitive to microbial contaminants are children, the elderly and those with compromised immune systems.

Situations when a BWN might be issued:

- A hurricane or other natural disaster interrupts the distribution system;
- Water pressure goes below 20 psi or is lost completely;
- A pipeline breaks;
- A scheduled maintenance occurs during which residents will be notified beforehand;
- Excessive amounts of unfiltered rainfall enters the drinking water source;
- A cross-connection is discovered that might have allowed the system to be exposed to a potential source of contamination.

A BWN remains in effect until samples are collected and tested, and laboratory results show that water is safe from bacterial contamination. The tests generally take up to 24 to 48 hours to complete, depending on what caused it, how long it takes to remedy or repair, and how long it takes for the lab tests to confirm that the water is again safe to drink.

Q. What can cause contamination in a water system?

A. Pathogens can enter the water source through water line breaks, water treatment disruptions, cross-contamination, or power outages that result in a loss of pressure in the distribution system, loss of disinfection, and other water quality problems. When there is a loss of water pressure, for example, bacteria may backwash into the water pipes. Toxic minerals and viruses may seep into the water supply when a pipe breaks.

Q. What has to be done to comply with a BWN?

A. According to the Center for Disease Control (CDC), water can be made potable by bringing it to a full rolling boil for at least one minute, and allowing it to cool in a clean container before use. The BWN will instruct the consumer to boil all water used for drinking, cooking, food preparation, brushing teeth, and making ice. Discard any ice cubes made by an automatic ice maker until after the BWN notice is over. Also use boiled (or bottled) water for coffee makers, for rinsing fruits and vegetables, and for pets to drink. (https://www.cdc.gov/healthywater/emergency)

Q. What water doesn't require boiling before use?

A. Water used for laundry (washing machine), dishwasher, or washing hands.

Q. How are residents notified about Boil Water Notices?

A. Water suppliers use various methods to notify their customers about BWNs…email, text alerts, websites, neighborhood signs, print and electronic media, and door tags. The same method(s) will be used to notify residents when the Notice is cancelled. Call the number listed on your water bill to receive specific informatiuon about your water supply.

Houston's Historic Winter Storm Uri February 2021

The normal average temperature in Houston for Valentine's Day is 56.4 degrees F. This year that number plummeted to 20.5 degrees – a difference of 35.9 degrees… and that's just where the nightmare started.

Millions of people lost their residential power, forcing families to huddle near a fireplace, scavenge for firewood, and even spend nights in their car trying to stay warm. Those who could get out searched empty grocery shelves for food when weather conditions led to food supply chain interruptions. Frigid artic temperatures caused household pipes to burst, causing water disruptions for roughly half the state's population.

Without power to run water treatment plants, officials across Texas urged residents to conserve water, and issued boil-water notices. The warnings not to consume water out of the tap began in many places as early as Monday, but by Wednesday night many municipalities had expanded those orders as the ongoing weather, energy and water crises placed record strain on the state's entire power grid.

According to Toby Baker, head of the Texas Commission on Environmental Quality (TCEQ), more than 2,000 local water systems had disrupted service, and 1,985 issued a boil water notice, affecting approximately 16 million Texans at the height of the crisis.

Temperatures across the state dipped to historic lows. Rolling blackouts in the Houston area begin early February 15th after the Electric Reliability Council of Texas (ERCOT) — a grid operator controlling about 90% of the state's electric load — announced it was experiencing a "record-breaking electric demand."

SIDEBAR

"The Effects of the Winter Storm of 2021 in Harris County," a report by the Hobby School of Public Affairs at the University of Houston:

- More than nine out of every 10 (91%) Harris County residents lost electrical power at some point as the winter storm rolled through on Feb. 14-20, significantly higher than residents in the other 212 counties within the Texas electrical grid that lost electricity (64%). The average outage for Harris County residents was reported to be 49 hours, a time span that suggests plans for rotating power outages did not work.
- Almost two-thirds or 65% of Harris County residents lost running water for 56 hours, on average, 21 percentage points higher than that experienced by Texans outside of Harris County.

Other notable findings:

- Harris County residents were significantly more likely than other Texans to lose cell phone service, suffer food spoilage and have difficulty finding a plumber. Financial loss, too, was more common than elsewhere in Texas.
- Two of every five Harris County respondents suffered water damage from pipes that burst because of the freeze.
- About three-quarters of Harris County respondents believe developing alternative energy sources, such as wind and solar, is the biggest priority in protecting the country's energy supply. By contrast, just 27% of participants believe the current main priority should be oil and natural gas exploration and production.

Planning to Redo Your Yardscape? Consider using Water-Wise Landscaping Techniques to Save Water, Time and Money

After the horrific Winter Storm Uri left behind a swath of dead plants in its wake, many residents in southeast Texas said a sad farewell to yard and landscape areas they had so carefully tended and nurtured. Many were sidetracked by the urgency to repair ice damage to their homes, causing restoration of yards and gardens to take a backseat. Many were forced to deal with problems both inside and outside their homes. For some, this offered a chance to start fresh and to deliberately choose more water efficient options – again, inside and out.

Inside, replacing old pipes and adding new, more efficient insulation are positive long-term measures. When it comes to refurbishing outdoor spaces, following the **seven basic steps of Xeriscaping** not only allows homeowners to rearrange and "redecorate" their exterior living spaces. but to create a landscape that is healthier for the environment and more resistant to our South Texas summers.

Although many people think the term "Xeriscape" means living with cactus, succulents and other drought tolerant plants, adopting the principles of this water-wise landscaping method can include an outdoor environment that is still full of lush plantings and colorful foliage. The bonus is that it also requires less time and money for upkeep.

Here's some information that will likely change your attitude about this "Mother Nature-friendly" technique. First, a little background…

The term Xeriscape was created by a joint task force of the Associated Landscape Contractors of Colorado (ALCC) and Denver Water to describe a form of landscaping that helps to conserve water. The term was defined to mean "Water Conservation through Creative Landscaping" and actually involves much more than just selecting plants that thrive without water. In fact, with some careful rearranging, most homeowners may be able to create a water-wise landscape with the plants that they already have in their yards.

Seven principles were created by the original task force, and these principles are followed across the country today. The basic premise is that "if plants are selected based on the conditions of the planting site, and grouped with other plants that have similar requirements, the overall landscape will require less water and less maintenance."

In other words, if gardeners learn to work with Mother Nature rather than against her, their yards will thrive and flourish on their own, with little additional care (or water) from the property owner. In theory, an ideal low-maintenance landscape would consist of plants that grew naturally on your property before your house was constructed. And although the construction of your home probably altered the natural site conditions to some extent, the original plant-community or

ecosystem of your area should still be taken into account when planning your landscape.

Here are the seven steps for creating a water-wise landscape:

Plan and design

The most important step for creating a water efficient landscape is planning and design. Take a site inventory of your property to study the current conditions that affect plants – such as areas of sun and shade; areas that drain well or collect water; and location of hard-scape items such as driveways, pools, etc. Your goal is to take advantage of the current site conditions and to group plants by their maintenance needs, such as locating plants with higher water requirements in areas that receive rainwater runoff. If you already have a sprinkler system installed, plants with similar water requirements should be planted to coincide with irrigation zones.

Obtain a soil analysis

A soil analysis will help you choose plants best suited for your yard. Landscape soils may vary from rocky to clay. Since areas of your landscape may have been amended with fill dirt, it is important to take soil samples from several areas around the yard. You can often buy kits to test your soil from local garden centers, or from local Cooperative Extension Service offices.

Choose proper plants

Take your site survey with you when you visit the nursery or landscape designer. Choose plants in synch with the sun, water and soil conditions of your property. Although native plants can play an important part in a water-wise landscape, following the principles of "right plant, right place" and grouping plants by their care requirements allows you to utilize some plants that are not native. The goal should be to establish a yard that will be self-sustained by existing conditions.

Use Turf Wisely

Homeowners spend thousands of dollars each year fertilizing and watering their lawns, only to mow it down as soon as it grows too high. Advocates of Xeriscaping suggest minimizing lawn areas and replacing them with less water and labor-intensive plantings. For the lawn areas that you do decide to keep, you can still reduce water needs. For example, raise your lawn mower blade to the highest possible height. Use a mulching lawn mower and leave grass clippings when you mow. This reduces the lawns need for both water and fertilizer. Consider groundcovers, mulch or walkways or other alternatives for lawn.

Irrigate efficiently

If your yard has an irrigation system, make sure to check the sprinkler heads often in warmer months and make sure they have the clearance they need to reach the area for which they are intended.

All installed irrigation systems should include an automatic rain sensor shut-off device. Even if you water your yard with a hose, rain gauges that show recent rainfall can be used to determine when to water. Take advantage of your sprinkler system's zones and water more drought-tolerate plants less frequently. Various sprinkler heads such as drip, tricklers and bubblers are often the most water efficient since they apply water directly to the plants.

Irrigate only when plants show they need a drink by drooping or wilting. Over-watering can cause more problems than under-watering by inviting weeds and fungal growth. Watering less often and more deeply allows a plant to develop deeper root systems which protect the plant during dry periods. Water early in the day, before sunrise, to avoid evaporation.

Use mulch

Adding mulch to flower beds and around trees and shrubs will help conserve moisture while, at the same time, adding nutrients to the soil. Purchased mulch comes in various colors and types, including pine bark, melaleuca, and eucalyptus. Mulch should be loosened with a rake on a regular basis, and new mulch should be added to keep the thickness uniform. Items such as gravel or colored rocks are not a good choice for a garden if your goal is moisture retention. They don't hold moisture and can also reflect heat which may stress the plants.

Perform proper maintenance

Plants that are suited to their environment need much less care in the form of fertilizer and pest control than other plants. However, for garden touch-ups, remember that less is more. If you feel the need to have a completely bug-free environment, always use the least toxic method available and spot treat problem area only. If you use fertilizer, use one of the natural or slow release varieties.

Gardening adds years to your life and life to your years. – Unknown

Water-wise landscaping not only conserves our water resources, but it also saves the property owner money in the process in the form of lower water bills.

TEXAS TRIVIA

Just for fun! 15 facts about Texas...

1. The distance from Port Arthur to El Paso is 889 miles; Port Arthur to Chicago is 770 miles.
2. World's first rodeo was in Pecos, TX on July 4, 1883.
3. The Flagship Hotel in Galveston was the only hotel in North America built over water. It was destroyed by Hurricane Ike - 2008!
4. The Heisman Trophy was named after John William Heisman who was the first full-time coach at Rice University in Houston, Texas.
5. Brazoria County has more species of birds than any other area in North America.
6. Aransas Wildlife Refuge is the winter home of North America's only remaining flock of whooping cranes.

7. The worst natural disaster in US history was in 1900, caused by a hurricane in which over 8,000 lives were lost on Galveston Island.
8. The first word spoken from the moon, July 20, 1969, was " Houston," but the Space Center was actually in Clear Lake City at the time.
9. The King Ranch in South Texas is larger than Rhode Island.
10. Texas is the only state to enter the US by treaty, (known as the Constitution of 1845 by the Republic of Texas to enter the Union) instead of by annexation. This allows the Texas Flag to fly at the same height as the US Flag.
11. A Live Oak tree near Fulton is estimated to be 1500 years old.

12. Caddo Lake is the only natural lake in the state.
13. Dr Pepper was invented in Waco in 1885. There is no period in Dr Pepper.
14. The Capitol Dome in Austin is the only dome in the US which is taller than the Capitol Building in Washington, DC (by 7 feet).
15. The San Jacinto Monument is the tallest free standing monument in the world and it is taller than the Washington Monument.