2024 Annual Report

2024 Board of Directors

Bruce Moulton – President

Linda Kaye Rogers – Vice President

David Smith – Secretary/Treasurer

Doc Jones

Carlos Torres-Verdin

Marcus Gary

2024 Staff Members

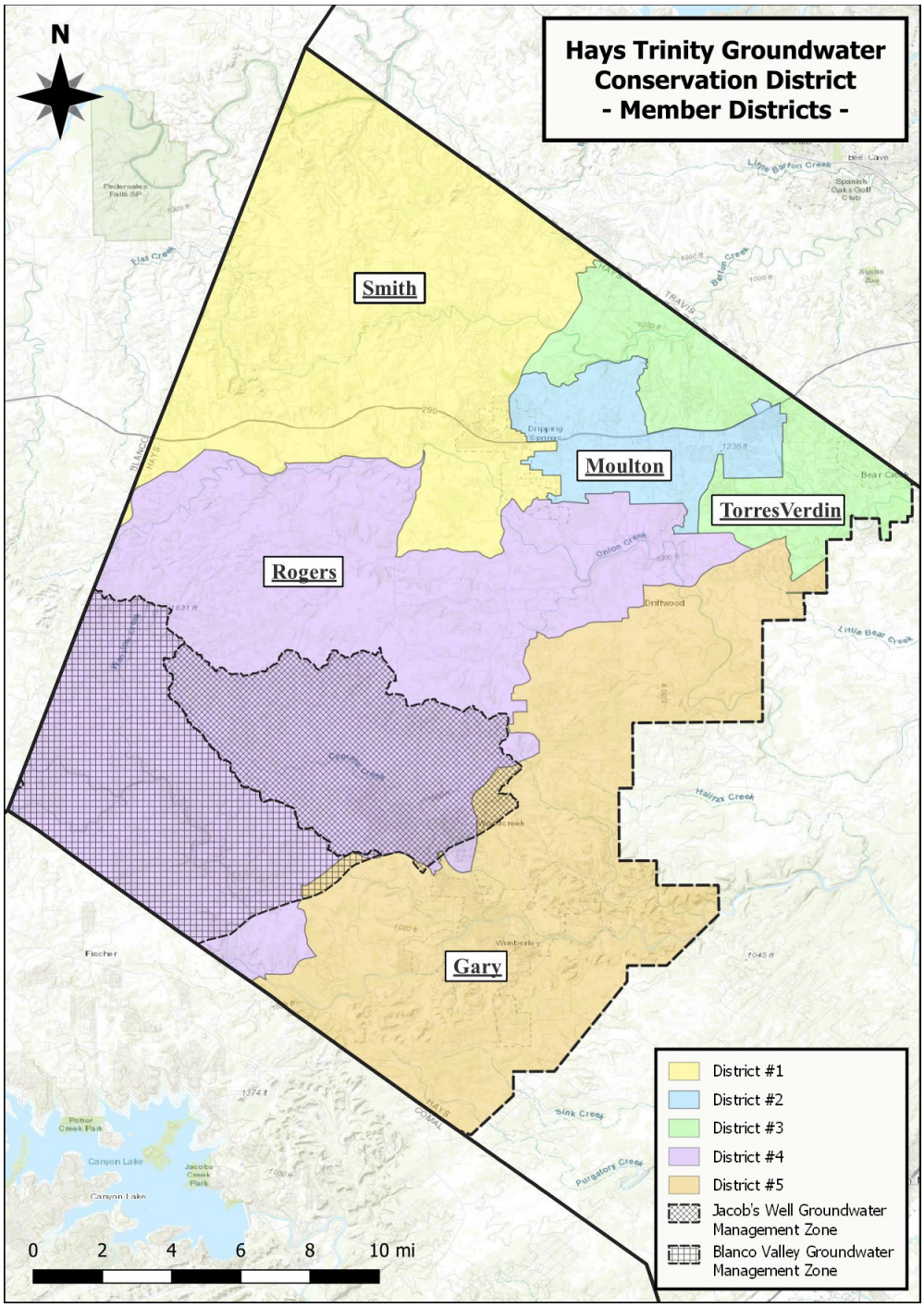
Charlie Flatten – General Manager

Laura Thomas – Assistant General Manager

Radu Boghici, P.G. -- Hydrogeologist

Keaton Hoelscher – Geo-Technician

Allison Nicoletti – Office Manager



Researched and compiled in 2025 by:
Charlie Flatten, General Manager
Laura Thomas, Assistant General Manager
Radu Boghici, P.G., Hydrogeologist
Keaton Hoelscher, Geoscience Technician
Allison Nicoletti, Office Manager

2024 Board of Directors:
Bruce Moulton, President; Linda Kaye Rogers Vice President; David Smith, Secretary/Treasurer; Doc Jones (January – October); Carlos Torres-Verdin; Marcus Gary (November -December

2024 ANNUAL REPORT

HAYS TRINITY GROUNDWATER CONSERVATION DISTRICT
MANAGEMENT GOALS, OBJECTIVES, & PERFORMANCE STANDARDS

Executive Summary

The Hays Trinity Groundwater Conservation District is functioning as designed in all its programmatic requirements and legislative mandates. As of December 31, 2024, revenues are below expectations and expenses are below projections. New well registrations and Public Water Supply (PWS) connections are below 2024 budgetary projections.

District Staff have fulfilled all Chapter 36 mandated requirements and reports. All Board directives were delivered and/or implemented on time.

2024 ended with a financial deficit. This year we were hit with a triple negative of lower than projected revenues due to the economic downturn (slower than anticipated housing starts and thus less exempt well construction permit & Utility Connection income), the ongoing drought (no non-exempt well construction or production permit income), and the ballooning legal costs of the AQUA Texas lawsuit. The 2025 Budget anticipates these factors and was adjusted accordingly.

Staff competence is outstanding. We work together well and understand each other's responsibilities in the event that one of us needs support. Despite the fiscal difficulties and legal attacks, Staff morale remains high and professionalism remains a matter of pride. Look at your staff and marvel. They are the best in the business, and I could not be more proud of them and their accomplishments.

The HTGCD Board of Directors held 10 Board meetings and 3 Public Hearings in 2024.

2024 Numbers At A Glance:

- 73 new wells
    - 72 exempt (domestic and agriculture)
    - 1 non-exempt (fire suppression tank well)
- 102 total active permits
    - 4 new permits issued (8.81 acre-feet/year)
    - 1 permit retired (1.3 acre-feet/year)
- 315 acre-feet/year increase in permitted volume in 2024;
- 4,120 total permitted acre-feet/year

- 270 new public water supply connections

The District registered 73 new wells in 2024; all are exempt from regulation. The District added one observation/monitor well to its network. The District issued 4 new permits for non-exempt withdrawals and retired 1 permit bringing the total to 102 active permits. The net change in permitted volume is 7.51 acre-feet/year for a total of 3,805 acre-feet/year. There were 696 new public water supply connections reported to the District. Permitted plus estimated Exempt volumes committed totaled 7,757 acre-feet/year leaving 1,341acre-feet/year available from the Texas Water Development Board's (TWDB) Modeled Available Groundwater (MAG) allotment[1] of 9,098 acre-feet/year for the District. It should be noted that the 1,341 acre-feet/year volume remainder must be shared by future exempt (domestic and agriculture[2]) and non-exempt (commercial and other) users.

Rules, Bylaws, Enabling Legislation, and other regulatory structures of the District can be found on the District website's Regulatory page.

Introduction

The Hays Trinity Groundwater Conservation District was created by the 77th Texas State Legislature (S.B. 2, 2001) in order to compile and develop sound hydrologic data and to manage and protect the aquifers that supply safe water in western Hays County as illustrated by the Map on page 2. The District is governed by a locally elected Board of Directors and is managed by District Staff as listed on the title page.

As required by District Bylaws (4.2, a) an annual report shall be prepared for and provided to the Board of Directors by District Staff on the status of the District and its programs. The *2021 Groundwater Management Plan* serves as a guide for the District's annual reports. The *2022 Annual Report* describes a methodology for tracking progress in achieving management goals. The headings in the report are prescribed by the Texas Water Development Board TWDB: TAC 356.52 (a)(2), (a)(3), TAC 356.52(a)(1), and in TWC 36.071. The District shall use this Report to document other business, such as Financial Reports.

[1] TWDB MAG model run GR21-014 stipulates a decreasing MAG over time.
[2] By Enabling Legislation design (and unlike most GCDs in the State), Agriculture is exempt from permitting in the HTGCD.

Management Objectives and Performance Standards

1. Goal: Providing the Most Efficient Use of Groundwater

1.1. *Management Objectives*

Each year, the District will hold at least one educational event.

Performance Standard

Each year, a summary of the District educational events schedule will be included in the Annual Report

HTGCD attended, participated, hosted, or presented in the following educational, outreach, and planning events:

January 2024

- 9 Participated: Hays Free Press
- 10 Attended: SWTCGCD Bd Mtg
- 10 Attended: DSUC
- 11 Hosted: HTGCD Bd Mtg
- 12 Participated: DFC Zoom
- 15 Attended: DSWSC Bd Mtg.
- 16 Participated: Mirasol -- Jim/Phil
- 17 Hosted: Silver Ck Legal
- 17 Participated: TESPA
- 18 Hosted: Silver Ck Hutts/Roschuber/Tarver
- 18 Presented: DFC Bd. Edu.
- 19 Participated: RWQPP
- 22 Participated: SWTCGCD Mirasol Hearing
- 23 Participated: GMA-9 Wk Shop
- 23 Participated: GMA-9 Meeting
- 24 Hosted: Bruce in office meeting
- 24 Participated: Mirasol Legal
- 25 Participated: HCLI Bamburger Ranch
- 25 Participated: HTGCD Mirasol Hearing
- 29 Hosted: Staff Meeting
- 29 Attended: TCEQ Blizexas public meeting
- 30-30 Participated: TAGD Winter Business mtg.

February

- 1 Hosted: Wierman in office
- 1 Hosted: HTGCD Bd Mtg
- 2 Participated: Trejo AQUA Task Workshop
- 6 Hosted: RFQ Task Workshop
- 7 Hosted: Bianca Moreno ASS
- 7 Hosted: Office Admin Task Workshop
- 8 Participated: TCEQ (Blixexus)

- 8 Participated: HCLI
- 9 Presented: TESPA – Wimberley (LKR)
- 12 Attended: Mirasol TLAP – TCEQ (RB)
- 13 Hosted: TWDB telemetry at DSISD
- 15 Participated: HCLI
- 20 Hosted: Signal Fire telemetry sales call
- 21 Participated: THCCN
- 23 Participated: F-Burg CC
- 26 Hosted: Rudick Development initial meeting
- 26 Presented: SWTCGCD Stakeholder
- 27 Hosted: EDF $$
- 27 Hosted: Wierman in office
- 27 Hosted: Trejo/LKR/DS/Staff AQUA Mediation
- 28 Hosted: Mirasol Mediation

March

- 4 Participated: TWDB Directors Meeting
- 5 Hosted: AQUA mediation prep
- 6 Participated: Serenity Farmhouse site inspection
- 6 Participated: AQUA new employee meet & greet
- 7 Hosted: HTGCD Bd Mtg
- 18 Attended: DSWSC
- 19 Participated: AQUA Mediation
- 20 Participated: DFC strategy meeting
- 21 Participated: HCLI
- 22 Participated: Becky Wells
- 25 Participated: GMA-9 Planning
- 25 Participated: Guadalupe RFPG - NB
- 25 Presented: Hamilton Pool GMZ presentation at SwTCGCD
- 26 Participated: GMA-9
- 29 Participated: RWQPP

April

- 2 Hosted: Trejo – Silver Creek Hearing Agenda Planning
- 2 Presented: Tx State U. Water Symposium
- 3 Hosted: Moulton - Silver Creek Hearing Agenda Planning
- 3 Participated: Region 11 Flood Planning Group
- 4 Hosted: HTGCD Bd Mtg
- 10 Hosted: Emily Kirchner
- 11 Hosted: HTGCD Lege Committee
- 11 Participated: HCLI – Legislature Primer
- 17 Participated: Region K
- 17 Hosted: Sledge Law
- 18 Participated: HCLI – Legislature Deep Dive
- 18 Participated: DSUC
- 22 Participated: ProStar Water site visit

- 22 Attended: DSWSC Board Mtg
- 24 Hosted: Trejo – AQUA
- 24 Hosted: Moulton
- 25 Hosted: LRE Data Presentation
- 25 Participated: DSWSC Lunch w Board members
- 26 Participated: RWQPP
- 26 Hosted: ProStar Water/WETT Permit
- 29 Participated: PVS/RRSZ – Wierman + Gary
- 30 Hosted: Texas Water Leaders Case Study – Carrie T. MCWE
- 30 Hosted: Lone Woman Ranch Developers

May

- 2 Hosted: HTGCD Bd Mtg
- 2 Hosted: Trejo – AQUA Prep
- 3 Participated: Puig-Williams HCLI Panel Prep
- 3 Hosted: Texas Regional Bank Meeting
- 6 Hosted: Emily Kirchner
- 7 Participated: Trejo – AQUA Prep
- 8 Presented: TWDB Aquifer Seminar (Radu)
- 8 Hosted: Collier Data Presentation
- 8 Presented: Caliterra Presentation
- 9 Participated: TXHB New Benefit Coordinator Orientation (Allie)
- 9 Participated: THC Network
- 9 Presented: HCLI Presentation
- 9 Participated: Dr. Mace Presentation (Moulton, Radu, Rogers)
- 10 Participated: Kutcher Illegal well - Tidwell
- 13 Hosted: Trejo AQUA Response (Staff, Rogers)
- 14 Hosted: R Broun NOAV
- 14 Hosted: DATA Staff Review
- 15 Hosted: Trejo – Mirasol evidence
- 16-17 Presented: HCLI Retreat + Presentations
- 20 Attended: DSWSC (Moulton)
- 21 Hosted: NOAV Workshop
- 22 Participated: El Rancho Cima Site Visit (Radu, Flatten)
- 23 Participated: WWSC Workshop
- 23 Participated: TXHB Group Member Webinar (Allie)
- 28 Hosted: Marshall Bowen
- 30 Hosted: Lege Committee
- 30 Participated: Blanco River/PVS Workshop
- 30 Hosted: Judge Bacerra Meeting
- 31 Participated: WETT Site Visit -- well plug + new riser

June

- 5 Participated: Region L
- 6 Participated: TAGD Public Funds
- 6 Hosted: HTGCD Bd Mtg
- 11 Participated: Mirasol Preliminary Hearing SOAH Zoom

- 12 Presented: Wimb Chamber of Commerce Panel
- 13 Participated: AQUA Pretrial hearing
- 13 Participated: HCLI
- 17 Hosted: Crowe interview
- 17 Attended: DSWSC (Moulton)
- 18 Participated: GMA-9
- 18 Hosted: Lege Committee
- 20 Participated: HCLI One-Water School
- 20 Attended: DSUC (Moulton)
- 24 Participated: NBU Meeting
- 25 Hosted: RRSZ Advisory Committee

July
- 9 Hosted: Limestone Terrace atty workshop
- 10 Participated: Region K (Natalie Crowe)
- 12 Participated: Limestone Terrace site visit
- 15 Hosted: Lege Committee
- 15: DSWSC (Moulton)
- 17 Participated: One Water JJW
- 18 Participated: HCLI Boerne
- 18 Attended: DSUC (Moulton)
- 22 Participated: BSEACD Mgr Meeting
- 23 Participated: AQUA Expert witness
- 24 Hosted: LRE Database
- 29 Hosted: RRSZ Technical Presentation to CTV+DJ
- 30 Hosted: 2025 DRAFT Budget w/DS
- 31 Hosted: AQUA Settlement Proposal LKR+DJ

August
- 1 Participated: Region L policy & lege committee
- 1 Hosted: HTGCD Board Meeting
- 13 Hosted: Lege Committee DS/BM/Staff
- 15 Attended: DSUC
- 19 Attended: DSWSC Board – BM
- 20-22 Participated: TAGD Summit
- 27 Hosted: Variance meeting w DSWSC
- 28 Hosted: Tx HC Olive Meeting
- 30 Participated: THCCN

September
- 3 Hosted: Mirasol evidence
- 6 Hosted: Texas Regional Bank
- 6 Participated: RWQPP – LKR
- 9 Hosted: Tx HC Olive
- 10 Hosted: AQUA Call w DT
- 10 Hosted: Budget Workshop

- 10 Presented: Driftwood Historical – LKR
- 11 Presented: HCMN
- 12 Participated: Region L policy & lege committee
- 16 Attended: DSWSC – BM
- 17 Participated: GMA-9
- 19 Hosted: AQUA call w DT
- 19 Attended: DSWSC – BM
- 24 Attended: HNR
- 24 Hosted: Blanco Valley Watershed (Agrilife)
- 25 Participated: Region K – Neil Deeds
- 26 Participated: HCA Leadership Summit
- 27 Hosted: Auditor
- 27 Hosted: AQUA – DT- LKR
- 27 Hosted: AQUA – DT- CTV/DJ
- 27 Hosted: AQUA – DT- BM/DS

October
- 1 Participated: Hays County Regional Water Planning Steering Cmt.
- 2 Participated: NOAV at WWSC
- 3 Participated: Region 10 Flood
- 3 Hosted: HTGCD Board
- 8 Participated: Hays County Regional Water Planning Steering Cmt.
- 9 Attended: SWTCGCD Board
- 10 Participated: HCLI
- 11 Presented: Jacobs Well Interview for LoopWater
- 16 Participated: Region K
- 17 Participated: HCLI
- 17 Attended: WTCPUA (Laura)
- 17 Attended: DSUC (Bruce)
- 18 Participated: RWQPP
- 21 Hosted: LRE
- 21 Hosted: Mirasol pre-mediation call
- 21 Attended: DSWSC (Bruce)
- 22 Participated: 901 Buttercup Inspection
- 22 Participated: TOSA (Radu)
- 28 Hosted: Staff
- 28 Hosted: Avera
- 29 Participated: Nick Brock Site Inspection
- 30 Presented: Dr. Mace class presentation
- 30 Participated: BRATT postmortem

November
- 1 Hosted: Grizzard @ RWH
- 4 Hosted: Chandler Crouch TWT – One Water RWH
- 5 Hosted: Driftwood Recovery NOAV
- 6 Hosted: Avera

- 7 Hosted: CYJ NOAV
- 7 Participated: Region L
- 8 Attended: Tx Invertebrate Forum
- 13 Attended: SWTCGCD Board
- 13 Hosted: Marshal Jennings
- 13 Participated: Tx Water Trade
- 14 Attended: THCCN Water Team
- 14 Participated: HCLI
- 18 Attended: WTCPUA Board
- 20 Hosted: Demming IRA info
- 20 Hosted: M Gary onboard
- 20 Hosted: Tx A&M Student outreach
- 21 Hosted: Auditor
- 21 Attended: DSUC (Bruce)

December
- 5 Hosted: HTGCD Board - Wimb
- 6 Participated: RWQPP
- 6 Participated: Region K - Montopolis
- 10 Participated: USGS Workshop – Radu
- 13 Participated: GMA-9 - Boerne
- 16 Attended: DSWSC – Bruce
- 19 Attended: DSUC (Bruce)
- 20 Participated: Coleman Canyon Site Inspection

2. Goal: Controlling and Preventing Waste of Groundwater

2.1. *Management Objectives*

Each year, the District will take complaints from any concerned citizen or entity in the District on cases of waste or possible waste.

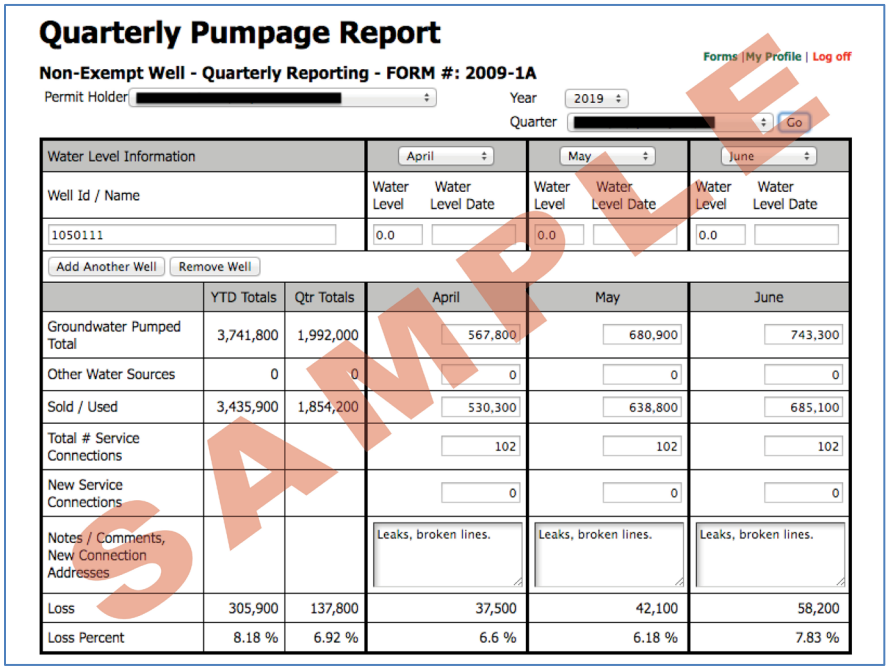
Performance Standard

In each Annual Report, the District will include a discussion of the recent issues with waste and recommend any amendments to the rules to prevent the waste of groundwater.

District Staff reports to the Board of Directors during public meetings on the topic of waste. No official public complaints were submitted to the District office concerning waste or possible waste during 2024. However, the District offices did field complaints about excessive irrigation and vanity ponds.

The District relies on the online Quarterly Reporting process that allows all District operating permit holders instant access to enter and review their own production, sales, connections, and percent losses. Communication concerning loss is tied directly to each quarterly report. This gives the permit holder and the District an electronic record of reasons for loss including circumstances such as line-breaks, meter replacement, fires, or flushing. It also gives an

indication of historic line loss and information on permittees who have habitually high line loss due to inadequate maintenance. An example of a Quarterly Report can be found in **Figure 1,** below.



Quarterly Pumpage Report

Forms | My Profile | Log off

Non-Exempt Well - Quarterly Reporting - FORM #: 2009-1A

Permit Holder [redacted] Year 2019 Quarter [redacted] Go

Water Level Information			April		May		June	
Well Id / Name			Water Level	Water Level Date	Water Level	Water Level Date	Water Level	Water Level Date
1050111			0.0		0.0		0.0	

Add Another Well | Remove Well

	YTD Totals	Qtr Totals	April	May	June
Groundwater Pumped Total	3,741,800	1,992,000	567,800	680,900	743,300
Other Water Sources	0	0	0	0	0
Sold / Used	3,435,900	1,854,200	530,300	638,800	685,100
Total # Service Connections			102	102	102
New Service Connections			0	0	0
Notes / Comments, New Connection Addresses			Leaks, broken lines.	Leaks, broken lines.	Leaks, broken lines.
Loss	305,900	137,800	37,500	42,100	58,200
Loss Percent	8.18 %	6.92 %	6.6 %	6.18 %	7.83 %

SAMPLE

Figure 1: Quarterly Report showing an example of how line loss is calculated.

3. Goal: Controlling and Preventing Subsidence

The rigid geologic framework of the region precludes significant subsidence from occurring. Therefore, this goal is not applicable to the operations of Hays Trinity Groundwater Conservation District.

4. Goal: Addressing Conjunctive Surface Water Management Issues

4.1. Management Objective

Each year, the District will promote the use of surface water or other alternatives to groundwater in growing areas where groundwater demand is projected to lower the water tables and to reduce stream and spring flow to unacceptable levels.

Performance Standard

The District will strive to meet with the planning departments of major surface water providers within the District at least once per year. The District will summarize these meetings and their outcomes in the Annual Report.

Dripping Springs Water Supply Corporation (DSWSC) and the West Travis County Public Utility Authority (WTCPUA) are the two major surface water providers in the northern portion of the District. They supply wholesale and retail water sourced from the Lower Colorado River Authority (LCRA) Highland Lakes resource. Below is a list of meetings held with DSWSC or WTCPUA.

Meetings*:*

- Charlie Flatten and/or select Board members communicated or met on a more than monthly basis with DSWSC Staff and/or select Board members on junctive use issues and other matters of interest.
- Charlie Flatten and WTCPUA Director and or Board Members met to discuss the PUA's potential expansion of services and/or expansion of supplies to the DSWSC and others.
- Charlie Flatten serves on both of the District's Regional Water Planning Groups (Blanco/Guadalupe and Colorado River basins) where he monitors future plans to move surface water up into the HTGCD.
- Charlie Flatten serves on both of the District's Regional Flood Planning Groups where he monitors and advocates for future flood mitigation efforts that enhance recharge into the Trinity Aquifer.
- District Staff promotes the use of rainwater at every available interaction with the public in order to reduce the use of groundwater.

5. Goal: Addressing Natural Resource Issues Which Impact the Use and Availability of Groundwater and Which are Impacted by the Use of Groundwater

5.1. *Management Objective*

Each year, the District will make at least one endorsement or contribution to ongoing studies of geologic, environmental, or hydrogeologic studies being performed in the district area.

Performance Standard

Each year, a summary of the District's contributions or endorsements of ongoing studies will be included in the Annual Report.

COMPLETED STUDIES

Science Reports

- *Watershed Association: Our Areas Of Impact: Land. Water. Connection.* ©2024 Watershed Association (D. Baker, Dell, Wierman, Flatten, Zabcik, et. al.)
- *HTGCD Special Study Zone (Rule 16): Aquifer Level Analysis – ~~ongoing~~* (Webster, Boghici, Flatten)
- *Chapter 36 Rules for Protecting Spring Flow (2024 Flatten)*

- *Special Study Zone (Rule 16): Aquifer Level Analysis* – ongoing (Webster, Boghici, Flatten)
- *Surface Water/Groundwater Interactions Along Barton Creek* – ongoing (Webster, Boghici, Flatten)
- *Little Blanco River Gain-Loss Study* -- ongoing (Wierman, Walker, Webster, Boghici)
- REPORT: *Surface Water - Groundwater Interactions in the Upper Blanco River Watershed: Investigating the Origins of the Pleasant Valley Spring System, Hays County, Texas*.
- INTERNAL: *Comments on the Woodcreek Aquifer Test Report.*
- INTERNAL: *Model Scenarios of Impacts From Silver Creek Pumping.*
- BOARD PRESENTATION: *Groundwater Pumping Estimates for the Lower Trinity Aquifer Within Hays Trinity GCD.*
- BOARD PRESENTATION: *Lower Trinity Sub-Aquifer Potentiometry and Water Quality - a Progress Report.*
- IN PROGRESS: *Evaluate Data Availability for Estimating Recharge Over the RRSZ.*
- CONTRIBUTOR: *Report GMA9 Synoptic Water Level Measurements.*
- CONTRIBUTOR (IN PROGRESS): *USGS Synoptic Water Level Measurements for the Trinity Camp Bullis Project*
- INTERNAL: *Mirasol Prefiled Testimony*
- INTERNAL: *AQUA Texas Prefiled Testimony*
- PROJECT: *addition of telemetry capabilities to the Burton HTGCD dedicated well*

Science Reports by others using HTGCD data and resources

- *Preliminary Report on the Installation of Two Multilevel Monitor Wells Near Jacob's Well:* BSEA/CD (Smith, Watson, Camp)
- *Hydrogeologic Investigations of the Trinity Aquifers in Western Travis County along a Portion of Lake Travis and a Transect from Northern Hays County to Bell County, Central Texas:* BEG (Hunt, Cockrell, Smith)

Policy Reports

- *Tools for Managing Groundwater in the Texas Hill Country* ©2023 Hill Country Alliance (M. Bruno, Flatten, Fieseler, Puig-Williams, Enders, Allen, Sodek)
- *Land, Water, Sky, and Natural Infrastructure Plan* ©2023 Hill Country Alliance (K. Romans, et. al.)
- *2023 Annual Report*

ONGOING STUDIES

Regional Recharge Study Zone: Rule 16 calls for continued data collection, research, and scientific development of the hydrogeology of the Blanco River Basin as defined. Staff have been collecting new data (water levels in wells, water quality and isotopy) and compiling

available information to delineate and characterize the source(s) of the springflow in the Pleasant Valley Springs.

Horseshoe Ridge Middle Trinity Monitoring Well: With assistance from the Texas Water Development Board, we have equipped the monitoring well with a pressure transducer, a data cable and a datalogger for hourly water level data collection. Staff have been visiting the site quarterly to download the data and have been preparing to upgrade the site to GOES satellite telemetry in 2024. Water level readings are posted on the TWDB Water Data For Texas website.

Dedicated Monitor Well Project: The HTGCD Dedicated Monitor Well Project continued in 2024. The Dedicated Monitor Well Project is designed to provide long-term water-level monitoring and ongoing groundwater quality data from carefully selected well sites in western Hays County. A complete aquifer formation evaluation program was carried out at each borehole, including core and cutting samples analyses, geophysical logging, down-hole video, aquifer testing, and water sample recovery. An extensive technical report was completed for each location and posted to the District website. Funding for the project came from HTGCD, Hays County, Dripping Springs Water Supply Corporation, and Barton Springs Edwards Aquifer Conservation District (BSEACD). Technical support and assistance were provided by District Staff, the Blanco Pedernales Groundwater Conservation District, BSEACD, Edwards Aquifer Authority, Texas Water Development Board, the University of Texas Bureau of Economic Geology, and the Texas State University Meadows Center for Water & the Environment. There is also outstanding cooperation and assistance from local landowners who allow District access to their properties.
As a result, continuous water level data and periodic water quality samples are collected from the dedicated monitor wells and made available to the public. Through ongoing monitoring of the dedicated wells, the District continues to expand the reliable long-term record of water levels and groundwater quality, a critical dataset for informing groundwater management decisions.

Blanco River Aquifer Tool for Water and Understanding Resiliency and Sustainability Trends (BRAAT): See *Blanco River Aquifer Assessment Tool A Tool to Assess How the Blanco River interacts With Its Aquifers: Creating the Conceptual Model* (Martin et al., 2019).

District Hydrogeological Analyses of the Trinity Aquifer System: Hydrogeologic data from the Trinity Aquifer was collected and analyzed during 2022. This is an ongoing project designed to acquire and interpret pertinent technical data and to apply this information to District operational management. Data includes geophysical well logs, cuttings samples, groundwater levels, groundwater samples & chemical analyses, pumping test reports, surface geology, and groundwater use (pumpage). This information is maintained in the District's

growing database and is used in conjunction with the TWDB groundwater database. Local and regional modeling projects such as the TWDB Conceptual Model of the Hill County Trinity Aquifer and more local modeling will incorporate this data into their analyses.

Blanco Valley Groundwater Management Zone: In August 2024, HTGCD Board of Directors approved the creation of the Blanco Valley Groundwater Management Zone via Rule 16. This project was the culmination of technical staff, an interagency group of groundwater scientists, and stakeholder collaboration.

HTGCD Surface Water Monitoring Project: Groundwater-surface water interactions are a critical component of the story of recharge and discharge within the Trinity Aquifer in western Hays County. By periodically measuring surface water flows, hydrogeologists develop a greater understanding of how these interactions impact the aquifer and change over time. This ongoing project will rely on continued data gathering. Technical staff will continue to collect surface water flow data in the Blanco, Onion Creek, and Barton Creek basins to develop a greater understanding of groundwater-surface water interactions in the District. Technical Staff will also continue to collaborate with Meadows Center for Water and the Environment scientists in the ongoing *Little Blanco Occurrence of Flowing Water* surface water – groundwater interaction study.

Lower Trinity Project: The Project was initiated in 2012 to evaluate the potential for an alternative groundwater source for western Hays County. Previous Lower Trinity studies have consisted of aquifer testing to define aquifer parameters and overall groundwater availability and adding Lower Trinity wells to the District's Monitoring network. The hydrogeological evaluation of the Lower Trinity Aquifer was given a higher priority in 2024 by new staff hydrogeologist Radu Boghici, P.G.-- with the addition and analyses of geophysical logs and water samples. The northeastern part of the District is an area of ongoing study due to rapid development where the Middle Trinity Aquifer appears to be dewatered, and new wells are finding minimal production from the Lower Trinity Aquifer.

6. Goal: Addressing Drought Conditions

The continued health and potential sustainability of the Trinity Aquifer is the primary informer of the **(Figures 6, and 7)** District's outlook and actions. Drought is the most difficult variable in the hydrologic equation to manage. The District employs a variety of drought management tools ranging from education to prescribed curtailment.

2022 saw the first District-Wide 40% Emergency Stage in the history of the District. Throughout 2024, weather conditions remained dire with below-average rain fall and above average stretches of high temperatures, and the District remained in Emergency Drought Stage for 7 months in 2024. Emergency Stage includes a 40% curtailment of permitted volumes District-wide. The Jacobs Well Groundwater Management Zone was in maximum

30% curtailment of historic use for every month in 2024 except February. **Figure 2** shows how drought impacted Texas in 2023 (Source: U.S. Drought Monitor).

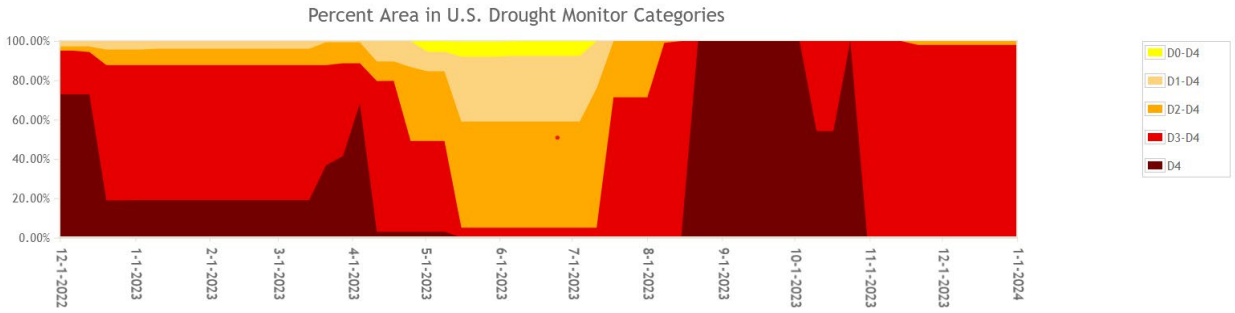


Figure 2: Percent of Texas in Drought Throughout 2024. D0 = No Drought, D4 = Max Drought

The District fulfilled requirements and enforced rules associated with the Jacob's Well Groundwater Management Zone, which were created to protect Trinity Aquifer resources in Jacob's Well Springshed.

The District fulfilled its Rule 16 requirement to gather scientific data on the 56-square mile Regional Recharge Study Zone. That fulfillment included the creation by rule of the Blanco Valley Groundwater Management Zone.

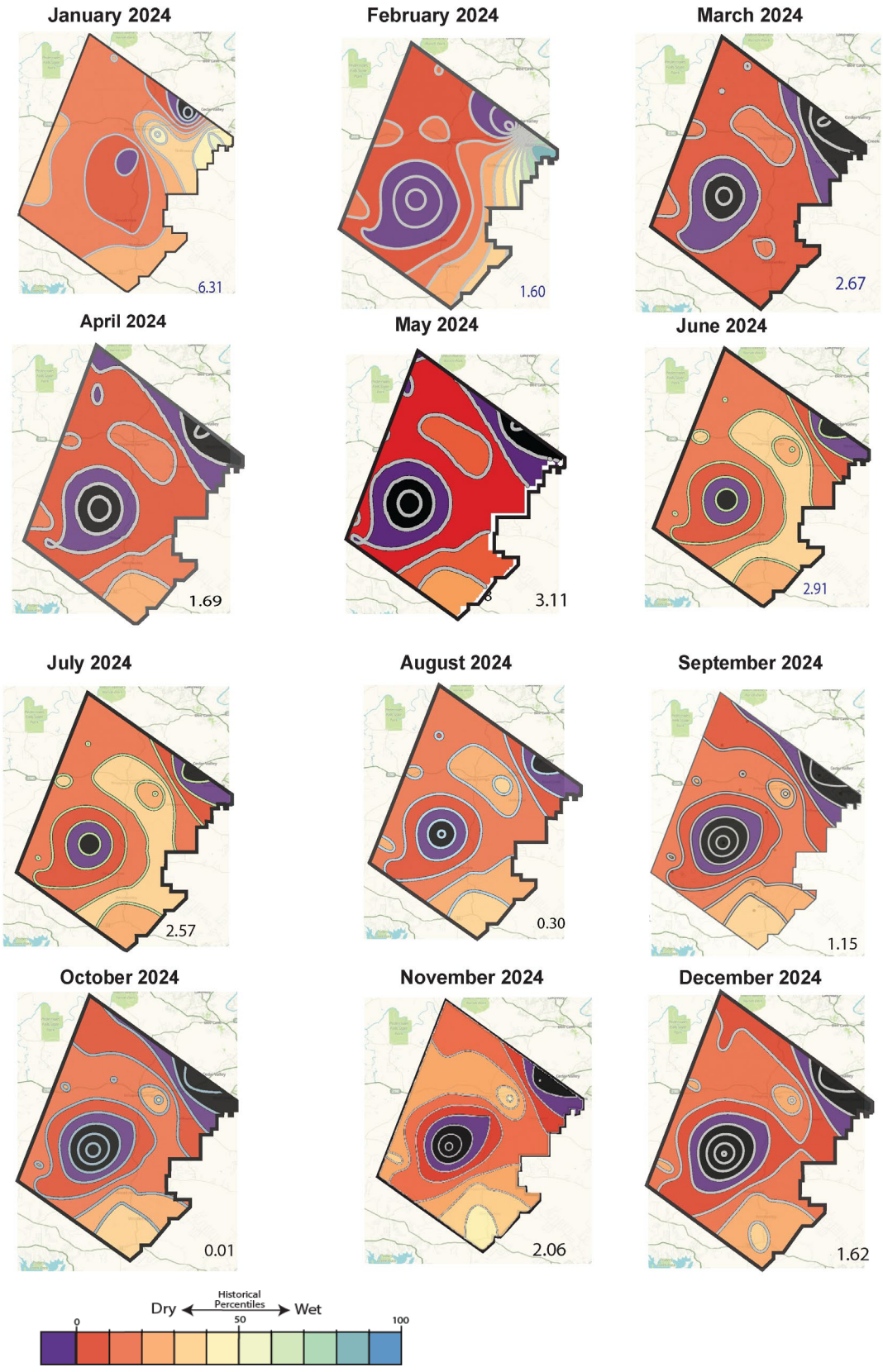


Figure 3: Timestep Water Level Percentiles for the Middle Trinity Aquifer; 2024

6.1. *Management Objective*

The District has developed individual permit specific User Drought Contingency Plans to protect and conserve groundwater during critical drought conditions. The plan will be updated as additional data becomes available.

Performance Standard

The District will post a copy of the plan on the HTGCD website and will include an updated Drought Contingency Plan, available to end-users, in the Annual Report.

The District updated its Drought Contingency Plan in 2022 to reflect new drought requirements for the JWGMZ (see Appendix, Section 3). The District updated its User Drought Contingency Plan (UDCP) for all non-exempt operating permit holders (see Appendix, Section 3). The UDCP is available for review on the District's website under Forms. The District updated its Water Conservation Plan, which is also part of the paperwork required by the District for all new and amended operating permit applications to be administratively complete.

A Drought Production Cutback Chart is included with each new permit, amended permit, and permit renewal. An example of a Drought Production Cutback Chart can be seen in **Figure 4**, below. The cutback chart divides the permitted amount of each permit to show an exact monthly production, in gallons, for every possible drought stage so permit holders can prepare for Board-declared drought conditions.

6.2. *Management Objective*

Each quarter, the District will check the National Weather Service – Climate Prediction Center website (https://www.ncdc.noaa.gov/temp-and-precip/drought/weekly-palmers/) for updates of the Palmer Drought Index. The District will download the updated Palmer Drought Severity Index (PDSI) map and check for periodic updates on www.waterdatafortexas.org/drought.

Performance Standard

Quarterly, the District will assess the status of drought in the District and prepare a quarterly briefing to the Board of Directors. The downloaded PDSI maps will be included with copies of the quarterly briefing in the District Annual Report to the Board of Directors.

The General Manager's Monthly Report includes a briefing on the status of drought within the District and is given to the Board of Directors during Board Meetings. The briefing includes maps from the US Drought Monitor and the Palmer Drought Severity Index, monitor well level averages, and HTGCD drought trigger update. HTGCD Staff records and

addresses all filed complaints of waste or possible waste during the drought briefing. HTGCD Staff provides a monthly review of the current drought status to the Board of Directors at regular open meetings.

6.3. *Management Objective*

Each year, the District will collect monthly water level data from a network of monitoring wells.

Performance Standard

Each year, a report of the District water level collection activities, including a table of the water levels measured in District monitoring wells, will be included in the annual report.

Monthly, District Staff collects water levels from dedicated District monitor wells (**Figure 5**). The information collected is entered into and displayed on the District's website as hydrographs transposed with rainfall data collected from NOAA. The public can access the District's website for more specific data by scrolling over the hydrographs to see elevation above mean sea level and surface to top of water level measurements. Hydrographs for Mount Baldy and Henly Church wells (**Figures 6 and 7**), and the flow rates from the Blanco and Pedernales Rivers are used to measure the current health of the aquifer. One can find current flow rates of the Blanco and Pedernales Rivers on the District Drought Management webpage.

In addition, District staff downloads quarterly data from 18 transducer wells within western Hays County. This information is located on the District's website for public use.

Drought Production Cutback Chart

[Permittee]			5.12	Acre-ft.			Tier:	2
2021			1,668,357	Gallons				
Month	Gallons Produced	Monthly % of Annual Permit	Drought Stage	Suggested Allotment	Drought Stage 1 Voluntary 10%	Drought Stage 2 20%	Drought Stage 3 30%	Drought Stage 4 40%
January		6%		100,101	90,091	80,081	70,071	60,061
February		7%		116,785	105,106	93,428	81,749	70,071
March		7%		116,785	105,106	93,428	81,749	70,071
1st Quarter		*20%*						
April		7%		116,785	105,106	93,428	81,749	70,071
May		8%		133,469	120,122	106,775	93,428	80,081
June		10%		166,836	150,152	133,469	116,785	100,101
2nd Quarter		*25%*						
YTD		*45%*						
July		12%		200,203	180,183	160,162	140,142	120,122
August		12%		200,203	180,183	160,162	140,142	120,122
September		10%		166,836	150,152	133,469	116,785	100,101
3rd Quarter		*34%*						
YTD		*79%*						
October		8%		133,469	120,122	106,775	93,428	80,081
November		7%		116,785	105,106	93,428	81,749	70,071
December		6%		100,101	90,091	80,081	70,071	60,061
4th Quarter		*21%*						
TOTALS		*100%*						

SAMPLE

Figure 4: Example of a Drought Production Cutback Chart

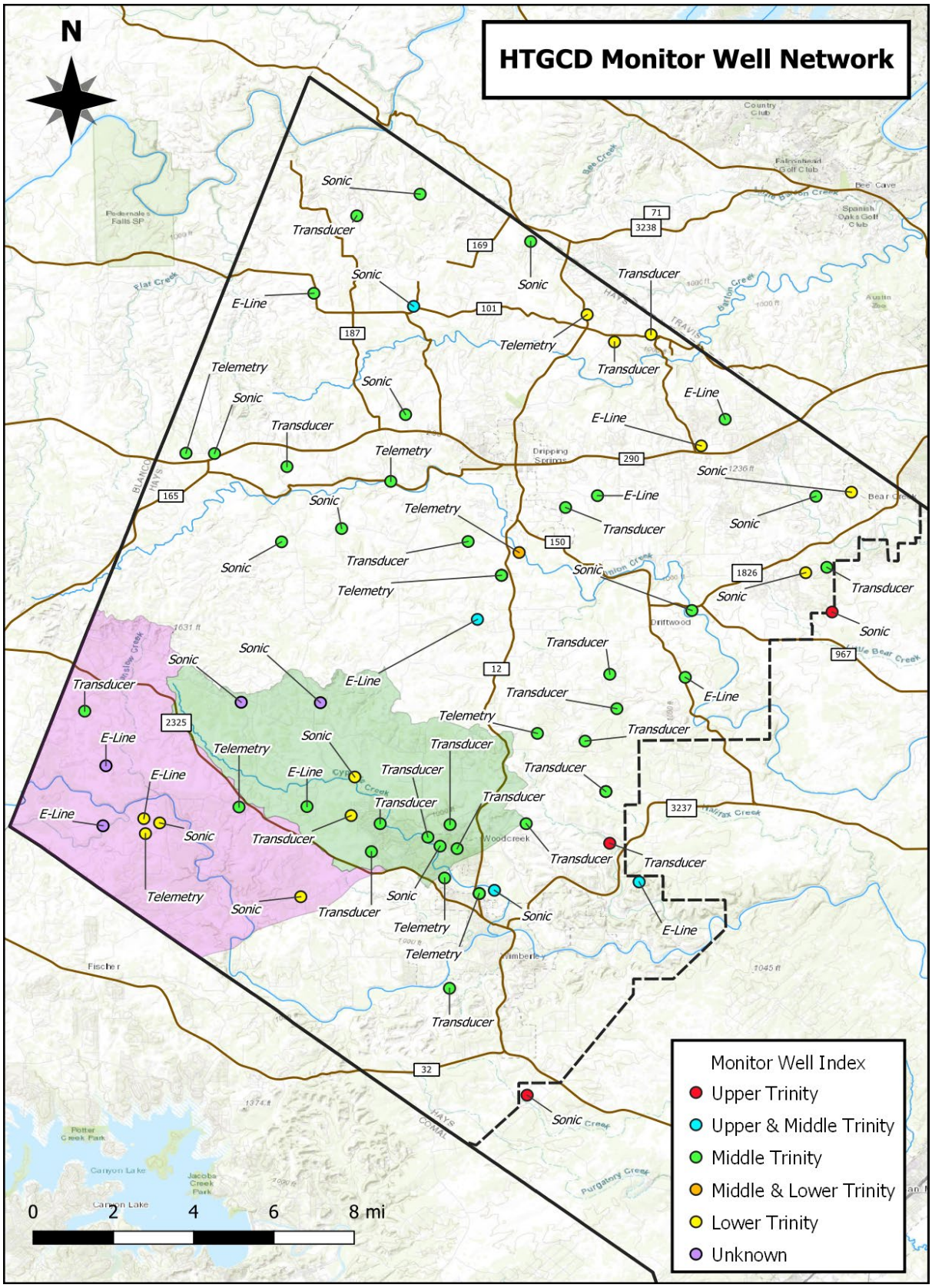


Figure 5: District Well Water Level Monitoring Network

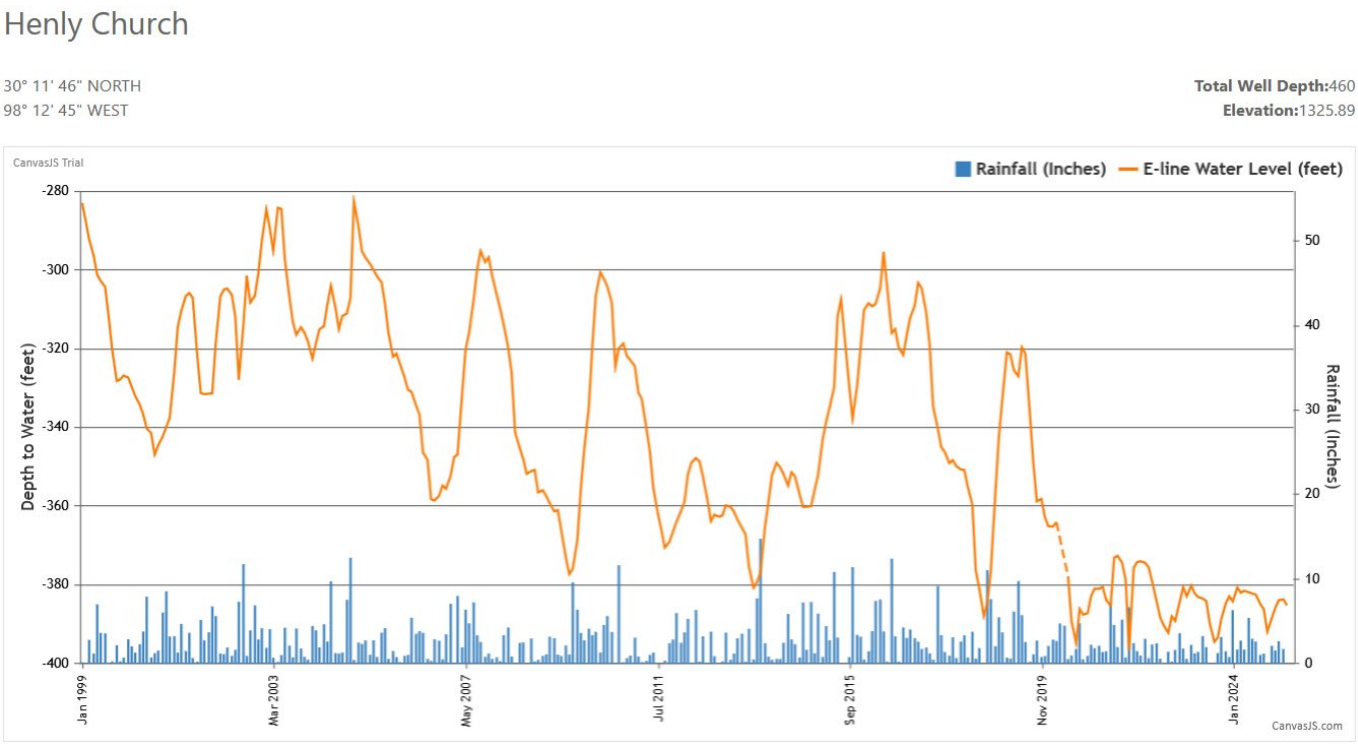


Figure 6: Henly Church Well Hydrograph Showing Water Level Elevation (ft. above sea level) and Monthly Rainfall (inches)

Mt. Baldy

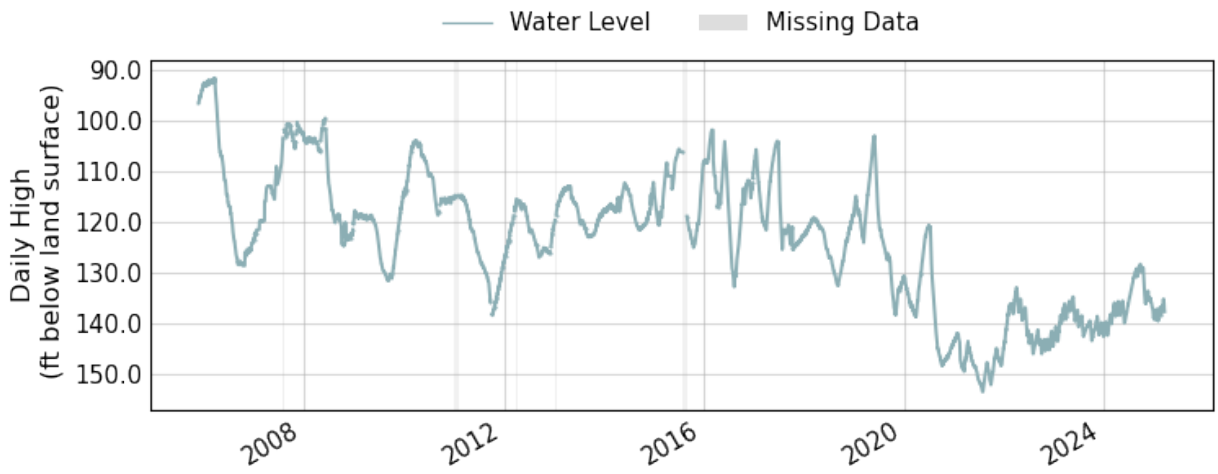


Figure 7: Mount Baldy Well Hydrograph Showing Water Level Depth (ft. below land surface)

6.4. *Management Objective*

Each year, the District will monitor data collected from the U.S. Geological Survey (USGS) water-flow monitoring stations on the Blanco River, Pedernales River, Onion Creek, and at Jacob's Well Spring.

Performance Standard

Each year, the District will review the prior year's monitoring data with local, state, or federal organizations and prepare a summary to be included in the Annual Report.

The Pedernales and Blanco River flow, and the Palmer Drought Severity Index are HTGCD's General Purpose Drought Indicators. Current conditions of the Drought Indicators are hosted on the Drought Management page of the District website.

Jacobs Well Spring flow is measured monthly for current conditions as a marker for drought curtailment in the JWGMZ.

7. Goal: Addressing Conservation

7.1. *Management Objective*

Each year, the District will submit one article for publication regarding water conservation to at least one newspaper of general circulation in Hays County.

Performance Standard

Each year, a copy of the article submitted for publication will be included in the Annual Report.

The District submitted, appeared in, or provided information in the following articles for publication in the press;

- Community Impact: *Public Utility Commission Of Texas Advances Nonprofit's Complaint In Aqua Texas Lawsuit*. Amira Van Leeuwen. November 25, 2024
- WATERLOOP: *Video Blog in pre-production*. Travis Loop. October 15, 2024
- My San Antonio (MYSA): *Mirasol Springs Development May Dry Up Texas' Hamilton Pool Preserve*. Emily Hernandez. October 13, 2024
- KVUE-ABC News: *'Simply Not Enough Water' | Dripping Springs Homeowners Trying To Stop Resort Development.* Melia Masumoto. October 8, 2024
- Community Impact: *Local Groups, Residents Voice Environmental Concerns Over Proposed Mirasol Springs Development*. Karoline Pfeil, Chloe Young. October 8, 2024
- KXAN-NBC News*: Hays County Group Alleges Water Supplier Has Over Pumped Millions Of Gallons.* Sam Stark. October 3, 2024
- Wimberley View: *Federal Court Ruling Results In Significant W For Texans Relying On Groundwater.* Teresa Kendrick. October 3, 2024
- KXAN-NBC News: *Federal Judge Grants Wimberley Environmental Group Right To Intervene In Groundwater Pumping Lawsuit*. Sam Stark. October 2, 2024

- Community Impact: *Court Grants Nonprofit's Motion In Lawsuit With Utility Company For Overpumping In Hays County*. Amira Van Leeuwen. September 30, 2024
- Wimberley View: *TESPA Files Motion To Intervene In Federal Lawsuit*. Teresa Kendrick. August 28, 2024
- Wimberley View: *State Of The Water Luncheon Held For Chamber Members*. Teresa Kendrick. June 21, 2024
- KXAN-NBC News: *Hays County Group Alleges Water Supplier Has Over Pumped Millions Of Gallons*. Sam Stark. May 21, 2024
- San Antonio Express News: *Hill Country Group Demands State Officials Stop A Water Firm From Overpumping In Hays County*. Liz Teitz. May 17, 2024
- My Canyon Lake: *Jacob's Well Closes for 2024 Summer Swimming Season, Community Groups Blame Aqua Texas*. Stephanie Johnson. May 2, 2024
- KVUE-ABC News: Formal complaint filed against Aqua Texas for using 'illegal groundwater supply'. Johann Castro, Jenni Lee. May 1, 2024
- Save Our Springs Alliance: *Victory for Clean Water: TCEQ Takes Stand Against River Pollution*. April 4, 2024
- Austin Monthly: *Is Austin Going to Run Out of Water?* Asher Elbein. May 1, 2024
- Dripping Springs Century: *Experts Talk Water, Or Lack Thereof, In Aquifers*. Shannon West. April 7, 2024 (this article also appeared in multiple other outlets including The San Marcos Record)
- Wimberley View: *AQUA Texas Responds to Questions About Conservation, Water Use*. Kendrick. March 21, 2024
- Wimberley View: *Water In Texas: Stakeholders vs Shareholders. Pt. 4*. Theresa Kendrick. March 21, 2024
- The Hill: *Declining Texas Springs Point To Possible Risks For State Water Supplies*. Saul Elbein. March 8. 2024
- Wimberley View: *Who Has the Authority to Regulate Groundwater In Texas? Pt. 3.* Theresa Kendrick. March 7, 2024
- Wimberley View: *Can Aqua Texas Supply Enough Water Without Overpumping? Pt. 2.* Theresa Kendrick. February 14, 2024. (also appeared in the Dripping Springs Century News - March 7, 2024)
- Wimberley View: *Community, Environmentalists Review AQUA Texas' Competence. Pt. 1*. Theresa Kendrick. February 29, 2024.
- Wimberley View: *TESPA Files Complaint Against Aqua Texas*. Teresa Kendrick. February 22, 2024 - #2 News story of 2024.
- Hays Free Press: *Wimberley Community Comes Together for Water*. By Ashley Kontnier. February 14, 2024
- Austin American Statesman: *Mirasol Springs Resort Development Gets Pushback From Landowners, Environmental Activists*. By Bianca Moreno-Paz. February 12, 2024.
- San Antonio Express News: *Utility Company Looks To Build Wastewater Plant Near San Marcos*. Liz Teitz. February 11, 2024.
- KVUE-ABC News: 'We Need To Conserve What We Have' | Environmental Groups Give Call To Action To Hold Water Utility Company Accountable For Over-Pumping. Jenni Lee, Kelsey Sanchez. February 9, 2024.

- KXAN-NBC News: *Wimberley Water Agencies Prepare to Act Against Aqua Texas For Alleged Violations*. By Mercedez Hernandez. February 9, 2024
- KTBC-FOX-7 News Austin: *Groups Sue Utility Company For Contributing To Low Flow At Jacob's Well*. By Angela Shen. February 9, 2024.
- Hays Free Press: *TCEQ Hosts Public Hearing On Proposed Fitzhugh Concert Venue*. By Ashley Kontnier. February 7, 2024
- The Wimberley View: *Water Activists Gear Up for Feb. 9 Meeting*. (headline) By Teresa Kendrick. February 7, 2024
- Hays Free Press: *Groundwater District Holds Meeting On Pumping Permit*. By Abbie Etzler. January 31, 2024.
- Texas Monthly: *Jacob's Well Was Dry for Seven Months—One Company Just Kept Pumping*. By Forrest Wilder. January 25, 2024
- KXAN-NBC Television News: *'Not Enough Water To Go Around': Why Landowners Are Pushing Back Against New Development.* By Eric Henrikson. January 24, 2024
- Inside Climate News: *Another Hot, Dry Summer May Push Parts of Texas to the Brink*. By Dylan Baddour. January 22, 2024 (also appeared in multiple re-prints including local NPR affiliates' Texas Standard News Service, Waco Tribune, KXAN, Marfa Public Radio, Texas Observer, and Wired Magazine)
- Hays Free Press: *Aqua Texas Files Suit Against Hays County Groundwater District.* By Megan Navarro. January 17, 2024
- San Antonio Express-News: *Fined For Overpumping, Aqua Texas Responds By Suing Water District.* By Liz Teitz. January 10, 2024
- HawksEye News: *GM of Hays Trinity Groundwater Conservation District Provides Public Letter on AQUA Texas Lawsuit*. By John D Ferrara. January 9, 2024
- Wimberley View: *Aqua Texas Sues Groundwater District Over Pumping Fine*. By Shannon West. January 10, 2024
- HawkseEye News: *Lawsuit Filed in Federal Court: Aqua Texas, Inc. v. Hays Trinity Groundwater Conservation District et al..* By John D Ferrara. January 9, 2024
- KUT Radio News: *Aqua Texas Sues Hays County Groundwater District Over A Nearly $450 Million Overpumping Fine*. By Maya Fawaz. January 9, 2024
- San Marcos Daily Record: *Aqua Texas Sues Groundwater District Over Pumping Fine*. By Shannon West. January 7, 2024
- KXAN-NBC Television News: *Texas Water Provider Files Lawsuit Against Hays Groundwater District*. By Kelsey Thompson. January 4, 2024 (request for inclusion of district statement in update 1-9-24)
- Hoodline News: *Aqua Texas Sues Hays County Groundwater District Alleging Discriminatory Fines, Water Rights Infringement*. By Matt Mitchell. January 4, 2024 (request for inclusion of district statement in update 1-9-24)
- KVUE-ABC Television News: *Water Company Files Federal Lawsuit Against Hays County Conservation District.* By Jenni Lee. January 3, 2024

In addition to press releases, the District maintains a robust Education and Outreach program and serves as a liaison between the Board of Directors, the public, the press, private entities, Universities, and other GCDs or agencies.

Presentations/Panel Appearances

- *State of the Water* - Wimberley Valley Chamber of Commerce*:* David Baker (CEO Watershed Association), Dr. Robert Mace PG (Executive Director – Meadows Center for Water & the Environment), Adam Friedman JD (Trinity Edwards Springs Protection Association). June 12, 2024. Wimberley Texas.
- *HCLI Groundwater Panel* - Hill Country Leadership Institute: 2024. Kickapoo Springs (Ted Flato) Ranch, Edwards County. Marisa Bruno (Water Programs Manager, Hill Country Alliance), Paul Babb (G.M. Hill Country Underground Water Conservation District) Meredith Allen (G.M. Kimble, Menard, & Sutton County Ground Water Conservation Districts)
- *Groundwater Symposium: A Deeper Look At Local Aquifers* – Barton Springs Edwards Aquifer Conservation District. Vanessa Puig-Williams JD (Director, Texas Water Program at Environmental Defense Fund), Roland Ruiz (GM, Edwards Aquifer Authority), Dr. Tim Loftus (GM, Barton Springs Edwards Aquifer Conservation District). April 2, 2024. San Marcos Texas.
- *Karst Groundwater Drought Management:* Dr. Robert E. Mace's fall 2024 Groundwater Resources class (GEO-4334). San Marcos Texas
- *Western Hays County Water Resources*: Caliterra Homeowners Association Speakers Series, May 8, 2024 Dripping Springs Texas
- *Hydrology – Groundwater: A Shared Resource*: Texas Master Naturalists Hill Country Chapter Speaker Bureau
- *Chapter 36 Groundwater Management Zones*: Southwestern Travis County Groundwater Conservation District -- Hamilton Pool Management Zone Stakeholder Group. Bee Cave Texas. 2024

- **District Forms** update program

- 13 **Social Media** posts

- **Collaborative efforts**
  - Active communication and collaboration with the **Meadows Center for Water & Environment**
  - Active communication and collaboration with various **University of Texas** Schools, and **Texas State University** Departments of Geography and Biology
  - Active collaboration with the **Hill Country** Conservation Network and created input for the **Hill Country Natural Infrastructure Plan**
  - Active collaboration with the Barton Springs (Travis/Hays Co) **Regional Water Quality Protection Plan** working group (Austin Water, Austin Watershed Protection, SOS, Save Barton Creek Alliance, WVWA, Hays County, Travis County LCRA, BSEACD, SwTCGCD, City of Buda, &c.)
  - Active collaboration with the **Hill Country "*One Water*" Delegation** (NBU, SAWS, GBRA, Austin Watershed Protection, Mitchell Foundation, Meadows Center for Water & Environment, City of Buda, Hill Country Alliance, Texas Water Alliance, Texas Water Market Makers)

- Active communication and collaboration with **local/regional water agencies**:
  - Aqua Texas
  - Wimberley WSC
  - Dripping Springs WSC
  - City of Dripping Springs
  - West Travis Co. Public Utility Authority
  - Barton Springs/Edwards Aquifer Conservation District
  - Edwards Aquifer Authority
  - Blanco Pedernales GCD
  - Southwest Travis County GCD
  - Comal County GCD
  - Cow Creek GCD
  - Central Texas GCD
  - Hill Country Underground Water District (Gillespie County)
  - Guadalupe Blanco River Authority
  - Lower Colorado River Authority
  - Upper Guadalupe River Authority
  - Bandera County River Authority

- Active communication and collaboration with **local/regional conservation non-profits**:
  - Cypress Creek Watershed Protection Program
  - Watershed Association (nee Wimberley Valley Watershed Association)
  - Friends of Blue Hole
  - Hill Country Alliance
  - The Nature Conservancy
  - Hill Country Conservancy
  - Hill Country Conservation Network
  - Environmental Defense Fund
  - National Wildlife Federation
  - Trinity Edwards Springs Protection Association
  - Protect our Water
  - Save Our Springs
  - Save Barton Creek Association

- Active participation in the water management trade organizations:
  - Texas Water Association
  - Texas Alliance of Groundwater Districts
  - Texas Water Trade
  - Texas Water Foundation

8. Goal: Addressing Recharge Enhancement

Due to the geologic and hydro-stratigraphic structure of the Trinity sub-aquifers, the implementation of significantly effective recharge enhancement to the primary source aquifer may not be practical. Current interpretation of geologic data suggests that downward leakage within the Trinity Group is limited to specific stream segments. Recharge takes place within the geographic confines AND west of the District near the sedimentary wedge-edge of the water bearing rock units through diffuse infiltration. Given the location of suspected recharge and its nature, neither general land management nor focused enhancement practices may be feasible. Therefore, until additional Hydrogeologic data is available, this goal is not applicable to the operations of this District.

9. Goal: Addressing Rainwater Harvesting

9.1. *Management Objective*

Each year, the District will make at least one endorsement or contribution to programs that encourage, install, educate, or assist individuals in the implementation of rainwater harvesting systems in the District area.

Performance Standard

Each year, the District will provide records of contributions or promotions of rainwater harvesting events or companies in its Annual Report.

HTGCD Staff actively participates in Regional Flood Planning Groups for the Blanco and Pedernales River Basins to advocate for flood mitigation strategies that simultaneously enhance active aquifer recharge.

The HTGCD's Water Wise Speakers Series features videos on rainwater harvesting and can be viewed on the Districts You-Tube Channel.

The District encourages the use of rainwater collection systems on all new homes, businesses, and existing buildings during every monthly Board Meeting as part of the General Manager's Report.

Additionally, District staff receive TCEQ mailings concerning new business development within the District's boundary. A review of the packets includes direct communication, not only with TCEQ about the project, but also with the developer and their engineer. This includes inquiry about the installation of rainwater harvesting on common buildings or the ability of residents to install rainwater harvesting equipment.

10. Goal: Addressing Precipitation Enhancement

This goal is not applicable to the operations of this District.

11. Goal: Addressing Brush Control

11.1. *Management Objective*

The District will attend or contribute to at least one event each year that promotes and educates the public on proper land management practices.

Performance Standard

Each year, the District will provide records of contributions or promotions of land management events or companies in its Annual Report.

District staff attend and participate in the monthly Regional Water Quality Protection Program which focuses local agency and NGO capacity on a variety of land management best practices including brush control in the Edwards Aquifer Contributing and Recharge Zone.

District staff promotes recharge of the aquifer through such means as proper brush management and reestablishment of deep-rooted native grasses to promote infiltration into the aquifer during monthly Board Meetings in the General Manager's Report.

The District also provides educational materials for the public to take home on the subject of native plants, rainwater harvesting, aquifer storage and recovery, and other educational topics.

12. Goal: Addressing Desired Future Conditions (DFCs)

12.1. *Management Objective*

The District is working within the framework of Groundwater Management Area- 9 (GMA-9) to upgrade and maintain a well database map and files that will identify all District monitoring wells in the management area. The District will work with GMA-9 and their consultants on an acceptable method to analyze and report drawdown levels relative to the DFC. Deliverables may include potentiometric surface maps of the Middle and Lower Trinity Aquifers and selected hydrographs plus other documents generated by the consultants.

Performance Standard

Each year, the District will review the average drawdown of at least two Trinity Aquifer monitor wells, one in each Planning Region, against the DFC projected average regional drawdown for western Hays County. The District shall provide a summary in its Annual Report.

Water Planning

Texas Regional Water Planning requires that all Districts across the Hill Country Trinity Aquifer work together as a Groundwater Management Area (see **Figure 8**) to develop and monitor a 50-year aquifer level management goal. This planning goal is known as a Desired Future Condition (DFC). The DFC for the Trinity aquifer-wide is 29-feet of average drawdown over 50-years. The TWDB has scientifically quantified that average drawdown as a volume—and allotted the District 9,098 acre-feet/year of Modeled Available Groundwater (MAG).

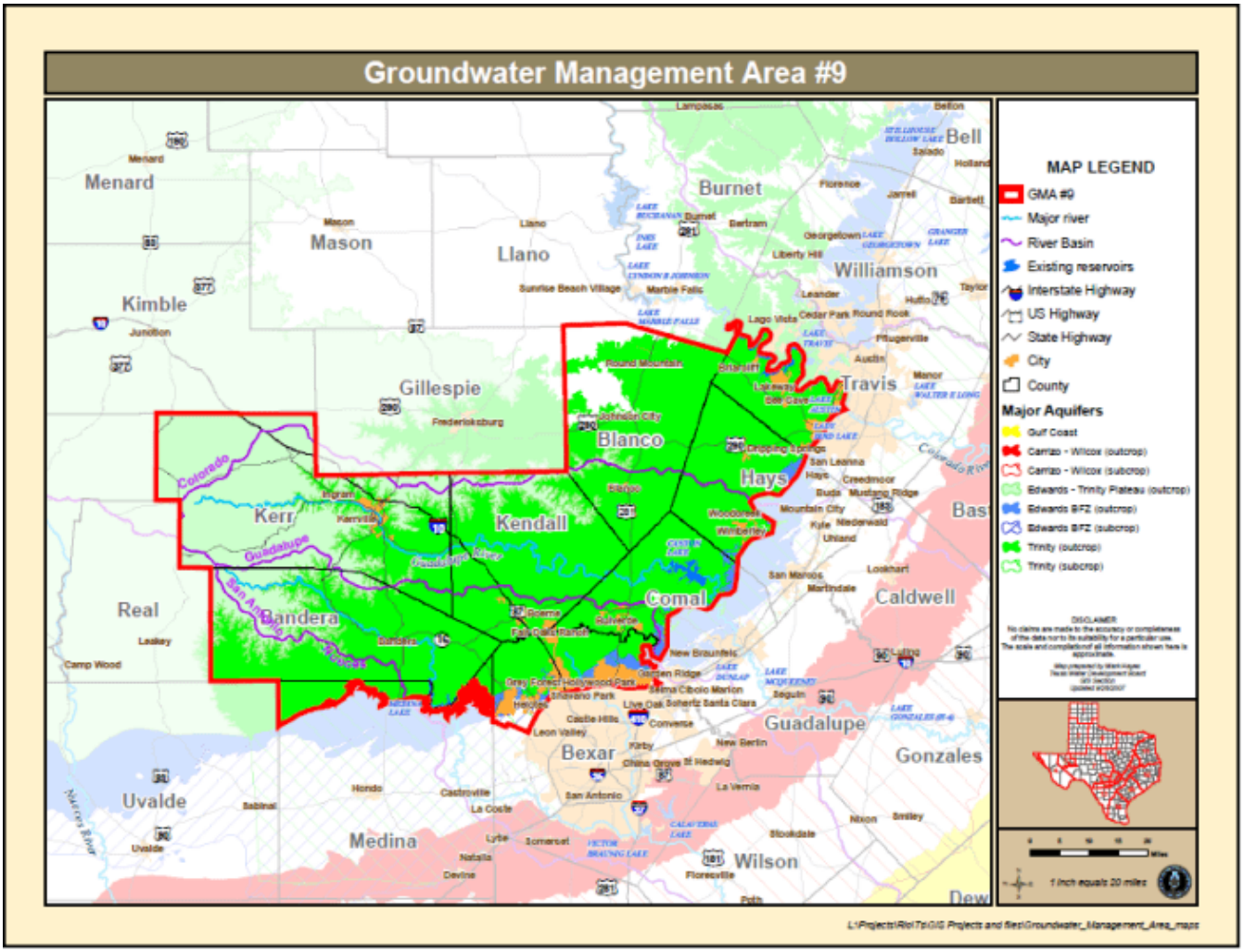


Figure 8: Map of Groundwater Management Area 9

Region K: Henly Church Hydrograph

Applying a trendline to the Henly Church hydrograph from the previous eleven years (2014 – 2024) displays decreasing water levels for that period (-6.54 ft./yr.) (Figure 1). This would indicate a water level *decrease* of 71.94 ft. from 2014 – 2024. Evaluating the water level trendline for the entire period of record for this well (1999 – 2024) shows a historical trend that is still negative but has a *smaller decrease* of -2.79 ft./yr., resulting in a 30.69 ft. drop in water level over that time period. **Figure 9** demonstrates the limitations of applying a trend line to a small sample size.

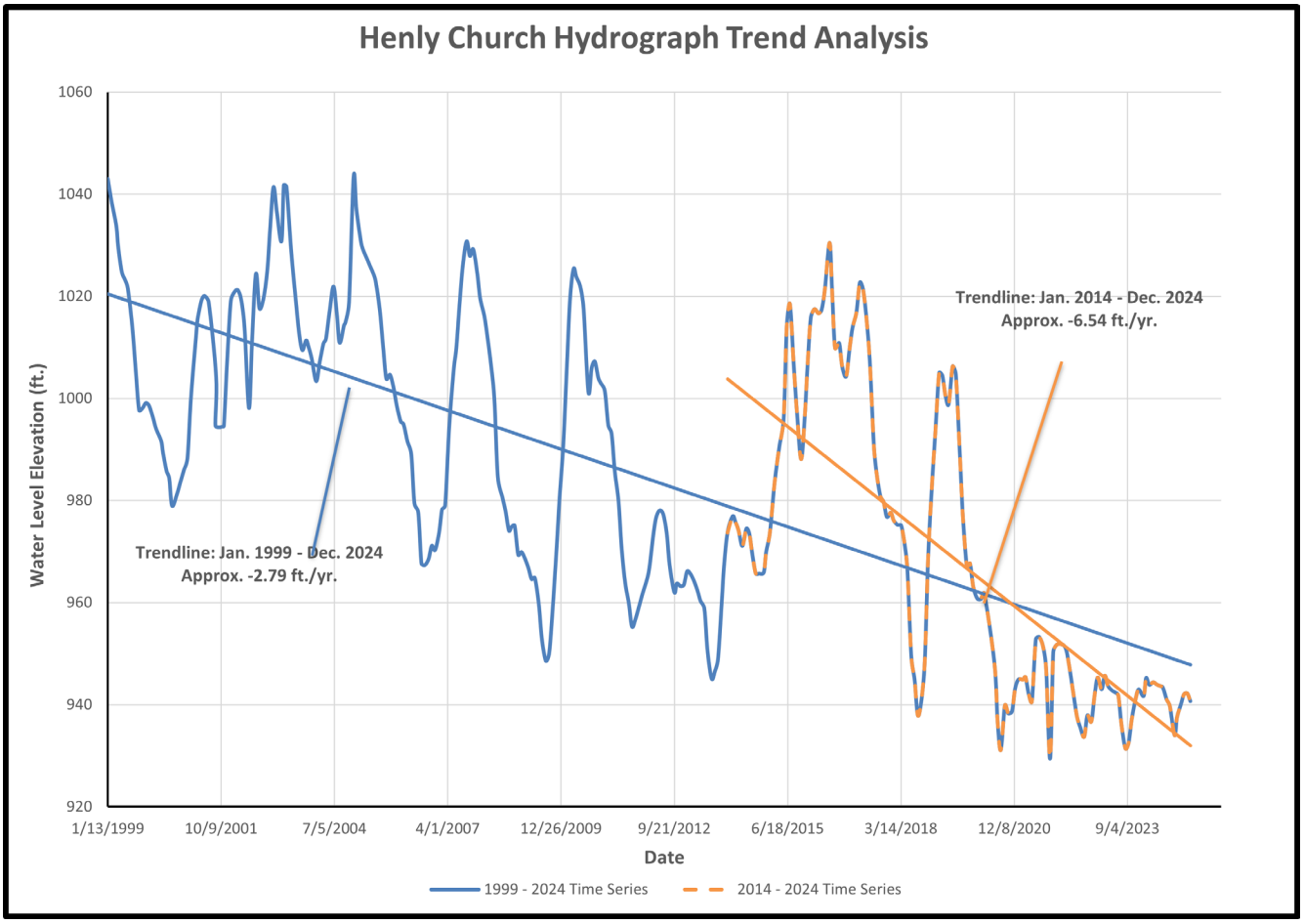


Figure 9: Henly Church well water level trendline comparison showing data from January 2014 to December 2024. The graph shows two trendlines, the blue starting in January 1999, the orange starting in January 2014.

Water Planning Region L: Glenn Hydrograph

The Glenn hydrograph trendline is negative (decrease in water level over time) at a rate of -1.74 ft./yr. This would indicate a *decrease* of 29.58 ft. during the 2008 – 2024 time period (**Figure 10**). Like the Henly well, the Glenn well experiences large seasonal fluctuations in water level that make accurate assessment of water level trends difficult to conduct. As such, caution should be exercised when using trendlines to evaluate long-term karst aquifer trends.

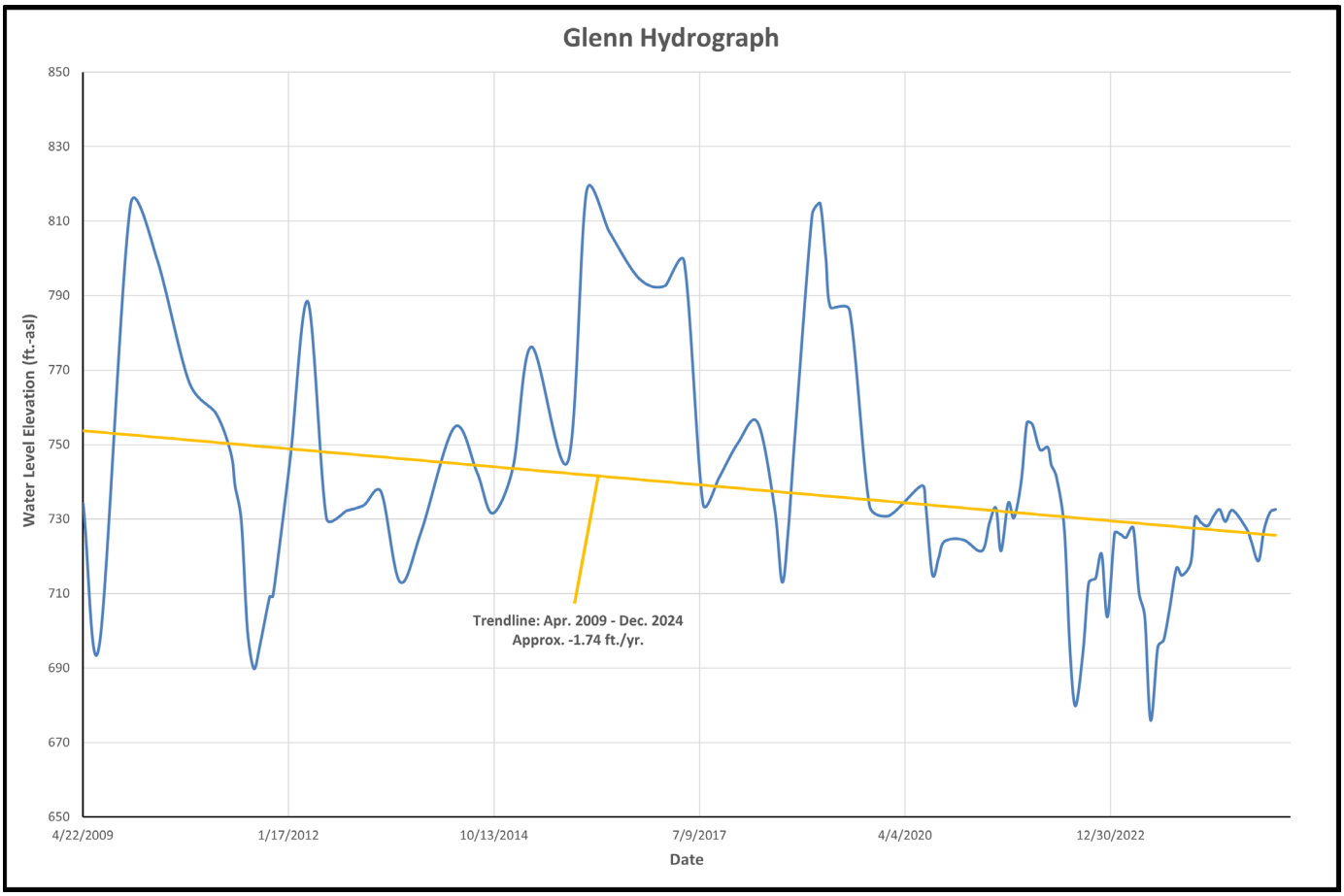


Figure 10: Glenn Well Hydrograph showing the trendline from August 2008 to December 2024.

12.2. Management Objective

The Modeled Available Groundwater (MAG) for the Trinity Aquifer in the District is derived from the DFC and requires frequent review against estimated pumpage.

Performance Standard

The District shall prepare an Annual Report of MAG estimated pumpage to monitor District compliance. A summary shall be presented to the District Board and made available to the public and included in the Annual Report.

The Available Groundwater HTGCD Trinity Aquifer System chart (**Table 1**) has been updated for 2024 and includes estimated exempt use production numbers and actual production reported from non-exempt permit holders from 2009 through 2024. A summary (**Figures 12** and **13**) was provided to the District's Board of Directors during the annual report presentation. Special attention should be given to the following data:

During 2024, 73 new wells were registered within the District boundary. All of them are exempt wells. Using 330 gallons per day, calculations show that 27 acre-ft/year will be produced on average from the newly added 73 exempt wells. The total exempt use for domestic and agriculture use during 2024 is estimated to be 3,922 acre-ft.

The total permitted "non-exempt" use during 2024 is 4,220 acre-feet, which includes an estimated 100 acre-feet of non-permitted non-exempt use. The sum of "non-exempt use" (4,220 acre-feet) and "exempt use" (3,922 acre-feet) allocated as of end of 2024 is 8,042 acre-feet. Actual 2024 non-exempt production reported to the District totaled 2,046 acre-feet.

Extrapolating a linear trend based on the previous 5-years of data, permitted plus exempt use will exceed the MAG (9,098 acre-feet per year) in 2038 (**Figure 11**).

The Texas Water Development Board set the Hays Trinity Groundwater Conservation District's total MAG (Modeled Available Groundwater) at 9,098 acre-feet. As of 2024, the District has committed 8,042 acre-feet. The remaining 1,056 acre-feet must be distributed between future new exempt and non-exempt commitments.

HTGCD-Trinity Aquifer Management as of December 31, 2024 (Acre-Feet/Year, AFY)

Year-End	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2,024
Modeled Available Groundwater[1]		**9,109**	**9,109**	**9,109**	**9,109**	**9,109**	**9,109**	**9,109**	**9,109**	**9,109**	**9,109**	**9,098**	**9,098**	**9,098**	**9,098**	**9,098**
Exempt Use: Domestic/Agricultural	[2]3,300	3,322	3,358	3,398	3,448	3,495	3,542	3,577	3,616	3,663	3,716	3,758	3,809	3,859	3,895	**3,922**
Non-Exempt Use: Permitted[3]	1,860	1,877	2,442	2,451	2,854	2,989	3,310	3326	3,545	3,741	3,903	3,924	3,931	3,574	3,805	**4,120**
Non-Exempt Use: No Permit -Estimated[4]	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	**100**
Non-Exempt Use: Reporting - No Permit[5]	482	364	306	235	19	2	3	4	0	0	0	0	0	0	0	**0**
Sub-Total Committed	5,742	5,663	6,206	6,184	6,421	6,586	6,955	7,007	7,261	7,504	7,719	7,782	7,840	7,533	7,700	**8,042**
Net Available Groundwater (MAG-Sub-Total)		3,446	2,903	2,926	2,688	2,523	2,154	2,102	1,848	1,605	1,390	1,316	1,258	2,024	1,398	**1,056**
Non-Exempt Actual Production	1,987	1,796	2,004	1,691	1,599	1,532	1,537	1,586	1,815	1,904	1,940	2,231	2,049	2,523	2,291	**2,046**

2009 : 99 new Well Construction Notifications or 37AFY
2010 : 59 new Well Construction Notifications or 22 AFY
2011 : 96 new Well Construction Notifications or 36 AFY
2012 : 107 new Well Construction Notifications or 40 AFY
2013 : 135 new Well Construction Notifications or 50 AFY
2014 : 126 new Well Construction Notifications or 47 AFY
2015 : 127 new Well Construction Notifications or 47 AFY
2016 : 95 new Well Construction Notifications or 35 AFY
2017 : 105 new Well Construction Notifications or 39 AFY
2018 : 126 new Well Construction Notifications or 47 AFY
2019 : 144 new Well Construction Notifications or 53 AFY
2020 : 115 new Well Construction Notifications or 42 AFY
2021 : 137 new Well Construction Notifications or 51 AFY
2022 : 127 new Well Construction Notifications or 47 AFY
2023 : 99 new Well Construction Notifications or 43 AFY
2024 : 73 new Well Construction Notifications or 27 AFY

[1] TWDB-calculated MAG pumping decreases over time, and incorporates assumptions on future use

[2] Approved by the HTGCD Board April 25, 2011 based on the HDR NA Case 5,784 (Water-Wastewater Plan for Hays Co., 2011)

[3] Total AFY permitted for pumping in existing operational permits

[4] Non-Exempt Use: not permitted and not reporting; Goal: permit users and move 100 AFY towards 0 AFY*)

*)10 AFY calculated: Identified & Under Investigation = 50 cases @ 2 AFY each = 100 AFY

[5] Non-Exempt Use: reporting but not permitted; Goal: permit users and move 4 AFY towards 0 AFY

Numbers at a Glance

Total Registered Wells:	**3,823**
Total Utility Connections:	**4,948**
Total Volume permitted (estimated):	**4120**
Total non-exempt produced, AFY:	**2046**
Total exempt use (estimated, AFY):	**3,922**
Total produced (estimated, AFY):	**5,968**

Table 1: Modeled Available Groundwater in the Trinity Aquifer System within the Hays Trinity GCD Jurisdiction.

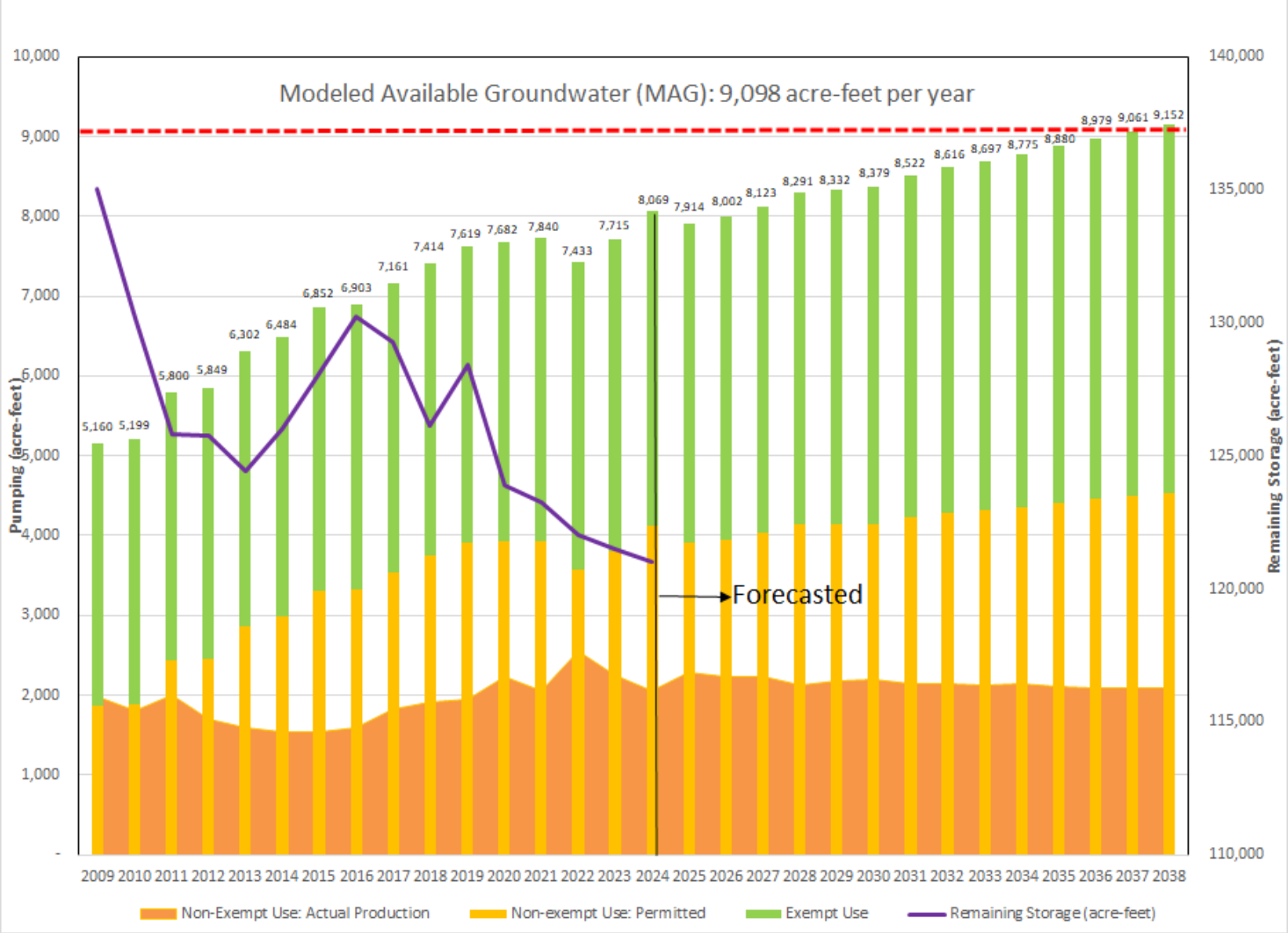


Figure 11: Estimated Exempt and Non-exempt Historical Groundwater Use. The Forecast is a Linear Extrapolation of the 2019-2024 Data in **Table 1**.

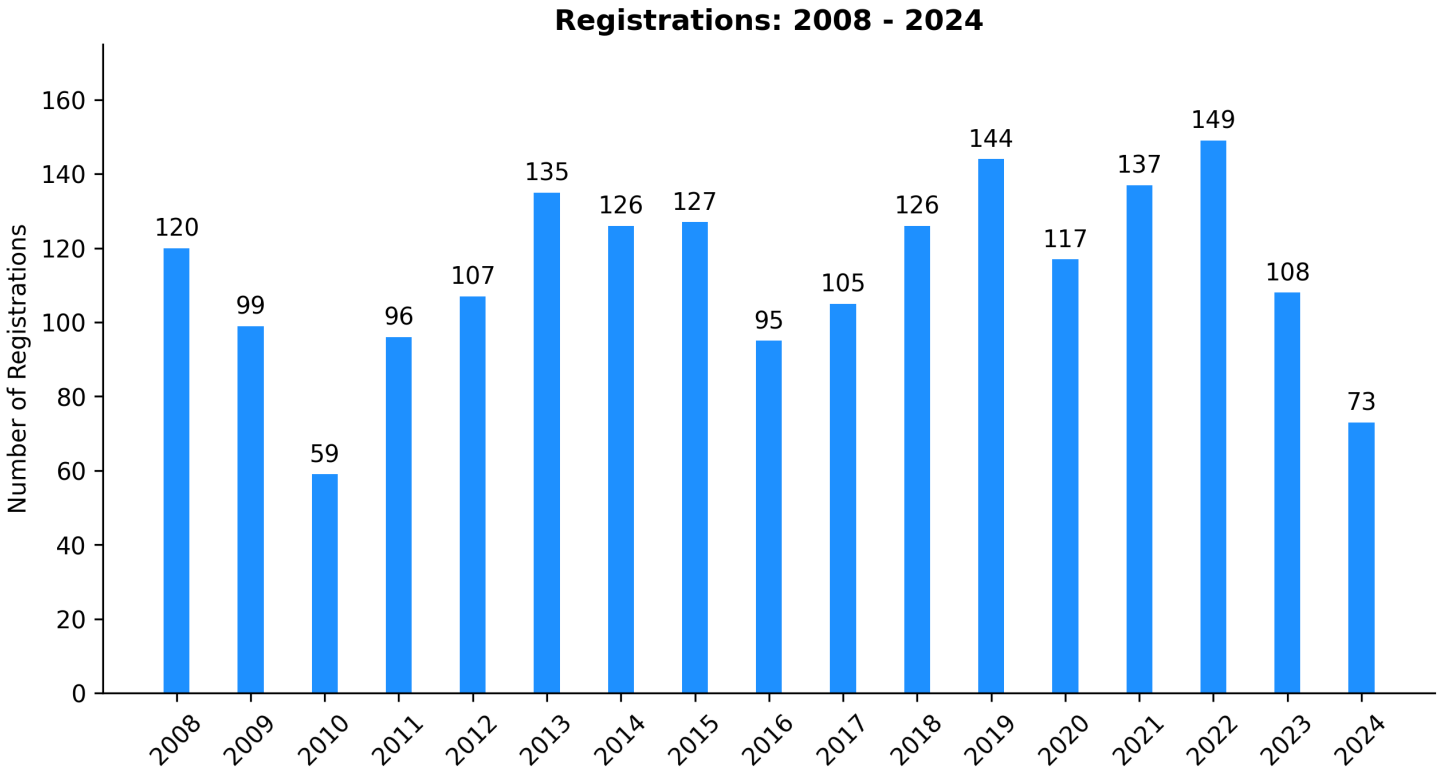


Figure 12: Wells Drilled by Year, Including Geothermal and Non-producing Monitoring Wells

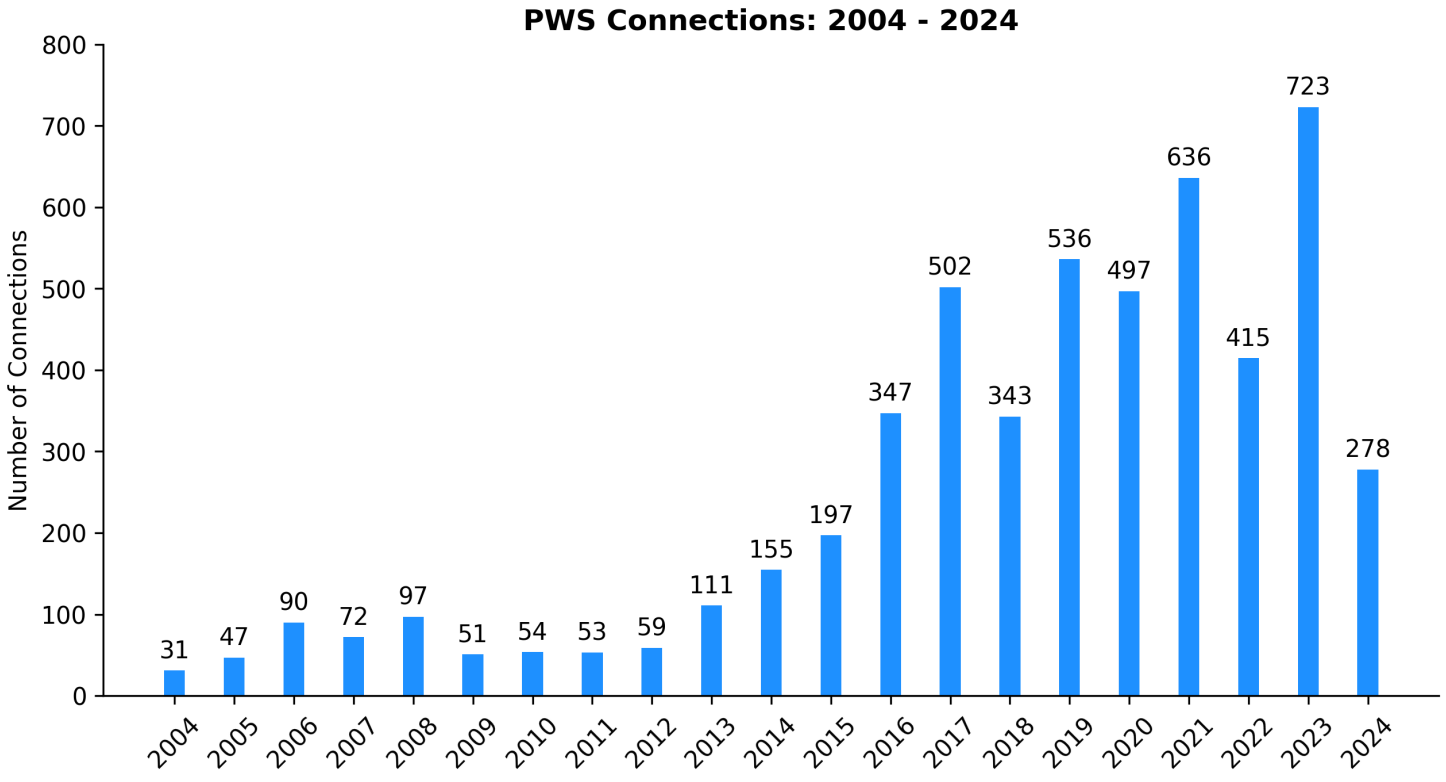


Figure 13. Public Water Supply Connections by Year

Support Documentation is available on request at the District office.

References:

Martin, N.M., Green, R.T., Nicholaides, K.D., Fratesi, S.B., Nunu, R.R., and Flores, M.E, 2019, Blanco River Aquifer Assessment Tool: A Tool to Assess How the Blanco River Interacts with Its Aquifer: Creating the Conceptual Model. Technical Report prepared for the Meadows Center for Water and the Environment. Texas State University at San Marcos, Texas. 136 p. + attachments.

Dowlearn, G., 2022, GAM Run 21-014 MAG: Modeled Available Groundwater for the Aquifers in Groundwater Management Area 9, Texas Water Development Board, 26 p.

HDR Engineering Inc., 2011, Water And Wastewater Facilities Plan For The Portion Of Hays County West Of The IH-35 Corridor