

NOTICE OF OPEN MEETING

Notice is given that a **Special Meeting** of the Board of Directors (Board) of the Barton Springs/Edwards Aquifer Conservation District to be held on **Thursday, May 14, 2020**, commencing at **4:00 p.m. via Telephone and Videoconference** pursuant to Texas Government Code, Sections 551.125, 551.127 and 551.131, as modified by the Governor of Texas (Governor) who ordered suspension of various provisions of the Open Meetings Act, Chapter 551, Government Code, effective March 16, 2020, in accordance with the Texas Disaster Act of 1975. Under his proclamation of March 13, 2020, the Governor certified that the COVID-19 pandemic poses an imminent threat of disaster and declared a state of disaster for all counties in Texas. The COVID-19 pandemic makes it difficult to convene a quorum of the Board at one location with the public. Moreover, the COVID-19 pandemic creates an emergency and unforeseeable situation, a sense of urgency, and immediacy for conducting the meeting via Telephone and Videoconference.

This meeting will be audio/video recorded and the recording will be available on the District's website after the meeting. A copy of the agenda packet for this meeting will be available on the District's website at the time of the meeting.

The method for public participation described below follows the Governor's guidance for conducting a public meeting and ensures public accessibility. Members of the public may participate via videoconference or call in by telephone via the instructions provided below:

INSTRUCTIONS FOR JOINING MEETING

1. You may join the meeting by one of two options:

- a) **Join the Meeting using the Zoom** – use your computer audio/video features
<https://us02web.zoom.us/j/98118358284?pwd=V0pWUnE5Y21UNGxOclR3clBscXZadz09>
Meeting ID: 981 1835 8284
Password: 044214

Helpful Tips – visit the District's [Board Meeting webpage](#) for tips on how to set up Zoom on your device prior to the Board Meeting.

- b) **Join the Meeting by Telephone only**
Dial In: +1-346-248-7799
Meeting ID: 981 1835 8284#
Password: 044214#

INSTRUCTIONS FOR PUBLIC COMMENTS

1. Register for Public Comment prior to Board Meeting Day - Persons wishing to provide public comment must register by calling (512-282-8441) or emailing tammy@bseacd.org by **5:00 p.m. on Wednesday, May 13, 2020**. Please include the following information in the registration:

- 1) first and last name;
- 2) email address;
- 3) phone number;
- 4) the agenda item on which you wish to comment;
- 5) indicate whether you would like to comment the day of or have your written comments submitted read into the record; and
- 6) include written comments, if any.

2. **Public Comments at the Board Meeting** – Each registered person will be recognized and identified by the Presiding Officer or staff moderating the communications when it is their turn to speak. **Public comment is limited to 3 minutes per person.** Only persons who have registered in advance to give public comment during the meeting, will be allowed to provide comment.

Note: The Board of Directors of the Barton Springs/Edwards Aquifer Conservation District reserves the right to meet in Executive Session at any time during the course of this meeting to discuss any of the matters listed on this agenda, as authorized by the Texas Government Code Sections §551.071 (Consultation with Attorney), 551.072 (Deliberations about Real Property), 551.073 (Deliberations about Gifts and Donations), 551.074 (Personnel Matters), 551.076 (Deliberations about Security Devices), 551.087 (Economic Development), 418.183 (Homeland Security). No final action or decision will be made in Executive Session.

1. Call to Order 4:00 p.m.

2. Citizen Communications (Public Comments of a General Nature).

3. Routine Business

a. Consent Agenda. *(Note: These items may be considered and approved as one motion. Directors or citizens may request any consent item be removed from the consent agenda, for consideration and possible approval as a separate item of Regular Business on this agenda.)*

1. Approval of Financial Reports under the Public Funds Investment Act, Directors' Compensation Claims, and Specified Expenditures greater than \$5,000. **Pg. 4**
2. Approval of minutes of the Board's March 12, 2020 Regular Meeting. **Not for public review at this time**
3. Approval of an amended waterline easement with Alliance Water consisting of a time extension for the Temporary Construction Easement across BSEACD's property at Onion Creek. **Pg. 32**

b. General Manager's Report. *(Note: Topics discussed in the General Manager's Report are intended for general administrative and operational information-transfer purposes. The Directors will not take any action unless the topic is specifically listed elsewhere in this agenda for consideration. A Director may request an individual topic that is presented only under this agenda item be placed on the posted agenda of some future meeting for Board discussion and possible action.)*

Topics

1. Update on personnel matters.
2. District's response to COVID-19.
3. Update on Aquifer conditions and status of drought indicators. **Pg. 37**
4. Update on Hays County Elections coding corrections.
5. Update on PHP construction activities in the Hill County including coordination among GCDs in Hays County.
6. Update on Sustainable Yield and modeling activities. **Pg. 38**
7. Review of Status Report and update on team activities/projects. **Pg. 41, 54**
8. Update on the pending SOAH proceeding for the Electro Purification LLC application.
9. Update on pending litigation in the matter of *TESPA v. BSEACD*, Cause No. D-1-GN-20-000835, 459th Travis County District Court.
10. Upcoming public events of possible interest.

4. Discussion and Possible Action.

- a. Discussion and possible action on the approval of Budget Revision 1. **Pg. 62**
- b. Discussion and possible action on Scholarship nominations. **Pg. 70**
- c. Discussion and possible action on future Board meeting dates and format of the meetings. **NBU**
- d. Discussion and possible action on pending and potential litigation against Kinder Morgan including but not limited to *City of Austin et. al. v. Kinder Morgan, Texas Pipeline*, Cause No. 1:20-CV-00138 U.S. District Court, Western District, Austin Division; TESPAs Notice of Intent to sue Kinder Morgan under various Federal Laws; and, Texas Railroad Commission Notice of Violation. **NBU**

5. Directors' Reports.

Directors may report on their involvement in activities and dialogue that are of likely interest to the Board, in one or more of the following topical areas:

- Meetings and conferences attended or that will be attended;
- Board committee updates;
- Conversations with public officials, permittees, stakeholders, and other constituents;
- Commendations; and
- Issues or problems of concern.

6. Adjournment.

Please note: This agenda and available related documentation, if any, have been posted on the District website, www.bseacd.org. If you have a special interest in a particular item on this agenda and would like any additional documentation that may be developed for Board consideration, please let staff know at least 24 hours in advance of the Board Meeting so that we can have those copies made for you.

Item 1
Call to Order

Item 2
Citizen Communications

Item 3

Routine Business

a. Consent Agenda

(Note: These items may be considered and approved as one motion. Directors or citizens may request any consent item be removed from the consent agenda, for consideration and possible approval as a separate item of Regular Business on this agenda.)

- 1. Approval of Financial Reports under the Public Funds Investment Act, Directors' Compensation Claims, and Specified Expenditures greater than \$5,000.**
- 2. Approval of minutes of the Board's March 12, 2020 Regular Meeting.**
- 3. Approval of an amended waterline easement with Alliance Water consisting of a time extension for the Temporary Construction Easement across BSEACD's property at Onion Creek.**

Financial Reports

April 2020

(May 14, 2020 Board Meeting)

1. Profit and Loss Budget vs Actual

Fiscal year-to-date: September 1, 2019 through April 30, 2020

2. Profit and Loss Previous Year Comparison

Fiscal year-to-date: September 1, 2019 through April 30, 2020

3. Balance Sheet Previous Year Comparison

April 2020 (compared to April 2019)

4. Check Register – TRUIST Operating Account

April 1, 2020 through April 30, 2020

Please note that these reports still reflect the 2020 Initial Budget numbers.

After the approval of FY 2020 Budget Revision 1 at the May Board Meeting, the new revised numbers will be reflected in next months' financial reports.

1. Profit and Loss Budget vs Actual

Fiscal year-to-date:

September 1, 2019 - April 30, 2020

BSEACD

Profit and Loss Budget vs Actual

September 1, 2019 through April 30, 2020

	9.1.2019 - 4.30.2020	Budget	% of Budget	Notes
INCOME				
4300.0 · PROJECT INCOME	133,000.00	75,000.00	177.33%	% will change when Revision 1 numbers are entered.
4400.0 · Interest Income	11,709.39	12,000.00	97.58%	
4625.0 · MISCELLANEOUS INCOME	7,626.24			Includes Explorer Insurance payout
4800.0 · USAGE AND PRODUCTION FEES	1,302,915.62	1,700,024.00	76.64%	Includes three quarters of permittee production fees.
4810.0 · OTHER FEES	10,099.57	9,800.00	103.06%	Includes Needmore Mitigation \$2500, well application fees, and late fees
TOTAL INCOME	<u>1,465,350.82</u>	<u>1,796,824.00</u>	<u>81.55%</u>	
EXPENSE				
6000.0 · UTILITIES	13,416.67	23,000.00	58.33%	
6005.0 · Print/Copy/Photo Services	1,033.00	2,000.00	51.65%	
6007.0 · Postage Freight Shipping	931.04	2,500.00	37.24%	
6010.0 · Office Supplies	4,167.21	9,000.00	46.3%	
6011.0 · Comp Hardware-Plotter Supplies	1,592.87	5,000.00	31.86%	
6014.0 · Software Acquisition & Upgrades	2,169.75	6,000.00	36.16%	
6015.0 · IT Monthly Maintenance	8,000.00	12,000.00	66.67%	% will change when Revision 1 numbers are entered.
6016.0 · Meeting Expense	777.41	1,000.00	77.74%	% will change when Revision 1 numbers are entered.
6019.0 · Subscriptions/Publications	1,284.81	4,200.00	30.59%	
6020.0 · Advertising	630.04	4,000.00	15.75%	
6021.0 · MISCELLANEOUS EXPENSES	523.99	1,000.00	52.4%	
6022.0 · Accounting System Operation	4,041.48	6,000.00	67.36%	% will change when Revision 1 numbers are entered.
6023.0 · MAINTENANCE	9,472.11	17,900.00	52.92%	
6025.4 · Facilities Repairs	929.39	5,000.00	18.59%	

	9.1.2019 - 4.30.2020	Budget	% of Budget	Notes
6040.0 · LEASES	6,340.87	10,650.00	59.54%	
6065.0 · DIRECTOR EXPENSES	130.92	2,500.00	5.24%	
6066.0 · Directors Compensation	16,050.00	40,000.00	40.13%	
6075.0 · DUES & MEMBERSHIPS	5,180.14	6,100.00	84.92%	
6080.0 · EDUCATION AND OUTREACH	5,948.30	13,950.00	42.64%	
6081.0 · REGULATORY COMPLIANCE	3,145.00	17,500.00	17.97%	
6084.92 · GENERAL MANAGEMENT	1,230.00	19,000.00	6.47%	
6089.0 · AQUIFER SCIENCE	26,373.01	56,300.00	46.84%	
6090.0 · Conservation Credits	0.00	23,297.00	0.0%	
6100.0 · INSURANCE - DISTRICT	5,004.16	5,700.00	87.79%	% will change when Revision 1 numbers are entered.
6150.0 · INSURANCE - GROUP	95,035.20	156,114.00	60.88%	% will change when Revision 1 numbers are entered.
6160.0 · LEGAL SERVICES	63,994.29	150,000.00	42.66%	
6168.11 · SOAH - EP	4,453.13			
6170.0 · PROFESSIONAL SERVICES	32,420.72	51,000.00	63.57%	
6179.0 · LEGISLATION	7,000.00	12,000.00	58.33%	
6180.0 · PROF DEVELOPMENT & SUPPORT	5,285.60	13,500.00	39.15%	
6199.0 · SALARIES AND WAGES	606,580.84	968,313.00	62.64%	This is high because vacation earned was paid out for two departing employees.
6203.0 · TAXES & BENEFITS	83,631.86	152,226.00	54.94%	
6800.0 · PROJECTS	0.00			
Total Expense	1,016,773.81	1,796,750.00	56.59%	
Net Income	448,577.01	74.00		

2. Profit and Loss - Previous Year Comparison

Fiscal year-to-date:

September 1, 2019 – April 30, 2020

BSEACD

Profit and Loss Previous Year Comparison September 1, 2019 through April 30, 2020 (compared to September 1, 2018 through April 30, 2019)

	Sept 2019 - Apr 2020	Sept 2018 - Apr 2019	\$ Change	% Change
Income				
4300.0 · PROJECT INCOME	133,000.00	100,000.00	33,000.00	33.0%
4400.0 · Interest Income	11,709.39	19,782.75	-8,073.36	-40.81%
4625.0 · MISCELLANEOUS INCOME	7,626.24	5,274.90	2,351.34	44.58%
4800.0 · USAGE AND PRODUCTION FEES	1,302,915.62	1,207,012.23	95,903.39	7.95%
4810.0 · OTHER FEES	10,099.57	8,266.90	1,832.67	22.17%
Total Income	1,465,350.82	1,340,336.78	125,014.04	9.33%
Expense				
6000.0 · UTILITIES	13,416.67	14,284.14	-867.47	-6.07%
6005.0 · Print/Copy/Photo Services	1,033.00	1,138.58	-105.58	-9.27%
6007.0 · Postage Freight Shipping	931.04	1,474.48	-543.44	-36.86%
6010.0 · Office Supplies	4,167.21	5,930.38	-1,763.17	-29.73%
6010.2 · Office Furniture	0.00	758.14	-758.14	-100.0%
6011.0 · Comp Hardware-Plotter Supplies	1,592.87	5,600.33	-4,007.46	-71.56%
6014.0 · Software Acquisition & Upgrades	2,169.75	2,384.47	-214.72	-9.01%
6015.0 · IT Monthly Maintenance	8,000.00	8,000.00	0.00	0.0%
6016.0 · Meeting Expense	777.41	4,308.41	-3,531.00	-81.96%
6017.0 · EXTERNAL MTGS & SPONSORSHIPS	0.00	3,500.00	-3,500.00	-100.0%
6019.0 · Subscriptions/Publications	1,284.81	1,525.00	-240.19	-15.75%
6020.0 · Advertising	630.04	1,347.58	-717.54	-53.25%
6021.0 · MISCELLANEOUS EXPENSES	523.99	680.17	-156.18	-22.96%
6022.0 · Accounting System Operation	4,041.48	2,161.49	1,879.99	86.98%

	Sept 2019 - Apr 2020	Sept 2018 - Apr 2019	\$ Change	% Change
6023.0 · MAINTENANCE	9,472.11	11,267.85	-1,795.74	-15.94%
6025.1 · Facilities Upgrades	0.00	269.00	-269.00	-100.0%
6025.4 · Facilities Repairs	929.39	0.00	929.39	100.0%
6040.0 · LEASES	6,340.87	7,267.07	-926.20	-12.75%
6065.0 · DIRECTOR EXPENSES	130.92	1,781.35	-1,650.43	-92.65%
6066.0 · Directors Compensation	16,050.00	24,300.00	-8,250.00	-33.95%
6075.0 · DUES & MEMBERSHIPS	5,180.14	4,943.65	236.49	4.78%
6080.0 · EDUCATION AND OUTREACH	5,948.30	12,475.09	-6,526.79	-52.32%
6081.0 · REGULATORY COMPLIANCE	3,145.00	12,377.95	-9,232.95	-74.59%
6084.92 · GENERAL MANAGEMENT	1,230.00	16,655.00	-15,425.00	-92.62%
6089.0 · AQUIFER SCIENCE	26,373.01	15,702.58	10,670.43	67.95%
6100.0 · INSURANCE - DISTRICT	5,004.16	3,654.38	1,349.78	36.94%
6150.0 · INSURANCE - GROUP	95,035.20	101,203.65	-6,168.45	-6.1%
6160.0 · LEGAL SERVICES	63,994.29	102,199.19	-38,204.90	-37.38%
6168.11 · SOAH - EP	4,453.13	6,800.00	-2,346.87	-34.51%
6168.2 · SOAH - Needmore	0.00	1,880.00	-1,880.00	-100.0%
6170.0 · PROFESSIONAL SERVICES	32,420.72	31,836.05	584.67	1.84%
6179.0 · LEGISLATION	7,000.00	22,000.00	-15,000.00	-68.18%
6180.0 · PROF DEVELOPMENT & SUPPORT	5,285.60	0.00	5,285.60	100.0%
6184.0 · DISCRETIONARY FUNDS	0.00	2,899.00	-2,899.00	-100.0%
6199.0 · SALARIES AND WAGES	606,580.84	631,516.42	-24,935.58	-3.95%
6202.0 · Payroll Direct Deposit Expenses	0.00	34.00	-34.00	-100.0%
6203.0 · TAXES & BENEFITS	83,631.86	95,056.80	-11,424.94	-12.02%
6800.0 · PROJECTS	0.00	19,492.79	-19,492.79	-100.0%
Total Expense	1,016,773.81	1,178,704.99	-161,931.18	-13.74%
Net Income	448,577.08	161,418.14	287,158.94	177.9%

3. Balance Sheet - Previous Year Comparison

April 2020 (compared to April 2019)

BARTON SPRINGS/EDWARDS AQUIFER CONSERVATION DISTRICT

Balance Sheet Previous Year Comparison

April 1 - April 30, 2020

	April 30, 2020	April 30, 2019	\$ Change	% Change
ASSETS				
Current Assets				
1000.0 · Cash in Bank-Checking BB&T	70,513.91	38,317.77	32,196.14	84.02%
1010.0 · Cash in Bank - Payroll BB&T	31,713.06	4,169.19	27,543.87	660.65%
1030.0 · TexPool Funds - General				
1030.1 · Aquifer Protection Reserve	52,050.00	52,050.00	0.00	0.0%
1030.2 · Deposits Held	61,560.00	0.00	61,560.00	100.0%
1030.21 · Cash Flow Reserve	150,000.00	0.00	150,000.00	100.0%
1030.0 · TexPool Funds - General - Other	403,293.20	343,831.50	59,461.70	17.29%
Total 1030.0 · TexPool Funds - General	666,903.20	395,881.50	271,021.70	68.46%
1040.0 · TexPool Funds - Contingency	597,430.75	820,482.19	-223,051.44	-27.19%
1045.0 · TexPool Funds - Reserve	60,956.25	59,899.95	1,056.30	1.76%
Total	1,427,517.17	1,318,750.60	108,766.57	8.25%
Accounts Receivable				
1200.0 · Accounts Receivable	5,166.83	27,320.79	-22,153.96	-81.09%
Total Accounts Receivable	5,166.83	27,320.79	-22,153.96	-81.09%
Other Current Assets				
1100.0 · Petty Cash	300.00	300.00	0.00	0.0%
1300.0 · Pre-paid Expenses	5,600.17	5,768.10	-167.93	-2.91%
1499.0 · Undeposited Funds-A/R payments	7,159.62	10,896.34	-3,736.72	-34.29%
Total Other Current Assets	13,059.79	16,964.44	-3,904.65	-23.02%
Total Current Assets	1,445,743.79	1,363,035.83	82,707.96	6.07%

	April 30, 2020	April 30, 2019	\$ Change	% Change
Fixed Assets				
1400.0 · Field Equipment	376,487.89	376,487.89	0.00	0.0%
1410.0 · Office Equipment & Furniture	19,722.90	19,722.90	0.00	0.0%
1410.1 · Computer Hardware & Software	13,529.69	13,529.69	0.00	0.0%
1420.0 · Vehicles	78,339.03	78,339.03	0.00	0.0%
1430.0 · Accumulated Depreciation	-583,153.24	-583,153.24	0.00	0.0%
1440.0 · Land (Antioch Cave)	165,415.00	165,415.00	0.00	0.0%
1445.0 · Office Building	268,588.04	268,588.04	0.00	0.0%
Total Fixed Assets	338,929.31	338,929.31	0.00	0.0%
Other Assets				
1500.0 · Organizational Costs	300,783.26	300,783.26	0.00	0.0%
1510.0 · Accumulated Amortization	-300,783.26	-300,783.26	0.00	0.0%
1600.0 · Deposits Paid (Utilities)	71.00	71.00	0.00	0.0%
Total Other Assets	71.00	71.00	0.00	0.0%
TOTAL ASSETS	1,784,744.10	1,702,036.14	82,707.96	4.86%
LIABILITIES & EQUITY				
Liabilities				
Current Liabilities				
Other Current Liabilities				
2010.0 · Rebates Payable - Cons Credits	19,148.06	21,502.02	-2,353.96	-10.95%
2110.0 · Direct Deposit Liabilities	1,035.00	1,035.00	0.00	0.0%
2220.0 · Federal Income Tax Withheld	-1,035.01	-1,035.00	-0.01	-0.0%
2230.0 · Employer Fica & Med Payable	-139.25	0.00	-139.25	-100.0%
2250.0 · TWC Unemployment Tax Payable	1,730.26	0.22	1,730.04	786,381.82%
2270.0 · Payroll Liabilities	0.09	-200.17	200.26	100.05%
2300.0 · Accrued Vacation Payable	47,691.01	54,041.78	-6,350.77	-11.75%

	April 30, 2020	April 30, 2019	\$ Change	% Change
Total Other Current Liabilities				
Total Current Liabilities	68,430.16	75,343.85	-6,913.69	-9.18%
Total Liabilities	68,430.16	75,343.85	-6,913.69	-9.18%
Equity				
3000.0 - Fund Balance	902,309.60	1,099,846.89	-197,537.29	-17.96%
3000.3 - Invested in Capital Assets	365,127.26	365,127.26	0.00	0.0%
3110.0 - Reserve for Petty Cash	300.00	300.00	0.00	0.0%
Net Income	448,577.08	161,418.14	287,158.94	177.9%
Total Equity	1,716,313.94	1,626,692.29	89,621.65	5.51%
TOTAL LIABILITIES & EQUITY	1,784,744.10	1,702,036.14	82,707.96	4.86%

4. Check Register

BB&T now TRUIST
Operating Account

April 1 – April 30, 2020

BARTON SPRINGS/EDWARDS AQUIFER CONSERVATION DISTRICT

APRIL MONTHLY OPERATING REGISTER

April 1 - April 30, 2020

Type	Date	Num	Name	Memo	Amount	Balance
Transfer	04/02/2020					78,486.43
Check	04/02/2020	OBP2004021	Unum Life Insurance Co.	Funds Transfer Payroll	-20,000.00	58,486.43
Check	04/02/2020	OBP2004022	Integritek	Life Insurance Premium - April	-909.92	57,576.51
Check	04/07/2020	25418	Ameritas Life Insurance Corp.	IT, Phone, Anti-virus, Office 365	-1,756.74	55,819.77
Check	04/07/2020	25419	Jan-Pro of Austin	Vision Insurance Premium -May	-109.80	55,709.97
Check	04/07/2020	25420	Orsak Landscape Services	Office Cleaning Services - April	-260.00	55,449.97
Check	04/07/2020	25421	TxTag	Landscape Services	-65.00	55,384.97
Check	04/07/2020	25422	BB&T VISA	Toll Fees	-2.25	55,382.72
Check	04/08/2020	25417	Tammy Raymond	Various Credit Card Charges	-1,452.60	53,930.12
Deposit	04/08/2020			Petty Cash Fund Replenishment	-247.80	53,682.32
Liability Check	04/09/2020	4092020	Reliance Trust Company	Deposit (permittee payments and one LPP)	9,359.87	63,042.19
Liability Check	04/09/2020	EFT	United States Treasury	Bi-weekly Retirement and Loan Pmt	-4,968.15	58,074.04
Check	04/14/2020	25423	The Standard	74-2488641	-7,294.51	50,779.53
Check	04/14/2020	25424	Sam's Club	Retirement Plan Administration (Jan-Mar 2020)	-5,187.90	45,591.63
Check	04/14/2020	25425	Premiere Global Services	Annual Membership Dues	-45.00	45,546.63
Check	04/14/2020	25426	Time Warner Cable	Teleconference Services	-13.30	45,533.33
Check	04/14/2020	25427	Enoch Keever PLLC	Internet	-145.11	45,388.22
Check	04/14/2020	25428	BCRAGD	Legal EP March 2020	-60.00	45,328.22
Check	04/14/2020	25429	CIT Technology Fin Serv, Inc	GMA-9 DFC Planning Phase I (Aug 2019-Dec 2019)	-550.00	44,778.22
Check	04/14/2020	25430	Ready Refresh by Nestle	Copier Lease	-680.50	44,097.72
Transfer	04/16/2020			Water Delivery	-108.87	43,988.85
Transfer	04/16/2020			Funds Transfer Payroll	-20,000.00	23,988.85
Check	04/21/2020	25431	City of Austin	Funds Transfer (to increase checking balance)	60,000.00	83,988.85
Check	04/21/2020	25432	Edwards Aquifer Research & Data Center	Water Service	-18.75	83,970.10
Check	04/21/2020	25433	Brian Smith	Well Study Analysis	-225.00	83,745.10
				Mileage Reimbursement for S.A. Conference	-81.20	83,663.90

Check	04/21/2020	25434	Fidelity Security Life Insurance Company	Gap Insurance Premium -May	-803.30	82,860.60
Check	04/21/2020	25435	National Ground Water Association	Annual Membership Dues	-705.00	82,155.60
Deposit	04/22/2020			Deposit (permittee payments)	38,319.75	120,475.35
Liability Check	04/23/2020	EFT	Reliance Trust Company	Bi-weekly Retirement and Loan Pmt	-4,968.15	115,507.20
Liability Check	04/23/2020	EFT	United States Treasury	74-2488641	-7,294.43	108,212.77
Liability Check	04/23/2020	25436	AFLAC	Employee-paid Supplemental Insurance	-146.69	108,066.08
Liability Check	04/23/2020	25437	MetLife	Dental Insurance Premium - May	-751.24	107,314.84
Liability Check	04/23/2020	25438	United Healthcare	Health Insurance Premium - May	-11,506.42	95,808.42
Check	04/23/2020	25439	Brian Smith	AGS and GSA Membership Dues - Reimbursement	-90.00	95,718.42
Check	04/28/2020	25440	Waste Management of Texas, Inc.	Trash and Recycling Service	-448.96	95,269.46
Check	04/28/2020	25441	Exxon Mobil Business Card	Gasoline	-32.23	95,237.23
Check	04/28/2020	25442	Pedemales Electric Cooperative	Electricity	-314.32	94,922.91
Check	04/28/2020	25443	Orsak Landscape Services	Landscape Services	-65.00	94,857.91
Check	04/28/2020	25444	Wellnet Inc	Monitor Well Supplies	-174.00	94,683.91
Check	04/28/2020	25445	Higginbotham Insurance Agency	Public Official Bond for R. Larsen (5/22/20-5/22/24)	-170.00	94,513.91
Check	04/29/2020	25446	SledgelLaw Group	Legislative Services (Jan, Feb, Mar 2020)	-3,000.00	91,513.91
Transfer	04/30/2020			Funds Transfer Payroll	-21,000.00	70,513.91
					-7,972.52	70,513.91
					-7,972.52	70,513.91

AMENDED WATER LINE EASEMENT

STATE OF TEXAS §
 §
COUNTY OF HAYS §

EFFECTIVE DATE: May ____, 2020

EFFECTIVE DATE of ORIGINAL WATER LINE EASEMENT: May 25, 2017; Recorded Instrument No. 17018011;

EFFECTIVE DATE of AMENDED AND RESTATED WATER LINE EASEMENT: September 27, 2018; Recorded Instrument No. 18036330;

THIS AMENDED WATER LINE EASEMENT (herein so called) is made as of the Effective Date above by and between **Barton Springs-Edwards Aquifer Conservation District**, a groundwater conservation district and political subdivision of the state created by an act of the 70th Texas Legislature and subject to various requirements of State Law governing groundwater conservation districts, (“**GRANTOR**”) having an address of 1124 Regal Row, Austin, Texas 78748, Attn: Vanessa Escobar and **Alliance Regional Water Authority**, a regional water authority created by an act of the 85th Texas Legislature, codified as Chapter 11010, Texas Special District Local Laws Code (the “Alliance Water Act”) (“**GRANTEE**”), having an address of 630 E. Hopkins, San Marcos, Texas 78666.

RECITALS:

GRANTOR and **GRANTEE** desire to amend, but not extinguish, the non-exclusive temporary construction easement described in the **ORIGINAL WATER LINE EASEMENT** and in the **AMENDED AND RESTATED EASEMENT** and, except as amended hereby, shall continue to remain in full force in effect.

AGREEMENTS:

NOW, THEREFORE, in consideration of Ten Dollars (\$10.00) and other good and valuable consideration, as described herein, the receipt and sufficient of which is hereby acknowledged, **GRANTOR** and **GRANTEE** agree as follows:

GRANTOR hereby amends the term of the non-exclusive temporary construction easement described in the **ORIGINAL WATER LINE EASEMENT** and the **AMENDED AND RESTATED WATER LINE EASEMENT** to **GRANTEE** as shown on **Exhibit “A”**, to terminate and be of no further force or effect upon the earlier of (1) completion of the **PROJECT** as evidenced by the project final acceptance by **GRANTEE**, or (2) January 31, 2021. If requested by **GRANTOR**,

GRANTEE shall execute and file in the Official Records of Hays County, Texas a written termination of the temporary construction easement.

Any notice required or permitted under this **AMENDED TEMPORARY CONSTRUCTION EASEMENT** must be in writing and delivered to the address(es) contained in this **AMENDED TEMPORARY CONSTRUCTION EASEMENT**.

TO HAVE AND TO HOLD the above-described easement, together with all and singular the rights and appurtenances thereto in anywise belonging unto **GRANTEE**, and **GRANTEE's** successors and assigns forever; and **GRANTOR** does hereby bind itself, its heirs, successors and assigns to **WARRANT AND FOREVER DEFEND** all and singular the easement unto **GRANTEE**, its successor and assigns, against every person whomsoever claiming or to claim the same or any part thereof if the claim is by, through or under Grantor but not otherwise.

Executed this _____ day of _____, 2020.

[Signatures on following pages]

GRANTOR:

Barton Springs-Edwards Aquifer Conservation District

By _____
Board President or Authorized Signatory

Attest
By _____
Board Secretary or Authorized Signatory

Approved as to Form
By _____
Counsel for District

STATE OF TEXAS §

§

COUNTY OF _____ §

This instrument was acknowledged before me on the _____ day of _____,
_____, by _____, _____ of Barton
Springs-Edwards Aquifer Conservation District, on behalf of the District.

Notary Public, State of Texas

GRANTEE:

Alliance Regional Water Authority

By _____
Name: _____
Title: _____

STATE OF TEXAS §

§

COUNTY OF _____ §

This instrument was acknowledged before me on the _____ day of _____,
_____, by _____, _____ of Alliance
Regional Water Authority, on behalf of the authority.

Notary Public, State of Texas

After recording, please return to:
Alliance Regional Water Authority
Attn: Graham Moore
630 E. Hopkins
San Marcos, TX 78666

Item 3

Routine Business

- b. General Manager's Report.** *(Note: Topics discussed in the General Manager's Report are intended for general administrative and operational information-transfer purposes. The Directors will not take any action unless the topic is specifically listed elsewhere in this agenda.)*

Topics

- 1. Update on personnel matters.**
- 2. District's response to COVID-19.**
- 3. Update on Aquifer conditions and status of drought indicators.**
- 4. Update on Hays County Elections coding corrections.**
- 5. Update on PHP construction activities in the Hill County including coordination among GCDs in Hays County.**
- 6. Update on Sustainable Yield and modeling activities.**
- 7. Review of Status Report and update on team activities/projects.**
- 8. Update on the pending SOAH proceeding for the Electro Purification LLC application.**
- 9. Update on pending litigation in the matter of *TESPA v. BSEACD*, Cause No. D-1-GN-20-000835, 459th Travis County District Court.**
- 10. Upcoming public events of possible interest.**

Drought Status Chart

Barton Springs/ Edwards Aquifer Conservation District

NO DROUGHT

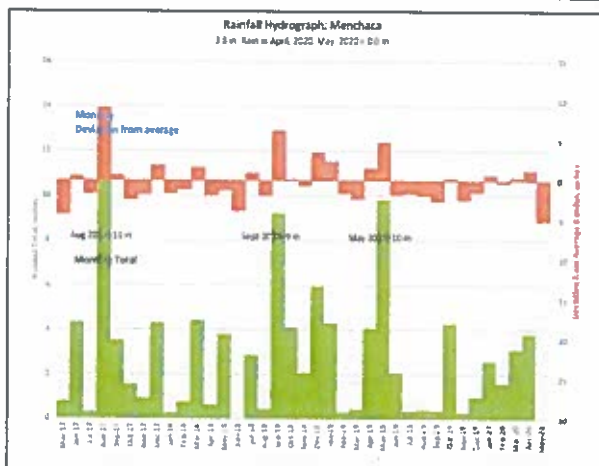
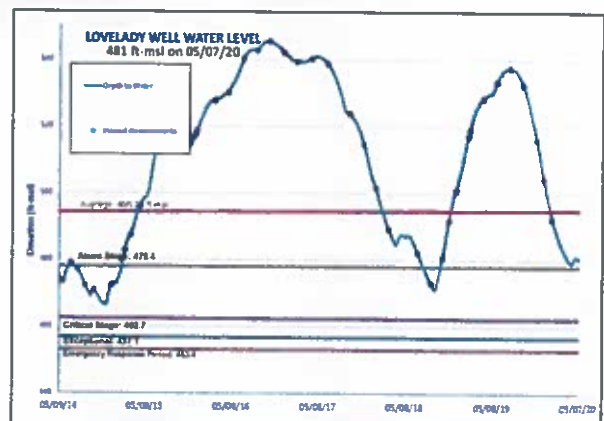
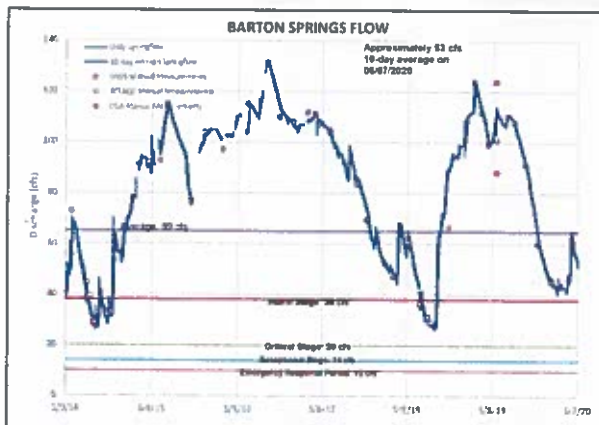
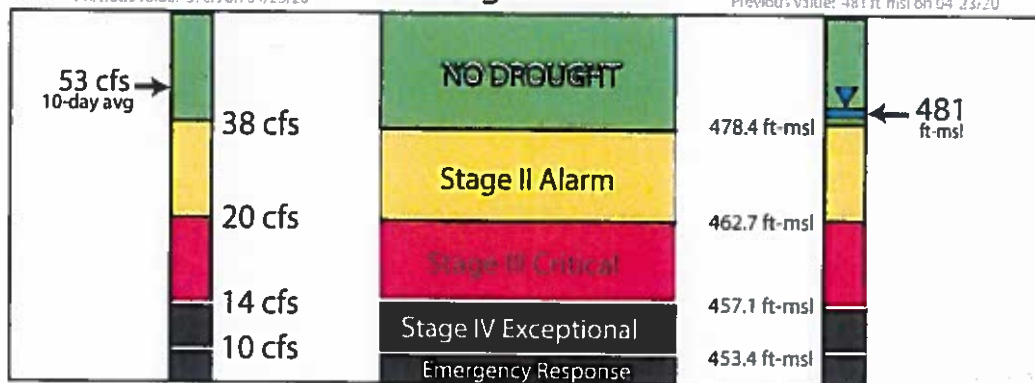


May 7, 2020



Barton Springs Discharge
(cubic feet per second)
Previous value: 57cfs on 04/23/20

Lovelady Well Water Level Elevation
(feet above mean sea level)
Previous value: 481 ft-msl on 04/23/20



U.S. Drought Monitor
Texas

The BSEACD drought outlook valid from April 23, 2020, to May 7, 2020 remains in "No Drought" status. A combined 7 inches in March and April provided some recharge and a noticeable boost to the aquifer, but not enough to turnaround declining trends in both spring flow and aquifer levels. Without more rain, groundwater levels could dip beneath drought thresholds as soon as late June to early July.

It certainly feels like summer has arrived early this year, with temperatures recently hitting the 90s along with high humidity levels. However, it's still early May and the springtime pattern is going to fight back this week and next, allowing cooler/fine hot temperatures to return and hang around through the middle of the month. We are currently in a dry stretch of weather, and no significant totals of rain are expected this week.

The next shot at significant rain isn't expected to come until the middle and latter parts of next week. A mostly cloudy, damp and unsettled pattern appears to be setting up for the I-35 Country and Central Texas regions late week, with the pattern forecast to reinitiate through a good part of next week.

Bob Rose, CMA Meteorologist

U.S. Drought Monitor

Process and Timeline: Sustainable Yield Study

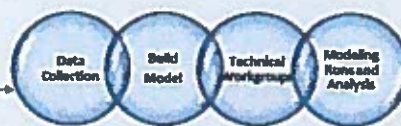
STAFF PROGRESS REPORT – 11/14/19

BSEACD Sustainable Yield Study

Fall 2019 to Spring 2020

- Evaluate the Aquifer Management Goals**
- Revisit current mgmt tools
 - Identify other Management Goals
 - Internal Brainstorm
 - Policy workgroup discussion

Development of Scientific tools



BRATWURST Model
Fall 2019 to Summer 2021

Check in with the Board

Check in with the Board

Winter 2020 to Spring 2021

- Evaluate Early Findings from Modeling Analysis**
- Internal Discussion and brainstorming on where to focus Rules concepts
 - Present and seek feedback from workgroups

Develop Sustainable Yield Report

Technical Advisory Committee Review

Check in with the Board

Summer 2021 to Fall 2021

- Commence Full Rulemaking Process**
- Assess Drivers for Rules
 - Rule Concepts
 - Stakeholder Discussions
 - Rule Language

Policy

Technical Science

Sustainable Yield Process Overview (Nov 2019)

Winter 2019	<p>1. Internal Staff Brainstorm - develop the policy questions driving the need for the study. What are the questions that are considered with permitting decisions?</p>
Spring 2020	<p>2. Invited Workgroup Discussions – guided and facilitated discussion with a roundtable of policy experts (<i>this could include some folks with technical background too</i>)</p> <ul style="list-style-type: none"> • Walk through the overarching policy questions and guide the conversation with more detailed follow-up questioning. • Discuss “What does the community want to see managed and protected?” • Use this collective feedback to consider during the scientific analysis
District Model Fall 2019 to Fall 2020	<p>3. Develop numerical models and continue data collection</p> <ul style="list-style-type: none"> • District’s Trinity numerical model to be functional by September 2020 <ul style="list-style-type: none"> o Invited Technical Workgroup (possible consulting modelers) • BRATWURST numerical model <u>may</u> be functional by Fall 2022 (dependent on funding) • Continue data collection – water level monitoring, analytical modeling, sampling and analysis, dye tracing, maps hydrographs
BRAT Model Fall 2019 to Fall 2022	
Winter 2020 to Spring 2021	<p>4. Perform Modeling Study</p> <ul style="list-style-type: none"> • Determine potential for unreasonable impacts from localized and regional pumping on water levels, wells, and springflow. • Evaluate the combined effects of pumping and extreme drought on water levels, wells and springflow. Testing of pumping and drought scenarios <p>Concurrently, begin internal discussions for focusing on specific Rule concept areas. This will involve presenting and seeking additional feedback from workgroups or the Board.</p>
Spring 2021	<p>5. Develop SY Study Report</p> <ul style="list-style-type: none"> • Draft report by March 2021 (dependent on completion of District’s Trinity model) • Review of draft report by technical advisory committee (2 months) • Present draft report to selected organizations and Board
Summer 2021 to Fall 2021	<p>6. Commence Rule Making Process</p> <ol style="list-style-type: none"> a. Assess the drivers for Rules - Discuss the need for rule additions or rule modifications and policy development b. Internal discussions c. Concept Exploration - Internally with Staff d. Concept Exploration - With Board Committee e. Drafting of Concepts f. Workgroups and Stakeholder Discussions g. Present Detailed Concepts – With Board or Board Committee h. Drafting of Rule Language i. Present Draft Rule Language – With Board or Board Committee j. Present Draft Rule Language to Stakeholder Groups k. Post Rules for Comment Period l. Public Hearing on Rules/ Adoption

Standard Process for Rulemaking Efforts

- 1. Assess the drivers for Rules**
 - Discuss the need for rule additions or rule modifications
 - Discuss the need for policy development
- 2. Internal discussions**
 - What are the questions we are trying to address?
 - What is the problem we are trying to solve? What is the issue at hand? What are the challenges at play that necessitate policy or rule development?
 - Think about how we get to the solutions ?
 - What are the possible solution areas worth exploring?
 - What tools or science is needed to support those potential solutions?
 - To what extent can we move forward with rules and policy without additional science and tools? Is now the right time?
- 3. Concept Exploration - Internally with Staff**
 - Focus on the concept areas that are worth further exploration.
 - Brainstorm on the concept and internally discuss. Gather more information.
 - Discuss and consider the possible legal, political, regulatory, technical, implications.
- 4. Concept Exploration - With Board Committee**
 - Describe the concept areas that are being explored.
 - Seek feedback and guidance.
- 5. Draft Concepts**
 - Draft detail and description of rule concepts
 - Internally review, legal review
- 6. Workgroups and Stakeholder Discussions**
 - Use workgroups as a forum to pose questions and seek input and feedback on concepts
 - Small workgroup discussions (Technical and/ or Policy)
 - Stakeholder discussions (Permittees, local govt groups, experts etc.)
- 7. Detailed Concepts – With Board or Board Committee**
 - Present or describe in more detail the Rule concepts
 - Get Board direction to write Rules or craft policy ideas
- 8. Draft Rule Language**
 - Write, review, rewrite
 - Technical review/ Legal Review
- 9. Present Draft Rule Language – With Board or Board Committee**
 - Present draft Rule Language and draft policies
 - Consider Board Input; rewrite draft rules as necessary
- 10. (If needed) Present Draft Rule Language to Stakeholder Groups**
 - Consider stakeholder input; rewrite draft rules as necessary
- 11. Post Rules for Comment Period / Public Hearing / Adoption of Rules**

**STATUS REPORT UPDATE
FOR THE MAY 14, 2020 BOARD MEETING
(Last Board Meeting was March 12, 2020)**

Summary of Significant Activities – Prepared by Team Leaders

GENERAL MANAGEMENT TEAM

Staff: VE
May 8, 2020

Litigation and SOAH Activities

- **Electro Purification (EP) Production Permit:** The original abatement period was scheduled to end on April 3, 2020, however, on March 31, 2020, in coordination with the protestants and other parties, EP filed a motion to continue abatement of the SOAH proceeding until July 17, 2020. The complication of the COVID-19 Coronavirus Pandemic, the Governor's Orders, and the scheduling delays at the courts, warranted further extension of the abatement. During the extended abatement, EP proposes to provide regular monthly status reports to the ALJs and the parties on or before the first of each calendar month beginning May 1, 2020. EP indicated that they would continue to pursue adjudication of rights, remedies, and damages in the Courts in Hays County to determine whether any of the seven wells on the Bridges and Odell Leaseholds, as referenced in the EP Permit that is now before SOAH, will have to be relocated, and a modified application filed with the District. The parties agreed that to move forward in the absence of that final adjudication would be a waste of the time and financial resources and manpower of all parties at SOAH, the District, the Protestants, and the Applicant.

On May 1, 2020, EP submitted an abatement report to the parties and SOAH. The report described that on March 12, 2020, EP had secured a temporary restraining order that precluded Kinder Morgan (KM) from conducting any operations on the EP groundwater leases that could impair or damage the EP wells. On April 21-22, 2020, the Hays County Court conducted a video remote hearing to consider granting a temporary injunction on the KM pipeline activities in the EP easements. Ultimately, KM requested that the courts abate the proceedings so that they could file pleadings to condemn the interests of the EP groundwater leases and to secure possession over those rights as necessary for KM to construct their pipeline project. On April 25, 2020, KM filed condemnation actions against EP which in effect has mooted and dissolved the EP temporary restraining order. The next steps are for KM and EP to set a hearing date for the court to determine the amount of money to be paid into the court to compensate EP. In the interim, between now and the condemnation payout hearing, EP and KM have agreed to enter into settlement discussions. The abatement will continue, with the next report due in June 2020.

- **Needmore Water LLC:** Protestants filed an appeal of Needmore Water LLC permit. The District filed a response in March 2020.
- **Permian Highway Pipeline (PHP):** The litigation team is currently taking steps to set a schedule for the case that will provide final ruling sometime this summer, but before August 1. On April 17, 2020, the litigation team filed an Amended Complaint in the PHP matter, *City of Austin, et al v. Kinder Morgan Texas Pipeline, LLC, et al*. This pleading directly challenges the validity of the Biological Opinion and Incidental Take Statement. There was an addition of several new claims (all challenging the validity of the BO/ITS), and clarification on some of the existing claims. The new claims involve two issues flagged by Judge Pitman in his Preliminary Injunction Opinion and

one that arose on April 15, 2020, due to a ruling by the Chief Judge of the US District Court for the District of Montana.

- The two issues flagged by Judge Pitman are: (1) Kinder Morgan's extensive failure to comply with the oak wilt mitigation protocol while it was clearing golden-cheeked warbler habitat; and (2) the invalidity of the BO/ITS based on mandatory terms and conditions that are too vague or indeterminate to enable effective monitoring or enforcement.
- On April 15, 2020, an opinion from the District of Montana invalidated the entire Nationwide 12 Permit. The BO/ITS for the PHP were developed in an Endangered Species Act consultation among the Corps, Kinder Morgan, and the Service as a result of Kinder Morgan seeking a NWP 12, and the validity of the BO/ITS is expressly dependent on the issuance of the NWP 12. Therefore, the protestants claim in this Amended Complaint that the entire consultation, and therefore the BO/ITS, are invalid and void because the NWP 12 is invalid and void.

Interim Charges/Legislative Initiatives: GM and staff are tracking Interim charges and discussions in the House and Senate committees. Additionally, GM and staff are participating in TAGD committee discussions.

- **TAGD Committee on Produced Waters** – Committee is tracking the implementation of HB 2771 that requires TCEQ to assume the responsibility to approve permits to discharge wastewater from the oil and gas industry into our rivers, lakes, and streams. Delegation of Authority would shift from Railroad Commission to TCEQ by September of 2020.
- **TAGD Committee on Joint Planning** – Committee is tracking discussions and developing a white paper statement to provide recommendation on areas of joint planning that can be improved. Committee is also assessing the GMA's activities on monitoring compliance with the DFCs.

GMA DFC Planning - GM and staff are developing a memorandum that describes the GMA 10 DFC expression revision. There is ongoing coordination with SWTGCD, HTGCD, TWDB & GMA 9 as boundary adjustments continue. GM and staff are planning for Explanatory Report development to be completed in Fall 2020. There will be future internal discussions to identify objectives and goals of DFC monitoring methodologies. Staff received an update from TWDB on their GAM modeling efforts and learned that the timeline for the Hill Country Trinity model update completion is 2023.

Sustainable Yield Planning: Ongoing modeling discussions, future stakeholder discussions, potential rule-making objectives and timelines, Board Presentations.

Database Management System – Internal functional testing and review of database, project status tracking, and strategy meeting with Intera.

Implementation of Habitat Conservation Plan – The first annual report was timely submitted to USFWS for their review. Staff will be visiting with FWS staff in the coming months to receive feedback on the first annual report.

Region K Planning: April 22, 2020 Public Hearing on Initially Prepared Plan (Austin)

- Region K began the fifth round of regional water planning (2017-2021) in 2016 and has received funding from TWDB for the completion of the 2021 water plan. The water demand projection revision requests Region K submitted to TWDB were approved in February 2018. The draft Initially Prepared Plans are available on the TWDB website: [IPP Volume 1](#); [IPP Volume 2](#)

Kent Butler Summit Planning: GM and staff are participating in the planning and coordination of the May 2020 Kent Butler Summit. Event will be invitation only for local officials and their staff. The focus

will be land and water resource management and how partnerships with counties, municipalities, GCDs and NGOs can be leveraged.

GM/Staff Teams Planning Efforts

- **Education Team** - budget planning, spring e-news development, scholarship awards, events rescheduling, communications planning goals, social media strategies.
- **Aquifer Science Team** – budget planning, modeling efforts, monitor well installation, geologic atlas completion, Buda ASR well coring and well completion.
- **Regulatory Team** - budget planning, onboarding work plan for AGM, permitting reviews, ASR projects, Intera strategy meeting for database project.
- **Administrative Team** – budget revision, budget FY 2021 planning, operational & administrative tasks, Board meeting planning.

Meetings with Officials: Vanessa Escobar & Brian Smith met with Hays County Commissioner Lon Shell and the BRAT modeling team to discuss cooperative efforts on the BRAT model, future coordination on aquifer science and monitoring, stakeholder efforts, and long-term goals for water resource management.

Meetings with Permittees: GM and staff will be coordinating a meeting with Ruby Ranch to discuss their near-final permit application and logistics of their ASR operations and response plans.

Drought Planning: All teams are making preparations for permittee notifications as water levels get closer to drought trigger thresholds.

Budget Planning: The Budget Committee met on April 20th by conference call to discuss a budget revision for FY 2020. Additional committee meetings will be scheduled in May- June to discuss the FY 2021 preliminary budget.

Budget Planning Schedule:

- May 14th, Thursday Board Meeting to approve FY 2020 Budget Revision 1.
- June 11th, Thursday Board Meeting to present our FY 2021 Preliminary Budget.
- June 29th – July 8th, the Proposed Budget will be available for public viewing.
- July 9th, Thursday Board Meeting and Public Hearing to approve final FY 2021 Proposed Budget ad Fee Schedule.

Cyber Security Policy: GM and Admin Team will research cyber security training programs and will plan for the development of District policy guidance to meet this requirement. A Board resolution will be considered at the June 11th Board Meeting.

- **Background:** Last session HB 3834 passed amending the Government Code to require the establishment of state verified cybersecurity training programs. A local government must identify employees who have access to a local government computer system or database and require those employees and elected officials of the local government to complete a cybersecurity training program. A local government that employs a dedicated information resources cybersecurity officer may offer its employees a training program that satisfies the requirements under the bill. The local government governing body must verify and report the employee completion of the training, and periodically audit to ensure compliance.

Training, Presentations, and Conferences:

Texas Water Foundation Leadership Institute Training (VE)

Routine Activities and Day-to-Day Operations

- Developed protocols and procedures for modifying workplace operations during the COVID -19 pandemic; reviewed local and state orders regarding essential employees, and routinely met with staff regarding remote working arrangements and safety protocols.
- Interviewed for Assistant GM position; conference call with HTGCD GM and SWTCGCD GM; conference call with PHP Litigation Team; meeting with BRAT team; meeting with Hays County staff and citizens regarding Blanco well contamination; meeting with Buda staff regarding Cole Springs; meeting with Buda ASR team; meeting with HTGCD GM on Rulemaking & JWS management zone; meeting with Hays County staff regarding elections coding update; conference calls on Kent Butler planning.
- Provided general oversight of day-to-day operations; approved purchase orders and expenditures; approved timesheets; prepared agendas and backup for and attended Board meetings; prepared GM report and assigned tasks in response to Board commitments; held regular staff meetings virtually, held one-on-one meetings with Team Leaders; held Planning Team meetings; served as liaison between Board and staff; and supported Board subcommittees.

Other Regional/Local News:

- [Buda Begins Drilling ASR Well](#)
- Permian Highway Pipeline – Horizontal Drilling Fluid Loss in Blanco, TX
 - [Sierra Club Lawsuit Challenges Construction of Permian Highway Pipeline](#) (4/30/2020)
 - [Commissioners Court Votes to Rescind Road Permits for Permian Highway Pipeline](#) (Hays Co. Press Release, 4/22/2020)
 - [Accident Along Permian Highway Pipeline Construction Site Contaminates Hill Country Wells](#), (Spectrum News 4/20/2020)
 - [Drilling fluid spill sparks pipeline lawsuit](#). (Wimberley View, 4/16/2020)
 - [TESPA issues notice of intent to sue Permian Highway Pipeline, Kinder Morgan](#), (San Marcos Record, 4/12/2020)
- [NRCS invests in Comanche Springs Project to Restore Springflow](#)
- [City and County Consider Long-term Telecommuting Strategy](#)

REGULATORY COMPLIANCE TEAM

Staff: KBE and ES
May 4, 2020

Sustainable Yield

The RC team and Aquifer Science Team developed a process overview that outlines the timeline, milestones, and steps involved with completing the policy discussions, stakeholder aspects, and technical aspects the sustainable yield effort. Staff is discussing modeling and policy internally. RC team needs to establish stakeholder process.

DFC Planning

The RC team is actively collaborating in planning discussions with the Aquifer Science Team, neighboring GCDs, GMA 10 representatives, and TWDB staff. We are working on preparing a timeline and planning strategy for our immediate and long-term goals related to DFC revisions and DFC monitoring compliance. Discussions will continue as we continue to attend GMA meetings and prepare to develop presentations, bring information to the Board and engage additional stakeholders. On January 16th, staff made a presentation to the Board on DFC process and proposed revisions. Staff has drafted a DFC memo and will begin revision process with GMA 10 and TWDB.

State Office Administrative Hearing (SOAH) Matters

Electro Purification Production Permit - SOAH proceeding schedule has been abated until July 2020

SH 45 SW/ Mopac Intersections Roadway Projects

Staff held a SH 45 wrap up discussion meeting with CTRMA in mid-November. Staff is working on an article write up of the project success to be completed in January 2020. Mopac project is still under construction and quarterly environmental storm water inspections are performed by District staff and Dave Fowler. Aquifer Science is still involved in regular site visits to review karst features and advise on mitigation of those features. Dave Fowler conducted a brief SH 45 inspection on January 27th and staff anticipates conducting one final inspection in the spring. Staff will work with David Fowler to conduct Mopac inspection soon.

Database Development Intera Contract

Intera continues to work on modules for completion and deployment. Staff had scheduled another strategy meeting with Intera on March 25th to discuss efficiency and deadlines but this meeting has been postponed due to pandemic. Staff will likely need to spend more time on this project to get it finalized.

Strategic Planning Discussions

RC team staff are preparing team priorities to identify core functions, management goals, and long-term project efforts. This will help inform upcoming work session discussions with the full Board.

Permitting: In Review Applications:

- City of Hays Well rehab/ Well Plugging

- Exempt/ LPP domestic wells
- Ruby Ranch ASR Operational Permit
- Travis County Fire Station
- Gragg Tract #4

Permitting: Pre Application Meetings (Soon to be Filed):

Application Type	Entity
Combo Drilling/Production Permit	HEB (new irrigation for pond)
Combo Drilling/Production Permit	Mad Rooster/ Greg Schwartz (Commercial)
Test Well	Creedmoor Trinity Test Well (PWS 2020)
Test Well	Maxwell WSC (PWS 2020)

Other Project Efforts/ Planning Discussions

- Internal coordination on preparation and planning for Annual Reports including Management Plan Annual Report & USFWS HCP Annual Report. Staff held the first MAC meeting since the issuance of the HCP on January 28th to provide an overview of the annual report and to solicit feedback. Staff has compiled the feedback and has made warranted changes to the annual report. (All Teams)
- Tracking progress on House and Senate Interim Charges
- TAGD legislative subcommittees

Drought Compliance – No Drought

AQUIFER SCIENCE TEAM

Staff: BAS, BH, and JC (LC for ILA)
May 7, 2020

Sustainable Yield Evaluation of the Trinity Aquifers

Aquifer Science staff continue to collect data on the geology and hydrogeology related to the Trinity Aquifers. Aquifer Science staff are continuing to work on enhancing the monitor well networks in the EP and Needmore areas and are continuing to collect water-level and water-quality data from wells in these areas. We are working with Hays County to install Trinity monitor wells in the Jacob's Well area. Work on the District's own numerical modeling is ongoing. We are members of a technical committee to guide the development of a numerical groundwater model of the aquifers influenced by the Blanco River. Planning and funding of the Blanco River/Trinity model are close to being finalized with ongoing discussions between Hays County, Meadows Center, and Southwest Research Institute. It is expected that Southwest Research Institute will do most of the modeling work.

Alternative Water Supplies (ASR and Desalination)

Ruby Ranch has completed testing of injection of Edwards water into their Trinity well. Ruby Ranch submitted a final report on the ASR pilot testing to the TCEQ and the District on October 9, 2019. The District has received a permit application from Ruby Ranch for operation of their ASR system. The Ruby Ranch ASR system is now permitted for operation by TCEQ. The City of Buda started drilling a Trinity well in mid-April for their ASR project. By May 5, the well had been drilled to a depth of 1,280 ft with 50 feet of Cow Creek Limestone core collected at that lower depth. AS staff collected the core from the drill site and are currently studying the core.

Drought and Water-Level Monitoring

Moderate amounts of rain in February and March slowed the recession of spring flow and water levels. Between 2 and 3 inches of rain in early April caused both Lovelady and Barton Springs to rise, but they are both declining again. On May 7, the Lovelady well had a level of 480.4 ft msl. Barton Springs was flowing at 51 cfs. Without significant rain in the next month, it is likely that drought conditions will be reached at Barton Springs by mid to late June.

Presentations, Conferences, Reports, and Publications

The 16th Sinkhole Conference that was to be held in San Juan, PR in April 2020 was postponed until April 2021. A presentation about our ASR projects was given to the Groundwater Protection Committee annual conference on February 18 in San Antonio.

Travis County ILA - Hydrogeologic Atlas of Western Travis County

The 80-page Hydrogeologic Atlas of Southwest Travis County was published by BSEACD on April 29. This atlas was prepared for tabloid-size printing, which Travis County has just completed. This atlas covers the hydrogeology, structure, water quality, and water use of southwest

Travis County and a portion of northern Hays County. The various Trinity aquifers in the area are discussed along with an assessment of the availability of groundwater in the area. The key result of this study is that some portions of these aquifers are undergoing significant lowering of water levels, and some portions are depleted with no groundwater available for water supply to wells. A second phase of work complimenting Phase 1 has begun and will be completed by August 31.

EDUCATION TEAM

Staff: JV
May 1, 2020

District Operation Updates

Education staff has been working with other teams to keep the website up-to-date with changed office operations, staff contact information, and other useful information for the public during remote operations. Updates are made to the website, social media, and shared with eNews and press contacts as operations shift.

Scholarship Programs

District scholarship application packets were due on March 25th. The District received 12 college scholarship essay applications, and 7 summer camp scholarship applications. College essays were submitted to the panel of judges and anonymous scores have been returned. Covid-19 related closures of Texas State University and Edwards Aquifer Research & Data Center summer camp sessions have affected this year's program, and an alternate prize for these applicants is being developed. Discussions with EARDC Staff and members of the Board are underway on how to proceed with selection of winners. This year's scholarship programs are funded by the District and through conservation credit donations from City of Austin, Creedmoor Maha, Goforth, and Cook-Walden: Forest Oaks. Funds may allow more than one college scholarship winner to be selected this year.

Kent Butler Summit

Strategic planning discussions continue with Austin Water, Austin Watershed, Hill Country Alliance staff, with the addition of an outside facilitator. Format this year will be an invitation-only workshop focused on need/strategies/successes for 'Investing in the Natural Infrastructure of the Hill Country' and will take place in late Summer 2020 and will be hosted at the Onion Creek Management Unit of the Water Quality Protection Lands. This strategic planning process also aims to improve the planning process for future summits.

District Well Water Checkup Postponed

The annual well water checkup program, originally set for April 22nd, is postponed until further notice. The Well Water Checkup normally hosts the first 50 District well owners to bring in their water samples to test for common drinking water contaminants, at no cost to the well owner.

Strategic Planning Process

Staff has begun to compile and review notes from the team strategic planning process and Board presentations in order to inform the next fiscal year budgeting process.

Other meetings and activities:

- **Hydrogeologic Atlas of Southwest Travis County:** Working with members of the project team, staff are coordinating outreach to stakeholders, partners, peer-reviewers and participants to share the recently completed scientific report.
- **Hill Country Living + Rainwater Revival Festival:** The annual event hosted by Hill Country Alliance has been postponed to October 24th, 2020.

- **Groundwater to the Gulf Teacher Training:** The District and collaborating partners that plan and host the annual Groundwater to the Gulf teacher training have decided to forgo the usual summer session and switch the program to every other year going forward.
- **Explorer's Guide to the Hill Country:** The SBCA has launched the web version at www.explorersguide.org. SBCA staff have been promoting the guide and Explorer's Challenge to visit sites and complete activities within the guide. The District is a main sponsor of the project and will also be sharing this resource for applicable events and programs.

Internet Traffic Report - Page views and visits to the District Website

From March-May, the District website had 2,641 total page views by 2,076 unique sessions. Top sites in order of number of views were Home Page (559), Scholarships (134), Maps (126), Staff (106), and Drought Status (103). *The District Facebook page now has 928 likes and 1,066 followers. The most popular FB posts included Last Call for Scholarships, New Species of Blind Salamander Video (shared), City of Buda Aquifer Storage & Recovery Video (shared), and At-Home Educational Resources.*

ADMINISTRATION TEAM

Staff: SD, TR, and DW
March 6, 2020 – May 5, 2020

Accounts Receivable/Permittee Cycle Billings

April permittee monthly billing mailed out on March 9, 2020 - \$29,147.

May permittee monthly billing mailed out on April 13, 2020 - \$29,147.

June permittee monthly AND 4th and FINAL quarter of FY 2020 (Jun/Jul/Aug) billings to be mailed out by May 16, 2020 – approx. \$330,000 (this will include the City's final quarterly payment for the year in the amount of \$245,571).

UPDATE: 4th quarter billings with a statement date of May 16 (due June 5) are being mailed out early, on April 1, to give those quarterly-paying permittees ample time if they may need it. (I tend to do this whenever possible/feasible.) This does not change their payment schedule; merely gets them the invoice early.

Banking

Updating new bank signature cards with Truist (previously BB&T that has now merged with Suntrust). Still in process.

Budgets

FY 2020 Revision 1 to be presented for approval in May 14th virtual board meeting. No additional funds to cover the revisions are being requested; not necessary.

FY 2021 Initial Discussions with draft Pumpage Analysis, and draft Budget Analysis has begun. Budget timeline has been created for May through July. Vanessa and Dana continue to fine-tune line items, as required for this process.

Cyber Security Training for Board and Staff

All Board and Staff have been signed up for the training through TAGD, as legislatively required. Training completion is due before May 20.

Election – November 2020

No current update for general election information. There are three director precincts that may be involved this year:

Precinct 1 - Mary Stone, Precinct 3 - Blake Dorsett, Precinct 4 - Robert D Larsen, Ph.D.

Non-general election item: Vanessa, Bill Dugat, Sherry McCall, Dana, and the Hays County Election folks are in discussions regarding the GIS Coding issue that has been in process since May 2018.

Financial Reporting – Website Transparency Section

Transparency Star-related. Most current, available financial reports are to be posted. Balance Sheet, Profit and Loss Statements, and Check Registers (Operating and Payroll) through March 2020 have been posted on the District website.

Hays Trinity Groundwater Conservation District

Contract approved by both boards but waiting for HTGCD signatures before it is considered executed. After final execution, \$25,000 will be invoiced to HTGCD.

Strategic Planning Process

Compiling all administrative tasks into an annual spreadsheet, as requested, with prioritizations.

Tax Reporting - Quarterly

Texas Workforce Commission Form C-3 and IRS Form 941 Quarterly Payroll Tax Reporting (deadline was April 30, 2020 but has been extended due to COVID-19).

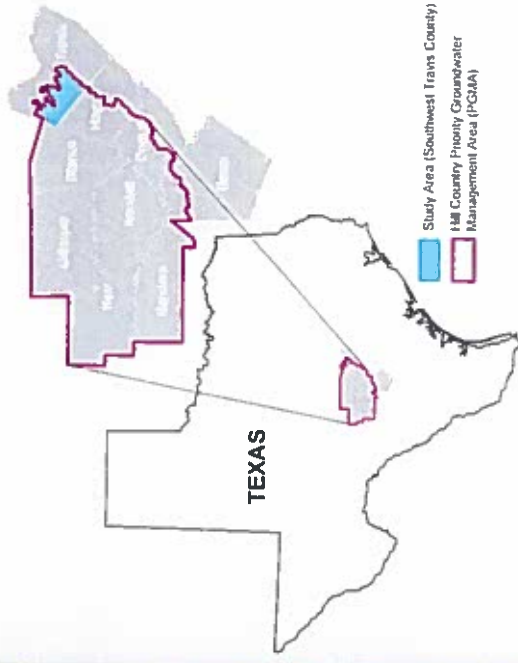
However, tax reports have been submitted without using the allotted extension.

The Administration Team typically has repetitive monthly tasks e.g. monthly bank reconciliations, daily phone answering, monthly adjusting journal entries, accounts payable, contract/grant/project tracking, monthly meter reading reporting, etc. These types of tasks are not listed here because they are repetitive. Administration status reports are generally shorter than the other teams, as we list only our extra-ordinary tasks.

UPCOMING DATES OF INTEREST

- District Board Meetings: May 14, June 11
- Region K Meeting: April 22, 2020 Public Hearing on Initially Prepared Plan (Austin)
- GMA 9 Meeting: May 3, 2020 (Kerrville)
- GMA 10 Meeting: Mar. 23, 2020 (San Antonio)
- District scholarship applications due: Mar. 25, 2020
- Preserving Hill Country Open Spaces: March 27, 2020 (Wimberley)
- Hill Country Living Festival +Rainwater Revival: April 4 (Dripping Springs)
- **District Well Water Checkup: Apr. 22, 2020**
- **Texas Water 2020: Mar. 31-April 3, 2020 (Fort Worth)**
- TAGD Regular Business Meeting: May 27-28, 2020 (Austin)
- Texas Groundwater Summit: Sep. 1-3, 2020 (San Antonio)
- RWQPP Meeting: TBD (Hyde Park Grill)

HYDROGEOLOGIC ATLAS OF SOUTHWEST TRAVIS COUNTY CENTRAL TEXAS



BSEACD Report of Investigations 2020-0429
April 2020



HYDROGEOLOGIC ATLAS OF SOUTHWEST TRAVIS COUNTY CENTRAL TEXAS

Brian B. Hunt¹, Lane P. Cockrell¹, Robin H. Gary¹, Jackie M. Vay¹, Vicky Kennedy², Brian A. Smith¹, and Justin P. Camp¹

¹ Barton Springs/Edwards Aquifer Conservation District

² Travis County Transportation and Natural Resources Development Services

BSEACD Report of Investigations 2020-0429

April 2020



**Barton Springs
Edwards Aquifer**
CONSERVATION DISTRICT



A collaborative groundwater study by the

Barton Springs/Edwards Aquifer Conservation District and Travis County

Barton Springs/Edwards Aquifer Conservation District Board of Directors

Mary Stone
Precinct 1

Blayne Stansberry, President
Precinct 2

Blake Dorsett, Secretary
Precinct 3

Bob Larsen
Precinct 4

Craig Smith, Vice President
Precinct 5

Travis County Judge and Commissioners

Sarah Eckhardt
County Judge

Jeff Travillion
Precinct 1

Bridgid Shea
Precinct 2

Gerald Daugherty
Precinct 3

Margaret Gómez
Precinct 4

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Cover Photo

Aerial cross photograph of Hamilton Pool, Hamilton Pool Preserve, Travis County. © Photo by Bryan B. Hunt. Adapted from Hamilton Pool Preserve, Travis County, TX. Photo taken on 5/15/2019.

HYDROGEOLOGIC ATLAS OF SOUTHWEST TRAVIS COUNTY CENTRAL TEXAS

Brian B. Hunt¹, Lane P. Cockrell¹, Robin H. Gary¹, Jackie M. Vay¹, Vicky Kennedy², Brian A. Smith¹, and Justin P. Camp¹

¹ Barton Springs/Edwards Aquifer Conservation District
² Travis County Transportation and Natural Resources Development Services

BSEACD Report of Investigations 2020-0420
April 2020

This report documents the work of the authors and the following licensed professional geoscientists with the Barton Springs/Edwards Aquifer Conservation District and Travis County:



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Brian A. Smith, PhD, P.G.



Vicky Kennedy, P.G.

The authors would like to thank the following individuals for their technical review:
Alex S. Brown, P.G., Tom Ewing, Ph.D., P.G., Ron Fiehrer, P.G., Marcos Gary, Ph.D., P.G., John Hennings, P.G., Kirk Holland, P.G., Pete Rose, Ph.D., Jack Sharp, Ph.D., Philip Webster, Rebecca Smyth, P.G., Jeffery Watson, P.G., Doug Wierman, P.G., and Charles Woodruff, Jr., Ph.D., P.G.

Additional editorial review was provided by:

Jim Doves, Tom Griffith, Gerry Grisak, P.G., Peter Hennings, Ph.D., Rick Scadden, and Dana Wilton

The authors are also grateful for technical and editorial feedback and comments received from numerous geoscientists and the public when presenting draft findings of the Atlas, at the following meetings, Travis County Commissioners (10/17/2019), Southwestern Travis County Groundwater Conservation District (10/9/2019), Groundwater Management Area 9 (11/18/2019), South Central Texas Water Research Interest Group (12/3/2019), Texas Water Development Board (2/7/20), Austin Geological Society (3/2/20), and the Geological Society of America South Central Section (March 9, 2020).

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Suggested Citation

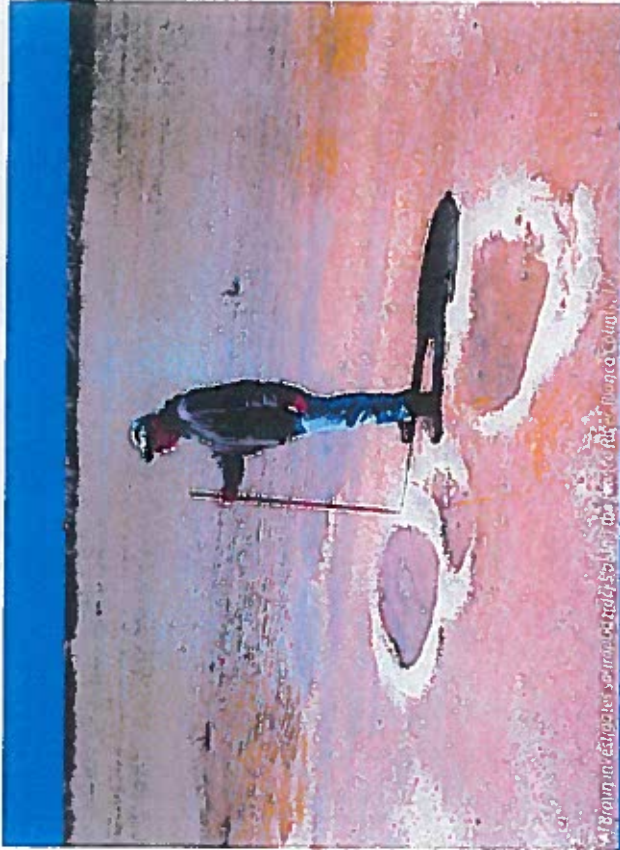
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Note on Printing and Viewing of This Atlas

This Atlas was retiled for optimal printing on tabloid size (11 x 17 inch) paper and for viewing on screens no smaller than 20 inches.

Disclaimer

The information in this document and accompanying digital datasets were compiled and made available as a public service by the Barton Springs/Edwards Aquifer Conservation District and Travis County. Interpretations, evaluations, and professional judgements were made according to standard geoscience practice. However, the authors make no warranty as to the accuracy, reliability, or completeness of the information and are not responsible for any errors or omissions or for results obtained from the use of the information. Use of the information is the sole responsibility of the user.



MRPump/Edwards Aquifer Conservation District, The Edwards Aquifer, Barton Springs

Dedication

Area 9. It is a pleasure to dedicate this report of geoscientists to the numerous individuals who have supported the authors and assisted in the completion of this project. The authors would like to thank the following individuals for their technical review: Alex S. Brown, P.G., Tom Ewing, Ph.D., P.G., Ron Fiehrer, P.G., Marcos Gary, Ph.D., P.G., John Hennings, P.G., Kirk Holland, P.G., Pete Rose, Ph.D., Jack Sharp, Ph.D., Philip Webster, Rebecca Smyth, P.G., Jeffery Watson, P.G., Doug Wierman, P.G., and Charles Woodruff, Jr., Ph.D., P.G.

Acknowledgments

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Hydrogeologic Atlas of Southwest Travis County, Central Texas

Principal Authors: *Carrie P. Crozier, Robert H. Gahr, Jackie M. Van Dyke, Kenneth J. Brubaker, Smith, and Juster P. Lunn*

Editor: *Jonathan Strang, Southwest Aquifer Conservation District*
 Technical Editor: *John A. Roberts, Southwest Aquifer Conservation District*

Groundwater is an important resource for water supply, economic, and environmental needs. The Trinity Aquifer system supplies critical water resources for the Texas Hill Country region, including southwest Travis County (SWTC). In 1990, a Hill Country Priority Groundwater Management Area (PGMA) was defined and designated by the State in response to existing and projected groundwater availability issues within the Trinity Aquifers of the Hill Country (Cross and Blumler, 1990). Recent observations suggest groundwater availability is indeed limited in SWTC. The strain on finite water resources is exacerbated by the region's rapid population growth and economic development. In the absence of a groundwater conservation district, the area's hydrogeology has remained poorly characterized, with pumping and aquifer conditions largely unmonitored.

This study presents a compilation of existing and new hydrogeologic data in the form of a hydrogeologic atlas with accompanying digital datasets intended to improve the collective understanding of groundwater resources in SWTC. The study was a collaboration between the Barton Springs Edwards Aquifer Conservation District and Travis County. The data and evaluations presented herein provide a baseline of information for various public and private interests and will benefit the Southwest Travis County Groundwater Conservation District (SWTCGD), which was created in 2017 by HB 4318 and confirmed by voters in November 2019.

The overall findings of this study corroborate the 1990 designation of the study area as a PGMA (Cross and Blumler, 1990). Portions of the Middle and Lower Trinity Aquifers in SWTC and northern Hays County are experiencing varying degrees of depletion and possible degradation of water quality in the Lower Trinity. Water-level data from Trinity wells in SWTC indicate an overall downward trend with minimal recovery during periods of high rainfall, in some areas, the Middle Trinity Aquifer has been almost completely dewatered. These effects are the result of the combined influence of geology, climate, and groundwater withdrawals. Furthermore, these effects vary geographically depending upon local hydrogeologic characteristics and groundwater demand (Figure ES-1). Four generalized, interconnected hydrogeologic areas are defined in this study based on the spatial variations (Areas 1 to 4) in Figure ES-1).

The geology in SWTC differs from Hays County to the south due to increased clastic sediment input that influenced geologic facies (rock types), thickness, and the primary porosity and permeability within the Lower and Middle Trinity Aquifers. In addition, faulting plays an important role in the geometry and aquifer boundaries of the region. In particular, the Bee Creek and Mount Bonnell Fault Zones are important structural features that appear to be at least partial barriers to regional groundwater flow and to partially compartmentalize the aquifers in SWTC. Factoring

and an echelon faulting created the enhanced karstic (secondary) porosity commonly found in central Hays County, but karstic and fracture porosity does not appear to be as well developed in SWTC.

The Lower Trinity is the primary aquifer of SWTC and northern Hays County, in contrast to most of Hays County, which primarily utilizes the Middle Trinity Aquifer. This is primarily due to the lower permeability and porosity of Middle Trinity units in SWTC, as well as the degree of depletion of the Middle Trinity Aquifer throughout SWTC. There are about 2,000 inventoried wells within SWTC (recorded since 2000, IWDH, 2019), with about 75% of the wells completed in the Lower Trinity Aquifer. An estimated total of 3.4 billion gallons per year are pumped within SWTC. The Lower Trinity supplies about 63% of the Middle Trinity, about 36% of the Upper Trinity, and about 1% of the large capacity water-supply use in SWTC, occurs west of the Bee Creek Fault Zone (Area 1), while domestic irrigation use dominates the area between the Bee Creek and Mount Bonnell Fault Zones (Area 2).

Historic streamflow data suggest the Colorado River was a predominantly gaining stream (aquifers contributed to streamflow) prior to the construction of the Highland Lakes (HWL, 1960). However, groundwater levels have lowered significantly in some areas since 1978 (Figure ES-1), possibly altering surface-groundwater exchange dynamics. The Colorado River and lakes may interact with the aquifers west of the Bee Creek Fault Zone, but perhaps only locally, to the east of the fault zone.

Water levels in portions of the Middle and Lower Trinity Aquifers have been significantly lowered by hundreds of feet since 1978. Near the City of Bee Cave, historic Middle Trinity wells have become unusable as supply wells (Area 2). The Lower Trinity Aquifer is experiencing water-level declines between 2 and 3 feet per year throughout the study area and may also be experiencing deteriorating water quality. Due to the continued drawdown over time, portions of the Middle and Lower Trinity Aquifers can be described as experiencing depletion (equivalent to groundwater mining).

Throughout much of the study area, the Upper Trinity Aquifer is a shallow, freshwater, perched system that provides baseflows to streams and does not have a significant hydrologic connection to the deeper Middle and Lower Trinity Aquifers. The Upper Trinity Aquifer is primarily in hydrologic communication with the overlying Edwards Aquifer within the Balcones Fault Zone. Availability of groundwater in the Upper Trinity Aquifer is limited by its local nature, thickness, and climatic influences. Many Upper Trinity wells are reported to cease production during periods of drought.

Differences in the geology and hydrogeology in Travis and Hays Counties are reflected in contrasting groundwater availability potential of the Middle and Lower Trinity Aquifers. The groundwater availability of the Middle Trinity Aquifer in SWTC appears to be limited by aquifer properties, boundary conditions such as faults and rivers, and significant reductions in storage caused by pumping. In contrast, in Hays County, groundwater availability of the Middle Trinity is limited by negative impacts associated with drought and pumping (Gahr et al., 2019). One of these impacts is springflow reduction resulting from capture. Throughout the study area, groundwater availability of the Lower Trinity may be limited by aquifer properties, boundary conditions, and reductions in storage caused by pumping.

This study shows that the Middle and Lower Trinity Aquifers in SWTC are experiencing moderate to significant depletion. This Hydrogeologic Atlas refines the area's hydrogeologic framework and conceptual model, establishes current aquifer conditions, and estimates groundwater use in SWTC. The results of this study will provide a baseline for future groundwater studies of the region and help inform strategies and policies to manage and protect the region's groundwater resources.

EXECUTIVE SUMMARY

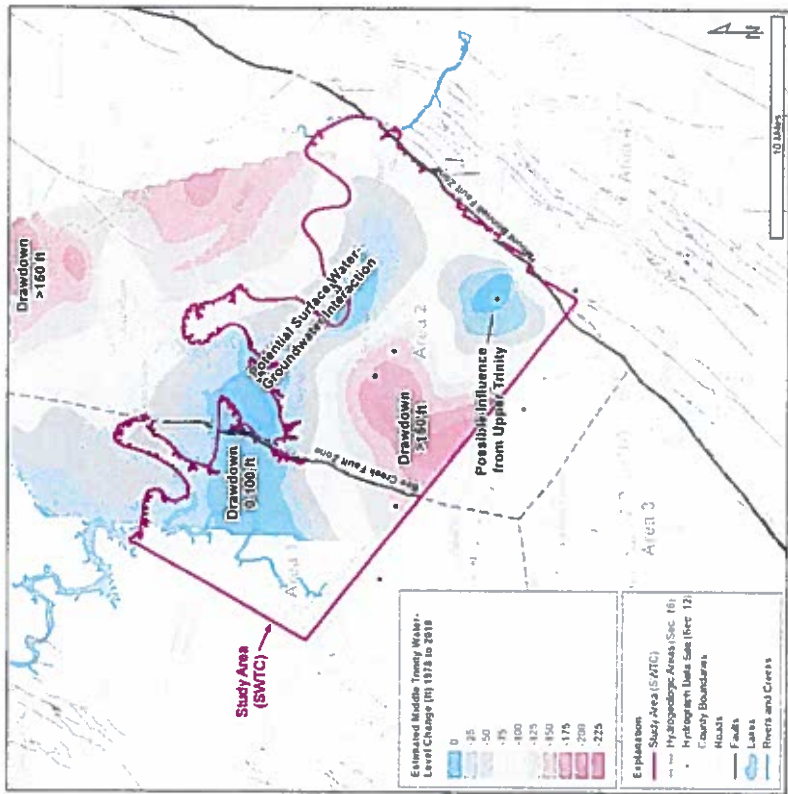


Figure ES-1 Estimated Water-Level Changes in the Middle Trinity Aquifer from Spring 1978 to Fall 2018.

Water-level changes from spring 1978 to fall 2018 are shown in feet for the Middle Trinity Aquifer. Four interconnected areas (Areas 1 to 4) were defined in this study based on generalized hydrogeologic characteristics. The study area, southwest Travis County (SWTC), is outlined in purple and is coincident with the Southwest Travis County Groundwater Conservation District. Water level declines up to 200 feet occur south of the Colorado River in Area 2, near the City of Bee Cave, and north of the Colorado River. The decline of Middle Trinity water levels is likely beyond any variation in seasonality and represents long-term depletion. 1978 water-level data from Brune and Duffin (1983).

Introduction and Study Area

Introduction

Groundwater is an important resource for water supply, economic, and environmental needs within the Texas Hill Country. The Trinity Aquifer is a major aquifer system supplying groundwater to this region. Cross and Blumner (1990) describe portions of the Trinity Aquifer within the Hill Country where concentrated groundwater withdrawals have caused severe water-level declines that would affect groundwater availability. Indeed, the Trinity Aquifer is documented to have experienced hundreds of feet of measured water-level decline in parts of north-central Texas from 1980 to 1967 (Klemm et al., 1975; UCFQ, 2019c) with up to 1,250 feet of estimated decline by the year 2000 (George et al., 2011).

The Hill Country Priority Groundwater Management Area (PGMA) was defined and designated in 1990 in response to existing and projected groundwater availability issues within the Trinity Aquifers of the Texas Hill Country (Figure 1.2; Cross and Blumner, 1990). Prior to the beginning of the current study, southwest Travis County (SWTC) was the only remaining portion of the Hill Country PGMA without an established groundwater conservation district (GCD). Recent evidence suggested that groundwater availability is indeed limited in SWTC. In the absence of a GCD, the area's hydrogeology has remained poorly characterized and pumping and aquifer conditions largely unmonitored.

The goal of this study is to provide a foundation of hydrogeologic data from SWTC and surrounding areas to be used by scientists, engineers, and ultimately policy makers for the benefit of the public. This study presents a compilation of existing and new hydrogeologic data in the form of a hydrogeologic atlas, a technical document intended to enhance the collective understanding of groundwater resources in SWTC. The scope of work also included the collection of new information to fill existing data gaps, which was accomplished through over 100 water well site visits and geologic investigations. All data generated as part of the study are available as digital spatial datasets. The data and evaluations presented herein provide a baseling of information for various public and private interests and will benefit the Southwestern Travis County Groundwater Conservation District (SWTCGCD) that was created in 2017 by HB 3715 and confirmed by voters in November 2019.

This Atlas is the product of a collaborative groundwater study between the Travis County Transportation and Natural Resources Division (Travis County) and the Barton Springs Edwards Aquifer Conservation District (BSEACD).

Study Area

The regional extent of the study includes portions of five central Texas counties (Travis, Hays, Blanco, Burnet, and Williamson) covering about 1,250 square miles. However, the focus of this study is southwest Travis County (SWTC), which covers approximately 212 square miles and is coincident with the Travis County portion of the Hill Country PGMA and the boundaries of the Southwestern Travis County Groundwater Conservation District (Figures 1.2 and 1.3).

Groundwater conservation districts (GCDs) adjacent to the study area include the Barton Springs Edwards Aquifer Conservation District to the southeast, the Hays Trinity GCD to the south, the Blanco-Pedernales GCD to the west, and the Central Texas GCD to the northwest (Figure 1.3). Currently, there is no GCD in Travis County north of the Colorado River or in Williamson County. For regional and statewide water resource planning, the study area is included in Groundwater Management Area 9 and the Lower Colorado River Regional Water Planning Group (Region K).

The regional extent of the study is composed of five geographic areas defined by distinct physiographic and geologic characteristics (Figure 1.4). The Llano Uplift, a topographic basin, is on the western edge of the study area. Paleozoic and Precambrian rocks, exposed in the Llano Uplift provided the sediment source area and basement upon which the Cretaceous Trinity Group was deposited (Section 2). Incised river valleys traverse the study area and expose all Trinity units in the western portion of the study area, with the incision becoming narrow and less stratigraphically deep to the east. The area to the north of the incised Colorado River Valley is the Jollyville Plateau (Figure 1.4), an extension of the Edwards Plateau, that is underlain by the Edwards Limestone. South of the incised Colorado and Pedernales River Valleys is the Hill Country, the deeply eroded eastern margin of the Edwards Plateau. The Balcones Fault Zone traverses the eastern portion of the study area and defines the western margin of the Blackland Prairie physiographic province (BLP; 1996).

Most of the study area is humid subtropical, characterized by hot summers and dry, mild winters with protracted wet and dry periods (Larkin and Bomar, 1983). Average annual rainfall from 1981 to 2010 is shown in Figure 1.5 and ranges from 30 to 34 inches per year (CWDB, 2019d).

Increasing growth of population and development in SWTC (Figure 1.1) inherently increases water demand on a finite resource. According to the 2017 American Communities Survey, the study area has an estimated total population of 166,415 (U.S. Census Bureau, 2017a). Major communities and their 2017 estimated populations include West Lake Hills (3,344), Bee Cave (6,521), Lakeway (14,677), and The Hills (2,559). Recent growth is reflected in the USGS National Land Cover Dataset series (USGS, 2016), which shows that developed land has increased in SWTC from approximately 19 square miles (9% of the total area in 1992) to 52 square miles (24% of the total area in 2016) (Table 1.1, Figure 1.6). Increased impervious cover associated with ongoing development also increases the risk of contamination to surface and groundwater resources from wastewater and stormwater (Zhu and Glick, 2017).

Note Regarding Terminology Use

For ease of writing and reading, the term "water level" is used in this Atlas for both confined and unconfined aquifers. Whereas, for the unconfined portions of the aquifers, the water level at a given point is the elevation of the water table. For confined and artesian portions of the aquifers, "water level" refers to the elevation to which water will rise in a well that taps into the confined aquifer. In this study, the prolonged and progressive declines in water levels is characterized as "depletion." Depletion is partially the result of excessive pumping and is synonymous with groundwater mining, where pumping exceeds recharge to the aquifers over a long period of time. Hydrogeologic terms used throughout this document are defined by Driscoll (1986), Freeze and Cherry (1979), and Heath (1983).

SECTION 1 INTRODUCTION AND STUDY AREA



Figure 1.1 Present-Day Southwest Travis County Landscape. Development in southwest Travis County is increasing. Farms and ranches are being subdivided and converted to neighborhoods that often rely on groundwater as the sole water source.

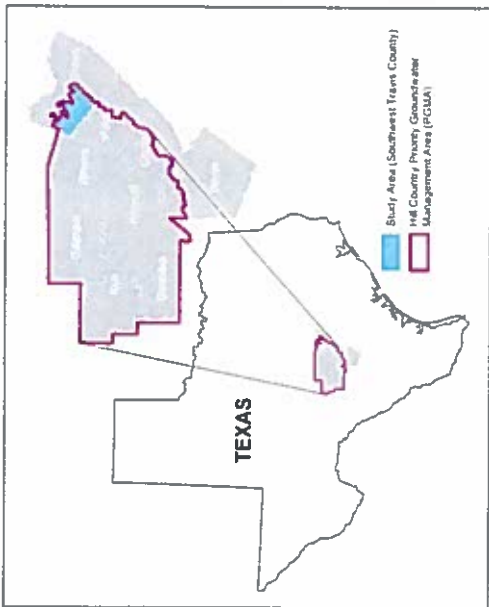


Figure 1.2 Hill Country Priority Groundwater Management Area. The Hill Country Priority Groundwater Management Area (outlined in purple) was defined in 1990 by Cross and Blunzer in response to existing and projected groundwater availability issues in Bandera, Blanco, Gillespie, Kendall, and Kerr counties, as well as portions of Comal, Hays, and Travis Counties (inset). A portion of northern Bexar County was added in 2001 by the Texas Water Commission. The focus of this study is the Travis County portion of the PGMA (highlighted in blue).

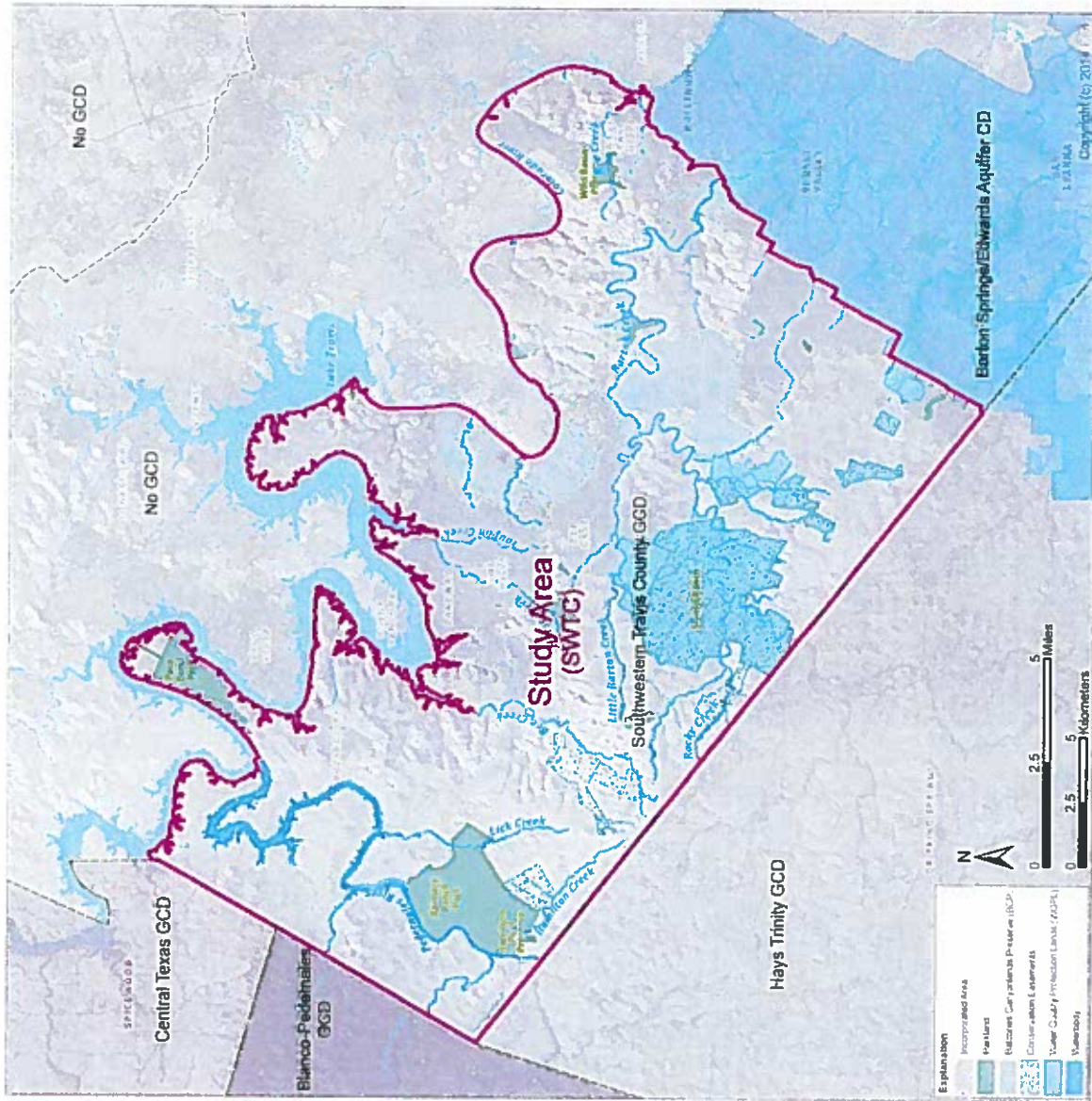


Figure 1.3 Map of Study Area. The study area (outlined in purple) is southwestern Travis County (SWTC) with the Colorado River as the northern boundary. This area coincides with the Travis County portion of the Hill Country Priority Groundwater Management Area and the Southwest Travis County Groundwater Conservation District. Public and private conserved lands are shown, including those owned by Travis County and City of Austin. Conservation easements shown include Travis County non-BCP (Balcones Canyonlands Preserve) lands and City of Austin Water Quality Protection Lands (WQPL). Conserved lands data provided by Sara Dilbert, Travis County Transportation & Natural Resources.

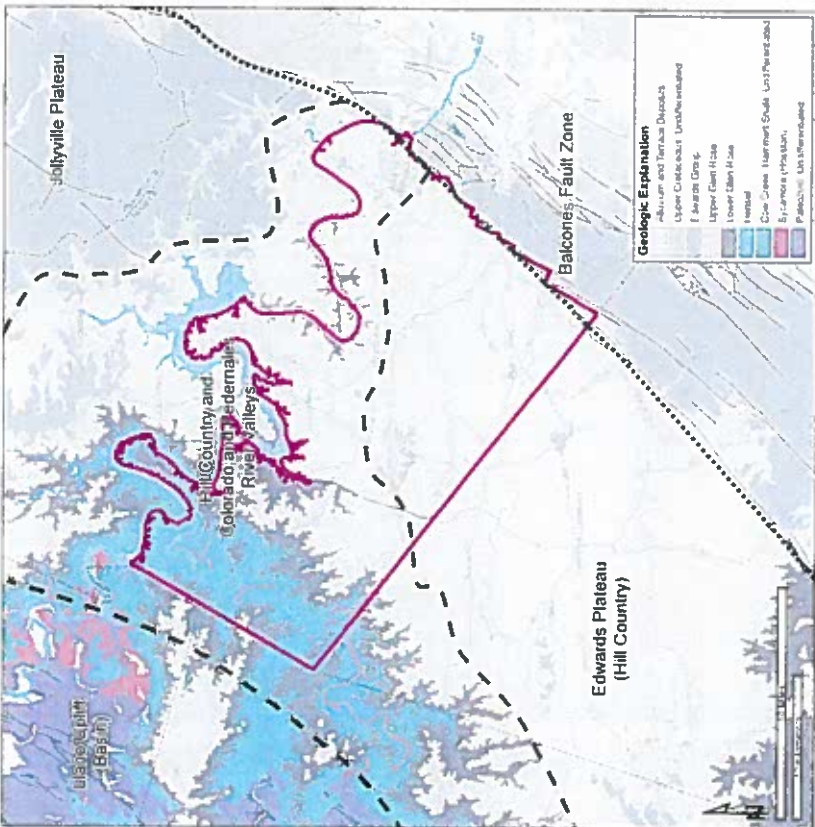


Figure 1.4 Physiographic Areas. The regional extent of the study is composed of five geographic areas defined by distinct physiographic and geologic characteristics. The Llano Uplift, a topographic basin, is on the western edge of the study area. Paleozoic and Precambrian rocks exposed in the Llano Uplift provided the sediment source area and basement upon which the Cretaceous Trinity Group was deposited (Section 2). Incised river valleys traverse the study area and expose all Trinity units in the western portion of the study area, with the incision becoming narrow and less stratigraphically deep to the east. The area to the north of the incised Colorado River Valley is the Jollyville Plateau, an extension of the Edwards Plateau, that is underlain by the Edwards Limestone. South of the incised Colorado and Pedernales River Valleys is the Hill Country, the deeply eroded eastern margin of the Edwards Plateau. The Balcones Fault Zone traverses the eastern portion of the study area and defines the western margin of the Blackland Prairie. Geologic units shown are described in more detail in later sections.

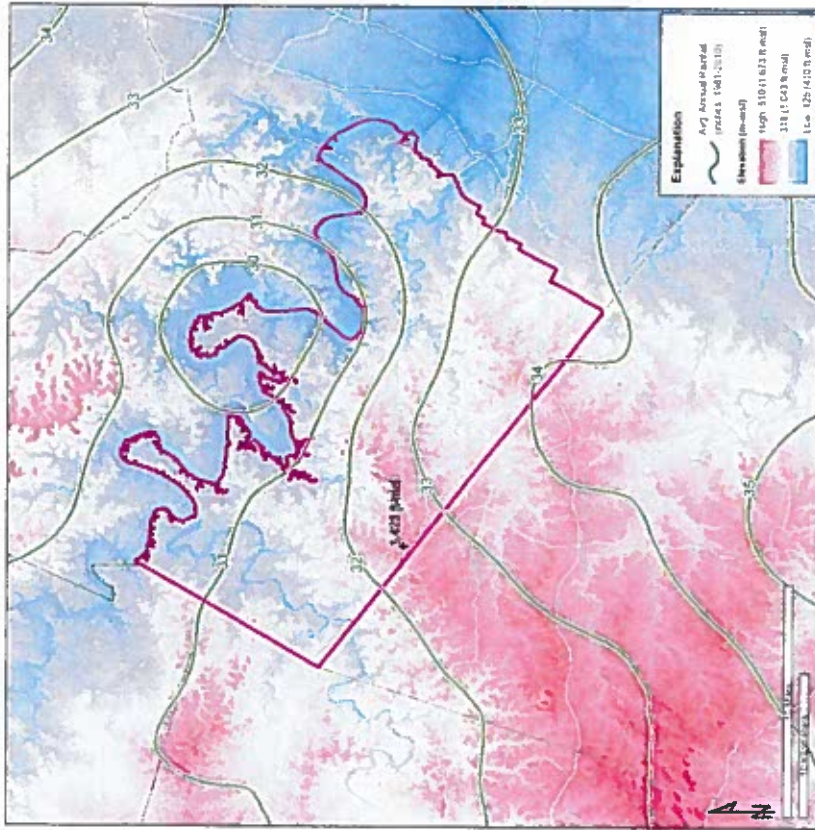


Figure 1.5 Elevation and Average Annual Rainfall. Elevation is shown in meters and feet above mean sea level (m-MSL, ft-nsl) for the regional extent of the study (USGS, 2009). The highest elevation in the study area (SWTC) is noted and occurs within the "Shingle Hills." Average annual rainfall contours from 1981 to 2019 are shown and range from 30 to 34 inches per year (TWDR, 2019d).

Item 4

Board Discussions and Possible Actions

- a. Discussion and possible action on the approval of Budget Revision 1.**

**LIST OF REQUESTED CHANGES
FOR FY 2020 BUDGET REVISION 1**

This revision was necessary to show newly acquired income for special projects (along with the opposing expense side of that income), and to increase some accounts that are higher than initially forecasted.

A revision is not a “truing up of previous forecasts,” unless it can be used to help cover any newly-requested expenses (moving money from one account to another without having to use any reserved funds). The “truing-up” of the conservation credit line item covered some of the line item increase requests below.

INCOME

<u>BUDGET NUMBER</u>	<u>ACTION</u>	<u>LINE ITEM</u>	<u>AMOUNT</u>	<u>EXPLANATION</u>
Temporary	Add	Atlas Publication	1,000	Sponsorship/Donation 12.3.2019
1	Add	Hays County ILA	58,000	ILA executed on 10.10.2019
2	Add	HTGCD ILA	25,000	ILA BSEACD approved on 3.12.2020. To be invoiced within 30 days of receipt of executed contract.

EXPENSE

<u>BUDGET NUMBER</u>	<u>ACTION</u>	<u>LINE ITEM</u>	<u>AMOUNT</u>	<u>EXPLANATION</u>
3	Increase	IT Maintenance	2,580	Forced upgrade from 1000 to 1430/month for 6 months
4	Add	Conference Calls	700	Currently included in Meeting Expense, and may stay there. This is just to show the need for budget.
4a	Increase	Acctng System O&M	1,200	Forced Quickbooks upgrade (\$600) Journyx increase (1200) and a term change
5	Increase	Surety Bonds	170 1,200	Renewal – 1 Directors for 4 years; Renewal - Crime Policy for 3 years
6	Decrease	Conservation Credits	(4,148)	Reduced from 23,297 to actual 19,149 (“trued-up”)
8	Increase	TML Workers’ Comp Employer Insurance	195	Premium received in October AND Annual Payroll Audit (124) in Dec.

9a	Increase	Employee Health Ins	9,850	Net Zero Effect on Total Budget
9b	Delete	Dental Depndnt Ins	(9,850)	(as approved on October 25, 2019)

To Note: The group insurance line items (budget page 3) have now been separated out into its own sub-category so as to show the group insurance totals without including the tax line items that have been previously combined together.

10	Add	Atlas Publication	1,000	The expense side of the sponsorship in Income above.
11	Decrease	Used funds to cover Shortfall	(1,950)	This line item is to cover additional operating expenses.
		GIS and EDU Support		May be used for GIS 5000 and 2000 for EDU if needed.
		Cyber Security training	\$250	May be posted here.
12	Add	Hays County ILA	58,000	Special Projects expense (covered by income above)
13	Add	HTGCD ILA	25,000	Special Projects expense (covered by income above)



FY 2020 DRAFT BUDGET REVISION 1

Budgeted Permitted Pumpage 4,341,273,661 Gallons

DRAFT REVISION 1

I. INCOME			
A.	Production Fees, and Water Use Fee:	GALLONS	
	Actual Authorized Pumpage Revenue (17¢ per 1,000 gallons)	3,619,585,913	\$443,786
	Actual Authorized Pumpage Revenue (44¢ per 1,000 gallons)	126,377,715	\$143,567
	Actual Authorized Agriculture Pumpage Revenue (\$1.00/cubic foot)	229,133,020	\$887
	Total Actual Authorized Pumpage/Production Fees	3,238,993,648	\$588,240
	Pending Permit Increases (at 17¢ per 1,000 gallons)	918,343,041	\$155,601
	Total Projected Permitting Revenue less Agriculture	\$3,238,993,648	\$743,841
	Total Budgeted Permitted Pumpage with Agriculture	4,341,273,661	
	Water Use Fee - City of Austin Assessment	982,284	982,284
	Pending Permit Revenue		\$1,726,125
	Water Transport Fees (50.31¢/1,000 gallons)		\$155,601
			\$124,000
	Total Production Fees, and Water Use Fee		\$1,694,524
B.	Other Fees:		
	Annual Permit Fees		\$5,500
	Administrative Fees - Permit Application and Development		\$9,800
	Total Other Fees		\$15,300
C.	Other Income:		
	Interest Income		\$12,000
	TRMP Atlas Publication Income	\$0	\$1,000
			(Contributions to atlas publication 12/1/2019)
	Total Other Income		\$13,000

D. Grant / Special Project Income:					
Travis County H-A Funds - 2020	\$75,000			\$75,000	\$0,000 received 12.5.2019, 25,000 received on 1.08.2020
Hays County Jacobs Well Trinity Aquifer Studies	50			55,000	Contract executed on 10.10.2019, 58,000 received 11.7.2019
HTGCCD Jacobs Well Trinity Aquifer Studies	50			\$35,000	Contract BSEACTD approved on 1.12.2020. Still waiting for HTGCCD execution signatures
Total Grant / Special Project Income	\$75,000				\$158,000
TOTAL PROJECTED INCOME	\$1,796,823			\$4,000	\$1,800,823
II. EXPENDITURES					
A. Operational Expenses					
Electricity & Water	\$6,000				\$6,000
Telecommunications Services	\$17,000	Phone, Internet			\$17,000 Forced phone upgrade Plan INTEGRAL K. No additional funds necessary
Printing / Copying / Photo Processing	\$3,000				\$2,000
Postage / Freight / Shipping	\$2,500				\$2,500
Office Supplies / Canteen	\$9,000				\$9,000
Computer Hardware / Supplies / AV Equipment	\$5,000	Plant Capital			\$5,000
Computer Software Maintenance/Upgrades/Acquisitions	\$6,000				\$6,000
Information Technology Monthly Maintenance	\$12,000	Outgoing		\$2,500	\$14,500 Forced Plan upgrade - Increase from 0000 to 1400/month for 6 months
Board Meetings and Staff Meetings	\$1,000				\$1,000 Conference calls are being posted here. Current meeting balance is 700, including calls
Conference Calls	\$0	NEW		\$700	Conference calls, current balance is 000. (Will add the 700 to 000 above = 700)
Subscriptions / Publications	\$4,200				\$4,200
Advertising and Public Notices	\$4,000				\$4,000
Accounting System Operation and Maintenance	\$6,000	IT Services		\$1,200	\$7,200 Forced Quickbooks software upgrade (600). Items increase and a term change from April to November (1200)
Bank and Payroll Processing Fees (Miscellaneous)	\$1,000				\$1,000
Upgrades, and Repair and Maintenance:					
Fleet Maintenance / Repair	\$6,500				\$6,500
Office Complex Maintenance / Offices / Lawn	\$11,400				\$11,400
Facilities General Repair & Maintenance	\$5,000				\$5,000
Leases:					
Postage Meter Lease	\$1,150	Quarter Lease			\$1,150
Copier Lease and Maintenance	\$9,500	Off Capital / Dabell / CIT			\$9,500

	Directors Conferences /Travel			\$2,500				\$2,500		
	Organizational / Staff Professional Dues and Memberships			\$6,100				\$6,100		
5	Insurance - Auto Liability, Property, E&O Public Bonds			\$5,700		\$1,310		\$7,070		One 4-year public officials bond \$170, one 1-year crime policy for \$185
	Professional Development			\$13,500				\$13,500		
6	Conservation Credits	Revenue Distribution		\$23,297		(\$4,148)		\$19,149		Actual is \$19,149 - determined in October 2019
	Total Operational Expenses			\$160,347				\$162,049		
B.	Salaries and Wages			\$943,913				\$943,913		
	Salary and Wage Merit Adjustments			\$22,400				\$22,400		
	Incentives	GAHRS		\$2,000				\$2,000		
	Directors Fees of Office	9441 Corporate Corp		\$40,000				\$40,000		
	Total Salaries and Wages			\$1,008,313		\$97		\$1,008,410		
C.	Employment Taxes and Benefits, and Group Insurance									SEPARATED C - INTO 2 SUB-SECTIONS March 2020
	Employment Taxes and Benefits									
	Payroll Taxes		(63)	\$77,136				\$77,133		
	Texas Workforce Commission Unemployment Taxes	100 in 2019 Quarterly C 1		\$2,600				\$2,600		new rate for 2020 is 1.6% in \$14/employee CY (was \$0.0010)
8	Workers Compensation Insurance		140	\$3,637		\$195		\$3,812		October actual invoice \$367 + \$124 from TML payroll audit
	Employee Pension Plan Contribution		186	\$68,873				\$68,873		
	Total Employment Taxes and Benefits			\$152,226				\$152,428		
	Group Insurance									
9a	Group Health Insurance (Employee only)	All States and Alaska		\$108,514		\$9,850		\$118,364		10/31/2019 Add the annual premium increase - see below. Renewal is in February and November respectively
	Group Health Insurance (dependent Coverage)	% of All States premium (benefit paid)		\$15,000				\$15,000		
9b	Dental Insurance (employee only)	MetLife		\$18,000		(\$9,850)		\$8,150		10/31/19 Board approved to remove dental dependents, to cover the increase in table premium. Renewal is in February
	Life Insurance (employee Coverage)	United		\$13,000				\$13,000		Renewal is in September
	Vision Insurance (Employee Coverage)	Ameritas		\$1,600				\$1,600		Renewal is in January
	Total Group Insurance			\$156,114				\$156,114		
	Total Employment Taxes and Benefits, and Group Insurance			\$308,340				\$308,542		
D.	Professional Services									

		Memorize the Number		
Author (Annual)		13,000		
Retirement Plan (Hond Party Administration)		28,000		
Legal - General Services, and Special Services		150,000		
Legislative Support		12,000		
Election Services		10,000		
Total Professional Services		\$213,000		
E. Team Expenditures				
Aquifer Science Team:				
Hydrogeologic Characterization		\$2,000		
Water Chemistry Studies		\$2,800		
Monitor Well, Equipment and Supplies		\$7,000		
Atlas Publication		\$0	\$1,000	Atlas Publication contribution to be applied to supplies above - where atlas budget was expensed
Contracted Support		\$23,000		
Travis County H.A		\$21,500		
Total Aquifer Science Team		\$56,300		
Education and Outreach Team:				
Publications		\$750		
Outreach		\$6,500		
General Support		\$3,700		
Equipment and Supplies		\$1,000		
Contracted Support		\$2,000		
Total Education and Outreach Team		\$13,950		
Regulatory Compliance Team:				
Well Sampling and Services - Now Projects and Services		\$5,000		
Equipment and Supplies		\$2,500		
Contracted Support		\$10,000		
Total Regulatory Compliance Team		\$17,500		

General Management & Administrative Team:					
	Contracted Support	\$8,000		\$8,000	
	Additional Administrative Expenses	\$11,000	(\$1,950)	\$9,050	May use for GIS-5000 and EIT-2000 support. Cyber Security training \$250. Reduced by 1950 to cover the bottom line shortfall.
	Total General Management & Administrative Team	\$19,000		\$17,050	
	Total Team Expenditures	\$106,750		\$105,800	
F.	Special Projects and Grants				
12	Hays County Jacobs Well Trinity Aquifer Studies	\$0	\$58,000	\$58,000	Contract executed on 10/10/2019
13	HFGCD Jacobs Well Trinity Aquifer Studies	\$0	\$25,000	\$25,000	Contract HFGCD approved 1/2/2020. Now HFGCD board needs to approve.
	Total Special Projects and Grants			\$83,000	
	TOTAL PROJECTED EXPENSES	\$1,796,750	\$8,050	\$1,880,801	
III.	NON-CASH DISBURSEMENTS				
	Depreciation Expense	\$50,000		\$50,000	
	Accrued Benefits Payable (Earned Vacation and Nonexempt Comp)	\$50,000		\$50,000	
	Total Non-Cash Disbursements	\$100,000		\$100,000	
IV.	PROJECTED POSITION				
	Total District Expenditures	\$1,796,750		\$1,880,801	
	Total District Revenue	\$1,796,823		\$1,880,824	
	Current Net Gain / (Loss)	\$73		\$73	There WAS a \$1,923 shortfall here. See GM Additional Administrative Expenses where the shortfall was covered.
	Contingency Fund (Legal Defense 25% of Contingency)			\$597,431	As of 4/30/2020
	Notes:				
	No truing up in amendments unless looking for additional funds.				
	True ups, if at all, should not occur until end of fourth quarter - July/Aug				
	However, true up the conservation credits to cover some of the Revision 1 increases.				
	The rest of the shortfall was covered from the GM Team Additional Administrative expenses line item.				

Item 4

Board Discussions and Possible Actions

- b. Discussion and possible action on Scholarship nominations.**

██████████ Essay for Camp Scholarship

Hello, my name is ██████████ I am 11 years old and currently in 6th grade at Wallace Middle School in Kyle, TX. I am writing this essay in order to apply for a camp scholarship to the Texas State Overnight or Day Aquatic Science Adventure Camp.

I would like to attend this camp because it is new to me. My sister Chloe attended last year and she enjoyed herself. She came home every day and explained both what she learned and what activities she did. I would like the opportunity to experience Texas State's campus and the various sites around town where wildlife is located.

To provide my backstory, my family and I grew up in San Marcos. My parents had and continue to work hard to provide a good life for my siblings and I. I have two sisters, Chloe (13) and Emily (7) and one brother, Ethan (6). After Chloe and I become too old for camp I would like Emily and Ethan to be able to attend.

In conclusion, I am grateful for the scholarship program and the help it provides students like me whose parents cannot normally afford camp. I am asking that you consider my application. Thank you.

Sincerely,

██████████
6th grade

Why Aquatic Science is Important

I live on top of a watershed. Whenever I go to practice basketball we drive past a small stream that's nearby to our house. Recently, I was curious about where it led. After asking my dad he pulled up a map of the watershed on the computer. That was the first time I knew that a river is part of a watershed. I also found out that I almost live in a different watershed. If I walk not far away from home I'm standing in it. I think that is pretty cool.

When I first heard of this camp I just thought about all the fun stuff like white water rafting, spelunking in the caverns and finding some new friends to laugh it up with till I realized about the water lab and studying the freshwater species. I know I would be learning amazing things every day which would be the dream for any kid applying for a scholarship for this camp! Looking back I suppose that I have always been interested in our water consumption. In 3rd grade I did an experiment on water filtration making my own filters that I sent water down. And in 4th Grade I actually won the science fair with my partner Ella. We both designed a hypothetical boat that would prevent dolphin trawling and in 4th Grade when the water crisis came in Austin I spent my time in class doing a project on it instead of working on extra credit stuff like the word quizzes. I was on the Dick Nichols swim team for a summer until I decided that the races, and learning the techniques of my strokes, wasn't really my thing, but, I loved the feeling of me being able to feel like I was walking on nothing while I swam.

I want to learn while I'm at camp and have fun with some new friends on the glass bottom boats, but if I don't receive this scholarship I don't have a chance. So in summary I hope you can find a spot for me at this amazing camp!





Science Cam

Hi my name is [REDACTED] and I am excited to be able to go to the Aquatic Science Adventure Camp again. Last year one of my favorite parts was looking for clams and learning that the tiger clams are taking over the environment. What was cool about that was I got to meet two scientists that showed us some dead tiger clams. I noticed that they have black stripes and the regular ones do not. That was cool because tigers also have black stripes. I liked learning about different interactions between organisms and how it affects the ecosystem.

One of the last days of camp we went tubing which was another one of my favorite things that we did. My favorite part was that we got to pretend that we were riding a bull (we were on the tip of the tube) because the rapids were as strong as one. They also let us body surf down the rapids which was awesome. The coolest part about that was going down the small waterfalls.

I can't wait to go into an underground cave like last year to get messy and learn how many living organisms that live there (super fun). I am not able to do this with my dad because he is usually working so this is an opportunity to learn and have fun at the same time.

I hope to learn more about the negative impact people have on the environment and how to change it. At my school I am the student council president. This year we decided to initiate a schoolwide recycling campaign. These recycling bins help to save our world and have a better future. Aquatic Science Adventure Camp helped me to be a better student council president and helped make an impact on my school.

My goals this year at Aquatic Science Adventure Camp 2020 are to make new friends, have loads of fun with my friends, and, most importantly, to learn new things about the environment!

[REDACTED]

Why I want to attend Aquatic Sciences Adventure Camp



My favorite places to swim – Hamilton's Pool "meets" Cypress Creek

For my artwork I chose to make a sculpture of Cypress Creek and Hamilton pool (together), two of my favorite places to swim. When I go to Cypress Creek I like to build rock sculptures and look for crawdads so I know the creek is in good shape. The overhang at Hamilton Pool is a really interesting rock formation and I like that it has multiple waterfalls.

I'm excited to go to Aquatic Sciences Adventure Camp because I want to know how creeks and rivers work and what you can do to protect them. I'll also get a chance to do some things I've never done before like caving, muscle hunting and water testing. Plus, I want to learn about camping outside because I haven't really been camping outside with friends—just in trailers with my family. At camp, I hope to make a ton of friends and have a ton of fun!

Thank you!

██████████ Essay for Camp Scholarship

Hello, my name is ██████████. I am 13 years old and currently in 8th grade. I am writing this essay in order to apply for a camp scholarship to the Texas State Overnight or Day Aquatic Science Adventure Camp.

I would like to attend this overnight camp because I attended last summer and had an amazing time. I continue to be interested in aquatic life and what beautiful San Marcos has to offer. I was able to use what I learned last summer to teach others. I made friends I did not expect to make and was able to see the Texas State campus. Not only did I enjoy camp, but the experience also incentivized me to investigate what college life will be like.

Now that I have attended this camp, my eleven year old brother is now interested. He would like to experience the camp as I have.

To wrap this up, I would immensely appreciate the opportunity to attend camp again. Please consider my application and essay. It would be a dream come true!

Sincerely,

██████████

8th grade

Camp Scholarship Contest
Barton Springs/Edwards Aquifer Conservation District
1124 Regal Row
Austin, TX. 78748

Why I want to attend the Aquatic Sciences Adventure Camp!

Hello my name is [REDACTED] I am in 7th grade at Lockhart Junior High and I am 12 years old. I am applying for the 2020 Summer Camp Scholarship for the 5-day day camp. I will be 13 this summer when I hopefully participate in the Aquatic Camp in San Marcos. This camp would be a great experience for me since I love water and want to help save the water now and for future generations.

There are many reasons I would like to attend this camp. For starters, I've been mesmerized by water in nature whether it be a lake, pond, stream, river, or ocean. I have always loved it. Water has always been sort of like a religion for me, the way the water laps at my feet, flowing by, carrying all my worries with it, to never be seen again. I love how the fish swim by not paying attention, focused on their mission. The water is wild, mysterious and free.

Secondly, I dislike what the human race is doing to our creeks, streams, rivers and oceans. Non caring people throw trash out the window like it's nothing, no big deal. They think " it's just one piece that won't hurt anything." But, if every person thinks that and does that, where are we going to be? 71% of our earth is covered by water, I'd like to keep every percent clean.

This leads me into my next main reason as to why I want to be involved in this camp. My dream job is to become a Marine Biologist or an Aquatic Veterinarian. I believe that doing activities at the camp like mussel hunts, scuba diving, snorking, animal labs and chemistry will help me get on the right road to being able to do these things in the future and help end or make pollution not as bad, or a thing of the past. Hopefully, I can learn things to share with others to help save our water and ecosystems.

Lastly, by attending this camp I will make new memories, memories that will teach me and help me teach others. Without this scholarship I may not have the opportunity to make these memories that are so important to me. I believe this camp will help me reach my goals in the future, satisfy my love for water and one day help me stop pollution.

Thank you for considering my scholarship application and artwork,

[REDACTED]

[REDACTED]

SAVE THE BLIND SAMANIES AND IR





“Why I want to attend the Aquatic Sciences Adventure Camp!”

At “Aquatic Sciences Adventure Camp” students, such as me, will learn how to use and preserve water. In our lives, we use water for lots of things like drinking, cooking and cleaning. Aquatic animals, such as turtles, fish, algae and salamanders need water to survive.

All people need water to survive. At camp, we will learn what is in our water and how to improve the quality of our water to make it safer. For my science fair project this year, I tested the water quality in several campuses at Lockhart ISD to help improve our students’ health. At the science fair, I won 2nd place for seventh grade and found that lead, copper and iron levels were high. Soon I will be getting together with the district’s Director of Maintenance and Water Quality to help professionally test our water, to make sure the students and staff are safe.

I think that this Aquatic Camp could teach me more about water and how to keep it clean. This camp will help me with so many things like getting a perspective on how important water is!

Kent Butler Groundwater Essay

Impact of Distance from Water on Cardinals in St. Edwards Park

For one of my classes in high school I was tasked with a project that required cataloging specific biodiversity in parks. We were given the freedom of picking an organism and tracking characteristics about them, so I conducted a study with a purpose of estimating how distance from water affected the population of Northern Cardinals in St. Edwards Park, a park located in Northwest Austin along the Bull Creek greenbelt. I visited the park and went along trail transects for a few months, and through this experience I learned so much about the impact that health of the Northern Edwards Aquifer has on Bull Creek and how other site factors such as proximity to urban or industrial areas, human impact on the area, and topography play a huge role in the abundance of wildlife in parks.

I started out with a hypothesis that there would be more birds living closer to water than there were farther away. This was because birds need water to survive, and there should be more abundance of them near their water source for easier access. In terms of St. Edwards Park, it had a minimum elevation of 204.36 m and a maximum elevation of 262.32 m (“Topographic...”). The park was overall flat and field-like, but it had areas with dramatic area changes. These areas mostly occurred as Bull Creek approached, as if they were eroded away.

There are a number of factors that affect the abundance of birds in parks, so I wanted to see what other people were saying regarding some of those factors. There was a study conducted in the Connecticut Valley region of Massachusetts studying the relationships of breeding bird density and diversity to habitat variables in forested wetlands. The research was conducted in eight deciduous forested wetlands, each 30 ha or larger, and study areas were selected to provide

a wide range of vegetation structure, hydrologic patterns, and geographic location. Singing male birds were counted on 10 circular 0.25-ha plots in each study area. The bird populations of a total of 46 species were then observed, with estimated densities being calculated. The results suggest that breeding bird communities in forested wetlands are significantly related to hydrology.

Generally, the more poorly drained sites appeared to have the most abundant and diverse breeding bird populations (Mills). This shows that the density of avian birds was higher near the water sites as compared to birds farther away from water.

There was another study cataloguing four separate studies conducted at 31 sites that were concerning the strong correlation between bird density and the index of total vegetation volume. The studies were conducted in southwestern shrub and desert habitats between 1974 and 1987. The studies were conducted based on an underlying assumption of theoretical models of avian community structure generated in the 1960s that said that the number and diversity of birds in an area reflect the availability of critical resources (Swift). The study results show that there were high avian breeding densities in Southwest Riparian habitats, showing that higher density of birds are found in wetter habitats.

Something that I had not considered before was that there was likely a huge impact on bird density from human activity. There was a study conducted at a Santa Barbara beach, where there were a hundred birds, eighteen people, and two dogs per kilometer. There were several variables being tested, including human activity. Bird distributions along the beach were determined by habitat type, and there was an observational study conducted where the behavior of the birds were observed. The study showed that interactions between birds and people often caused birds to move or fly away, particularly when people were within 20 m. Bird species

varied in the frequency that they were disturbed, partially because a few bird species foraged on the upper beach where contact with people was less frequent. For crows, there was some evidence that access to urban refuse increased abundance (Lafferty). This highlights an error in the study, where higher amounts of human activity at the transects could have decreased the amount of cardinals detected.

The results show that there is a higher population density near water (4.56 cardinals/ha) than there is far from water (2.96 cardinals/ha), which is nearly 1.6 cardinals/ha higher and significantly different. This difference proves that there are factors such as distance from water that impact population density. Through various statistical analyses I was also able to prove that the differences in the amount of human activity, coefficient of detectability, and full detection strips between both my near water and far from water transects were not significantly different, respectively. It showed that the variables in both the transects, which are supposed to be the same to have more accurate results, are close to the same.

Although the study showed significant results, it had some problems and some modifications that need to be made in future pursuits. I had far from water and near water transects, but they were on the same days each time. The first transect far from water was completed in early October (the 9th), while the first close to water transect was completed late October (the 21st). Because of this, several things were different, including the weather and the conditions. The public also had access to the park, interfering with the seemingly uninterrupted transect, meaning that more human activity could have scared away the birds and decreased the number of them. I also noted that some of the days I went to plot transects, the dirt had much more moisture, as it had rained before. Though initially insignificant, I realized that because the

red cardinals' diet consists of fresh berries and insects, those would be more abundant near the creek, making the birds travel closer to the water.

A study about elevation for cardinals would add insights to the data. This is because at the park, the transect at the lower elevation was the close to water transect, which had significantly more birds. Once the factor of the creek is removed, it'd be interesting to see if the birds were still more plentiful at the lower elevation.

Ultimately, this project sparked a huge interest in me to continue learning about the relationship between species and their access to water supply. It also prompted me to attend a lecture at Brackenridge Field Lab on speciation and hybridization by ecologist Adrius Dagilis to continue to learn about evolution and ecology. I hope to continue studying about and raising awareness on the impacts of groundwater on biodiversity.

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Groundwater Essay
The Effect of Earthquakes on Groundwater

In 6th grade, my class went on a field trip to the Edwards Aquifer. It was the first trip of the year and I remember being incredibly excited. When we arrived, our tour guide began to discuss the history of the aquifer and its importance. He also discussed the effect of pollution on the aquifer. At the time, my interest encompassed natural disasters, specifically earthquakes. After our field trip, I started my own research in hopes of finding a correlation between earthquakes and groundwater. I was surprised later on to learn through my own research that groundwater can be heavily affected by earthquakes.

Seismic waves that cause earthquakes have two main effects on groundwater: oscillations and permanent offset. Oscillations are the repetitive movement of the groundwater. One theory made by Cooper and later enforced by Liu stated that seismic waves cause the expansion and contraction of an aquifer, which causes oscillatory pore pressure changes. Pore pressure changes are used to determine the permeability of the rock through a long process that requires extensive knowledge of several theories and techniques, which are difficult to explain. (Falcon) However, Cooper and Liu present an interesting statement that if the aquifer has enough transmissivity, which is the rate of flow through a unit of width of the aquifer, the pressure change causes flow into and out of the well. Testing of the theory resulted in the conclusion that the pore pressure changes in the aquifer are relatively the same size as the fluctuations of the water level. ("Groundwater effects from Earthquakes") In accordance with this, the seismic waves actually induce higher pore pressure changes on the subsurface formations than scientists had previously thought. This typically results in higher chances of pollutants getting into the

groundwater. On the other hand, fault offset is the production of permanent expansion and contraction of surrounding rocks. (USGS) This is typically expected near the earthquake and it is based on the types of wells. Some wells will exhibit offsets, while others won't. For example, a hot-water well will exhibit more offsets than a cool-water well. Furthermore, offsets always occur in the same direction, up or down. Most scientists agree that the permanent deformation that occurs due to the offset depends on the type of aquifer as well. A confined aquifer will most likely show a response to the deformation that was caused. However, the changes that are caused by the permanent deformation typically last until the pressure is in equilibrium with the water table. Otherwise, the pressure can greatly damage the aquifer further increasing risk of pollution in the groundwater. ("Groundwater Effects from Earthquakes")

Moreover, earthquakes can affect groundwater systems due to the influx of water released from the aquifers after an earthquake. To understand this effect, one needs to understand the organization of the groundwater systems. Groundwater systems typically consist of layers of permeable rock or the aquifer, which are separated by low-permeability layers called aquitards. (Morton) Permeability is the quality of a material that allows fluids to pass through, which is important because it explains the movement of the groundwater and allows for the extraction of groundwater for our purposes. According to a study conducted by Zheming Shi, during an earthquake, the subsurface pressure changes, and new fracture networks open new pathways for groundwater movement. The movement of groundwater can affect its quality after an earthquake. Furthermore, the study showed that an increase in the aquitard's permeability makes the groundwater more susceptible to pollutants. (Morton) By paying attention to the aquitard, scientists can indict the aquifer's vulnerability to pollution, which can allow them to

prevent the contamination of the groundwater. However, if an earthquake were to change the permeability of the aquitard, the groundwater's movement as a result can increase the risk of contamination. (Wiener-Bronner)

After all of this, one must be wondering about the significance of groundwater. Well, groundwater is used for irrigation systems in rural towns and is a form of recharge for streams, lakes and rivers. However, the increasing extraction of groundwater from wells and other resources has left many states in harm's way; specifically California. The popular practice of extracting groundwater to irrigate the agriculture belt of California has put stress on the San Andreas fault resulting in more earthquakes to occur in the region. Scientists believe that an increase in human activity may give rise to the occurrence of earthquakes in vulnerable areas. (Wiener-Bronner) Many people have argued that the pumping of groundwater has only caused small earthquakes and is not as harmful as scientists are making it out to be. Geoscientist Roland Burgmann disagrees, he argues that the magnitude of the earthquakes does not matter as much as the integrity of the fault. The extra small stresses due to the extraction of the groundwater can result in the fault failing. This would be detrimental because it would result in a process called liquefaction, which occurs when the shaking of the earthquake causes the land to behave like quicksand and collapse on itself. (Baker) According to the *Los Angeles Times*, the depletion of groundwater can result in the lifting of the Earth's upper crust, pushing nearby mountains. The constant shift of the mountains would aggravate the fault line and trigger more earthquakes in the area. Continuing with this idea, the removal of groundwater can also reduce the forces that keep the fault together, which results in more small earthquakes especially in dry seasons. (Wiener-Bronner) The growing presence of earthquakes could also contaminate the groundwater.

The collapse of the land means contaminants from common products used by residents could contaminate the water. Additionally, the earthquakes can make it difficult for wells to reach the groundwater, leaving residents without a reliable water source. The depletion of groundwater for our own needs could result in detrimental effects on the residents. (Singh)

On the other hand, in another study by the Ecole Normale Supérieure in Paris found that presence of pressurized fluid in surrounding rocks can actually reduce the intensity of earthquakes. Some earthquakes are not naturally made; these are what are called induced earthquakes. Induced earthquakes result from mining, gas and oil extraction, construction of tunnels and geothermal energy. These earthquakes can cause a lot of damage such as derailing projects. (Perrin) According to Marie Violay who runs LEMR (Laboratory of Experimental Rock Mechanics) injecting highly pressurized water into the earth's crust can affect rock equilibria and trigger nearby faults. Although, most induced earthquakes may have low intensity; they are still bothersome to locals. Rock friction generates a large amount of heat that can be absorbed into the surrounding rock. Their experiment showed that the closer the fluid's initial pressure is to the critical pressure of the water, the lower the intensity of the earthquake. (Volay) Francois-Xavier Passelegue, a LEMR researcher, argues that initial fluid pressure is critical especially in areas commonly reached by geothermal activities. (Perrin) These scientists believe that the best way of reducing the intensity of earthquakes is tapping into the groundwater, which is already at the specified pressure required. Ironically, groundwater and earthquakes have an interesting relationship. Earthquakes can damage the water table resulting in contamination of the groundwater. However, the depletion of groundwater can increase the intensity and frequency of earthquakes. (USGS)

This research helped me learn about a completely different topic that I would never have paid attention to. Unfortunately, as of recently, most earthquakes are due to human activity in businesses such as oil and mining, which many people aren't focused on stopping. These activities provide businesses a lot of money at the cost of one of our most important water sources. I learned that it is important to bring awareness to this issue that plagues our consumer society. If we aren't able to at least lessen these activities, we can forever damage a pertinent resource to the survival of our society.

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The Crisis of Nitrate Fertilizer in Groundwater

The first modern chemical fertilizers were developed from calcium nitrate at the beginning of the twentieth century (Russel). Since this initial introduction, large-scale uses of chemical fertilizer have been implemented in the United States; although primarily used for agricultural purposes, chemical fertilizers are also credited to the development of the American social ideal of lush, green lawns. The impacts of chemical fertilizers are devastating to waterways. Fertilizer runoff is an enormous contributing factor to the pollution of groundwater, which then flows into the aquifers that millions of Texans rely on for survival (Lant). It is crucial immediate measures are taken to limit the amount of nitrate entering the groundwater and to consciously make the widespread switch to alternative fertilizer methods in order to decrease the depletion of healthy resources. Without these necessary changes, people and the environment will continue to suffer.

Nitrate (NO_3) is the main ingredient in fertilizers which cause the pollution of groundwater. It is used in agriculture and by private individuals to stimulate rapid and significant agricultural plant or lawn growth, containing between 25 and 40 parts per million in chemical fertilizers (Nicholson). Naturally, as groundwater flows on the surface of the earth as runoff and begins to sink underground, soil and outcrop act as geological filters to remove potentially-harmful resources from the water before it collects. However, the nitrates in chemical fertilizer are "completely soluble and highly mobile in soil" (Davies). Thus nitrates easily sink underneath the earth's surface and through the 'filters' along with the groundwater: leaching into the collection basins and contaminating the aquifers. An overabundance of nitrate and nitrate-containing compounds from agricultural practices are therefore significant contributors to the increase in hazardous pollution, destroying our natural resources at detrimental rates ("Groundwater Contamination").

The use of nitrate fertilizer has increased as much as eight times since the 1960s (Khan). Globally, the increased use has cultivated a demand for research on the effects of surplus nitrates that are polluting the groundwater. One research experiment, conducted to examine the retention of NO_3 in soil and groundwater, simulated rainfall over a period of eight days. Fertilizer was added to the rainfall over a series of 12 simulations. At the end of the trials the nitrate retention rate reached 50.53% in the soil. The study also concluded “ NO_3 residues mainly existed at the surface and in the bottom soil layers that may lead to dangerous pollution for surface and groundwater” (Khan). The high retention of nitrate coupled with its location on the surface and subsurface of the soil leads to excessive pollution leaching into the groundwater.

To their detriment, organisms which survive in or by groundwater are affected by excess nitrates. Often, fertilizers accumulate and create “plumes” of concentrated pollutants. Eutrophication, the nutrient pollution process which depletes oxygen, is the “number-one threat to water quality worldwide” (Denchak). Algal blooms form and eliminate the oxygen necessary for the survival of marine wildlife and ecosystems. Lack of oxygen negatively impacts water quality for habitats and for its use as drinking water (Khan). The consequence of eutrophication is the fact that entire water-reliant environments become so oxygen depleted by nitrates they become categorized as “dead zones.” Plants, wildlife, and most microorganisms cannot survive. Life near the water is forcibly displaced or subject to death.

An excess of fertilizer in groundwater has also been proven to cause substantial health issues in people. When nitrates are high in concentration in drinking water (a fairly common occurrence), health disorders such as gastric cancer and birth malformations can result (Majumdar). The exponentially-serious consequences of nitrate fertilizer are “often overlooked as a source of

nitrate exposure that can result in serious health effects in infants" ("Nitrates/Nitrites Poisoning"). Alarmingly, in studies which tested the groundwater around locations where infant methemoglobinemia is evident, the levels of nitrates were below the "safe level" regulations set by the Environmental Protection Agency (EPA). Despite the Safe Drinking Water Act of 1974 many prenatal infants face the risk of limb deficiencies (Blaisdell). As a result it is clear once unhealthy levels of nitrate enter the groundwater, it is too late. Thus, preventative measures must be taken to stop groundwater pollution at the source.

Eliminating excess nitrates is costly and inefficient after the initial introduction and subsequent infiltration of chemical fertilizer after it reaches surface water. According to the National Resources Defense Council, "once polluted, an aquifer may be unusable for decades, or even thousands of years" (NRDC). Yet according to EPA estimates, "our nation's aging and easily overwhelmed sewage treatment systems also release more than 850 billion gallons of untreated wastewater each year" (Denchak). Thus it is crucial for regulations to be strengthened to stop the heavy pollution of groundwater before it can enter the stream of water systems. One current regulation in place is the Clean Water Act, originally established in 1972 to oversee and reduce the pollution in major bodies of water. The act establishes standards to regulate the amount of pollution flowing into surface water by making it illegal for certain parties to discharge pollutants directly into water streams ("Federal Water Pollution"). Although the law has been beneficial in reducing pollution from point-source industrial manufacturers, it does not specify limitations on the amount of nitrate pollution in surface runoff. As a result, significant amounts of pollution due to fertilizer still flows unrestricted into groundwater. Subsequently, the contamination is spread to small rivers, streams, and larger bodies of water. Regulation must be advanced to ensure the

individual's pollution of nitrate fertilizer is limited and more regulated in the location of discharge in order to make groundwater safe.

Alternative methods of fertilizer are also needed to decrease nitrate pollution by shifting away from chemicals. As stated by the United Nations, "policies to change farmer behaviour and incentivize the adoption of good practices are key to preventing pollution at the source" ("Water Pollution from Agriculture"). Changing agricultural practices and using alternative methods to traditional fertilizer, such as controlled-release formulations, would significantly decrease the amount of nitrates entering the groundwater (Carbeck). Controlled-release systems lessen the need for farmers to use large quantities of chemical fertilizer and it limits the excess from flowing into surface water. Another sustainable option is using "set-asides;" the transferring of developed farming land into more sustainable and natural applications. This kind of sustainable farming limits the need for mass use of chemical fertilizers ("Water Pollution from Agriculture"). Individual acts are also important. Small, personal changes can assist in protecting groundwater, such as composting and utilizing grass clippings rather than chemical fertilizers (Kanuckel). Lush lawns can also still be achieved by growing plants native to the garden's location.

The use of nitrate chemical fertilizer detrimentally affects the health of groundwater and spreads to hurt both people and wildlife. However, the devastation can be decreased with more stringent regulations and the promotion of alternative agricultural methods. Moving away from the use of chemical fertilizer will take time and effort, but it's absolutely essential in order to conserve the health of groundwater. Small changes within our communities will add up to make a big difference -- which is exactly what is needed to protect our groundwater and the organisms which rely on it.

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Item 4

Board Discussions and Possible Actions

- c. Discussion and possible action on future Board meeting dates and format of the meetings.**

Item 4

Board Discussions and Possible Actions

d. Discussion and possible action on pending and potential litigation against Kinder Morgan including but not limited to *City of Austin et. al. v. Kinder Morgan, Texas Pipeline*, Cause No. 1:20-CV-00138 U.S. District Court, Western District, Austin Division; TESPAs Notice of Intent to sue Kinder Morgan under various Federal Laws; and, Texas Railroad Commission Notice of Violation.

Item 5

Director's Reports

Directors' Reports.

Directors may report on their involvement in activities and dialogue that are of likely interest to the Board, in one or more of the following topical areas:

- **Meetings and conferences attended or that will be attended;**
- **Committee formation and updates;**
- **Conversations with public officials, permittees, stakeholders, and other constituents;**
- **Commendations; and**
- **Issues or problems of concern.**

Item 6

Adjournment