

# 2020

## ANNUAL REPORT

### LONE STAR GROUNDWATER CONSERVATION DISTRICT



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## CREATION

In 2001, the 77th Texas Legislature, through House Bill 2362, authorized the creation of the Lone Star Groundwater Conservation District (LSGCD). Montgomery County voters then confirmed the District's creation on November 6, 2001, with 73.85 percent of the vote.

Since its creation, LSGCD has carried out its statutorily-mandated functions to conserve and protect groundwater resources in Montgomery County, and has developed a system to ensure that the groundwater supply in Montgomery County will remain a sustainable resource for years to come.

## LOCATION & EXTENT

The Lone Star Groundwater Conservation District is located in Montgomery County, in southeastern Texas. Its boundaries are coterminous with the boundaries of Montgomery County, Texas. The District is bordered by Walker County to the north, San Jacinto and Liberty Counties to the east, Harris County to the south, and Waller and Grimes Counties to the west.

Peach Creek is the boundary with San Jacinto County, and Spring Creek forms most of the boundary with Harris County. LSGCD comprises an area of approximately 1,090 square miles.

## MISSION

The Lone Star Groundwater Conservation District's Board of Directors adopted a new District Management Plan in March 2019. In doing so the mission statement was revised to properly align with the elected Board's commitment to protecting both public interest and private property rights.

The mission of the Lone Star Groundwater Conservation District includes honoring and protecting private property rights by affording an opportunity for a fair share to every owner of each common, subsurface reservoir underlying Montgomery County. The District is also committed to providing a regulatory program that encourages the best conservation and development practice for the groundwater resources of the county.



### DISTRICT OFFICE

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Conroe, Texas 77303  
(p) 936-494-3436  
(f) 936-494-3438

[www.LoneStarGCD.org](http://www.LoneStarGCD.org)



## SAMANTHA REITER

### General Manager

Samantha Reiter was born and raised in Round Rock, Texas. She moved to Montgomery County in 2010 and began her career with Lone Star Groundwater Conservation District. Ms. Reiter earned both an associate degree from Blinn College in Bryan and a Bachelor of Arts degree from Texas A&M University. Ms. Reiter has held a variety of positions with the District, getting her start in 2010 as the Executive Administrative Assistant to the General Manager then, working her way up to Permitting Director in 2012.

Ms. Reiter was promoted to Assistant General Manager in 2017, and continued to manage the permitting department and oversee the District's GIS and online permitting database.

In 2019, following Kathy Turner Jones resignation, Ms. Reiter was named General Manager of Lone Star Groundwater Conservation District. She serves on several committees, including: Member of Region H Water Planning Group and GMA 14 Joint Planning Group.

Ms. Reiter prides herself on being well versed on the District's rules and regulations, as well as staying in tune with legislative changes to groundwater laws in Texas.

## LETTER FROM THE DISTRICT

*"Coming together is a new beginning; keeping together is progress; working together is success"*

2020 brought forth many challenges for Texans, with local and statewide impacts affecting how we live and work, educate our children and interact as a society. While the District's Board of Directors and staff continue to navigate a transitional path out of the COVID-19 maze, Lone Star GCD succeeded in achieving goals and establishing milestones for groundwater management throughout Montgomery County.

The beginning of the year saw the District enter mediation with Texas Water Development Board (TWDB), with the intention of coming to an agreed upon final resolution regarding the re-adoption of the District's Management Plan. One June 5th, the District's Management Plan received a certificate of approval from TWDB, which will remain in effect for the next five years or until amended.

Part of the District's Management Plan includes the Lone Star GCD's commitment to conduct a multiphase subsidence study specific to Montgomery County. Following the completion of Phase One of the subsidence study in February 2020, the Board directed District staff and consultants to reevaluate the facets of Phase Two. A Scope of Service and specific goals were developed for Phase Two with focus on the future of subsidence in Montgomery County.

Continuing efforts from the prior year, the District worked on amendments to the District Rules. Several public workshops, stakeholder meetings and two rulemaking hearings were held over the course of 18 months to gather public comment on the proposed rule amendments. On September 9, the Board of Directors passed Resolution #20-007 approving the amended District Rules.

Though the pandemic altered every aspect of how we interact with one another, the District looks forward to continuing to collaborate with local entities and groundwater districts, in order to support the groundwater resources within our county.

# Board of Directors



**Harry Hardman**  
President

*Represents County at Large |  
Term Expires  
Dec. 01, 2020*



**Stuart Traylor**  
Vice President

*Represents County Precinct #1 |  
Term Expires  
Dec. 01 2020*



**Jim Spigener**  
Treasurer

*Represents County Precinct #2 |  
Term Expires  
Dec. 01 2022*



**Larry Rogers**  
Secretary

*Represents City of Conroe |  
Term Expires  
Dec. 01 2020*     *Represents The Woodlands Township |  
Term Expires  
Jan. 31, 2022*



**Jon Paul Bouche**  
Director

*Represents County Precinct #3 |  
Term Expires  
Dec. 01, 2022*



**Jonathan Prykryl**  
Director

*Represents County Precinct #4 |  
Term Expires  
Dec. 01, 2022*

**Vacant**

In 2017, the passage of House Bill 1982 by the 85th Texas Legislature Session amended Lone Star Groundwater Conservation District's enabling legislation, changing the previously nine member appointed board to a seven member elected board. Four of the directors are elected from each county commissioner's precincts (Place No. 1-4), one director is elected by the voters at large (Place No. 5), one director is elected from the City of Conroe (Place No. 6) and one director is elected from the Woodlands Township (Place No. 7).

The newly elected Board of Directors were sworn in on November 16, 2018 under the new board structure in which the permanent directors serve in staggered four-year terms and prohibit a director from serving more than three full terms. The LSGCD's Board of Directors serve to protect private property rights, while developing and promoting strategies to both conserve and utilize groundwater resources in Montgomery County.



Directors Harry Hardman, Stuart Traylor and Jim Spigener being sworn in by the Honorable Kristin Bays, 284th District Court.

The purpose behind Lone Star GCD rules is to carry out the powers and duties provided by Chapter 36 of the Texas Water Code to control subsidence, prevent degradation of water quality, or prevent waste of groundwater. A major objective of the rules is to establish a permitting program, which LSGCD carries out through well registration and permitting.

To create fair and impartial rules, the Board of Directors elected to participate in various study groups, consisting of a Technical Study Group and a Non-Technical Study Group. Each group met regularly over 14 months to review the old rules and discuss potential changes in amendments and District technical consultants performed various analyses, which were shared with each group during the process. After each group developed recommendations, Lone Star GCD's legal counsel prepared draft rules with technical and operational input for publication.

Following publication of the proposed rule amendments in July 2020, the District held public workshops, stakeholder meetings and two rulemaking hearings. These workshops, meetings and hearings provided an opportunity for the public to give oral and written comments on the proposed revisions and allowed District staff and consultants to address questions and concerns. While many of the District rules remained the same, changes were made that will affect District permit holders.

The rule amendments involved a repeal of all phases of the District's Regulatory Plan ("DRP") as part of compliance with the final judgment in *City of Conroe, et. al. v. Tramm et. al.* No. 15-08-08942, in the 284th

District Court of Montgomery County, Texas. Under the new rule changes, the District no longer has large or small volume user designations, nor does it require any permit holder to join a groundwater reduction plan (GRP). Permitting and invoicing will be done directly with the District, which is now issuing operating permits for the Chicot/Evangeline (considered one aquifer for regulatory purposes), Jasper and Catahoula aquifers.

The changes also included the move from annual permits to perpetual permit terms; a 60-day grace period for exempt wells to register; a temporary drought buffer when certain conditions are reported by the Texas Water Development Board; an update to the groundwater transport fee; removal of the surface impoundment restriction; an increased violation fee for overproduction; and other non-substantial changes.

Additionally, all new wells for which a registration or permit application is filed after the Effective Date may not be drilled within 50 feet of the nearest adjacent property line. New, non-exempt wells shall be spaced from all registered and permitted wells completed in the same Aquifer of the District based upon the capacity of the proposed new, non-exempt well. New guidelines were set for a required Hydrogeological Report to be completed for any modification request, spacing exemptions or increase allocations of existing wells resulting in production of 700 gallons per minute (gpm) or greater or new applications requesting to drill a new well with a proposed aggregate production of 700 gpm or greater.

The District will continue to protect both public and private wells by adopting and enforcing rules as authorized by Chapter 36 and consistent with state law.

## SUCCESSFUL ACHIEVEMENT OF 2020 MANAGEMENT GOALS

The 75th Texas Legislature in 1997 enacted Senate Bill 1 (SB1) to establish a comprehensive statewide water planning process. In particular, SB1 contained provisions that required groundwater conservation districts to prepare management plans that identify the water supply resources and water demands, which will shape the decisions of each district. SB1 designed the management plans to include management goals for each district to manage and conserve the groundwater resources within their boundaries.

Each year, the District is charged with providing evidence of the District's progress in achieving the management goals set forth in the District's Groundwater Management Plan. The evidence of the District's progress toward each goal is included in this Annual Report and made available to the public after adoption by the board of directors. This report is intended to fulfill the requirement of the District's Groundwater Management Plan in complying with the achievement of management goals as outlined herein.

### GOAL 10.1: EFFICIENT USE OF GROUNDWATER

#### MANAGEMENT OBJECTIVE 1

The District will maintain a monitoring well network to provide coverage across aquifers and measure water levels at least once every calendar year. A written analysis of the water level measurements from the monitoring wells will be made available through a presentation to the Board of Directors at least once every three years.

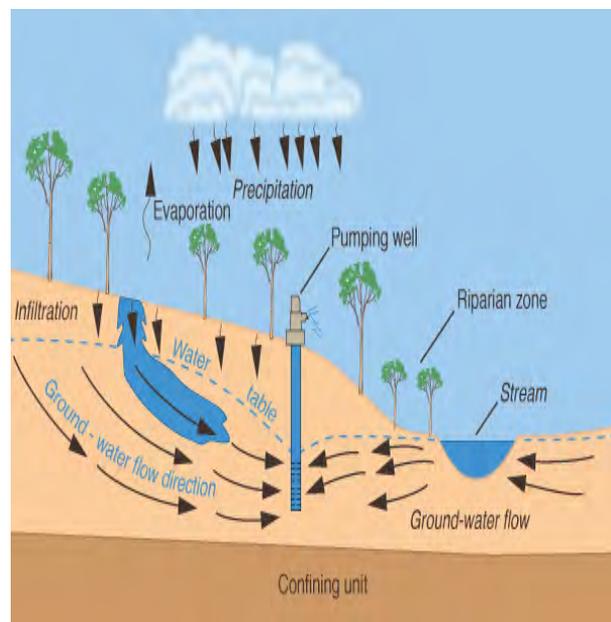
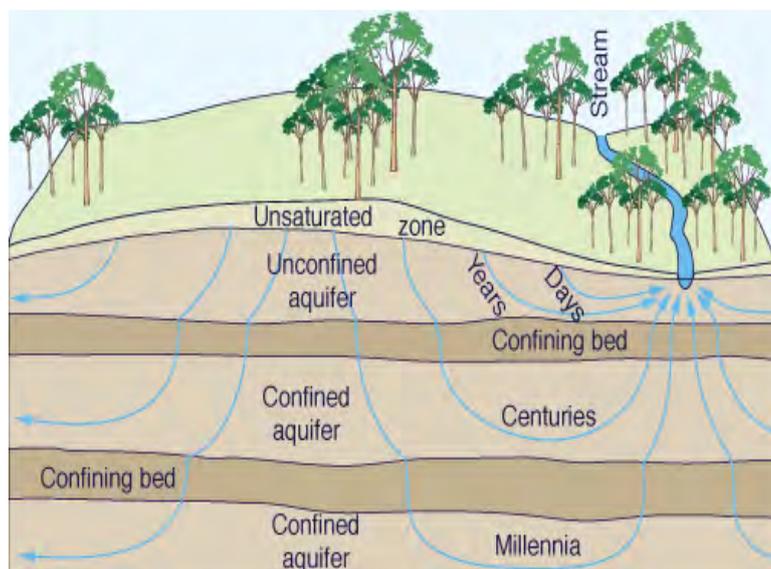
#### PERFORMANCE STANDARD 1

Maintain a monitoring well network and its criteria, and measure monitoring wells at least once every calendar year and perform site inspections as necessary.

#### STATUS

Primary withdrawal of public water supply occurs from the

Evangeline and Jasper Aquifers. The USGS, in cooperation with the District, have worked together to monitor and assess the Gulf Coast Aquifer System by conducting yearly synoptic water level measurements, evaluations and continuous real time data collection within the Montgomery County region. A link to the District's well data can be found on the District's website.



## Management Goal 10.1.

### MANAGEMENT OBJECTIVE 2

The District will continue to support the activities of the Gulf Coast/Montgomery County Water Efficiency Network, WaterWise Program, and the Home Water Works, and maintains a technical library of information providing guidance on the efficient use of water.

### PERFORMANCE STANDARD 2

Program updates, notifications of monthly meetings and links to improve efficiency will be posted on the District website.

### STATUS

The District continues to support water conservation throughout Montgomery County. Due to the COVID-19 pandemic sweeping the nation, scheduled visits to classrooms were postponed and attendance to community events were canceled during Governor Abbott's statewide lock-down throughout Texas in 2020.



### MANAGEMENT OBJECTIVE 3

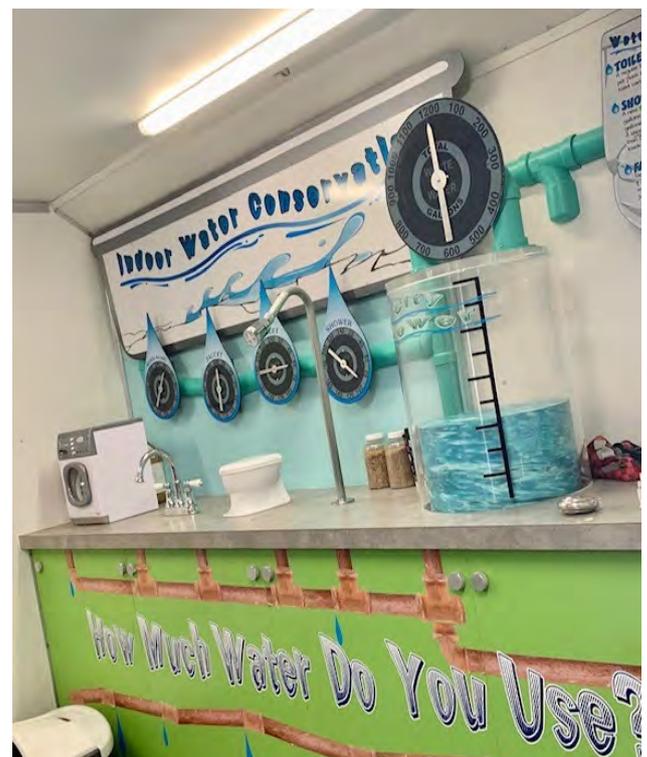
The District will provide educational leadership to citizens annually through at least one printed brochure, and/or by speaking at service organizations and public schools as provided for by the District's public education program.

### PERFORMANCE STANDARD 3

Each year a summary of the publications and speaking appearances done by the District's public education program will be included in the Annual Report provided to the Board of Directors.

### STATUS

The District provides water conservation education opportunities for students in classrooms throughout Montgomery County. A multi-faceted program is implemented with hands-on learning utilizing the District's Mobile Lab and classroom curriculum following TEKS guidelines.



## 2020 Education & Outreach

*Public education is critical to encouraging and promoting conservation. By way of the District's Education and Conservation Outreach Coordinator, the District can attend numerous speaking engagements, tours and events throughout the county, allowing staff to directly interact with the public. Below are a few of the public interaction opportunities in which staff was involved:*

- 9th Annual Gulf Coast Water Conservation Symposium
- Central Texas Water Conservation Symposium
- Montgomery County State of the City Luncheon
- Texas 4-H Water Ambassadors Advisory Committee
- Leadership SJRA Texas Groundwater Law Presentation
- Texas Wildlife Expo
- North Texas Outdoor Watering Summit
- Rainwater Harvesting 101 & Rainwater Lawn Care Workshop
- Texas Groundwater Annual Summit



# Management Goal 10.1.

## MANAGEMENT

### OBJECTIVE 4

Each year, the District will require all new exempt or permitted wells that are constructed within the boundaries of the District to be registered or permitted with the District in accordance with the District Rules.

## PERFORMANCE

### STANDARD 4

Each year the District will accept, process, and review applications for the permitted use of groundwater in the District in accordance with the permitting process established by District Rules. The number and type of applications made for the permitted use of groundwater in the District and the number and type of permits issued by the District will be included in the Annual Report submitted to the Board of Directors.

## STATUS

To demonstrate completion of Performance Standard 4, the number of exempt and permitted (non-exempt) wells registered with the District for 2020 is provided in Table 1. Table 2 is included to reference the type and number of applications for permitted use received by the District.

**TABLE 1: NUMBER OF EXEMPT AND PERMITTED WELLS REGISTERED OR PERMITTED BY THE DISTRICT FOR 2020**

|  |            |
|--|------------|
| Number of Exempt Wells Registered .....              | 420        |
| Number of Non-Exempt Wells Permitted .....           | 47         |
| Number of Non-Exempt Catahoula Wells Permitted ..... | 1          |
| <b>TOTAL .....</b>                                   | <b>468</b> |

**TABLE 2: NUMBER AND TYPE OF APPLICATIONS FOR THE PERMITTED USE OF GROUNDWATER IN 2020**

|  |            |
|--|------------|
| Amendment to an Existing Operating Permit or Historical Use Permit Application*..... | 201        |
| New Operating Permits** .....  | 44         |
| Amendment to an Existing Alternative Water Source Permit*.....                       | 2          |
| New Alternative Water Source Permit** .....  | 0          |
| <b>TOTAL .....</b>   | <b>247</b> |

\*Applications for Permit Amendments may not reference a specific well.

\*\*Applications for new operating permits may include more than one well.

## MANAGEMENT

### OBJECTIVE 5

The District will maintain qualified staff and technical consultants necessary to execute and maintain the District's well registration and permitting system. This effort includes the timely processing and technical reviews of permit applications. Each year, the District will regulate the production of groundwater within the boundaries of the District in accordance with the District's rules.

*continued on page 10*

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**PERFORMANCE  
STANDARD 5**

The District maintains a qualified staff to assist water users in protecting, preserving, and conserving groundwater resources. The Board of Directors has in the past and continues today to base its decisions on the best data available to treat all water users as equitably as possible. Once data is collected, the District utilizes a wide variety of forums to provide important information to water users throughout

the District so that sound decisions regarding the efficient use of groundwater can be made.

**STATUS**

The District will evaluate and monitor groundwater conditions and regulate production consistent with District Rules. Production will be regulated, as needed, to conserve groundwater and protect groundwater users, with consideration of private property owner's rights.

**GOAL 10.2: CONTROLLING AND  
PREVENTING WASTE OF GROUNDWATER**

**MANAGEMENT  
OBJECTIVE 1**

The District operates a waste prevention outreach strategy that focuses on enhancing the use of the District's website to provide resources applicable to the prevention of groundwater waste. The District website provides a routinely updated link containing a Best Management Practices Guide (published by the Texas Water Conservation Advisory Council in partnership with the TWDB). The District will work to identify outreach opportunities with regional and local water providers so as to increase public awareness for the prevention of groundwater waste.

ment Practices, which includes helpful tips to control and prevent the waste of groundwater.

**STATUS**

The District maintains a link on its website to the most recent version of the *Best Management Practices Guide* by the Water Conservation Advisory Council. Additional helpful links on conservation are also available, including Best Management Practice mini-guides specific to Agriculture, Commercial and Institutional, Industrial, Municipal and Wholesale.

**MANAGEMENT  
OBJECTIVE 2**

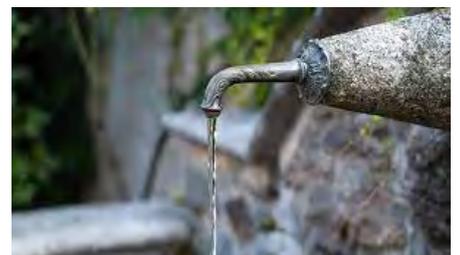
Each year, the District will apply a water use fee structure to the permitted use of groundwater in the District to encourage the elimination and reduction of waste of groundwater.

**PERFORMANCE  
STANDARD 2**

Each year, with the exception of wells exempt from permitting, the District will apply a water use fee to the permitted use of groundwater in the District pursuant to District Rules. The amount of fees generated by the water use fee structure and the amount of water used for each type of permitted use of groundwater will be included in the Annual Report submitted by the General Manager to the Board of Directors of the District.

**STATUS**

See tables 3 & 4 on page 12



**PERFORMANCE  
STANDARD 1**

The District provides and will routinely update the link on the District's website to Best Manag-

cont'd from page 11

**TABLE 3: THE AMOUNT OF WATER USE FEES GENERATED BY THE DISTRICT IN 2020**

| Water Use Type                      | Permitted Amount              | Fee Rate               | Fee Amount            |
|-------------------------------------|-------------------------------|------------------------|-----------------------|
| *HUP / Operating Permits            | <b>28,176,957,100</b>         | \$0.085/1,000 gallons  | <b>\$2,395,041.35</b> |
| Water Subject to Transportation Fee | <b>21,046,190</b>             | \$0.0425/1,000 gallons | <b>\$894.46</b>       |
| AG Permits/Applications             | <b>526,699,000</b>            | \$1.00 per acre foot   | <b>\$1,616.00</b>     |
| Catahoula AWS Production Permits    | <b>2,769,640,000</b>          | \$0.06/1,000 gallons   | <b>\$166,178.40</b>   |
| <b>Total</b>                        | <b>31,494,342,290 gallons</b> |                        | <b>\$2,563,730.21</b> |

\*May include water transported out of the District but not subject to transportation

**TABLE 4: AMOUNT OF WATER REPORTED TO DISTRICT AS PUMPED FOR EACH TYPE OF PERMITTED GROUNDWATER USE**

|                               |             |                                     |                       |
|-------------------------------|-------------|-------------------------------------|-----------------------|
| Commercial .....              | 110,580,328 | Public Supply (PWS).....            | 18,956,104,168        |
| Industrial.....               | 451,869,858 | *AWS-CRAF.....                      | 1,516,761,000         |
| Irrigation.....               | 764,446,151 | <b>**Total .....</b>                | <b>22,005,898,008</b> |
| Irrigation (Agriculture)..... | 120,483,370 | <b>Grand Total.....<sup>†</sup></b> | <b>20,489,137,008</b> |
| Public Supply .....           | 85,653,213  |                                     |                       |

\* AWS-Catahoula Restricted Aquifer Formation | \*\*Data received as of March 16, 2021. The reported pumping for 2020 is incomplete due to incomplete reporting by a small number of permittees | † Less AWS Pumping



## GOAL 10.3: CONTROLLING AND PREVENTING SUBSIDENCE

### MANAGEMENT

#### OBJECTIVE 1

The District, shall in cooperation with the Harris-Galveston Subsidence District, monitor in real-time and maintain a network of 6 subsidence monitor stations to continually measure subsidence.

### PERFORMANCE

#### STANDARD 2

Results from the subsidence monitor stations will be noted in the summary of the joint conference on subsidence and included in the Annual Report submitted by the General Manager to the District Board of Directors.

### STATUS

In 2020, LSGCD continued to collect data from the 6 subsidence monitor stations throughout Montgomery County. The results of the data collected to date from all stations are available for viewing by the public on the District's website.

### MANAGEMENT

#### OBJECTIVE 2

Each year, the District shall participate in a joint conference with the neighboring groundwater conservation or subsidence districts focused on sharing information regarding subsidence and the control and prevention of subsidence through the regulation of groundwater production.

### PERFORMANCE

#### STANDARD 2

Each year, a summary of the joint conference on issues regarding subsidence will be included in the Annual Report submitted by the General Manager to the Board of Directors.

### STATUS

Due to the pending approval of the District management plan and forecasting rule amendments, it was agreed that both entities would continue to work closely together in all matters impacting subsidence in the future.

In October 2019, in cooperation with the USGS and Fort Bend Subsidence District, Houston-Galveston Subsidence District began updating the groundwater availability model for the northern portion of the Gulf Coast Aquifer System. The new model is expected to be completed by the end of 2021.

### MANAGEMENT

#### OBJECTIVE 3

Controlling and preventing subsidence will be addressed during the review and processing of permits as authorized in Chapter 36 and District Rules, and in setting desired future conditions for the common reservoirs and in setting the desired future conditions for the common reservoirs insofar as excessive groundwater withdrawal may cause subsidence.

### PERFORMANCE

#### STANDARD 3

The District will continue its subsidence study and provide updates on the results of the study in the Annual Report provided to the Board of Directors.

### STATUS

In 2020, District consultants began a thorough assessment of subsidence within Montgomery County. The entire proposed subsidence study will include three (3) phases as follows:

**Phase 1-** *Assessment of Past and Current Investigations*

**Phase 2-** *Detailed Technical Evaluation of Data and Modeling*

**Phase 3-** *Appraisal of Ramifications and Future Considerations*

Updates and results of the subsidence study phases will be made available to the Board and public upon being presented by the District technical consultants at the monthly Board meetings.



Subsidence has been a concern in certain areas of the entire the Gulf Coast Region for nearly a century, specifically in coastal areas and large portions of Harris and Galveston counties. Lone Star Groundwater Conservation District continues its commitment to fulfill it's statutory mandate to control subsidence. In 2019, District consultants began a thorough assessment of subsidence within Montgomery County. The first of its kind, the subsidence study focused solely on Montgomery County's perspective and aims to address specific concerns of future subsidence, faulting and possible flooding elements.

Contracting with outsourced hydro-geologists, the District and consultants created a plan to assess past subsidence data and further future monitoring efforts by breaking the study into three phases as follows:

*Phase One – Assessment of Past and Current Investigation*

*Phase Two – Detailed Technical Evaluation of Data and Modeling*

*Phase Three – Appraisal of Ramifications and Future Considerations*

The initial Study of Phase One standards focused on an in-depth review of previous studies and models to create a working knowledge and database, while estimating the timing and cause of past subsidence within Montgomery County. The District consultants required a strong knowledge of where, in which zones and the extent of potential subsidence possible throughout Lone Star GCD's jurisdiction.



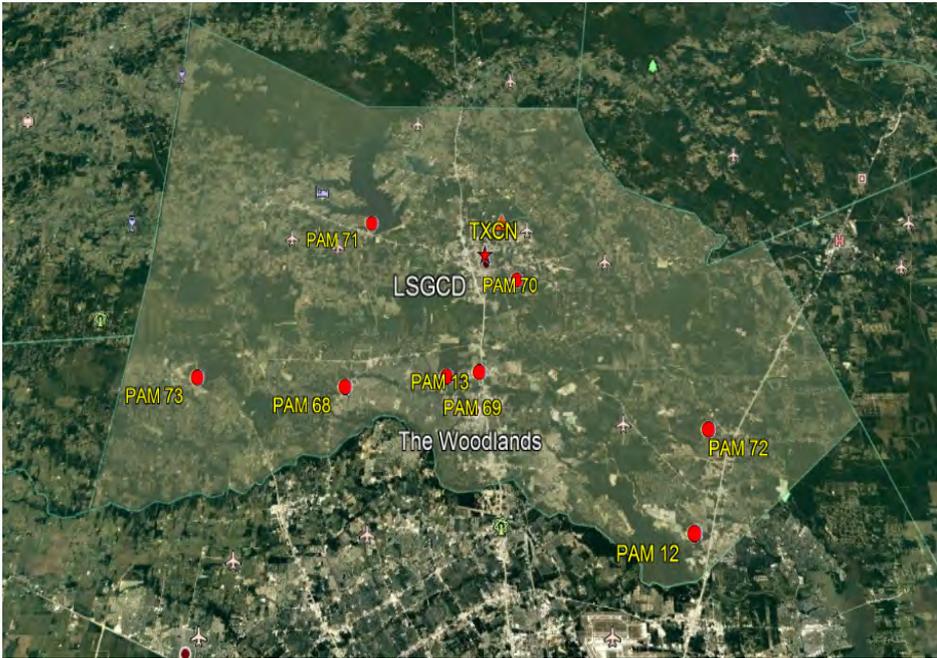
Throughout Phase One of the subsidence study, it was observed that although preceding and on-going studies and monitoring data provided profound understanding of growth faults and subsidence within the region, further examination and precise considerations for Montgomery County must be evaluated to originate decisive answers. Detailed correlation of land-surface movement and aquifer changes, particularly pumpage and water-levels are necessary to designate a cause-and-effect relationship when considering subsidence in Montgomery County.

Phase One work involved effectively compiling comprehensive background data and developing a working understanding and knowledge of land-surface movement to be able to conduct the necessary subsequent detailed data analyses, technical evaluations, critiques, modeling and assessments of implications relative to Montgomery County.

After completion of Phase One in 2020, the Lone Star GCD Technical Consulting Team developed a Scope of Service and specific goals to Phase II of the Subsidence Investigations. The final draft report will be presented to the Board of Directors upon completion.



# Management Goal 10.3.



A reproduction of the subsidence monitoring system stations throughout Montgomery County

**LINKS:**  
 Lone Star GCD's PAM units:  
[www.lonestargcd.org/subsidence](http://www.lonestargcd.org/subsidence)  
 Harris-Galveston Subsidence District  
[www.hgsubsidence.org](http://www.hgsubsidence.org)



## Management Goal 10.4.

### **GOAL 10.4:** *CONJUNCTIVE SURFACE WATER MANAGEMENT ISSUES*

#### MANAGEMENT

##### OBJECTIVE 1

Each year, the District's designated representative will participate in the regional planning process by attending at least one of the Region H Regional Water Planning Group meetings annually.

#### PERFORMANCE

##### STANDARD 1

The participation and attendance of the District's designated representative at each Region H Regional Water Planning Group Meeting will be noted in the Annual Report submitted by the General Manager to the Board of Directors.

#### STATUS

Upon resignation of General Manager, Kathy Turner Jones, the GMA 14 districts voted to have Samantha Reiter serve as the alternate to Gary Ashmore as the voting member of the Region H Regional Planning Group. The District's representative, the General Manager, continued to participate in the regional planning process by attending 75 percent of the Region H meetings. Attendance at the meetings provides the District with the opportunity to provide valuable input regarding the role of groundwater in overall regional planning and to encourage the development of surface water supplies and conjunctive use to help meet the needs of water user groups in the District.

#### MANAGEMENT

##### OBJECTIVE 2

The District will review the State Water Plan in **Appendix B** and coordinate with public water supplies, other stakeholders and surface water management entities on conjunctive use.

#### PERFORMANCE

##### STANDARD 1

Each year the District will include a summary of the District's review of the State Water Plan and meeting summaries on the conjunctive use in the Annual Report to the Board of Directors of the District.

#### STATUS

The District works to address conjunctive surface water management issues by participating in regional joint planning through GMA 14 and the Region H Regional Planning Group. As a means to facilitate conjunctive use discussions within Montgomery County, the District is considering hosting an annual meeting with Montgomery County public water suppliers, surface water management entities and other stakeholders to discuss the various strategies that could be implemented to meet water demands in the future or in times of groundwater shortages.

#### REGION H WATER PLANNING GROUP ATTENDANCE

##### February 5, 2020

Samantha Reiter

##### April 23, 2020

Samantha Reiter

##### July 1, 2020

Samantha Reiter

##### September 2, 2020

Samantha Reiter

## GOAL 10.5: NATURAL RESOURCE ISSUES

### MANAGEMENT

#### OBJECTIVE 1

The District will monitor permit applications and permit amendment applications for Class II injection wells filed with the Railroad Commission of Texas and Class I and Class V injection well permit applications and permit amendment applications filed with the Texas Commission on Environmental Quality. District staff will review these notices and brief the Board of Directors as appropriate. A summary of injection well permit activity and any action taken by the District in the response will be included in the Annual Report submitted by the General Manager to the Board of Directors of the District.

### PERFORMANCE

#### STANDARD 1

Beginning with the 2014 Annual Report, a summary of injection well permit activity at the Railroad Commission of Texas and the Texas Commission on Environmental Quality along with any actions taken by the District in response will be included in the Annual Report submitted by the General Manager to the Board of Directors of the District.

#### STATUS

In October 2019, the District received a copy of an application for an injection well permit filed by Denbury Onshore, LLC with the Railroad Commission of Texas. The District's legal counsel identified a couple areas

of concern and the General Manager timely filed a protest of the application. There was concern in the request, as Denbury asked to recomplete an old well (drilled in 1933) into an injection well, there was question on the age of the casing in the well, and the likelihood of corrosion which could cause casing failure and endanger shallow fresh-water aquifers. There were also concerns with the proposed maximum injection rate given the shallow injection interval top.

The District's legal counsel worked with Denbury's counsel to address the District's concerns. Denbury filed an amended application that addressed the District's concerns. Denbury agreed to all three of the terms requested by the District and based on the amended application, the District withdrew its protest.



## GOAL 10.6: DROUGHT CONDITIONS

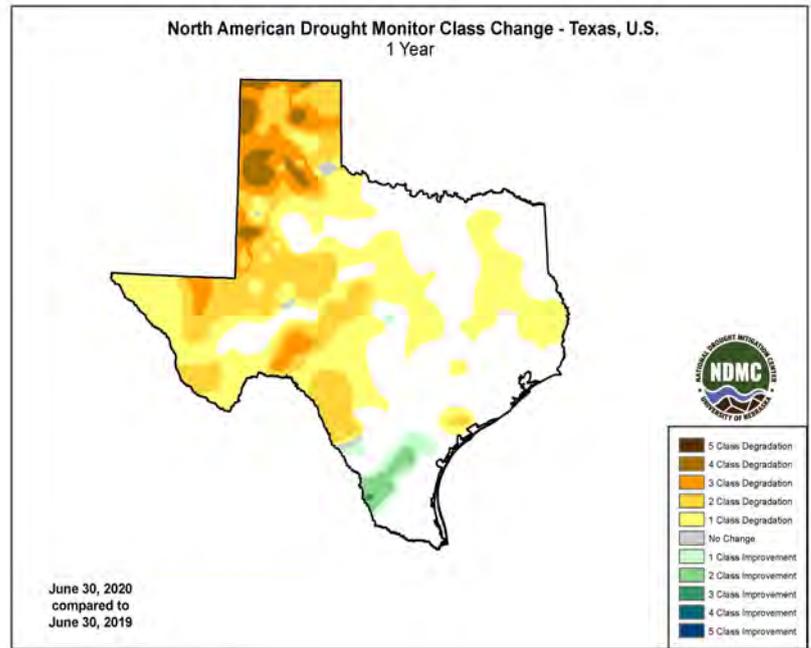
### MANAGEMENT

#### OBJECTIVE 1

An important objective of the District is to provide on-going and relevant drought related meteorological information. Beginning in 2014, the District began making available through the District's website easily accessible drought information with an emphasis on developing drought and current drought conditions. At least one of the following links will be provided: updates on the US Drought Monitoring Map for the region, the Drought Preparedness Council Situation Report, and the TWDB Drought page.

#### PERFORMANCE STANDARD 1

Current drought condition information from at least one of the following will continue to be available to the public on the District's website and noted in the Annual Report submitted to the Board of Directors: the US Drought Monitor map for the region, the Drought Preparedness Council Situation Report, or the TWDB Drought page.



droughtmonitor.unl.edu/nadm/

### LOCAL PRECIPITATION

According to precipitation data collected from the weather station located at Conroe-North Houston Regional Airport (station ID # USW0053902), 2020's annual rainfall total equaled 39.91 inches, 7.58 inches less than 2019's total precipitation (47.49 inches).

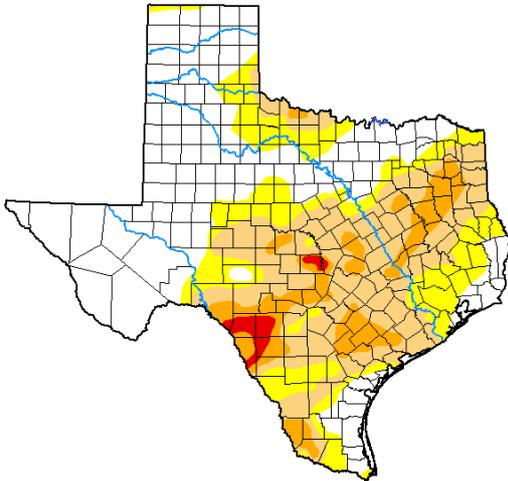
Four months of the year saw rainfall totals greater than 4 inches- April, May, June and December. While June was recorded as the wettest month of the year, with 7.24 inches of rainfall, in October we experienced the driest month of the year receiving only 0.96 inches of rain.

### STATUS

Links to the US Drought Monitor maps and situation reports can be found on the District website.



## U.S. Drought Monitor Texas



**January 14, 2020**  
(Released Thursday, Jan. 16, 2020)  
Valid 7 a.m. EST

Drought Conditions (Percent Area)

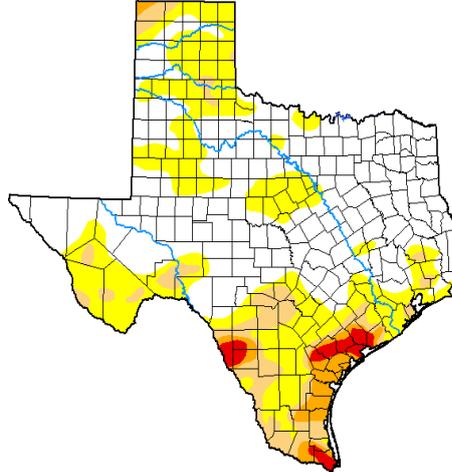
|   | None  | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4   |
|---|-------|-------|-------|-------|-------|------|
| <b>Current</b>                              | 44.70 | 55.30 | 36.79 | 10.76 | 1.29  | 0.00 |
| <b>Last Week</b><br>01-07-2020              | 42.97 | 57.03 | 37.79 | 11.87 | 1.34  | 0.00 |
| <b>3 Months Ago</b><br>10-15-2019           | 38.24 | 61.76 | 50.39 | 26.33 | 9.37  | 0.00 |
| <b>Start of Calendar Year</b><br>12-31-2019 | 44.69 | 55.31 | 36.12 | 9.19  | 0.74  | 0.00 |
| <b>Start of Water Year</b><br>10-01-2019    | 31.74 | 68.26 | 46.05 | 22.33 | 6.32  | 0.00 |
| <b>One Year Ago</b><br>01-15-2019           | 91.82 | 8.18  | 1.60  | 0.00  | 0.00  | 0.00 |

Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

## U.S. Drought Monitor Texas



**May 12, 2020**  
(Released Thursday, May 14, 2020)  
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

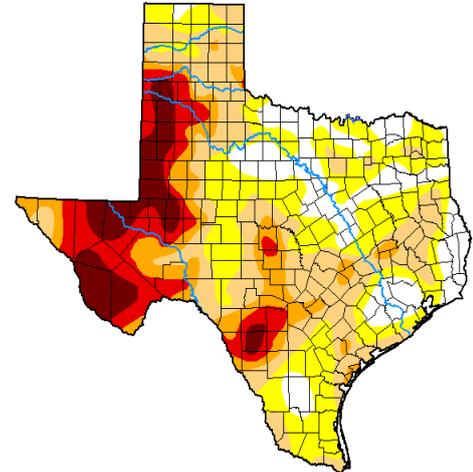
|   | None  | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4   |
|---|-------|-------|-------|-------|-------|------|
| <b>Current</b>                              | 54.68 | 45.32 | 14.65 | 5.44  | 1.99  | 0.00 |
| <b>Last Week</b><br>05-05-2020              | 68.53 | 31.47 | 13.31 | 6.14  | 1.71  | 0.00 |
| <b>3 Months Ago</b><br>02-11-2020           | 52.03 | 47.97 | 32.68 | 13.95 | 1.87  | 0.00 |
| <b>Start of Calendar Year</b><br>12-31-2019 | 44.69 | 55.31 | 36.12 | 9.19  | 0.74  | 0.00 |
| <b>Start of Water Year</b><br>10-01-2019    | 31.74 | 68.26 | 46.05 | 22.33 | 6.32  | 0.00 |
| <b>One Year Ago</b><br>05-14-2019           | 99.57 | 0.43  | 0.00  | 0.00  | 0.00  | 0.00 |

Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

## U.S. Drought Monitor Texas



**November 10, 2020**  
(Released Thursday, Nov. 12, 2020)  
Valid 7 a.m. EST

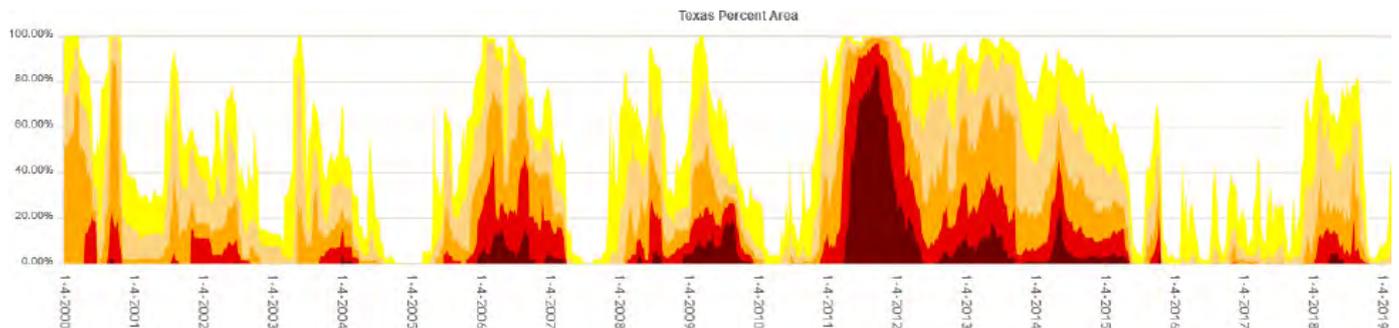
Drought Conditions (Percent Area)

|   | None  | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4   |
|---|-------|-------|-------|-------|-------|------|
| <b>Current</b>                              | 15.71 | 84.29 | 56.86 | 30.67 | 19.33 | 8.61 |
| <b>Last Week</b><br>11-03-2020              | 32.17 | 67.83 | 45.52 | 25.00 | 13.54 | 3.93 |
| <b>3 Months Ago</b><br>08-11-2020           | 34.17 | 65.83 | 39.93 | 17.68 | 4.88  | 0.00 |
| <b>Start of Calendar Year</b><br>12-31-2019 | 44.69 | 55.31 | 36.12 | 9.19  | 0.74  | 0.00 |
| <b>Start of Water Year</b><br>09-29-2020    | 57.35 | 42.65 | 31.96 | 20.91 | 12.02 | 3.29 |
| <b>One Year Ago</b><br>11-12-2019           | 46.76 | 53.24 | 31.97 | 11.04 | 0.56  | 0.00 |

Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>



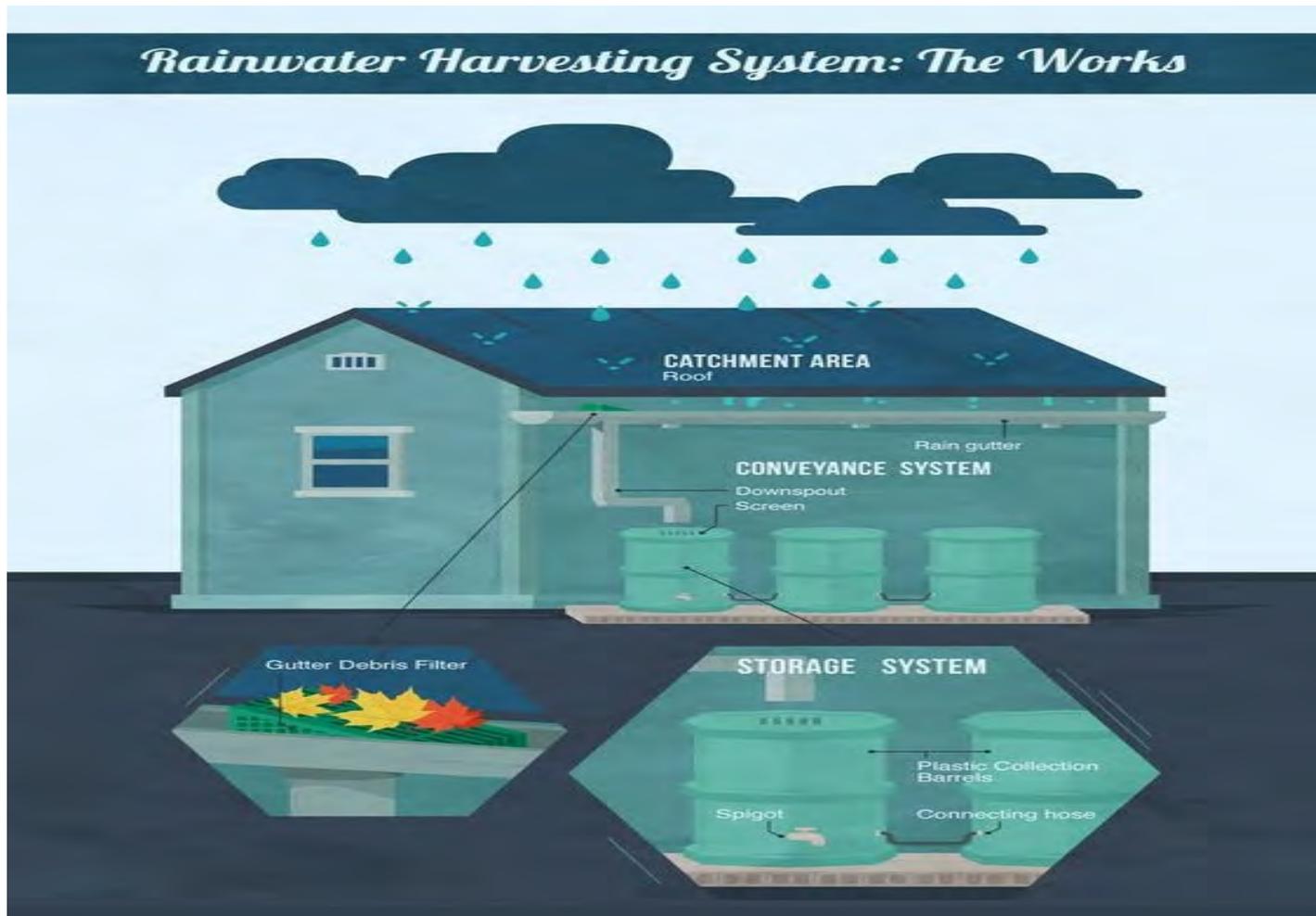
**GOAL 10.7: CONSERVATION, RECHARGE ENHANCEMENT, RAINWATER HARVESTING, PRECIPITATION ENHANCEMENT, OR BRUSH CONTROL WHERE APPROPRIATE AND COST EFFECTIVE**

Conservation and rainwater harvesting have been determined to be appropriate goals for the District. As part of the effort, the District is sponsoring and participating in water conservation programs such as the Gulf Coast/Montgomery County Water Efficiency Network, Texas WaterWise Program and the Home Water Works.

A visit to the District's headquarters is all that is required to realize the commitment of the District to rainwater harvesting. The entire comprehensive water conservation demonstration facility was designed as a

demonstration to the citizens of Montgomery County on the positive benefits of rainwater harvesting in reducing water consumption from the Gulf Coast Aquifer. The design and subsequent construction techniques integrated into the District headquarters have not only caught the attention of local residents, but also the 2010 Texas Water Development Board for the innovation demonstrated by the design of the new comprehensive water conservation demonstration facility.

After review by the Board of Directors, the General Manager and the District's technical consultants, it has been determined that the recharge enhancement, precipitation enhancement, and the brush control are not appropriate groundwater management strategies for the District. This evaluation is based on cost of operating and maintaining these programs, lack of neighboring programs in which to participate, and probable lack of effectiveness of these programs due to the climate, hydrogeology, and philosophy of the District.





# 7 STEPS TO INSTALLING A RAIN BARREL

Installing a rain barrel is a simple DIY project that can help save up to 1,300 gallons of water during summer.

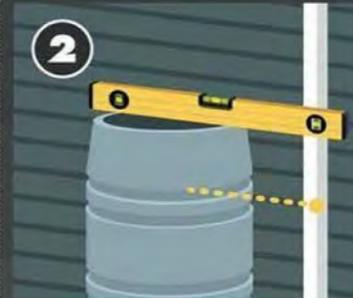
1



Remember: a full rain barrel is heavy; be sure the surface it sits on is sturdy enough to support the weight.

Prepare the area where the rain barrel will sit. Use pavers or gravel to create a level surface.

2



Place the barrel next to the downspout and mark where the diverter will be inserted.

3



Cut the marked section out of the downspout.

4



Insert the diverter in order to direct the water into the barrel.

5



Using a hole cutting saw, cut a hole in the barrel and fit the coupling in the hole.

6



Fit the linking pipe in place to direct water from the drain pipe into the barrel.

7

Test and wait for rain!



Source: <https://www.wildflower.org>

## MANAGEMENT

### OBJECTIVE 1

The District seeks to promote water conservation through an active water conservation awareness program. As part of this program, the District will maintain links to recognize water conservation awareness programs such as the Gulf Coast/Montgomery Water Efficiency Network, WaterWise Program, and the Home Water Works programs on the District's website.

## PERFORMANCE

### STANDARD 1

Links to at least one of the water conservation awareness programs such as the Gulf Coast/Montgomery County Water Efficiency Network, Water-Wise Program, and the Home Water Works Program will be provided on the District's website and noted in the Annual Report submitted by the General Manager to the Board of Directors of the District.

## STATUS

The District website contains valuable conservation links as well as references to outside expert resources. There is a "Consumer Tips" and "Resources" page, which can be accessed through the Programs and Education page, which contains practical information on ways to conserve at home, both indoors and outside. Also on the "Resources" page, there are links to outside resources, including Texas Agrilife Earth Kind Plant Selector, the Gulf Coast/Montgomery County Water Efficiency Network, WaterIQ,

Water-Use It Wisely and the Home Water Works website.

## MANAGEMENT

### OBJECTIVE 2

Educational materials specific to rainwater harvesting have been developed to highlight various water conservation techniques that are incorporated into the design of the District's headquarters. Information will be available at the main entrance of the District for visitors to take and review for homes and businesses in Montgomery County.

## PERFORMANCE

### STANDARD 2

Information on the District's headquarters and rainwater harvesting capabilities will be made available during regular business hours for use by visitors to the facilities. A summary of educational opportunities will be included in the Annual Report submitted to the Board of Directors of the District.

## STATUS

The Lone Star GCD facilities serve as real-life examples of conservation at work. The general public is welcome to visit the District during normal business hours. Upon arrival, visitors will see the arroyo (dry river bed) upon entering. The

purpose of this feature is to convey any parking lot rainwater runoff into a 15,000 gallon-capacity underground tank. The majority of the roof downspouts are directed into four stand-alone, 2,500-gallon above-ground cisterns. The collected rainwater is used to irrigate the District's landscaping, which features native plants and grasses.

This award-winning system also has corresponding educational materials framed inside the District lobby, which tells the story and shows construction photos. This enables visitors to see the underground tanks which provides perspective on how much rainwater is being utilized.

Visitors to District offices do not go away empty-handed. There is an abundance of educational material about conservation, water supply and the purpose of the District. For those interested in installing a rainwater harvesting system at their home or business, there is a rain harvesting manual available on CD USB flash drives. The manual describes all types of systems, ranging from small home systems to more elaborate ones. An additional 500-gallon rainwater harvester was added in 2017 on the backside of the District's building, to expand the building's total rainwater harvesting capacity.



## MANAGEMENT

### OBJECTIVE 3

The District added an important tool at its comprehensive demonstration facility that will collect weather data 24/7 in collaboration with Texas A&M Agrilife Extension experts. The objective of installing this equipment was to generate an Evapotranspiration ("ET") estimate to help residents use their irrigation systems more efficiently by knowing the ideal amount of water needed to sustain a healthy lawn. The District will roll out information from the program to enable commercial and residential "users" to regulate their irrigation system controllers so that they deliver only the amount of water necessary. Current measurements of ET will be maintained on the District's website.

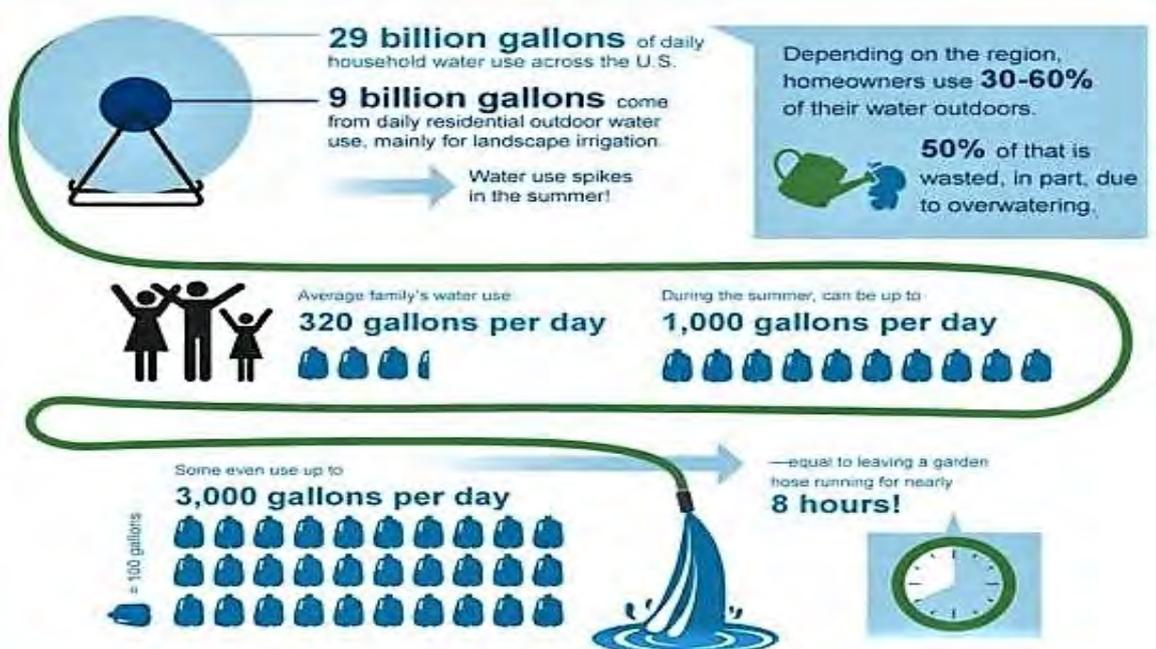
## PERFORMANCE

### STANDARD 3

Lawn watering guidance is based on current measurements of ET and will continue to be maintained on the District's website throughout the active growing season each year and noted in the Annual Report submitted by the General Manager to the Board of Directors of the District.

## STATUS

In 2020, The District continued to monitor weather conditions on a daily basis and posted weekly landscape watering advisories on its website under the heading, "Watering Recommendations". Montgomery County citizens can sign up thru the website to receive emails weekly directly to their inbox. Each week during irrigation season, working in conjunction with Texas A&M/AgriLife staff, the District compiles evaporation and transpiration information based on relative humidity, temperature, wind speed, and radiation levels as measured by the weather station located at its facilities. The water losses calculated are then compared to the amount of rainfall for the same period determining how much water should be applied to make up the difference and maintain a healthy lawn while using as little water as possible. To account for the significant variations in the amount of rainfall that occurs across an area as large Montgomery County, rainfall amounts for the previous seven days are obtained from rain gauges across the county.



## GOAL 10.8: *DESIRED FUTURE CONDITIONS*

### MANAGEMENT

#### OBJECTIVE 1

The District is committed to continually work with the other members of GMA 14 to adopt, and to achieve, the most appropriate DFC's for each relevant groundwater reservoir identified in the joint planning process. The DFC's adopted by the District will support the District's regulatory mission to afford an opportunity for a fair share to each owner of a common subsurface reservoir. Because future use and landowner's choices are uncertain, in addition to hydrologic variability and uncertainty the actual conditions of the reservoirs in the future may change.

### PERFORMANCE

#### STANDARD 1

Draft rules, public meetings, and hearing announcements, and available supporting materials will be included prior to rulemaking activities by the District on the District's website.

### STATUS

All postings, notices, and hearing announcements, and available supporting materials will be included prior to rulemaking activities by the District on the District's website at lonestargcd.org.

### MANAGEMENT

#### OBJECTIVE 2

The District will adopt well spacing and production allocation rules to implement the goals in this plan.

### PERFORMANCE

#### STANDARD 2

At least once every two years, the District will include discussion of the evaluation of the District's rules and the determination of whether any amendments to the rules are recommended.

### STATUS

The District has adopted rules to regulate groundwater withdraw by means of well spacing as authorized in Chapter 36. The District will continue to consider whether acreage based rules are appropriate.

### MANAGEMENT

#### OBJECTIVE 3

At least once every two years, the District will collect and examine monitoring well data for the Chicot, Evangeline and Jasper aquifers from all available resources including the USGS monitoring well network and the TWDB groundwater database, and analyze the historical data.

### PERFORMANCE

#### STANDARD 3

A summary of any amendments to District rules that are adopted throughout the calendar year will be included in the Annual Report submitted by the General Manager to the Board of Directors.

### STATUS

The District will maintain a monitoring well that will be used by the District to monitor aquifer conditions over time.

### PERFORMANCE

#### STANDARD 4

Based on collected monitoring and reported pumping data demonstrating trends in reservoir conditions, the District will review annually whether: (i) the current plan and rules are working effectively; and (ii) specific amendments need to be made to this plan and/or rules; or (iii) amendments are needed to meet the management goals of the District; (iv) a combination of (ii) and (iii). The collected data may be shared with GMA 14 districts and used to inform possible amendments to the adopted desired future conditions.

### STATUS

The District will make regular assessments of water levels and aquifer conditions and report those conditions, as appropriate, during public Board meetings or public announcements. Production will continue to be regulated to protect users and conserve groundwater in a manner not to adversely limit production and to achieve the "Desired Future Conditions."



The process for joint planning by Groundwater Conservation Districts (GCDs) in Groundwater Management Areas (GMAs) was originally established by House Bill 1763 in 2005 and substantially amended by Senate Bill 660 in 2011. One of the primary objectives of GMAs is to determine “desired future conditions ” (DFCs) for relevant aquifers located within each GMA. Desired future conditions are defined as the desired, quantified condition of groundwater resources (such as water levels, spring flows, or volumes) within a GMA at one or more specified future times as defined by participating GCDs within a GMA as part of the joint planning process. There are 16 GMAs in Texas, and Montgomery County is in GMA 14. In September 2018, Southeast Texas GCD’s General Manager, John Martin, was appointed to serve as Chair of GMA 14 for the next planning cycle. There are five GCDs in GMA 14 representing 13 of the 21 counties in GMA 14. Three other counties are represented by subsidence districts; five counties are not represented by any type of district. GMAs are currently in the third-round of the joint planning process, which runs from 2016-2021, with final adoption to occur by January 2022.

## MILE MARKERS

### February 24, 2020

- Following the November 2019 LSGCD presentation given to the GMA representatives, a draft of exempt well use was requested. District consultants presented model run data and a motion to digest all the information until the next meeting was made and approved unanimously.

### April 29, 2020

- Lone Star GCD consultants gave a presentation to GMA representatives summarizing the board approved option scenarios for three runs. Option 1 included less remaining available drawdown in the Gulf Coast Aquifer System. Option 2 has less remaining available drawdown in the Jasper and Option 3 is known as Run “D”. Wade Oliver, technical consultant for the GMA 14, gave a presentation explaining a new option to consider. The option was based on multiple metrics. Mr. Oliver presented the concept using 70%, 80% and 90% average available drawdowns and 0.1, 0.3, and 0.5 foot of subsidence scenarios.

### May 29, 2020

- GMA 14 technical consultant, Wade Oliver, presented a list of factors in developing a DFC. After discussion, three runs were approved by GMA 14 which included: (1) 70% drawdown with 1 foot of subsidence using the Run-D base file, (2) 70% drawdown with 1 foot of subsidence using the 2016 MAG as a base file and (3) 80% drawdown with 1 foot of subsid-

ence using the 2016 MAG file. Lone Star GCD expressed concern about having a 1 foot metric imposed on Montgomery County.

### July 15, 2020

- Following a presentation from INTERA consultants, GMA 14 representative discussed the nine factors to consider in setting a DFC. No action was taken.

### September 16, 2020

\* Wade Oliver, GMA 14 technical consultant, gave a presentation focused on the socioeconomic impact as related to Desired Future Conditions in aquifer conditions. Samantha Reiter, Lone Star GCD's General Manager, requested that other GMA 14 stakeholders contribute to the DFC discussions in the future.

### November 18, 2020

- GMA 14 recognized a panel of five lawyers that offered presentations and legal insight on Texas groundwater laws, property rights and taking claims. Mr. Martin called for discussion and possible action regarding the DFCs and the path forward for GMA 14 to accomplish statutory mandates for Round 3 Joint Planning. A motion was made to table the agenda item to allow time for representatives to review the draft sections of the explanatory report and address the final two factors at the next meeting. The motion was seconded and carried unanimously.

# Saving Water at Home

**Fixing household leaks right away saves up to 20 gallons a day**

**Washing only full loads of dishes and laundry saves up to 50 gallons per week**

**Spending only 5 minutes in the shower saves up to 8 gallons each time**

**Turning off water while brushing your teeth saves up to 2.5 gallons a minute**

**Buying water-saving devices like high-efficiency washing machines or toilets saves many gallons a day**

**Using a broom instead of a hose to clean your driveway saves up to 150 gallons each time**

**Cutting down on watering your lawn to 1-2 days a week saves up to 840 gallons**

**Watering your plants in the early morning or evening to reduce evaporation saves up to 25 gallons each time**

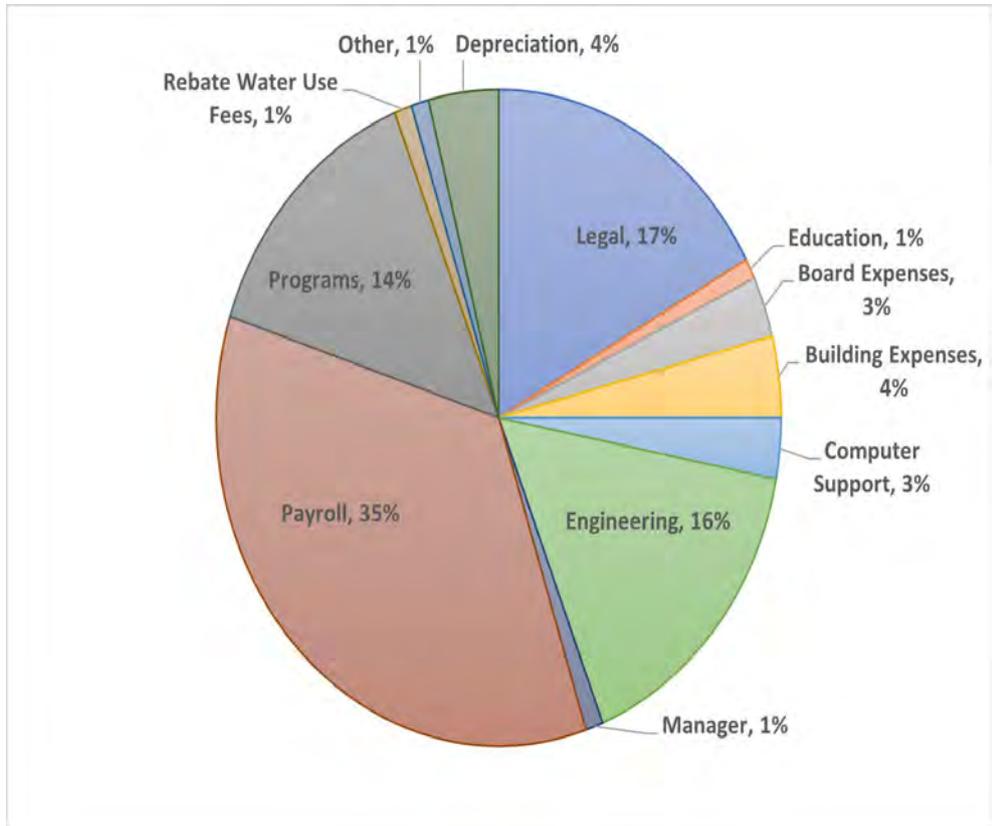
**Checking your sprinklers for leaks and repairing quickly saves up to 500 gallons a month**

**Installing a smart sprinkler controller that adjusts watering based on weather saves up to 40 gallons a day**



**\$2.64M**  
**2020**  
**Total**  
**Income**

**\$1.74M**  
**2020**  
**Total**  
**Expense**



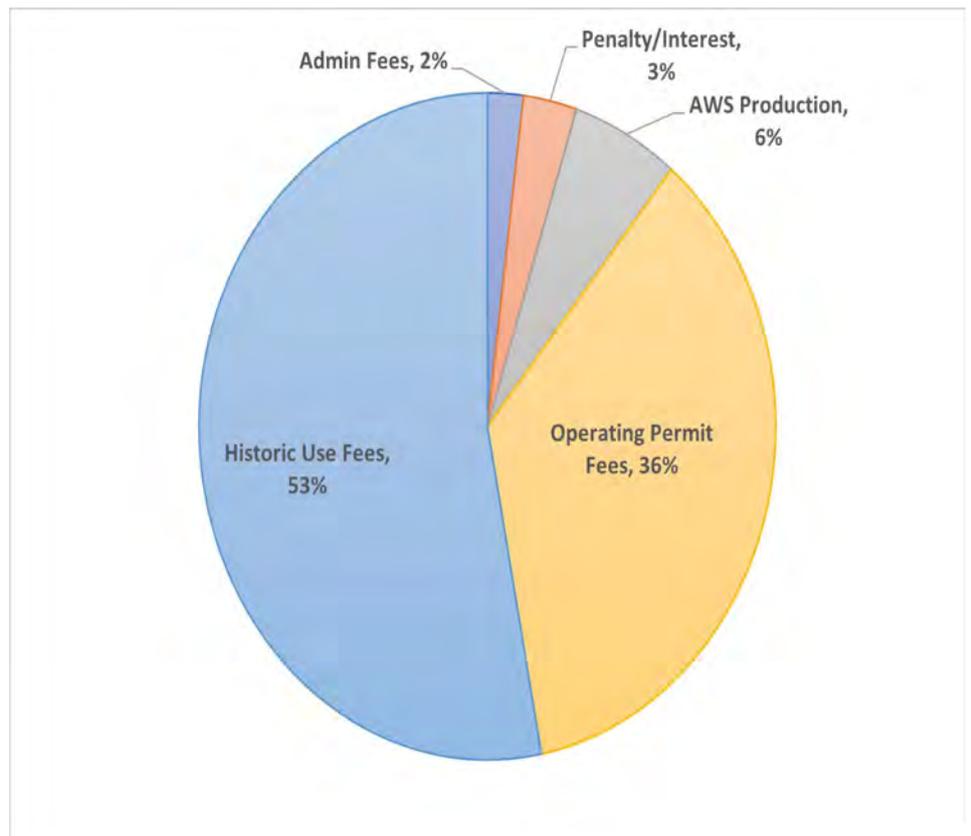
## FINANCIAL SUMMARY<sup>1</sup>

For the calendar year ending December 31, 2020, the District's total cash increased by \$909,364 and the District's current liabilities decreased by \$252,031.

The District's net position for 2020 increased by \$915,274.

The District's total net position increased by 17% compared to 2019.

<sup>1</sup>These amounts are per the audited financial states for the year ended on December 31, 2020.



# LONE STAR GROUNDWATER CONSERVATION DISTRICT



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