



Travis County Commissioners Court Agenda Request

Meeting Date: March 26, 2019

AGENDA LANGUAGE: Receive an update on the status of public outreach efforts by the Barton Springs Edwards Aquifer Conservation District under a groundwater study with Travis County.

Prepared By: Vicky Kennedy, Hydrogeologist **Phone #:** (512) 854-4208

Department Head: Cynthia C. McDonald, County Executive TNR

Sponsoring Court Member: Commissioner Jeff Travillion, Precinct One
Commissioner Brigid Shea, Precinct Two

Press Inquiries: Hector Nieto, PIO@traviscountytexas.gov or (512) 854-8740

BACKGROUND/SUMMARY OF REQUEST:

On July 3, 2018, an interlocal agreement was approved by the Court between the Barton Springs Edwards Aquifer Conservation District (BSEACD) and Travis County for a Southwestern Travis County Hydrogeology Project. The project consists of a groundwater investigations and data collection study that is focused on the Trinity Aquifer in the Hill Country Priority Groundwater Management Area. The study is still in progress and will be completed in the fall of 2019. This update is to give the BSEACD an opportunity to discuss their successful public outreach efforts of contacting local well owners to educate them about their wells and provide water level testing.

STAFF RECOMMENDATIONS:

This presentation will update the Court on the progress of community outreach efforts and water level testing under the Southwestern Travis County Hydrogeology Project.

ISSUES AND OPPORTUNITIES:

Travis County and the BSEACD have a history of collaboration in understanding the groundwater resources that will provide knowledge and tools to help manage a shared resource. These studies will provide increased understanding of the region's groundwater resources, its limitations, and provide educational tools to both the citizens of Travis County and to the scientific community.

FISCAL IMPACT AND SOURCE OF FUNDING:

N/A

ATTACHMENTS/EXHIBITS:

BSEACD Presentation.

REQUIRED AUTHORIZATIONS:

Cynthia C McDonald	County Executive	TNR	(512) 854-7682
Isabelle Lopez	Financial Manager	TNR	(512) 854-7675
Anna Bowlin	DS & LRP Division Director	TNR	(512) 854-7561

CC:

Bob Moore	Executive Assistant, Precinct 3	TNR	(512) 854-9387
Teresa Calkins	Engineer, Sr.	TNR	(512) 854-7565

VLK:CCM:ifs

Update on Travis County Groundwater Study

www.bseacd.org/TravisCo



ROBIN GARY

BARTON SPRINGS/EDWARDS AQUIFER CONSERVATION DISTRICT

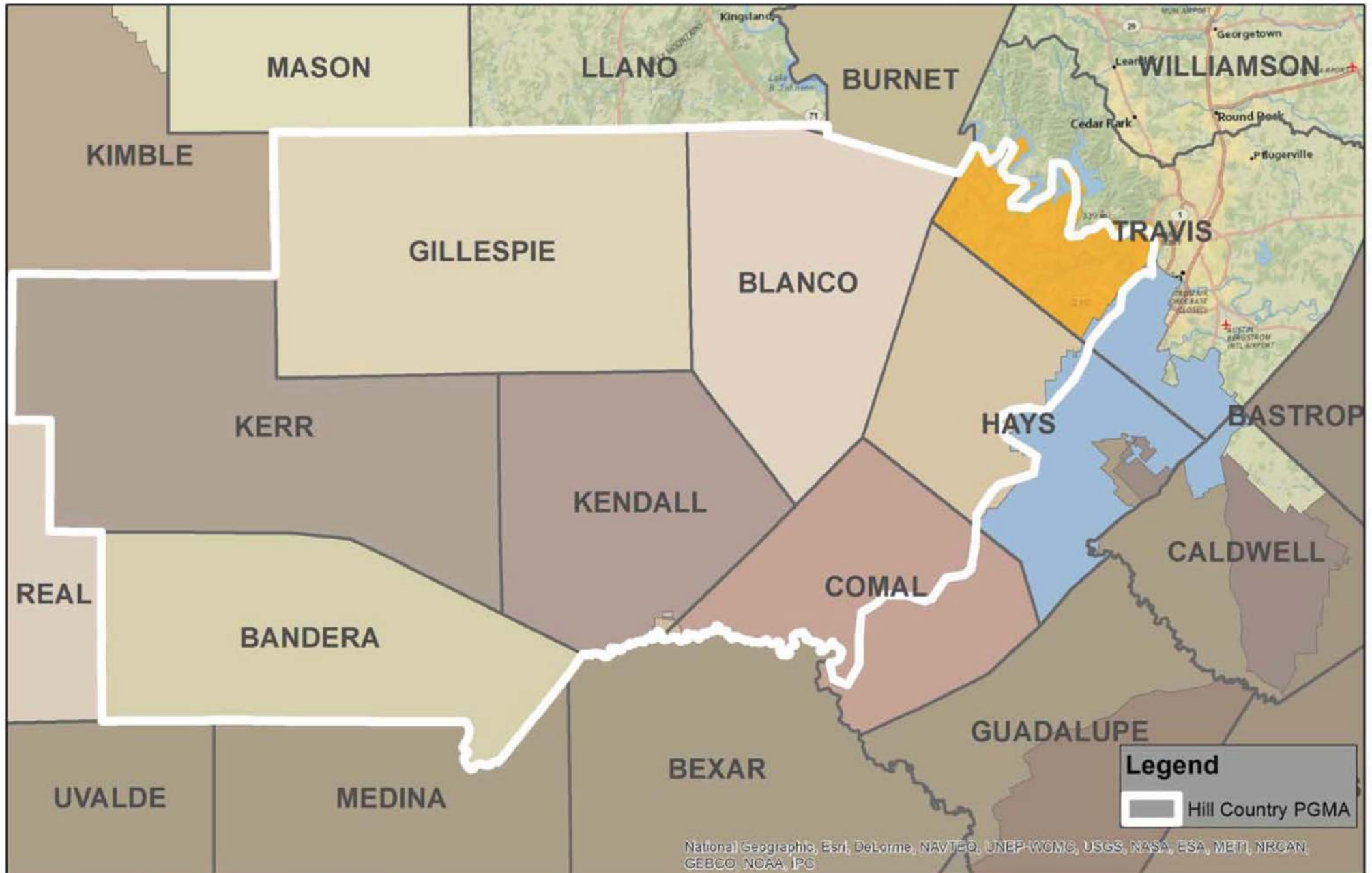
Interlocal Agreement

Travis County

Barton Springs
Edwards Aquifer
Conservation District

2018-2019 collaboration
for a groundwater study
of the SW Travis Co. portion
of the Hill Country PGMA

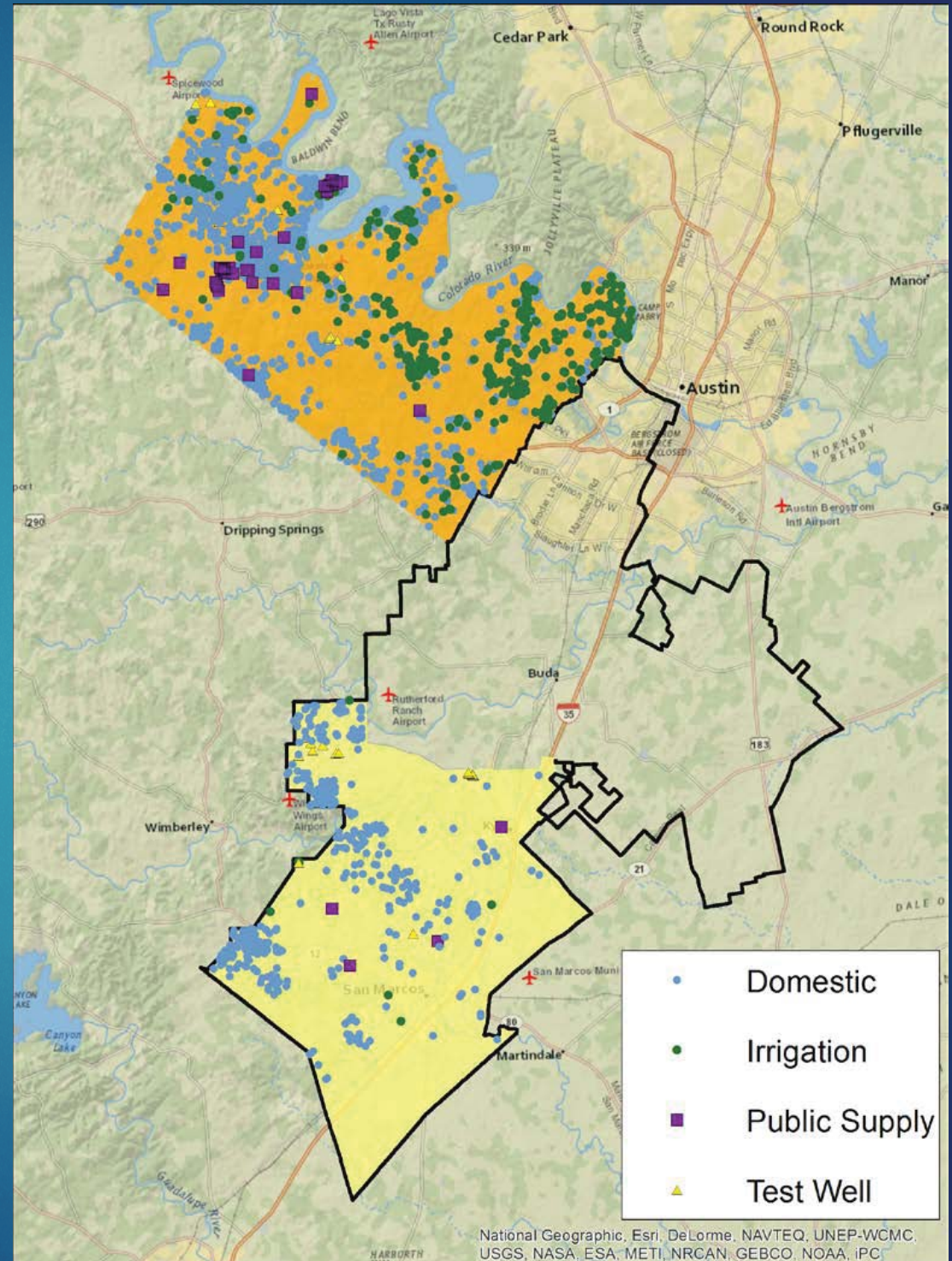
Hill Country Priority Groundwater Management Area, Groundwater Conservation Districts and GW Study Area



Lots of known wells

(recorded in Submitted Well Drillers database since 2003)

	BSEACD Shared	SW TC PGMA
Domestic	412	1456
Irrigation	9	461
PWS	4	39
Test	28	39
total	453	1995



The challenge:

How to meet well owners to:

- ▶ Measure water levels and water quality
- ▶ Better understand aquifer dynamics
- ▶ Document geologic controls
- ▶ Establish a monitoring network to track water level fluctuations over time

Avoid



Avoid



GOAL!



The solution:

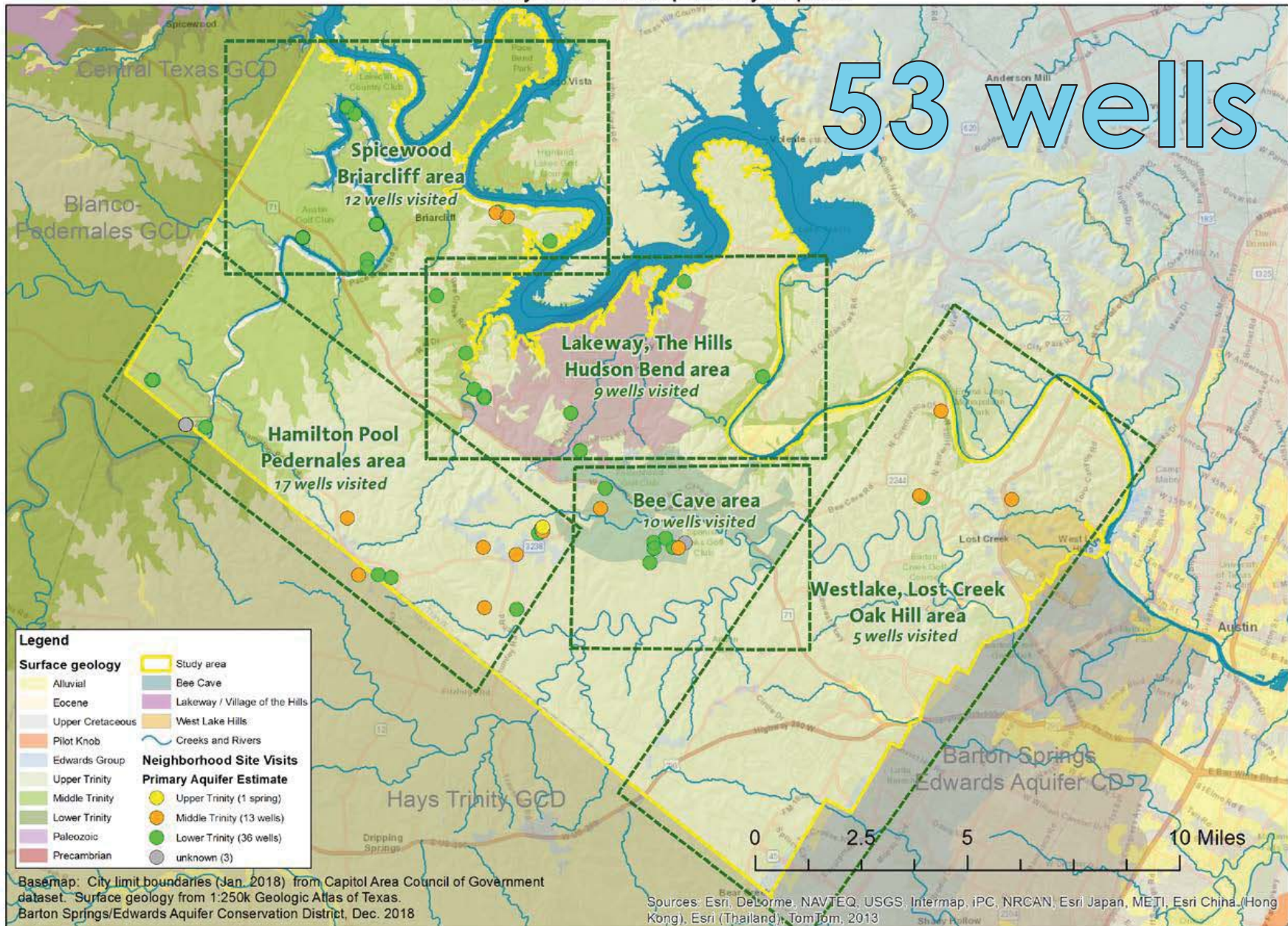
Neighborhood Site Visits

Provide a free service & make it relevant to the well owner.



Travis Co. Site Visits (Oct-Nov)

Travis County Groundwater Study - Neighborhood Site Visit Summary
Wells by estimated primary aquifer



Water level measurements (depth to water)



Electric tape (E-line)



Sonic meter

Water Quality (field parameters)

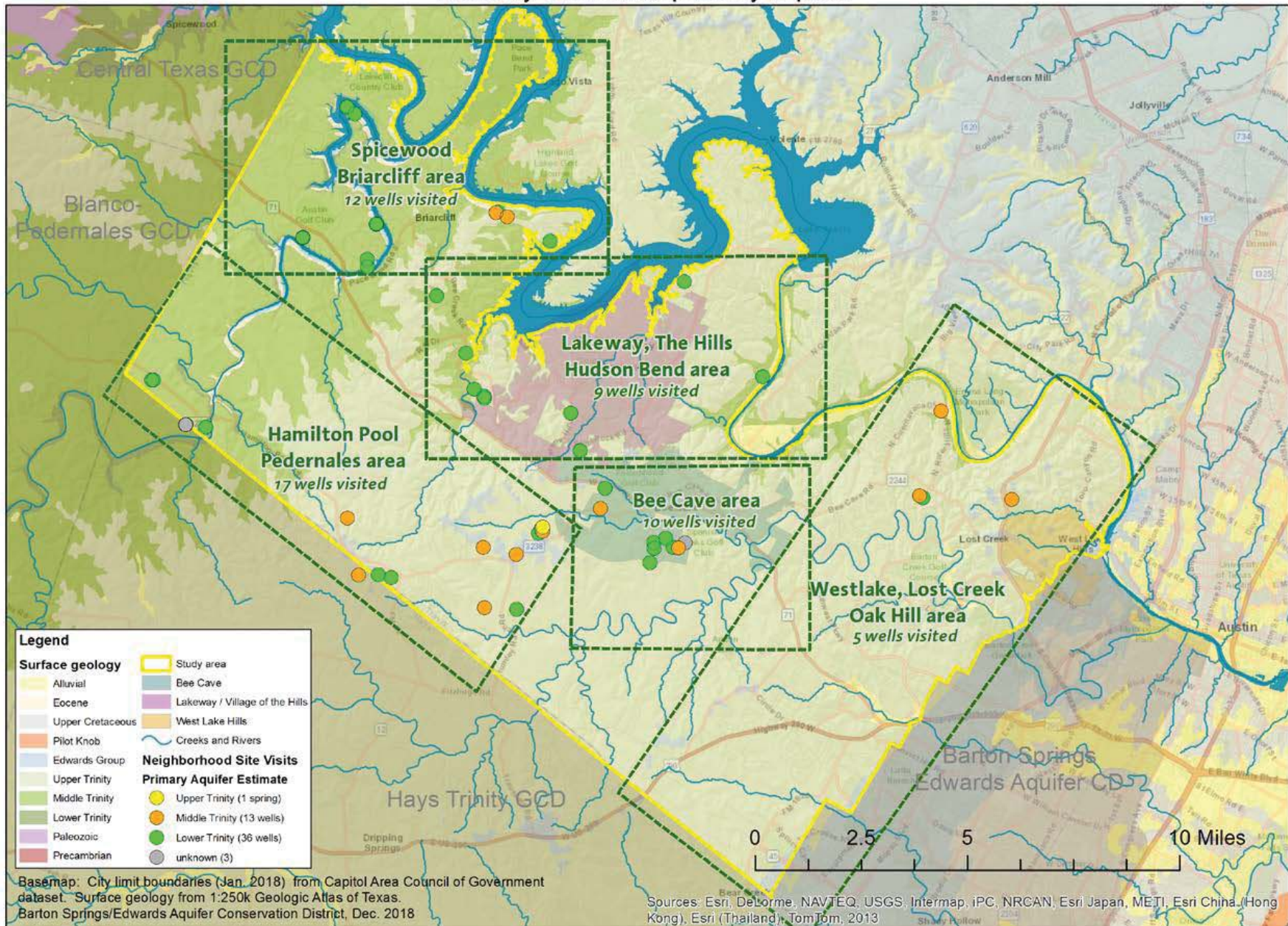


- ▶ Conductivity
- ▶ Total Dissolved Solids
- ▶ Nitrate/Nitrite
- ▶ Estimated Primary Aquifer



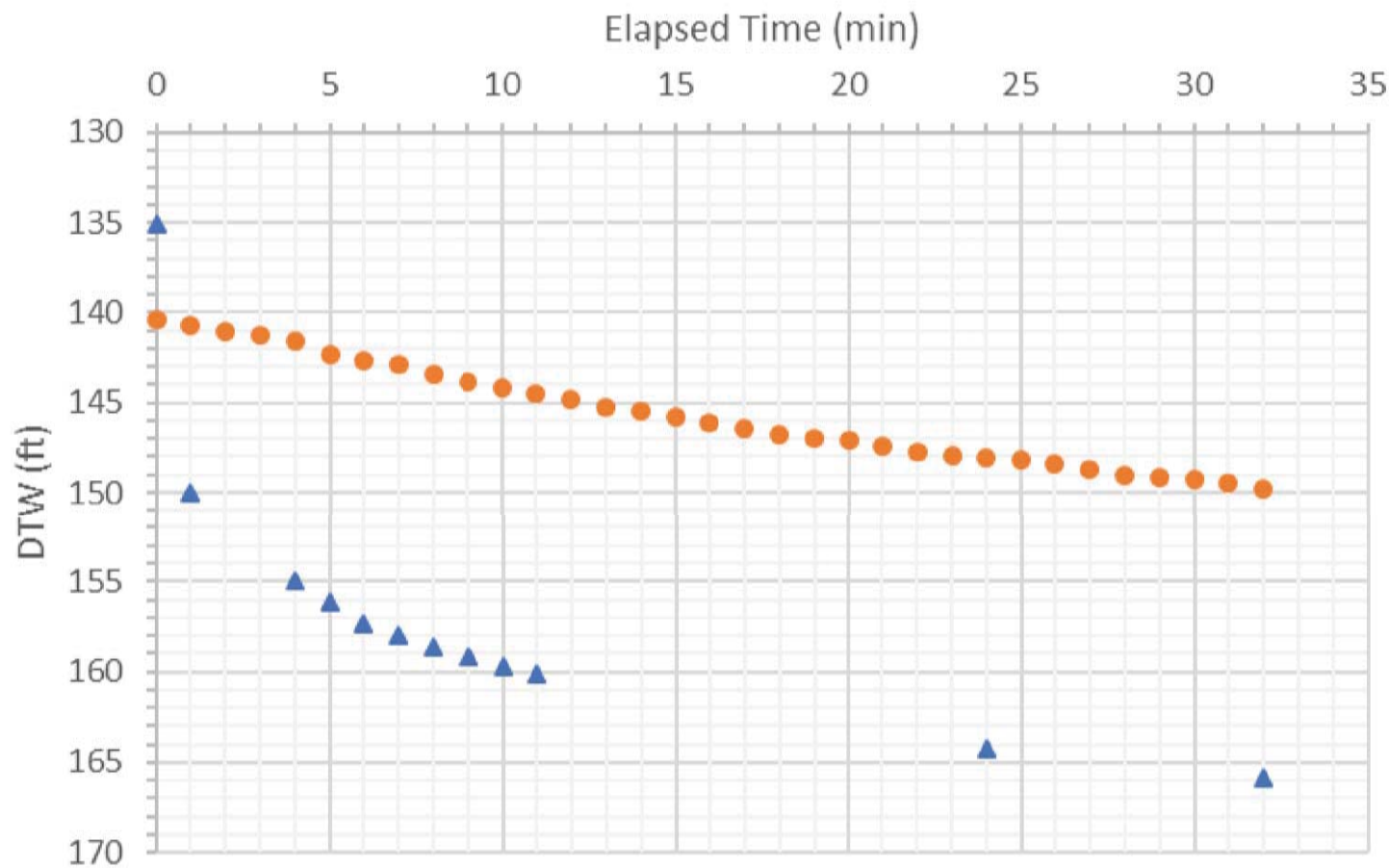
Estimated Primary Aquifers

Travis County Groundwater Study - Neighborhood Site Visit Summary
Wells by estimated primary aquifer



Drawdown – aquifer permeability

Fowler Wells - Mini Aquifer Test



- ▲ Active well
- Inactive well



Well owner discussions

- ▶ Yield, availability
- ▶ Sediment
- ▶ Iron
- ▶ Bacteria
- ▶ TDS

2018 Neighborhood Site Visit Summary

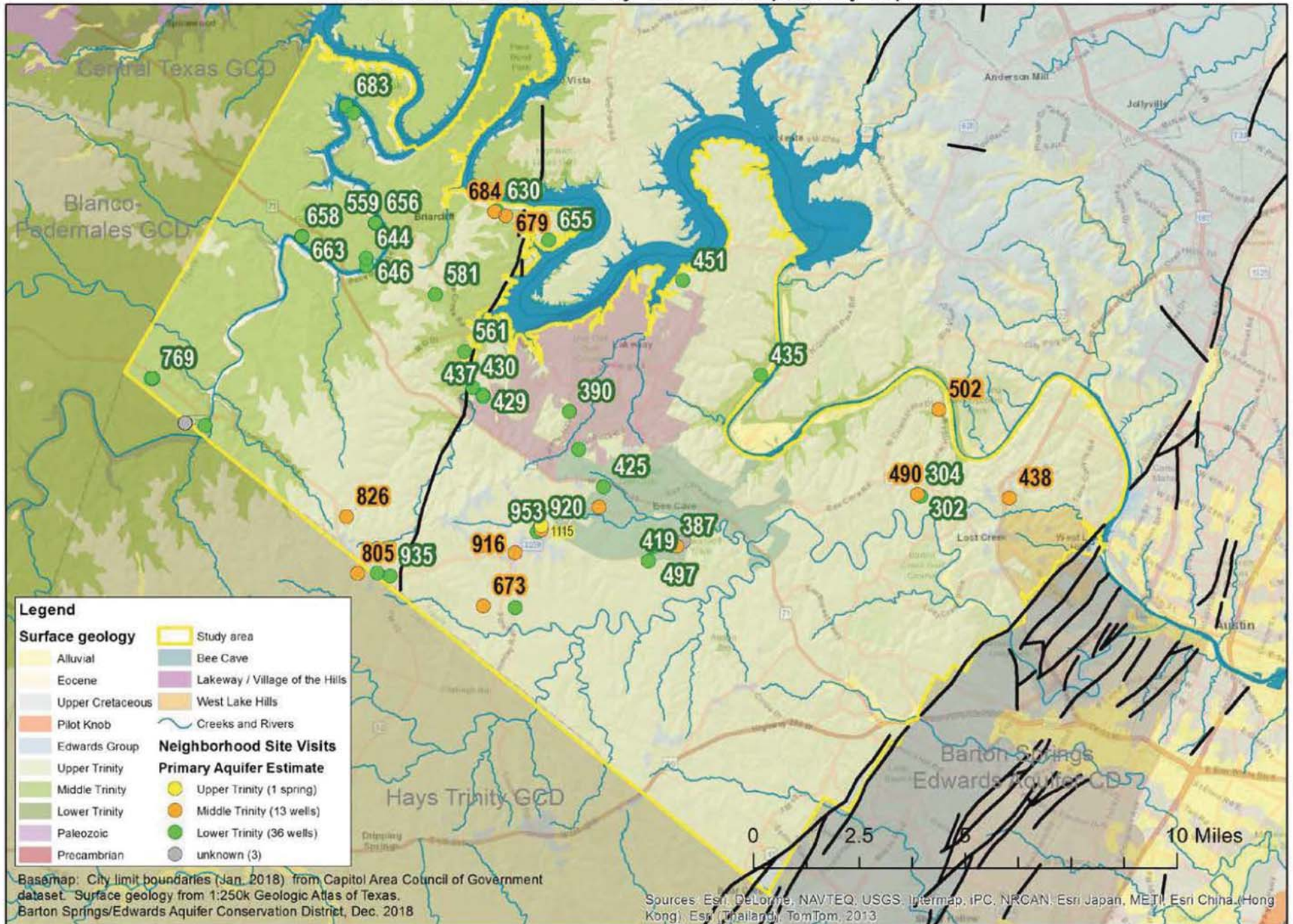
Area	Estimated primary aquifer (Number of measured wells*)	Total Well depth (feet)	Water level range (Depth to water, feet)	Conductivity range (microSiemens/cm)	Estimated Total Dissolved Solids range (TDS, ppm)
Hamilton Pool, Pedernales	Middle Trinity Aquifer wells (6)	Generally shallower than 550'	41' – 464'	1,010 – 2,910	645 – 1,860
Hamilton Pool, Pedernales	Lower Trinity Aquifer wells (8)	Generally deeper than 550'	164' – 323'	751 – 3,720	480 – 2,380
Spicewood, Briarcliff	Middle Trinity Aquifer wells (2)	Generally shallower than 300'	174' – 232'	609 - 913	390 - 584
Spicewood, Briarcliff	Lower Trinity Aquifer wells (10)	Generally deeper than 300'	36' – 247'	645 – 3,280	419 – 2,100
Lakeway, The Hills, Hudson Bend	Lower Trinity Aquifer wells (9)	Generally deeper than 400'	111' – 643'	1,470 – 3,200	938 – 2,050
Bee Cave	Lower Trinity Aquifer wells (6)	Generally deeper than 750'	602' – 708'	1,490 – 1,620	962 – 1,040
Westlake, Lost Creek, Oak Hill	Middle Trinity Aquifer wells (3)	Highly variable	24' – 451'	1,330 – 2,070	851 – 1,320
Westlake, Lost Creek, Oak Hill	Lower Trinity Aquifer wells (2)	Generally deeper than 750'	521' – 548'	1,480 – 1,610	948 – 1,030

*Wells with available well construction records



Travis County Groundwater Study - Neighborhood Site Visit Summary

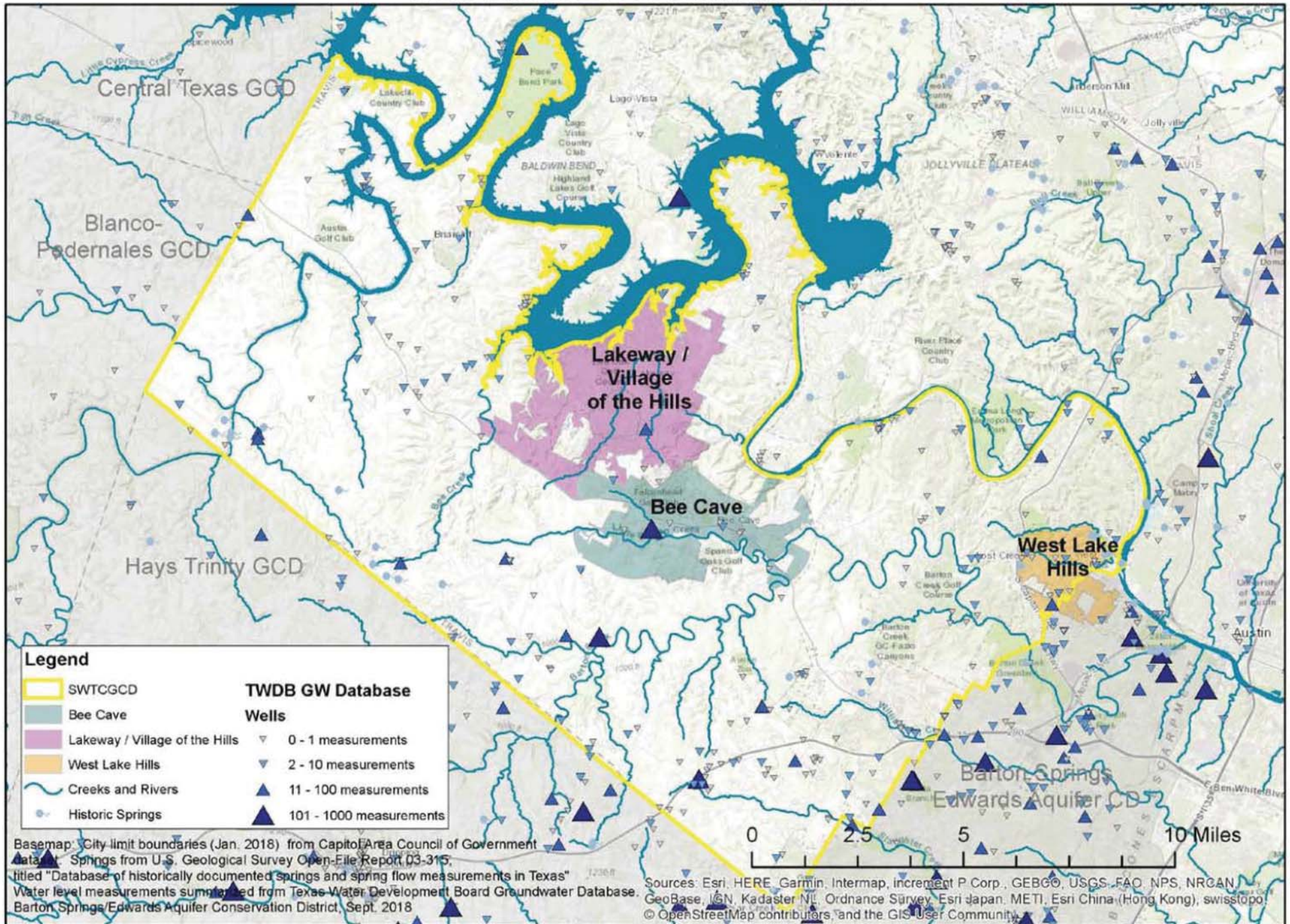
Water level elevations by estimated primary aquifer



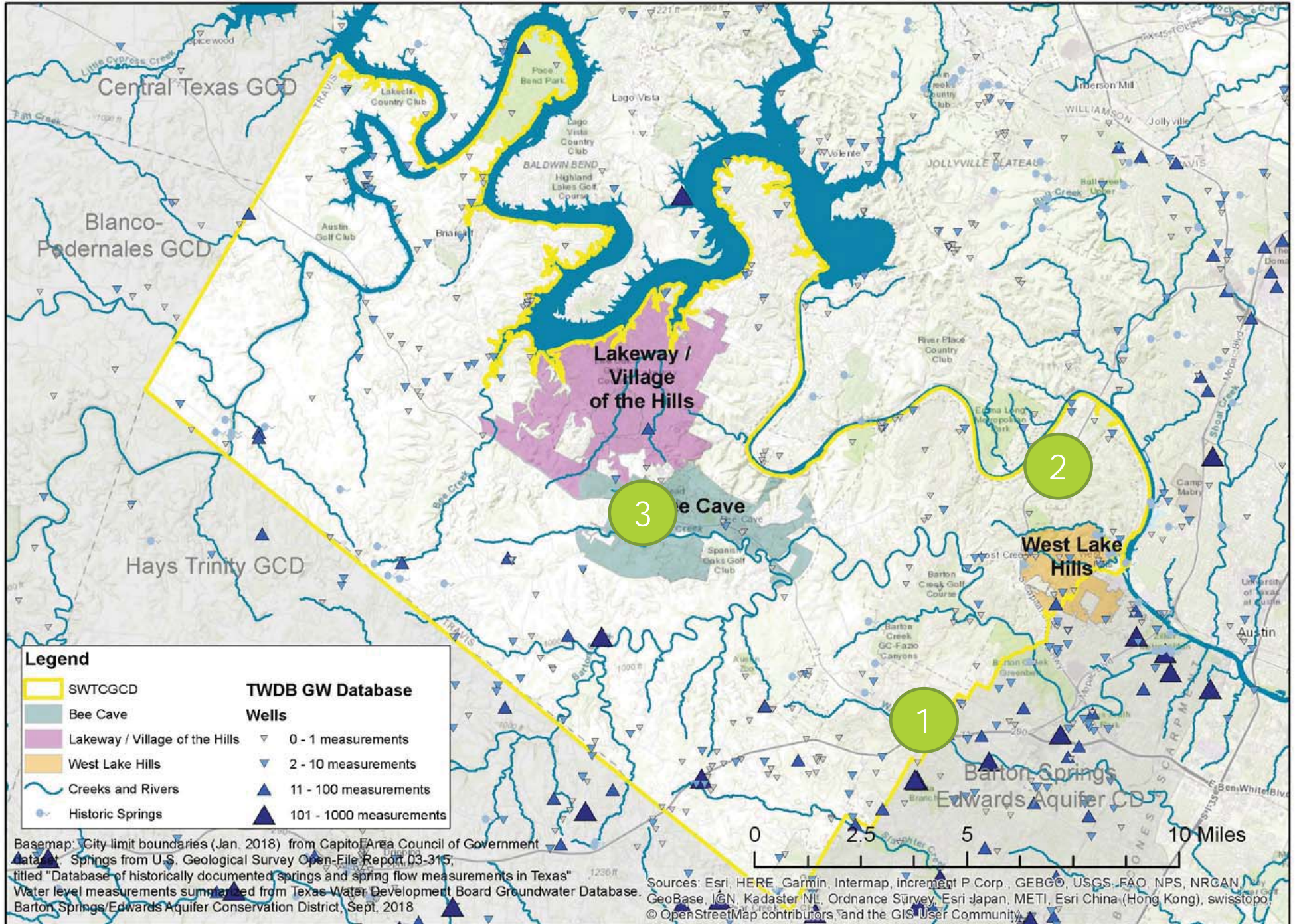
Next steps

- ▶ Potentiometric surface maps (water level elevations by aquifer)
- ▶ Water levels – existing TWDB monitor sites
- ▶ Detailed chemistry
- ▶ Downhole video
- ▶ Geophysical logs

Texas Water Development Board Groundwater Database Wells with Water Level Measurements

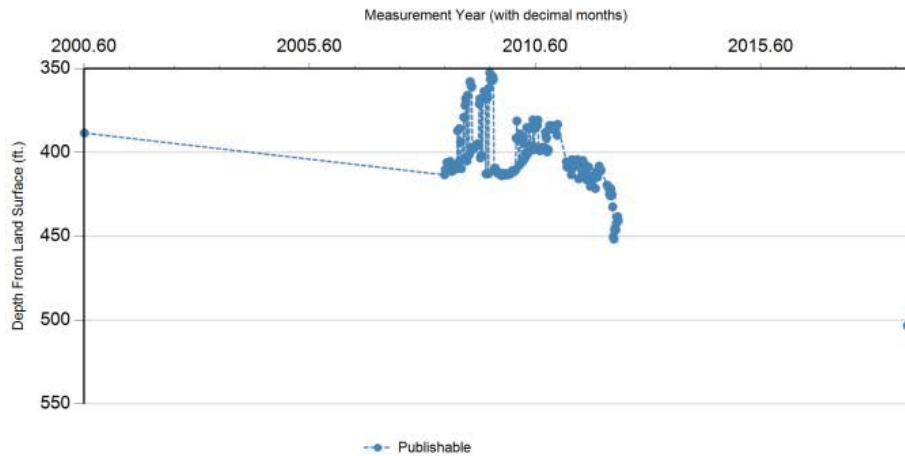


Texas Water Development Board Groundwater Database Wells with Water Level Measurements



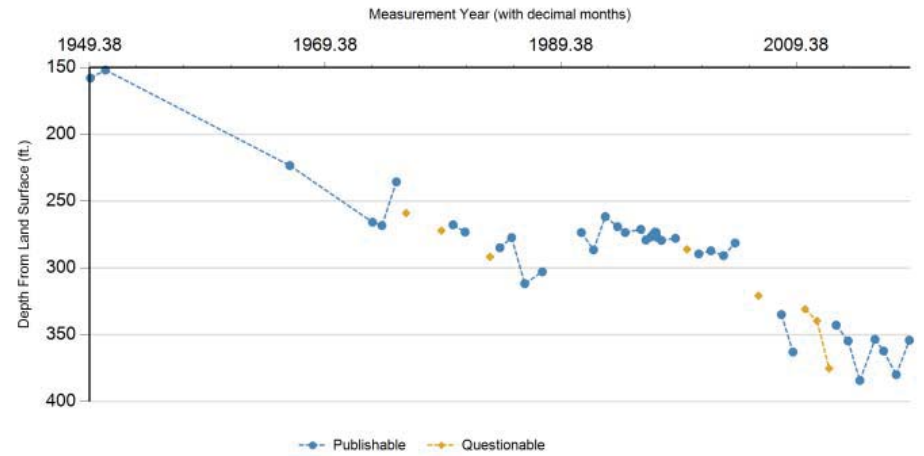
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Water Level Measurements



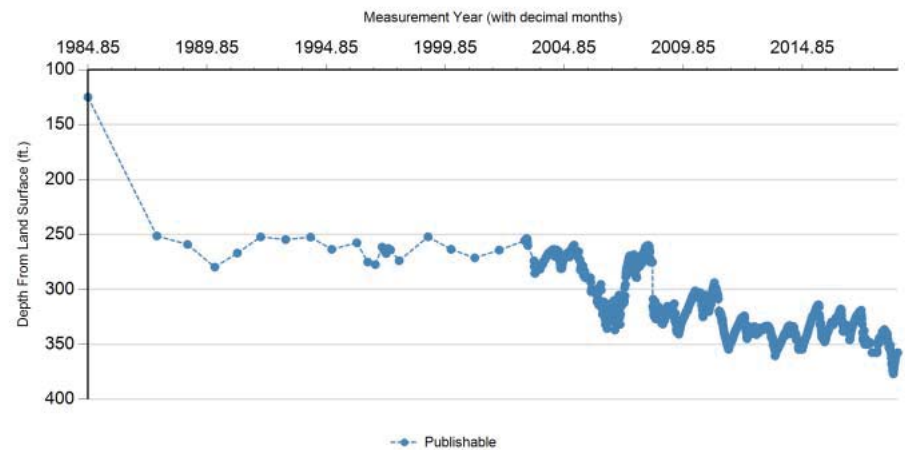
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Water Level Measurements

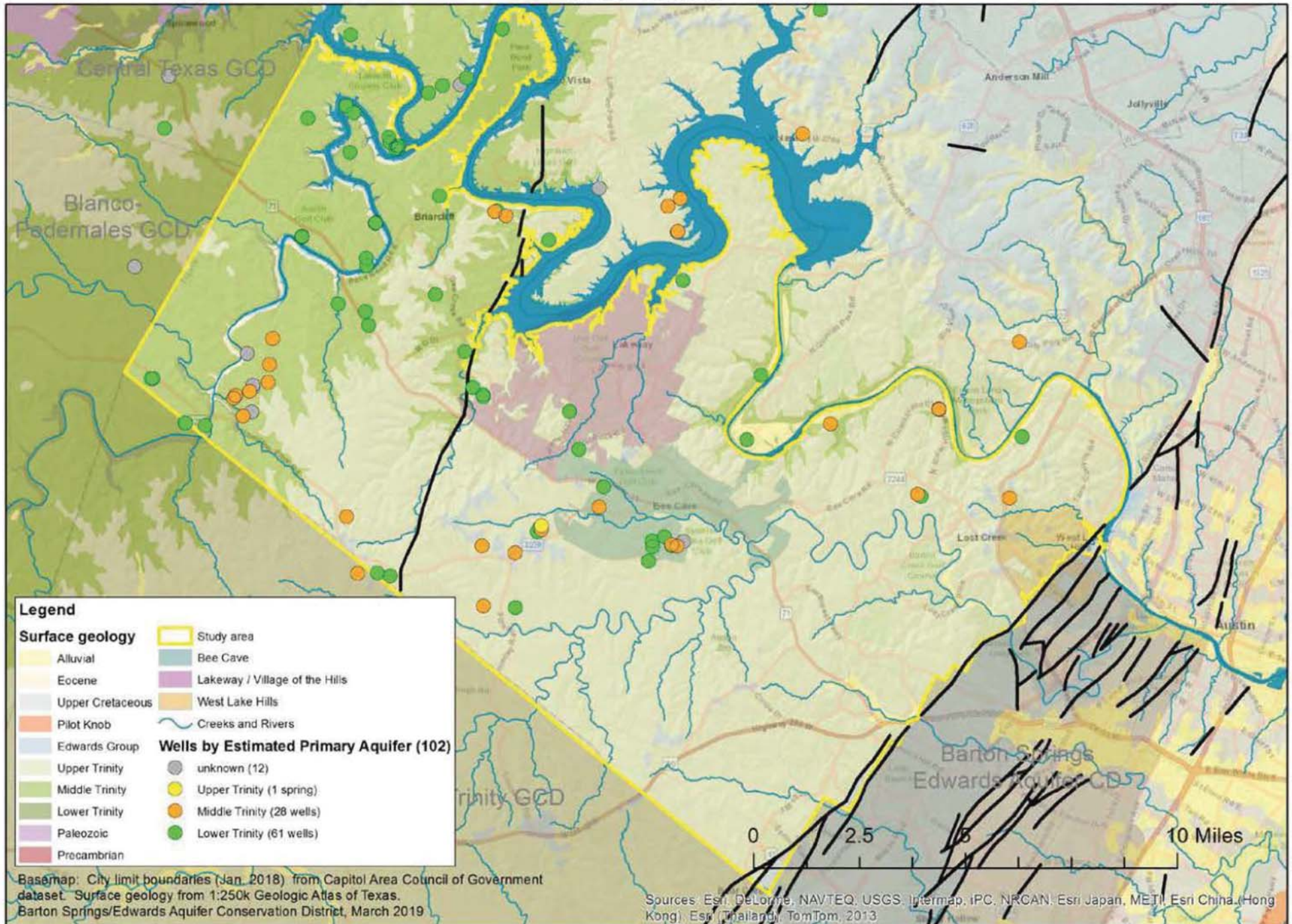


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Water Level Measurements



Travis County Groundwater Study Sites Visited

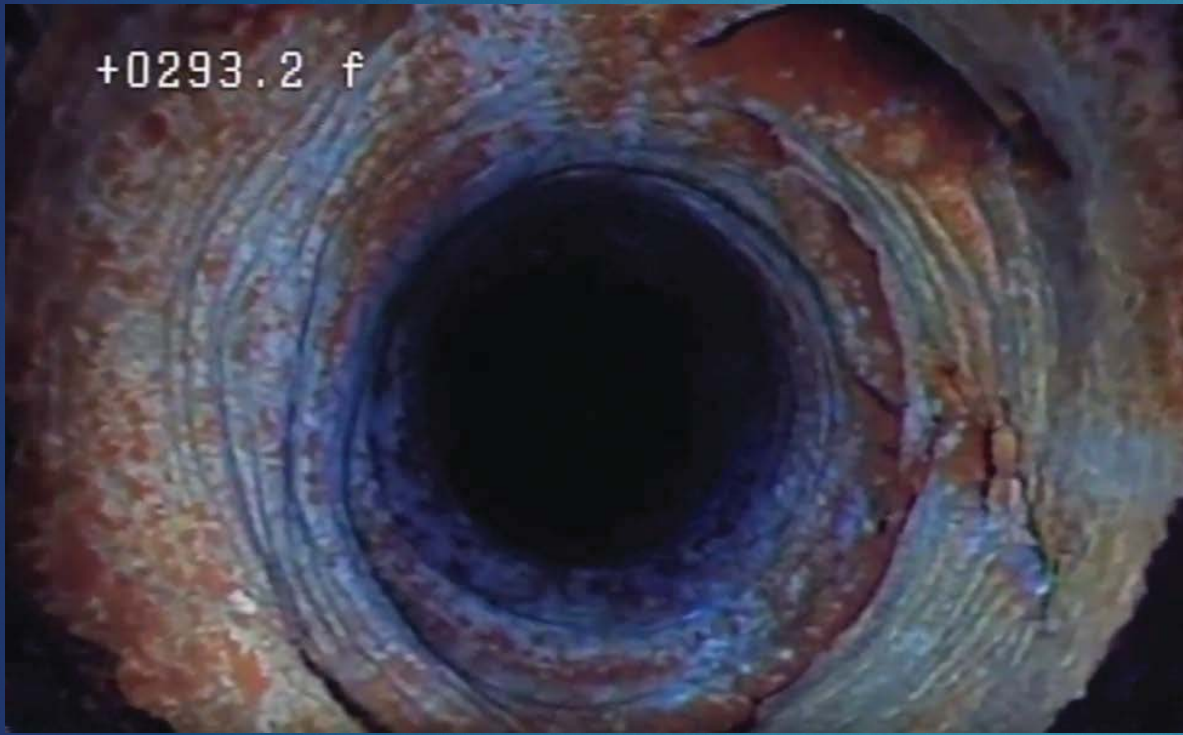


Detailed chemistry

- ▶ Texas Water Development Board supports detailed chemistry sampling



Downhole video

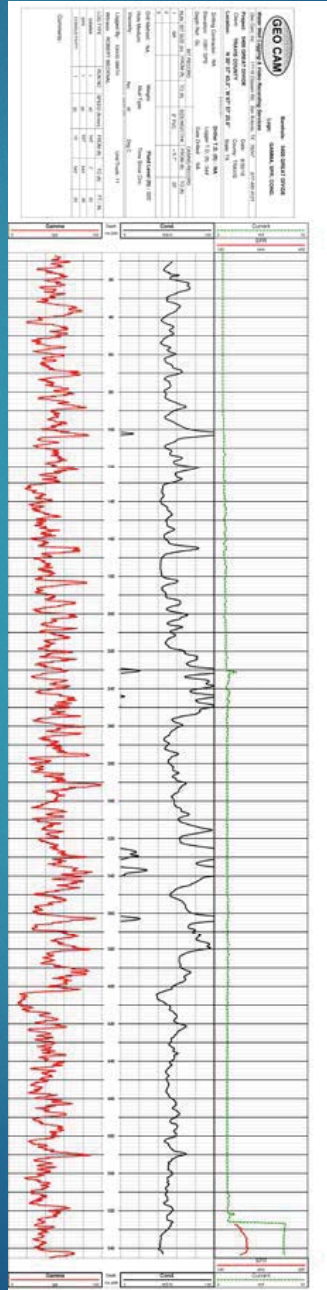


Drillers Reports / Geophysical logs

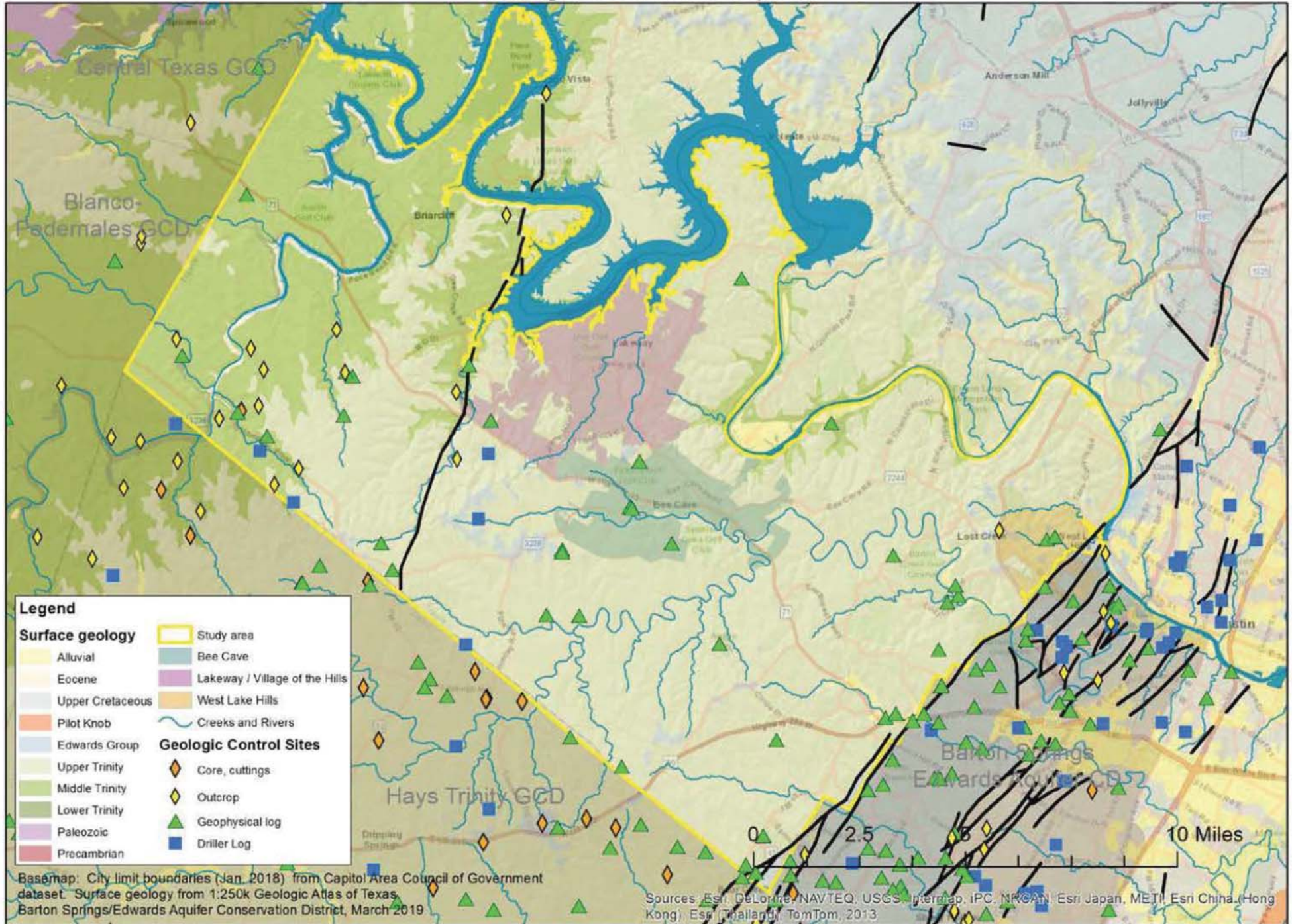
06M, B01UM
 SWN: 57-48-706 (SNR #394844)
 ELEVATION: 918'
 TD: 650'
 DTM: 4848' (SNR) - 11/7/2018
 MP: 14" (1.17')

DEPTH (ft)	G10V (ft)	DRILLERS REPORT DESCRIPTIONS
0	918	YLV LIME
		TRN LIME
		BLUE LIME + SILEX
185	733	GRAY LIME
		BRN LIME
345	573	SANDY LIME
350	538	WT LIME
		ROCK (50')
430	488	BLUE LIME + SHALE
470	448	RED, BLUE SHALE
455.65	429.37	RED SS
		WT LIME
		RED SS, SAND
		RED CLAY
		RED SS
575	343	GRAY LIME
		CON. SAND L
605	313	RED SS
		CON. SAND L
		RED SHALE
		CON. SAND + SAND
650	238	YLV SHALE

SURFACE GEOLOGY, Kgr1/Kgr2-SURFACE INFERRED FROM COLLINS, 2017
 GEOLGIC MAP OF THE SHINIG Mts - ... - HAMMETS CASSIN AREA, COGATOR TEXAS
 + UNIT THICKNESSES, ELEVATIONS INFERRED FROM DRILLER'S DESCRIPTIONS, AND FROM
 GEOPHYSICAL LOG FROM NEARBY DEE CREEK STUDIES WELL (57-48-3 BCS)
 NOTE: FAULT(S) TO WEST (SEE COLLINS, 2017 GEOLGIC MAP)



Travis County Groundwater Study Geologic Controls Compiled



The successes

- ▶ **Education** – well owners were curious about their well, interested in knowing more about groundwater and water level trends, and sought advice for issues
- ▶ **Relationships** – contacts with well owners, lots of invitations to visit again
- ▶ **Public Relations** – transparency about what a GCD does
- ▶ **Data** – synoptic water level survey, water quality data, geologic info

Many thanks to...

- ▶ Travis County Commissioners
- ▶ Travis County Hydrogeologist, Vicky Kennedy
- ▶ BSEACD staff: Brian Hunt, Robin Gary, Justin Camp, Lane Cockrell
- ▶ Southwest Travis County GCD Directors

- ▶ ALL THE WELL OWNERS who participated

Good science is built on good well owner relationships.

Good policy is informed by good science.