



## Post Oak Savannah Groundwater Conservation District

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**Gary Westbrook, General Manager**

April 22, 2021

To: Groundwater Conservation Districts located in Groundwater Management Area 12

**Re: Proposed Desired Future Conditions (DFCs)**

The purpose of this packet is to fulfill requirements as set forth in Section 36.108, Texas Water Code (TWC), which requires proposed DFCs to be adopted not later than May 1, 2021, and then published for public hearings by each Groundwater Conservation District (GCD) in Groundwater Management Area 12 (GMA 12). Please refer to Section 36.108, TWC, for specific requirements of this section.

Tables 1, 2, and 3 list the DFCs proposed by GMA 12 during a GMA 12 meeting held on March 18, 2021, which had been properly noticed and posted as a public meeting. Please see attached signed minutes from that meeting.

Table 1. GMA 12 DFCs proposed for the Sparta, Queen City, Carrizo, Calvert Bluff, Simsboro, and Hooper aquifers.<sup>1</sup> Districts may adopt Proposed DFCs within a range of 10% above or below the values in the aquifers listed in Table 1.

GCD	Average Drawdown (ft) for Entire Aquifer						Time Period for Average Drawdown
	Sparta	Queen City	Carrizo	Calvert Bluff	Simsboro	Hooper	
Lost Pines	22	28	137	154	311	173	1/1/2010 to 12/31/2069
Brazos Valley	50	43	84	116	261	178	1/1/2000 to 12/31/2069
Post Oak Savannah	32	31	172	179	336	214	1/1/2010 to 12/31/2069
Mid-East Texas	25	21	49	59	81	73	1/1/2010 to 12/31/2069
Fayette County	40	65	122	na	na	an	1/1/2010 to 12/31/2069

<sup>1</sup> the proposed DFCs are based on Run 12 for the Updated Groundwater Availability Model for the central portion of the Sparta, Queen City, and Carrizo-Wilcox Aquifers (INTERA and others, 2020). Fayette County GCD did not propose a DFC for the Calvert Bluff, Simsboro, or the Hooper Aquifers because the district declared these three aquifers as non-relevant aquifers.

Table 2. GMA 12 DFCs proposed for the Yegua-Jackson Aquifer.<sup>2</sup> Districts may adopt Proposed DFCs within a range of 10% above or below the values in the aquifers listed in Table 2.

<b>GCD</b>	<b>Average Drawdown (ft) for Entire Aquifer</b>	<b>Time Period for Average Drawdown</b>
Brazos Valley	61	1/1/2000 to 12/31/2069
Post Oak Savannah	100	1/1/2010 to 12/31/2069
Mid-East Texas	7	1/1/2010 to 12/31/2069
Fayette County	77	1/1/2010 to 12/31/2069

<sup>2</sup> the proposed DFCs are based on Run 2 for the Groundwater Water Availability Model for the Yegua-Jackson Aquifer (INTERA and others, 2020). Lost Pines GCD did propose a DFC for the Yegua-Jackson Aquifer because the district declared the Yegua-Jackson Aquifer as a non-relevant aquifer.

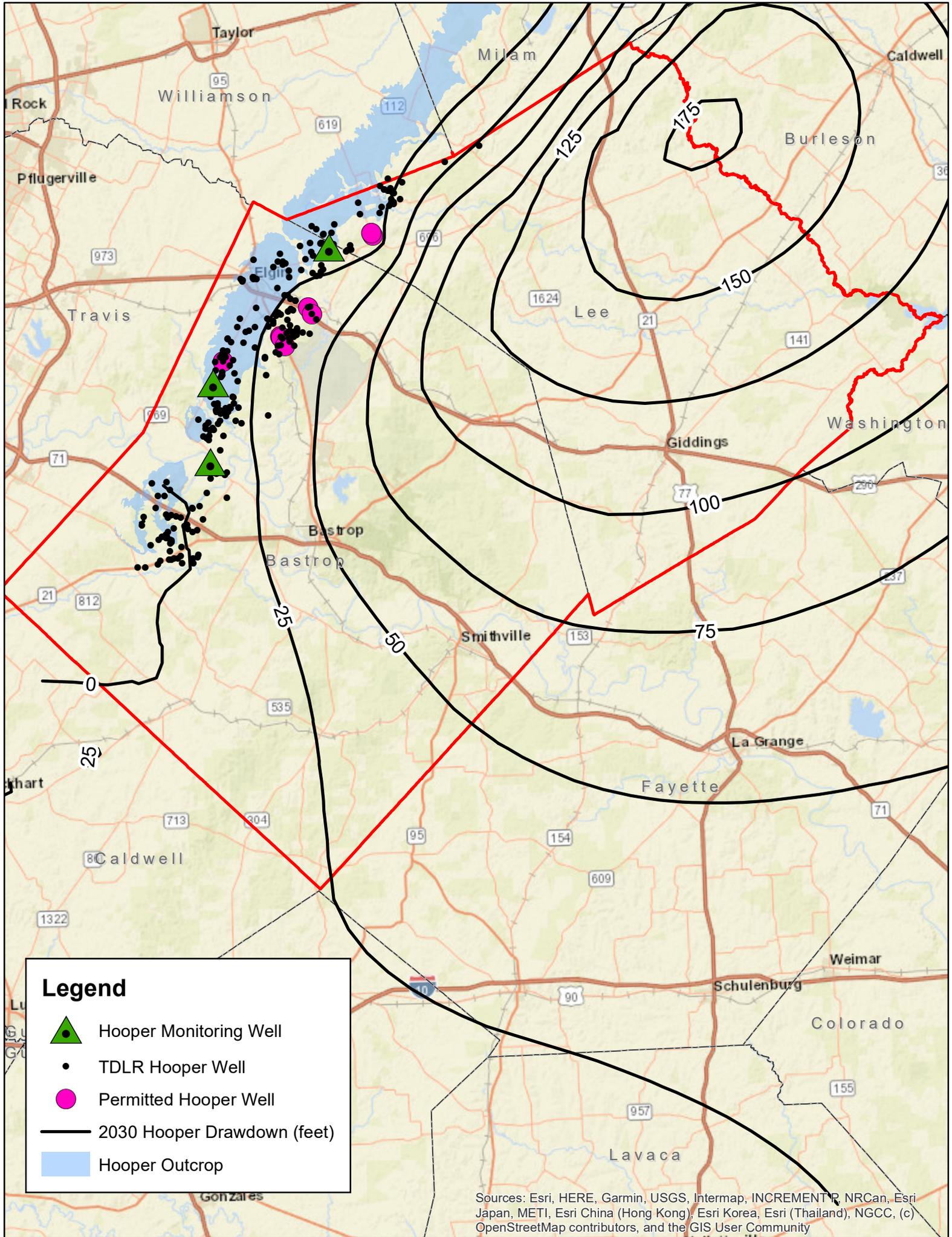
Table 3. GMA 12 DFCs proposed for the Brazos River Alluvium.<sup>3</sup>

<b>County</b>	<b>Desired Future Condition Statement</b>
Milam County	A decrease of 5 feet in the average saturated thickness over the period from January 1, 2010 to December 31, 2069. The baseline average saturated thickness for 2010 is estimated at 24.5 feet and is based on an analysis of historical water level data and well depth values
Burleson County	A decrease of 6 feet in the average saturated thickness over the period from January 1, 2010 to December 31, 2069. The baseline average saturated thickness for 2010 is estimated at 38.5 feet and is based on an analysis of historical water level data and well depth values.
Brazos and Robertson Counties	Percent saturation above well depth shall average at least 30 percent for wells located north of State Highway 21 and 40 percent for wells located south of State Highway 21. If the percent saturation criteria are reached for three consecutive years then the DFC would be reached.

<sup>3</sup>the proposed DFCs remain the same as the current DFCs. The DFCs were checked with Run 2 for the Brazos River Alluvium GAM (Ewing and Jigmond, 2016)

#### References:

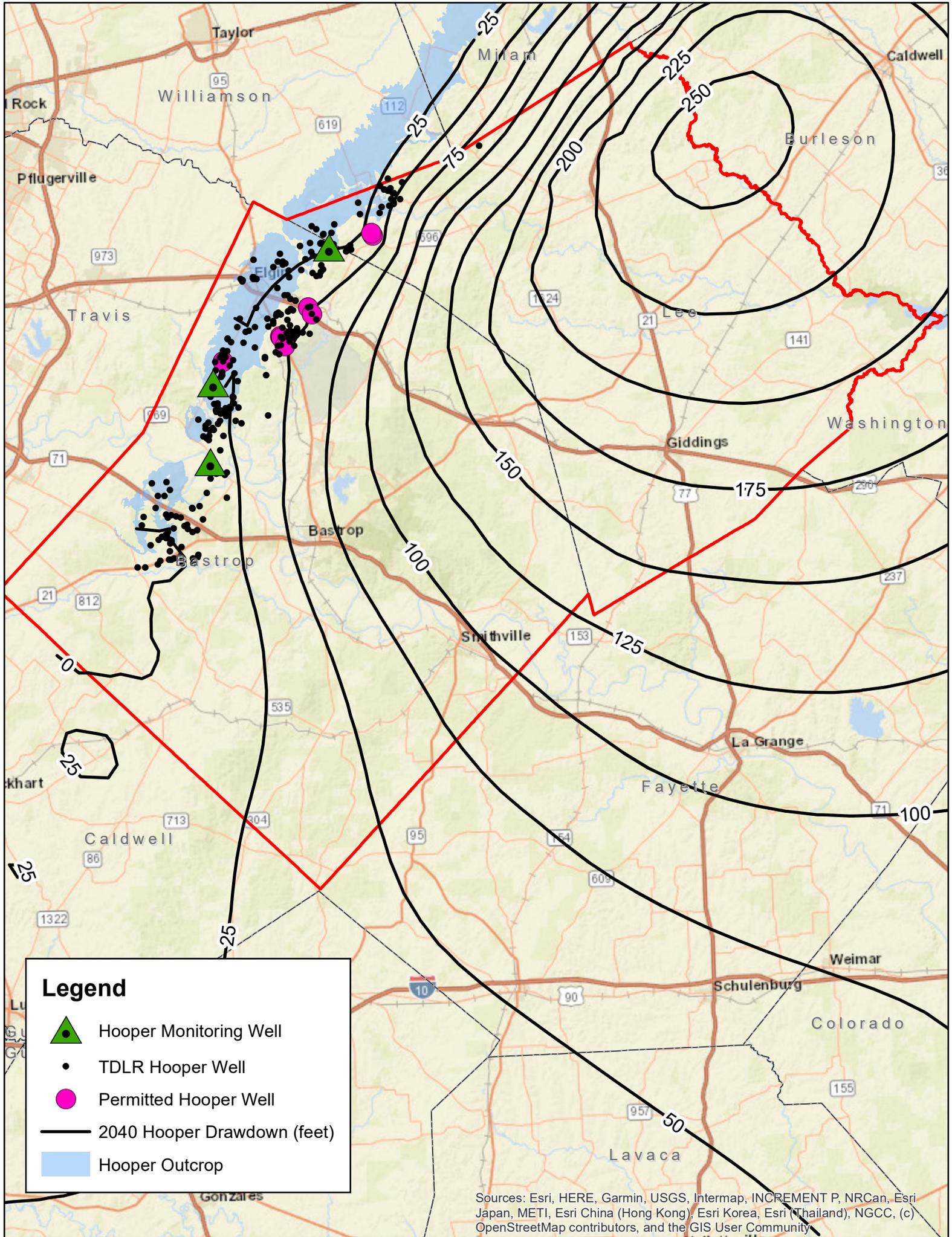
- Deeds, N.E., T. Yan, A. Singh, T.L. Jones, V.A. Kelley, P.R. Knox, and S.C. Young. 2010. Groundwater availability model for the Yegua-Jackson Aquifer: Final report prepared for the Texas Water Development Board by INTERA, Inc., 582 p.
- Ewing, J.E., and M. Jigmond. 2016. Final Numerical Model Report for the Brazos River Alluvium Aquifer Groundwater Availability Model, prepared for the Texas Water Development Board, August 2016.
- INTERA, D.B. Stephens, and Groundwater Consultants, LLC. (2020). GMA 12 Update to the Groundwater Availability Model for the Central Portion of the Sparta, Queen City, and Carrizo-Wilcox Aquifers. prepared for the Groundwater Management Area 12 Members. November, 2020.



**Legend**

- ▲ Hooper Monitoring Well
- TDLR Hooper Well
- Permitted Hooper Well
- 2030 Hooper Drawdown (feet)
- Hooper Outcrop

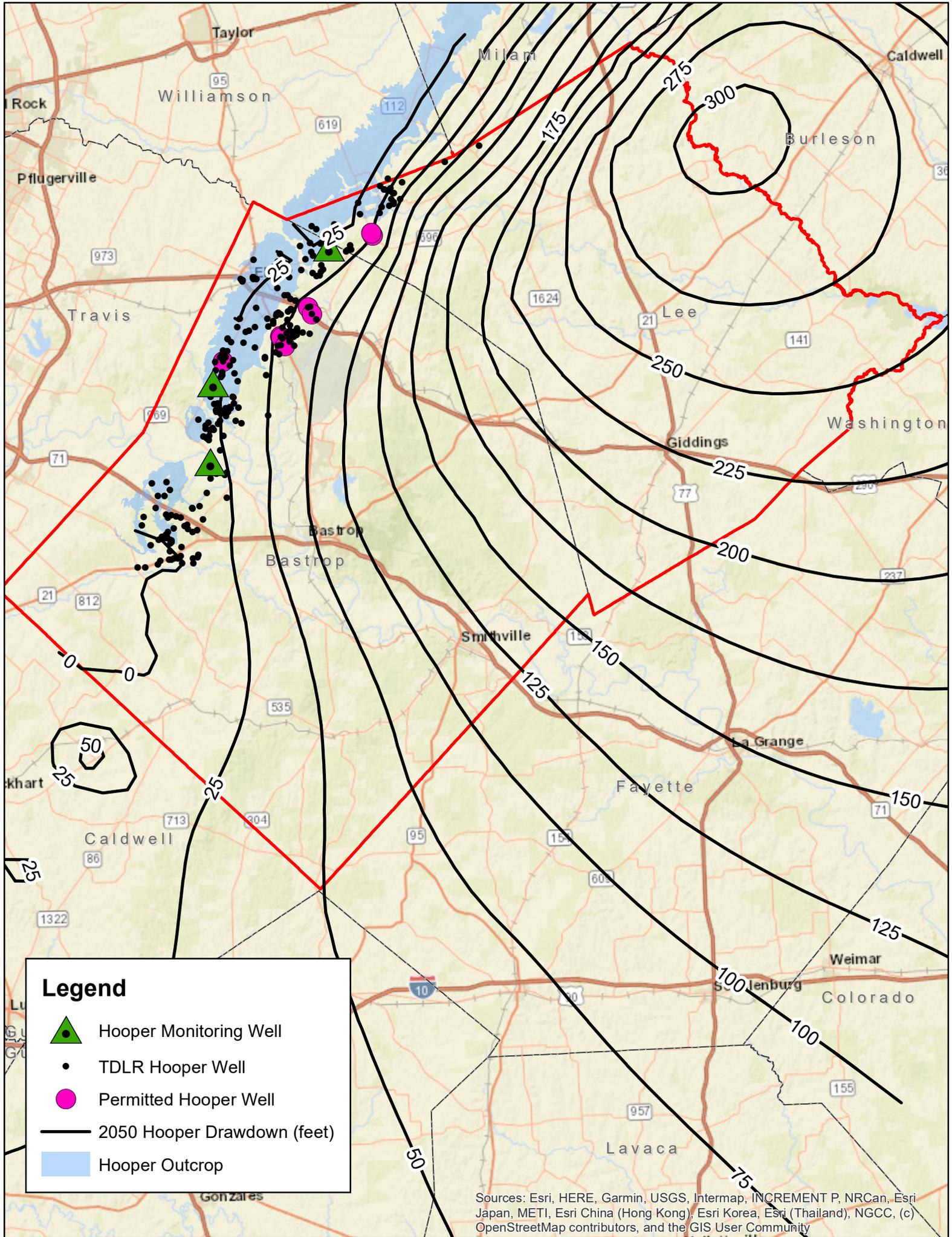
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



**Legend**

- ▲ Hooper Monitoring Well
- TDLR Hooper Well
- Permitted Hooper Well
- 2040 Hooper Drawdown (feet)
- Hooper Outcrop

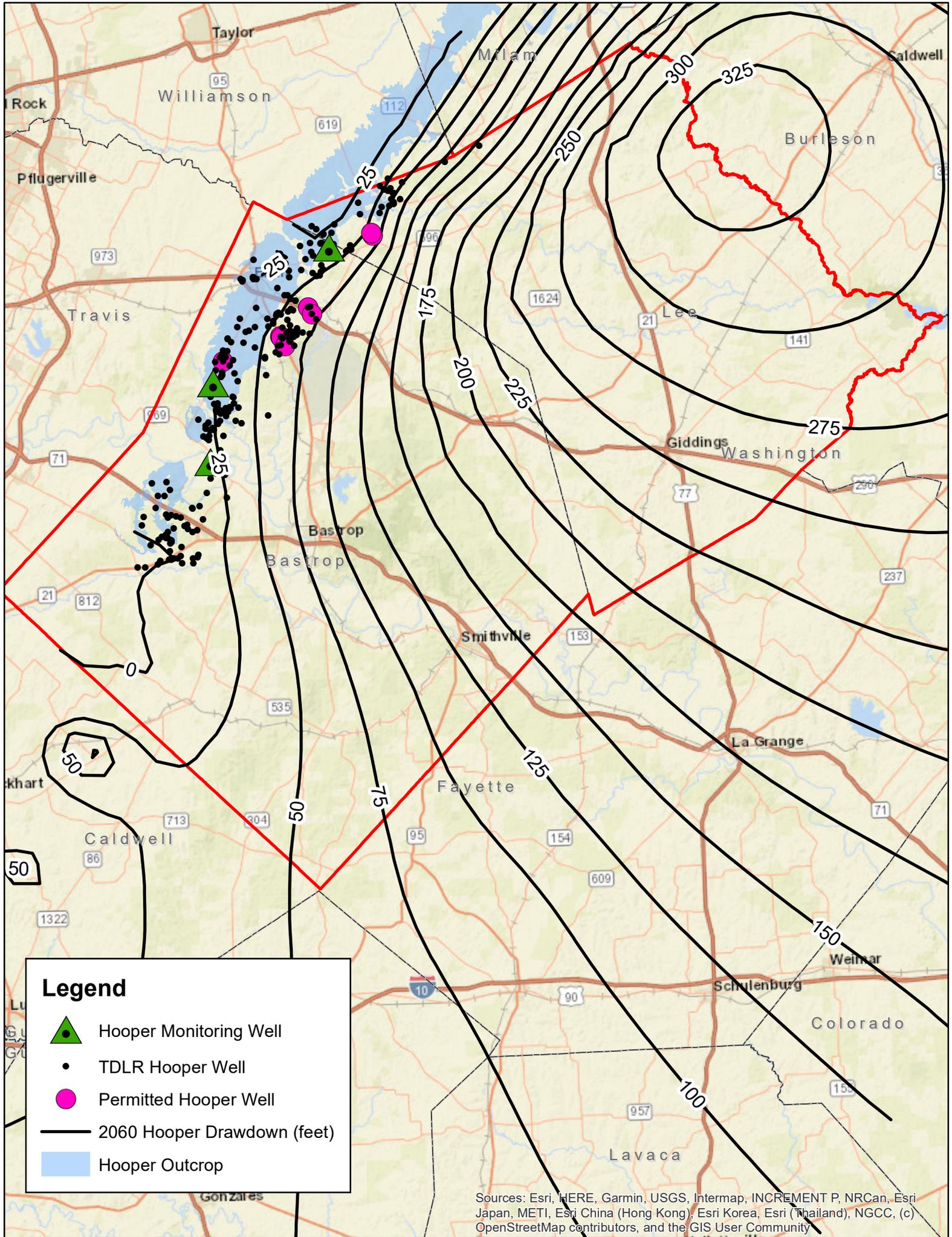
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**Legend**

- ▲ Hooper Monitoring Well
- TDLR Hooper Well
- Permitted Hooper Well
- 2050 Hooper Drawdown (feet)
- Hooper Outcrop

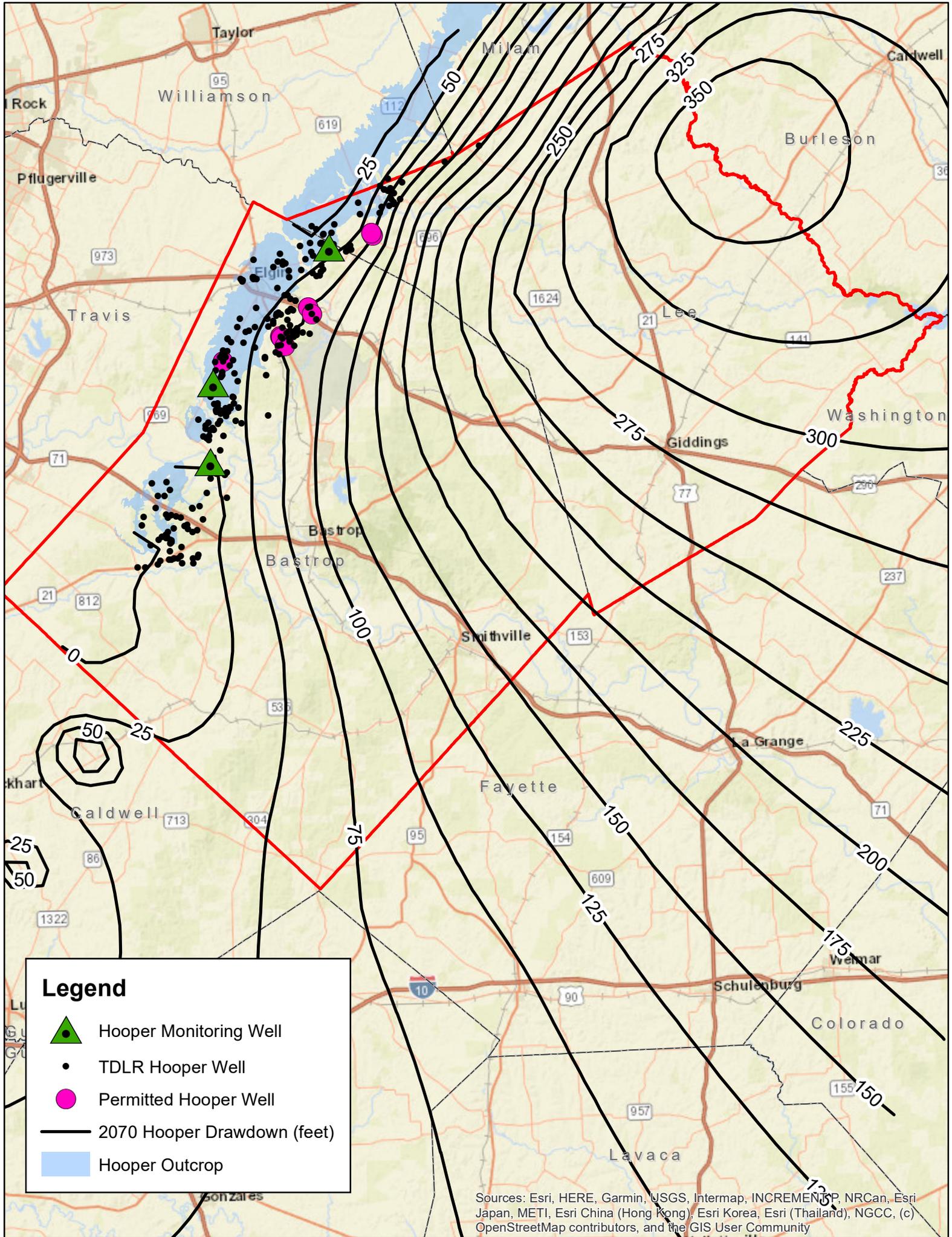
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**Legend**

- ▲ Hooper Monitoring Well
- TDLR Hooper Well
- Permitted Hooper Well
- 2060 Hooper Drawdown (feet)
- Hooper Outcrop

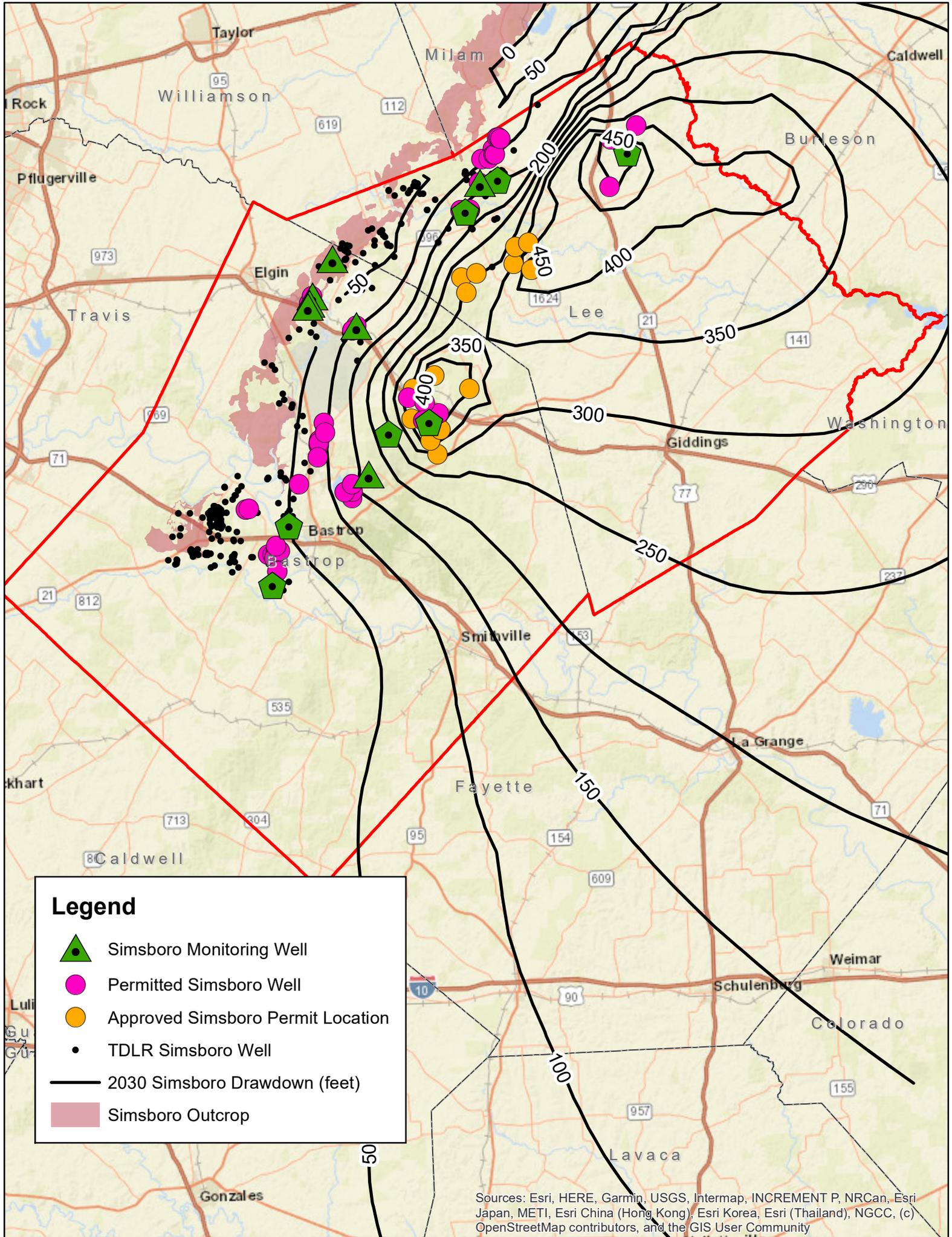
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**Legend**

-  Hooper Monitoring Well
-  TDLR Hooper Well
-  Permitted Hooper Well
-  2070 Hooper Drawdown (feet)
-  Hooper Outcrop

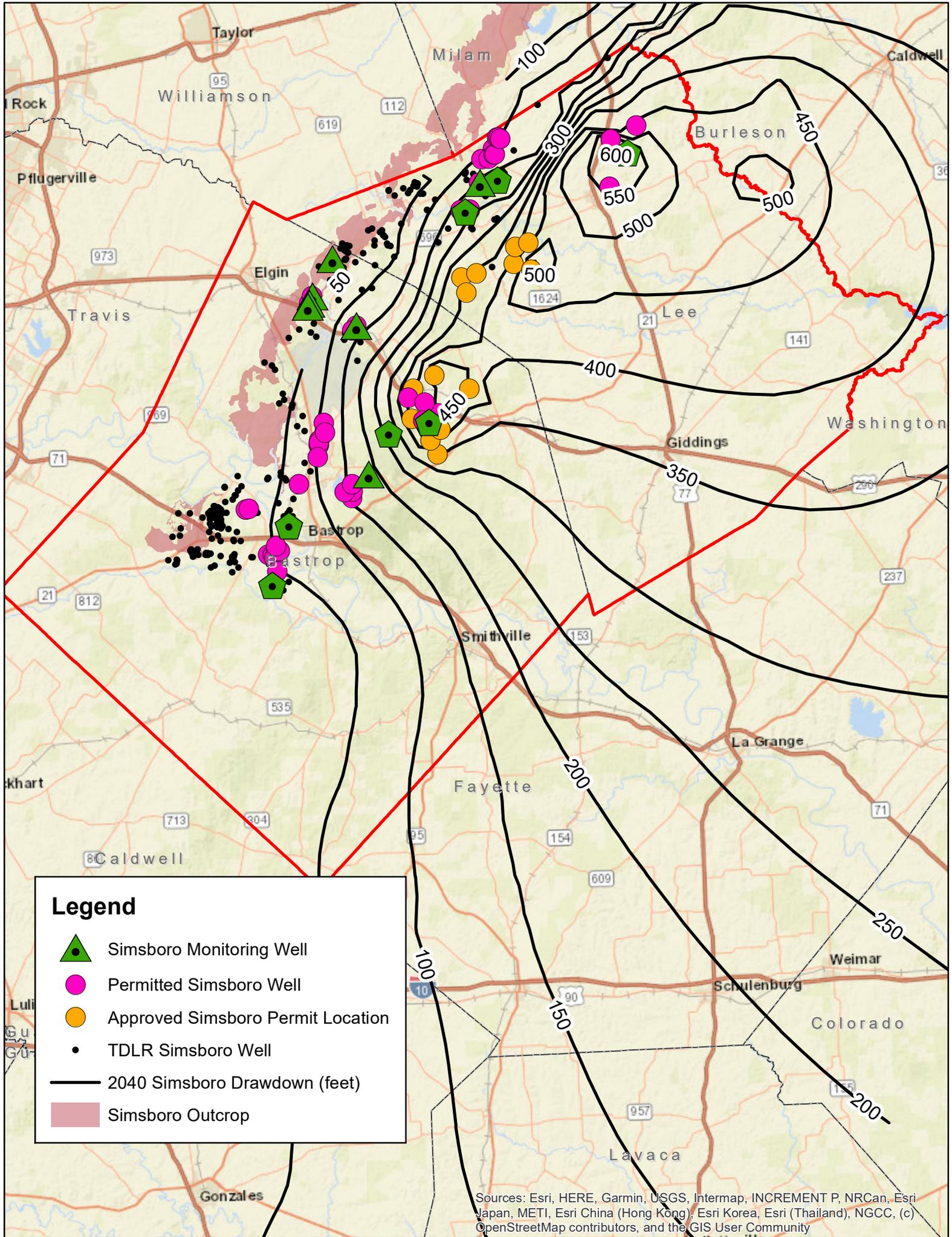
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### Legend

-  Simsboro Monitoring Well
-  Permitted Simsboro Well
-  Approved Simsboro Permit Location
-  TDLR Simsboro Well
-  2030 Simsboro Drawdown (feet)
-  Simsboro Outcrop

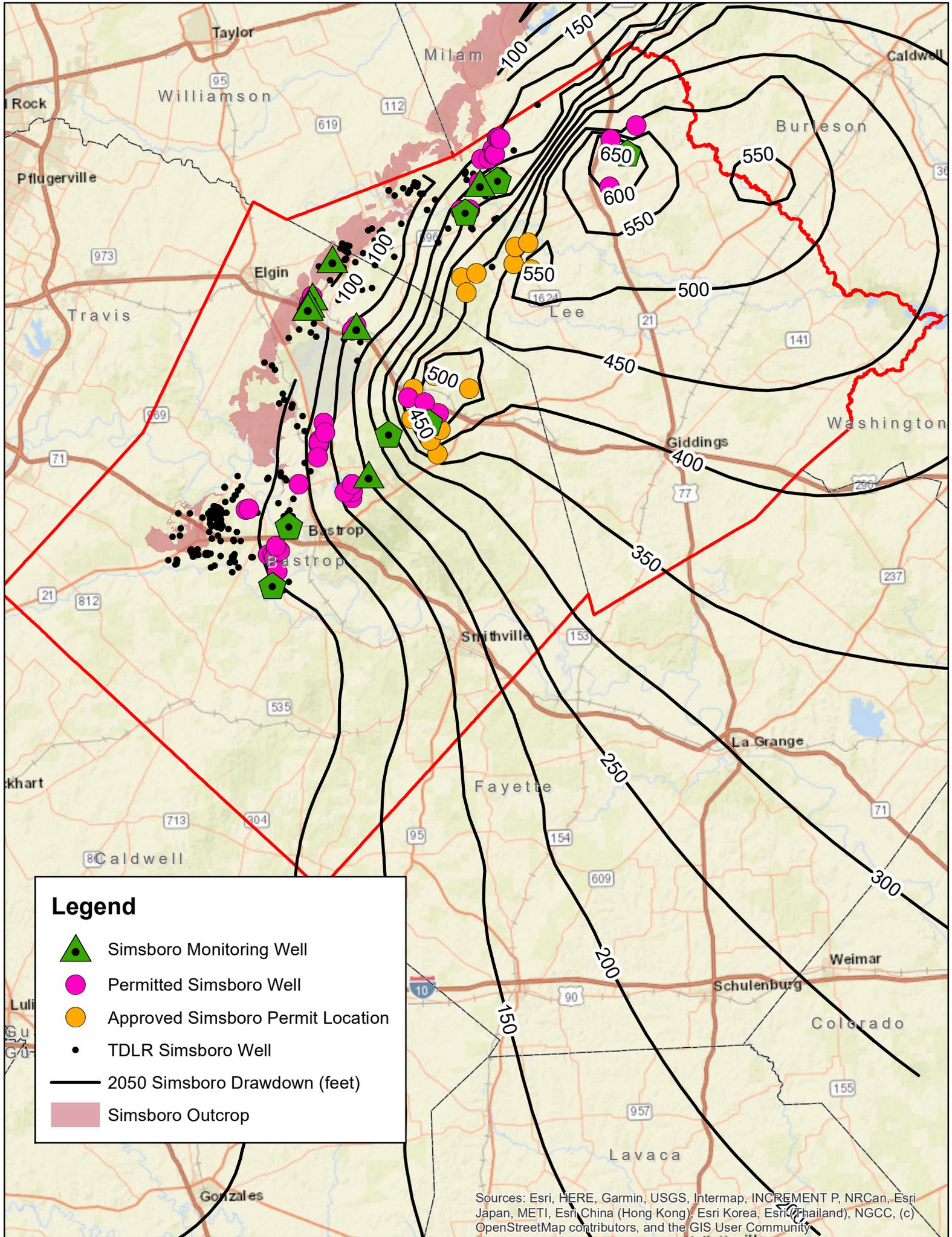
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-  2040 Simsboro Drawdown (feet)
-  Simsboro Outcrop

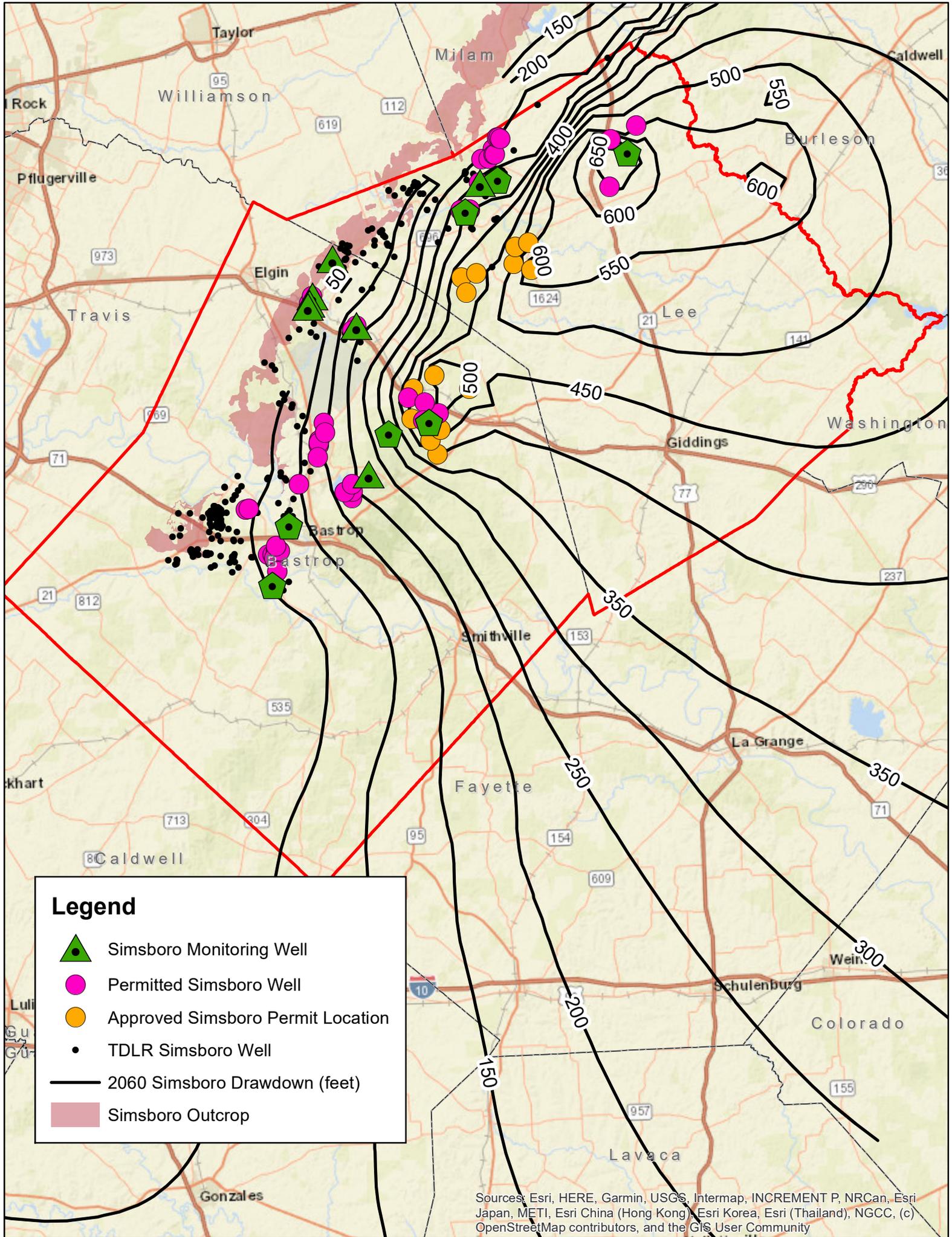
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-  Approved Simsboro Permit Location
-  TDLR Simsboro Well
-  2050 Simsboro Drawdown (feet)
-  Simsboro Outcrop

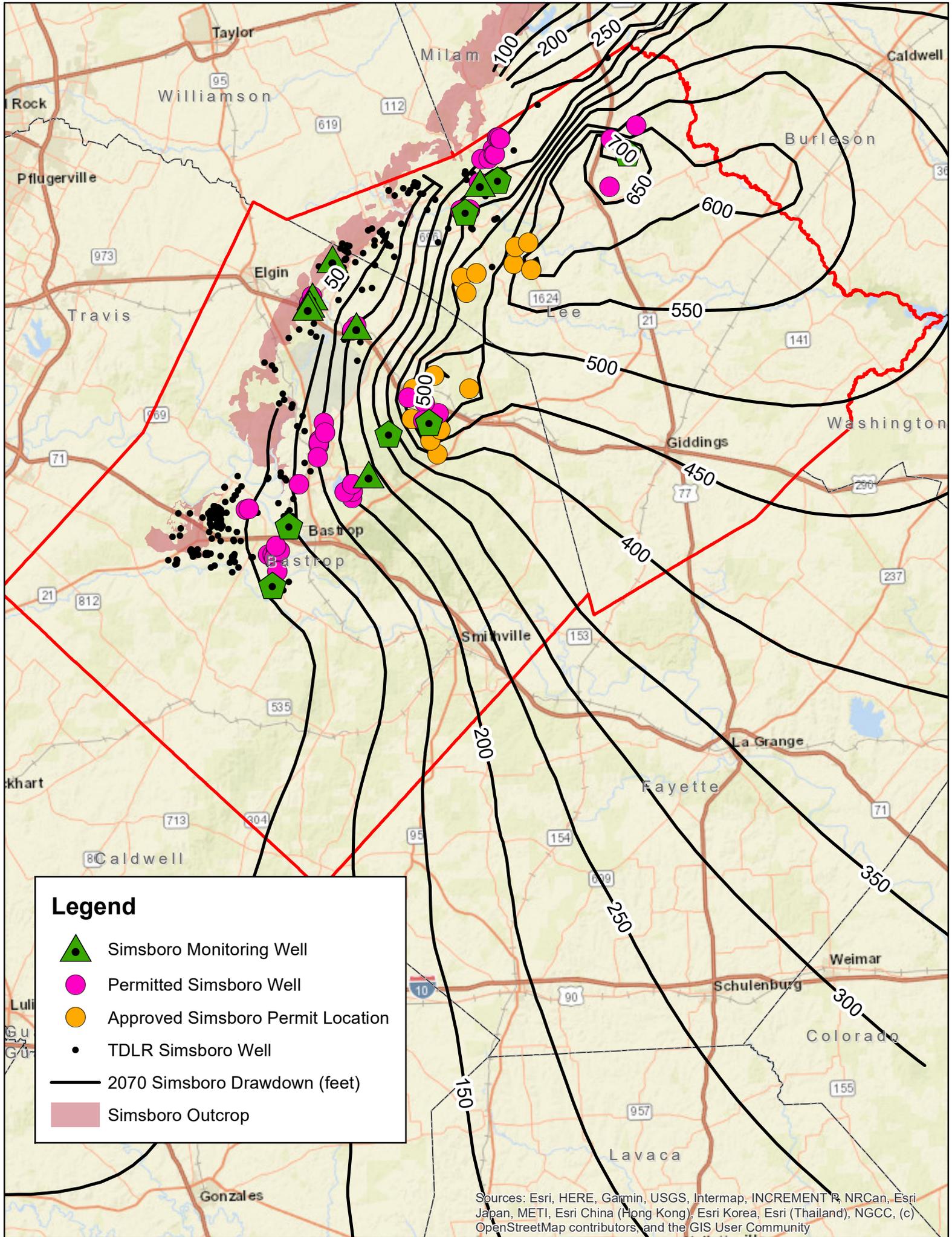
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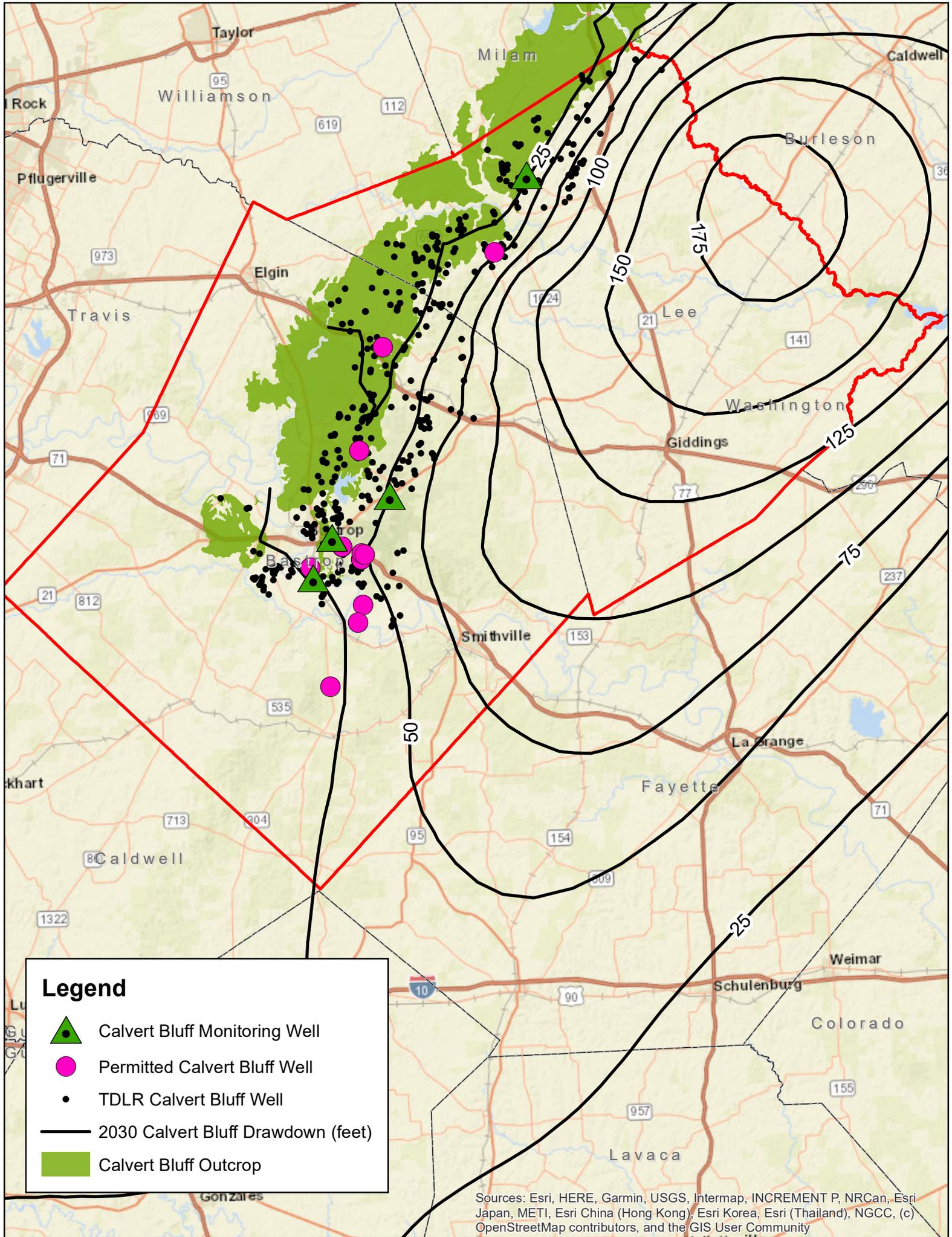
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-  Permitted Simsboro Well
-  Approved Simsboro Permit Location
-  TDLR Simsboro Well
-  2070 Simsboro Drawdown (feet)
-  Simsboro Outcrop

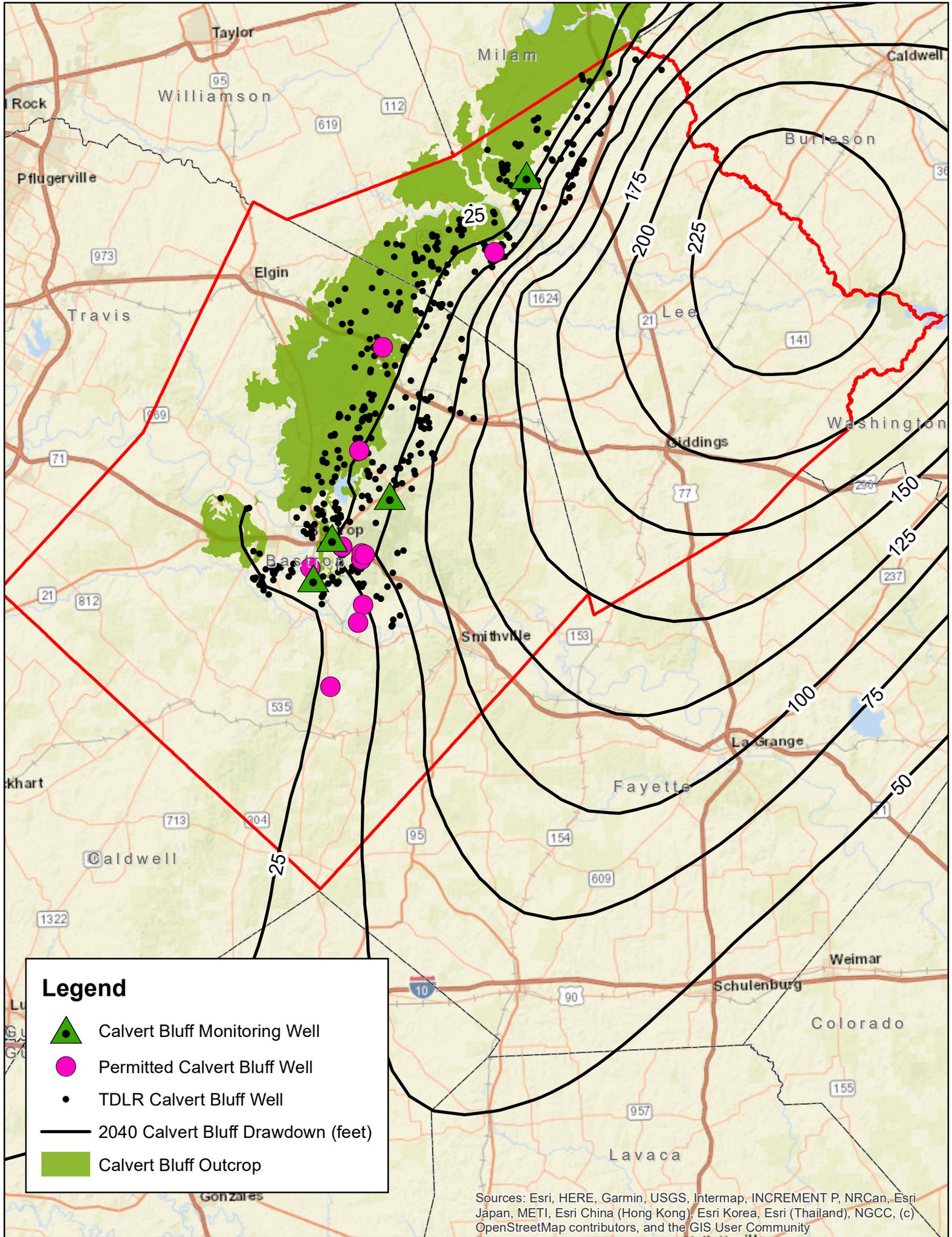
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**Legend**

-  Calvert Bluff Monitoring Well
-  Permitted Calvert Bluff Well
-  TDLR Calvert Bluff Well
-  2030 Calvert Bluff Drawdown (feet)
-  Calvert Bluff Outcrop

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



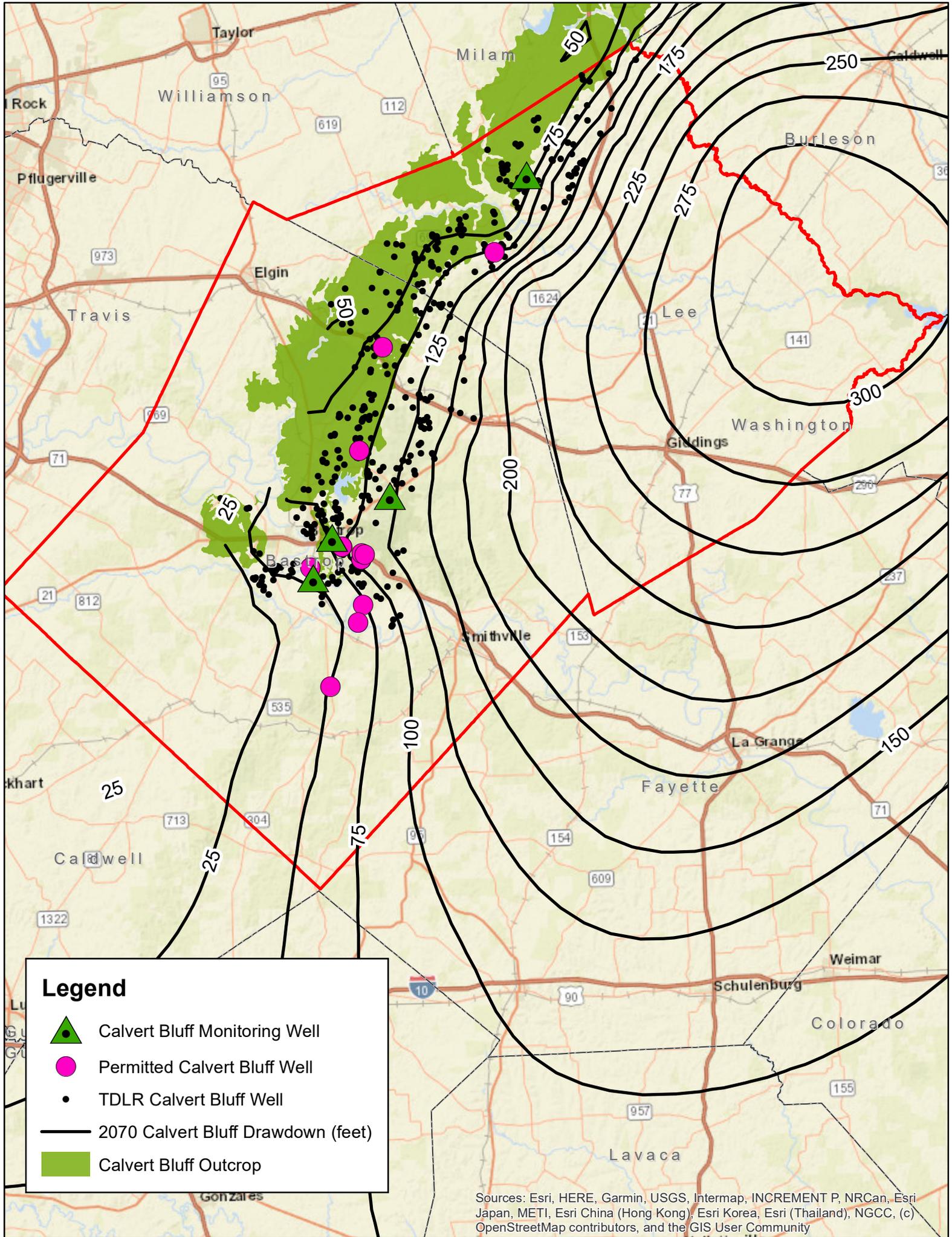
**Legend**

- ▲ Calvert Bluff Monitoring Well
- Permitted Calvert Bluff Well
- TDLR Calvert Bluff Well
- 2040 Calvert Bluff Drawdown (feet)
- Calvert Bluff Outcrop

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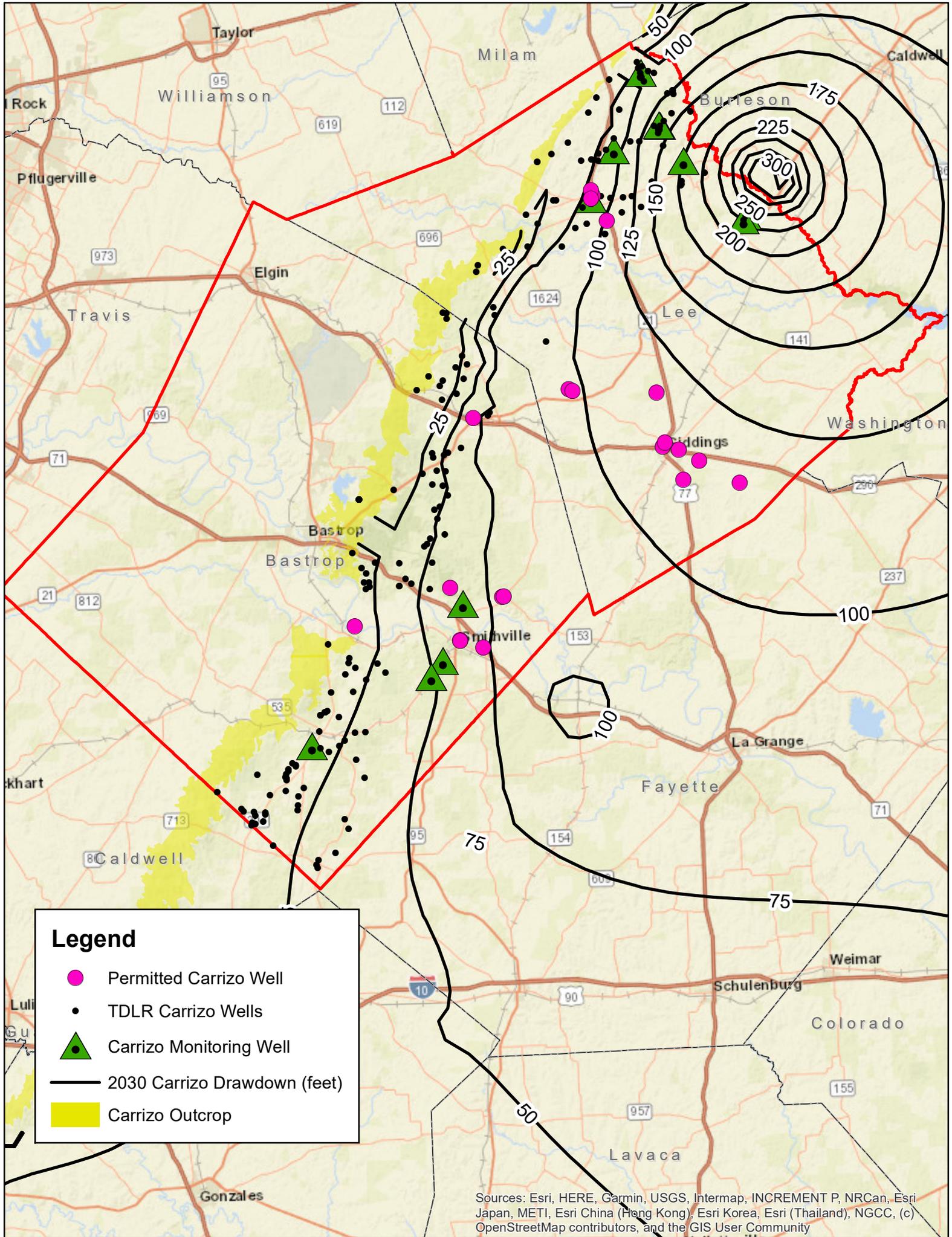




**Legend**

-  Calvert Bluff Monitoring Well
-  Permitted Calvert Bluff Well
-  TDLR Calvert Bluff Well
-  2070 Calvert Bluff Drawdown (feet)
-  Calvert Bluff Outcrop

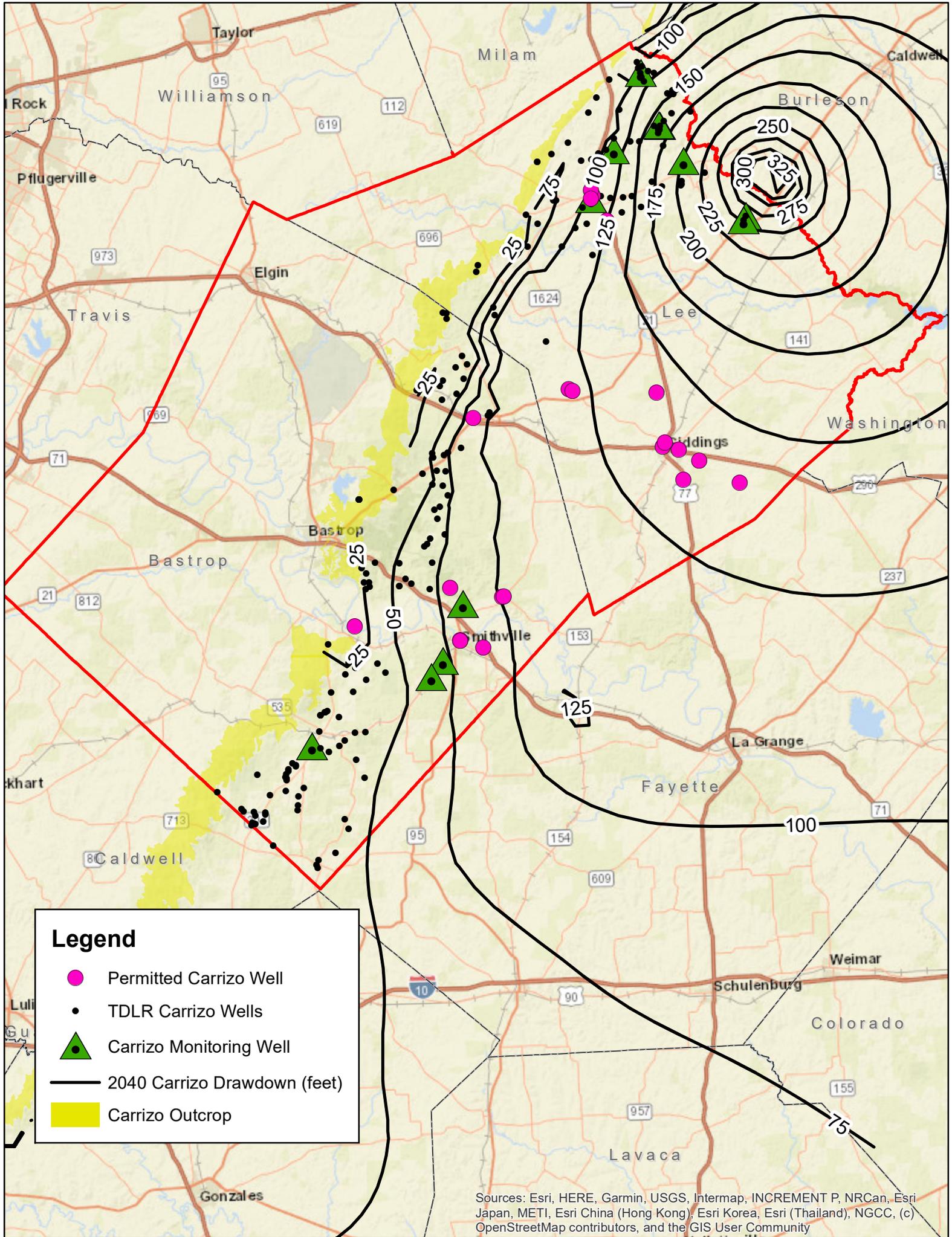
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**Legend**

- Permitted Carrizo Well
- TDLR Carrizo Wells
- ▲ Carrizo Monitoring Well
- 2030 Carrizo Drawdown (feet)
- Carrizo Outcrop

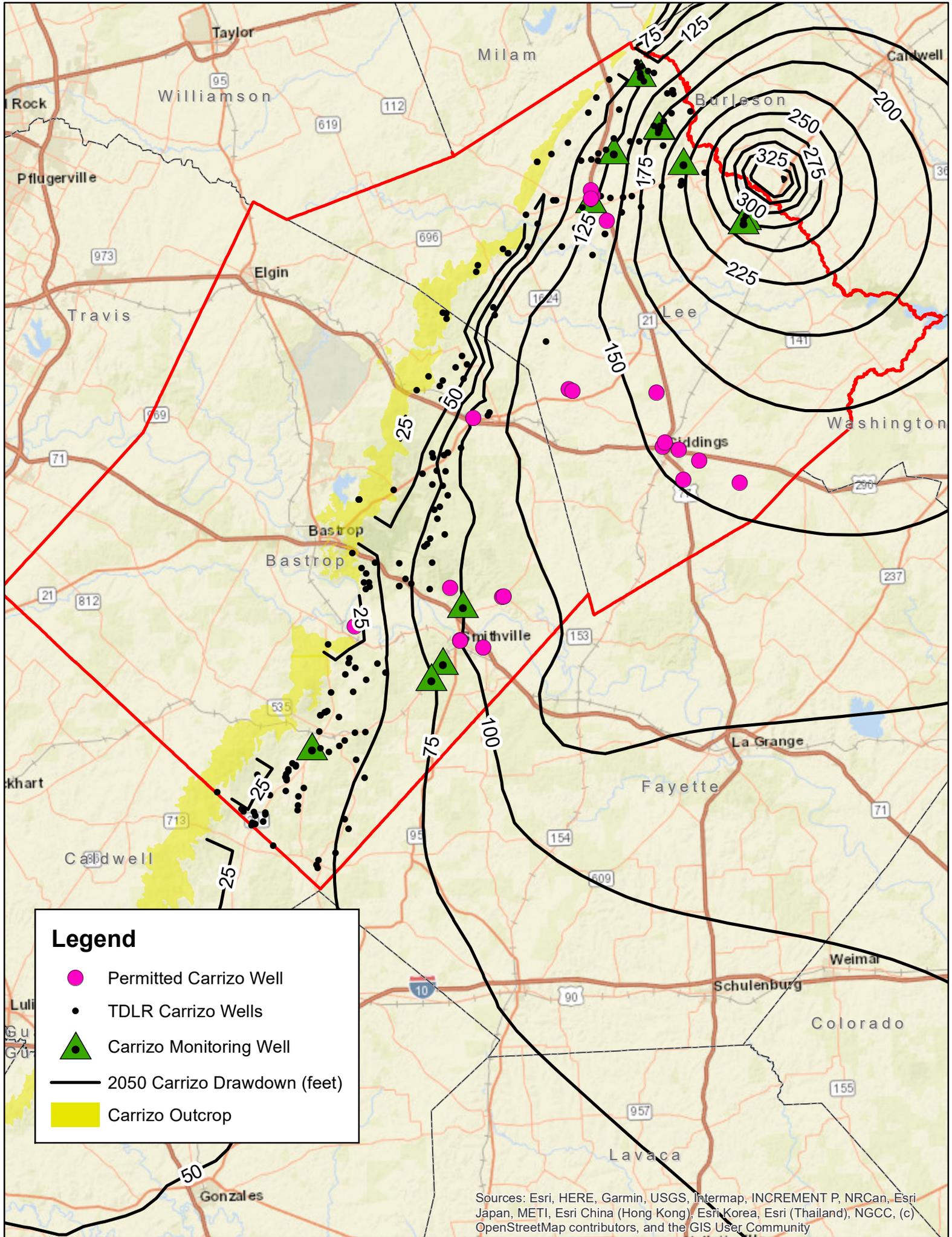
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**Legend**

- Permitted Carrizo Well
- TDLR Carrizo Wells
- ▲ Carrizo Monitoring Well
- 2040 Carrizo Drawdown (feet)
- Carrizo Outcrop

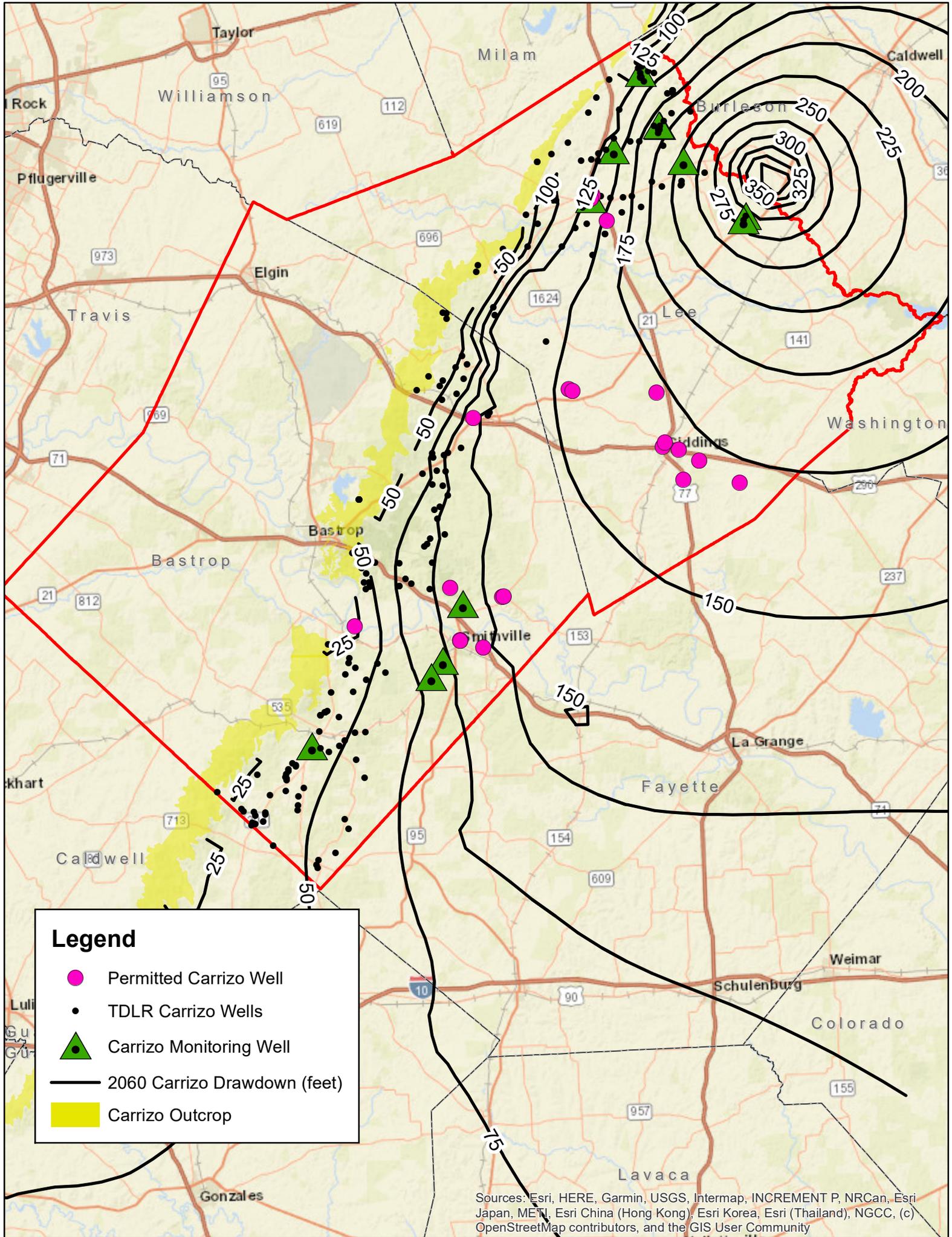
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**Legend**

- Permitted Carrizo Well
- TDLR Carrizo Wells
- ▲ Carrizo Monitoring Well
- 2050 Carrizo Drawdown (feet)
- Carrizo Outcrop

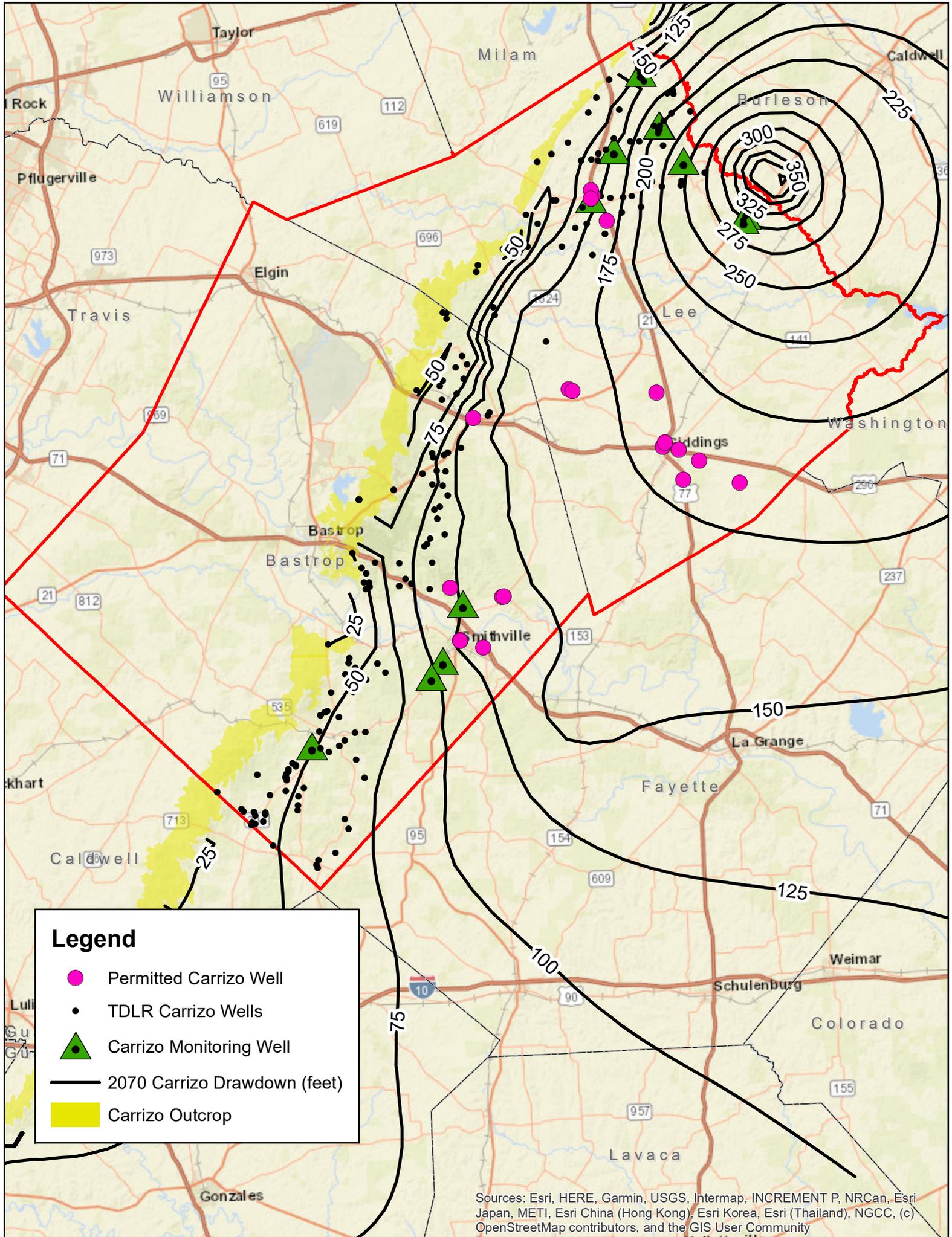
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**Legend**

- Permitted Carrizo Well
- TDLR Carrizo Wells
- ▲ Carrizo Monitoring Well
- 2060 Carrizo Drawdown (feet)
- Carrizo Outcrop

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



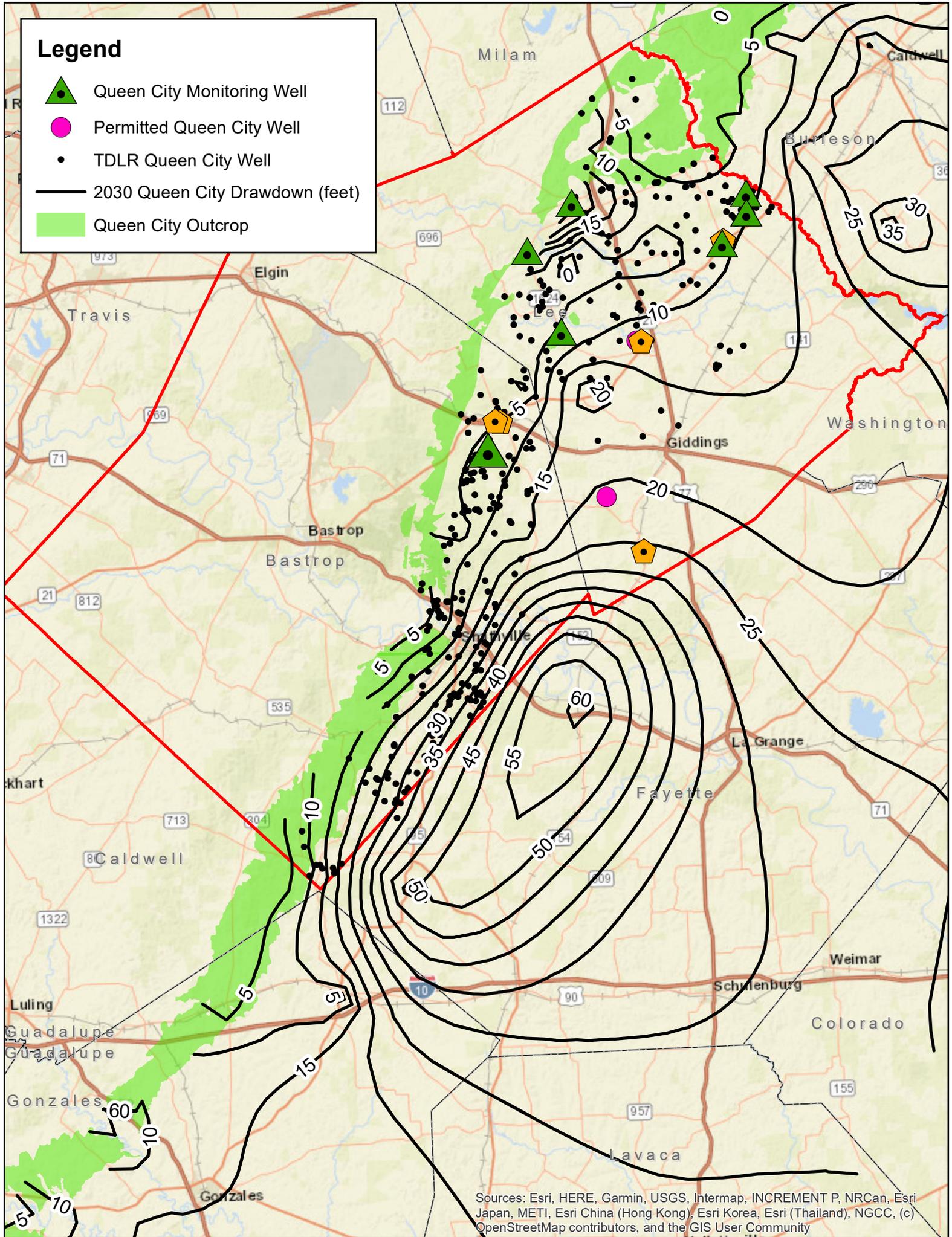
**Legend**

- Permitted Carrizo Well
- TDLR Carrizo Wells
- ▲ Carrizo Monitoring Well
- 2070 Carrizo Drawdown (feet)
- Carrizo Outcrop

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# Legend

- ▲ Queen City Monitoring Well
- Permitted Queen City Well
- TDLR Queen City Well
- 2030 Queen City Drawdown (feet)
- Queen City Outcrop

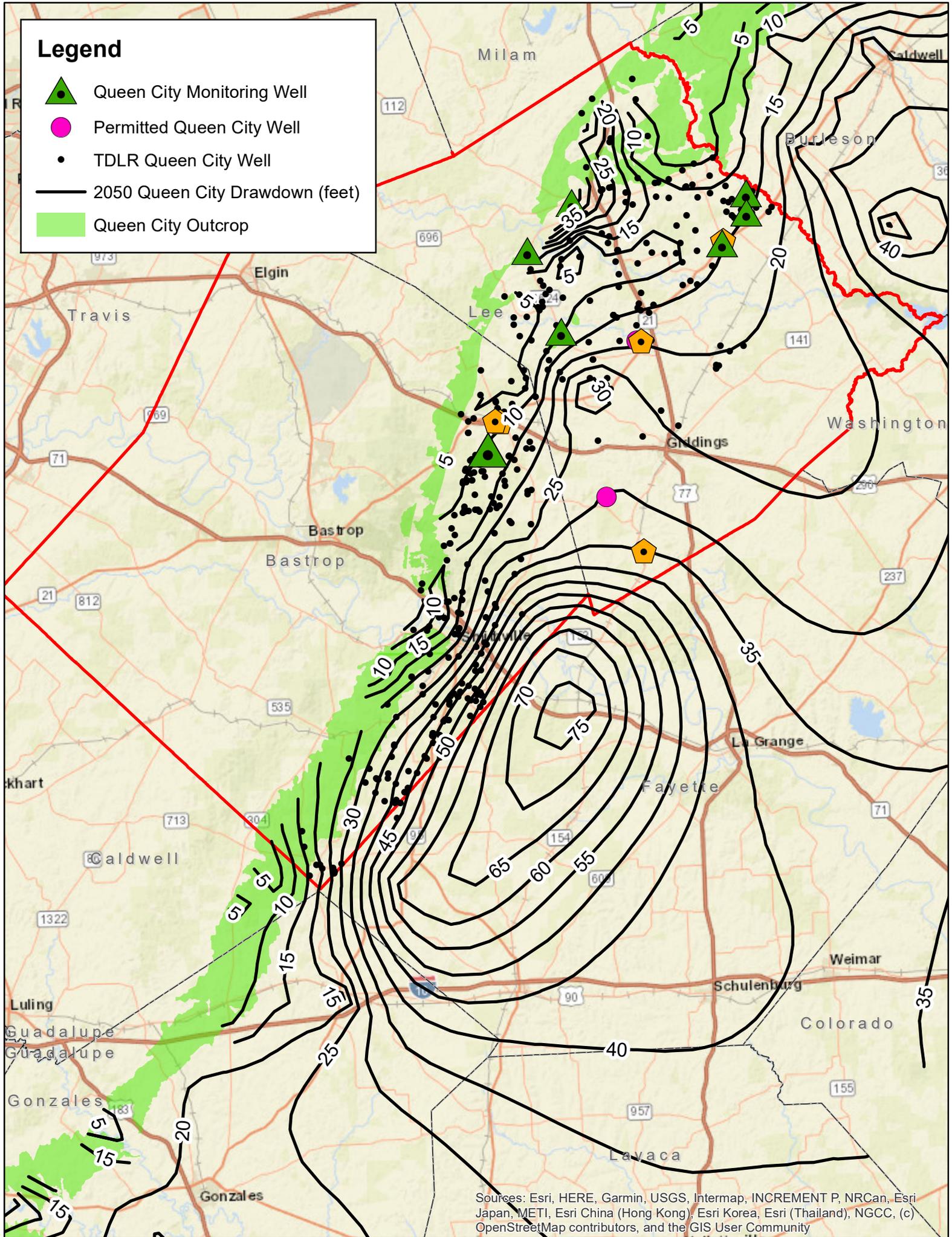


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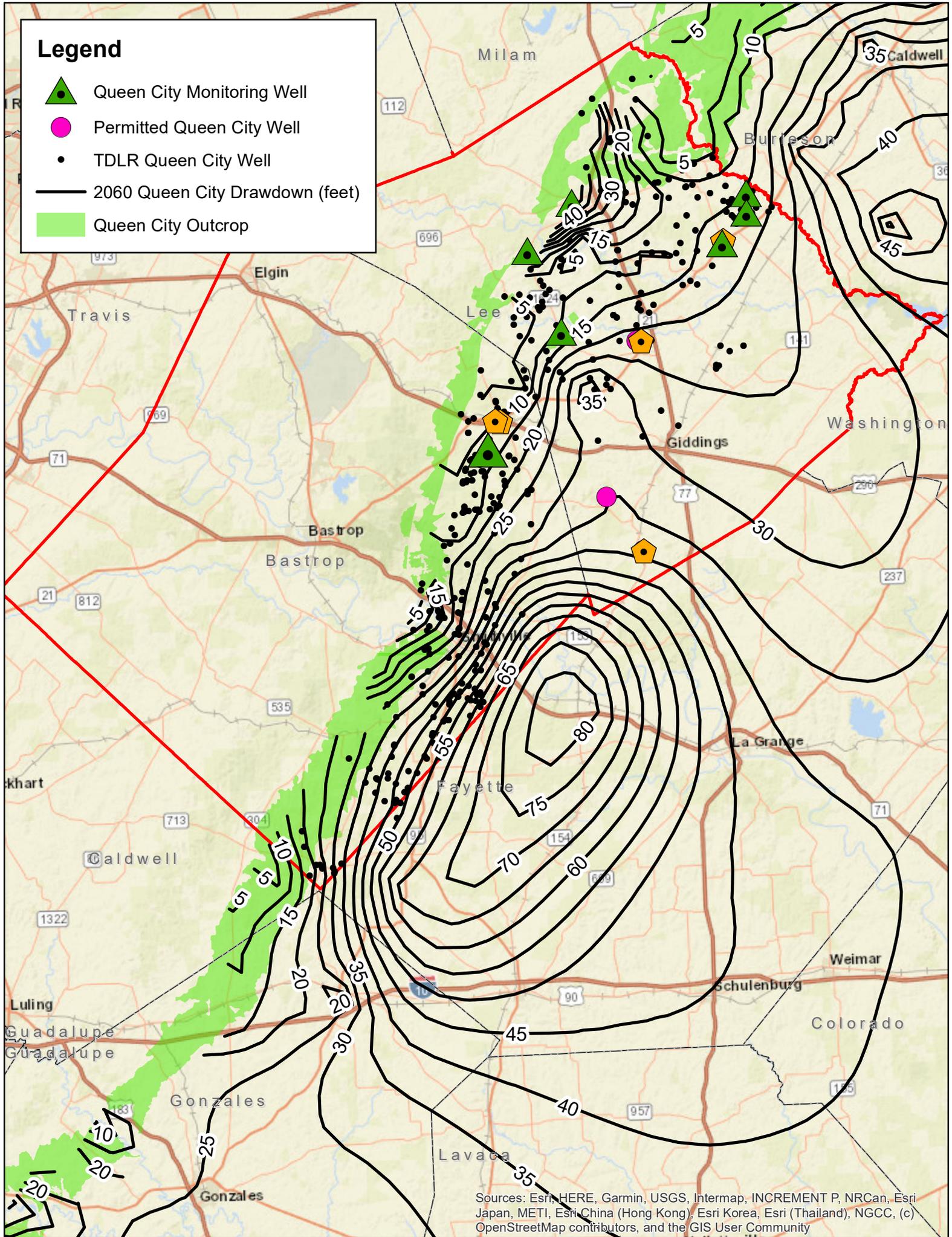
- ▲ Queen City Monitoring Well
- Permitted Queen City Well
- TDLR Queen City Well
- 2050 Queen City Drawdown (feet)
- Queen City Outcrop



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

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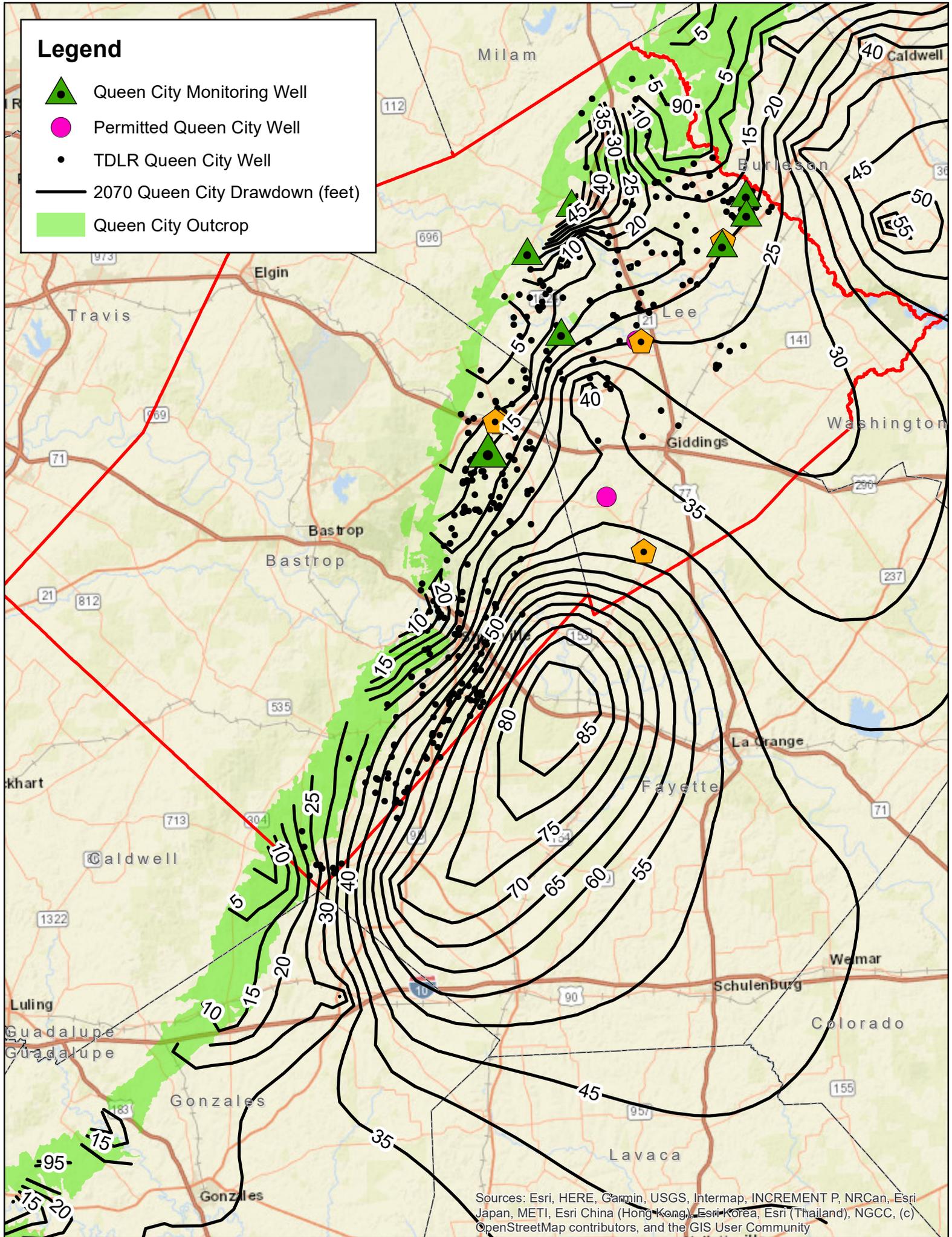
- ▲ Queen City Monitoring Well
- Permitted Queen City Well
- TDLR Queen City Well
- 2060 Queen City Drawdown (feet)
- Queen City Outcrop



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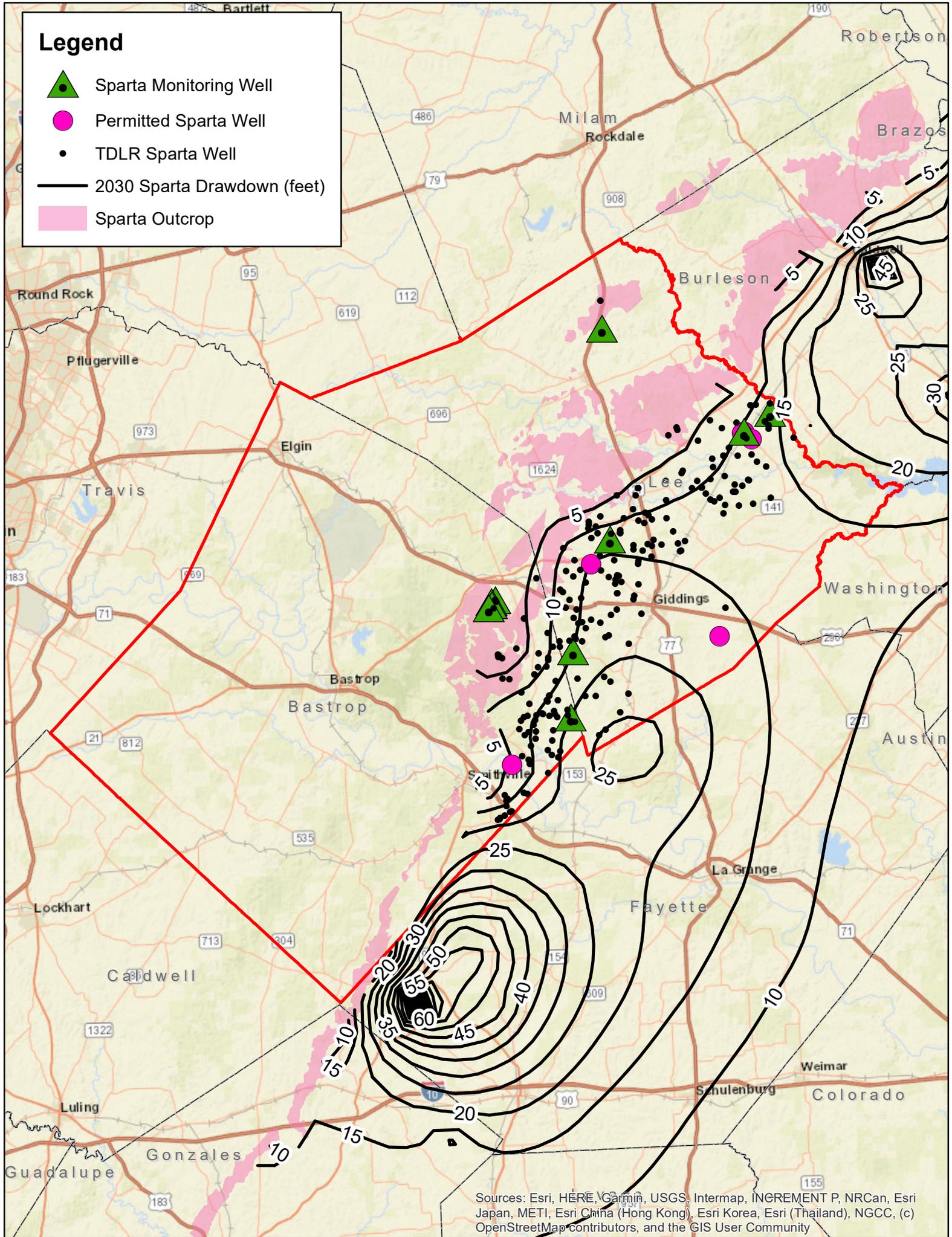
- ▲ Queen City Monitoring Well
- Permitted Queen City Well
- TDLR Queen City Well
- 2070 Queen City Drawdown (feet)
- Queen City Outcrop



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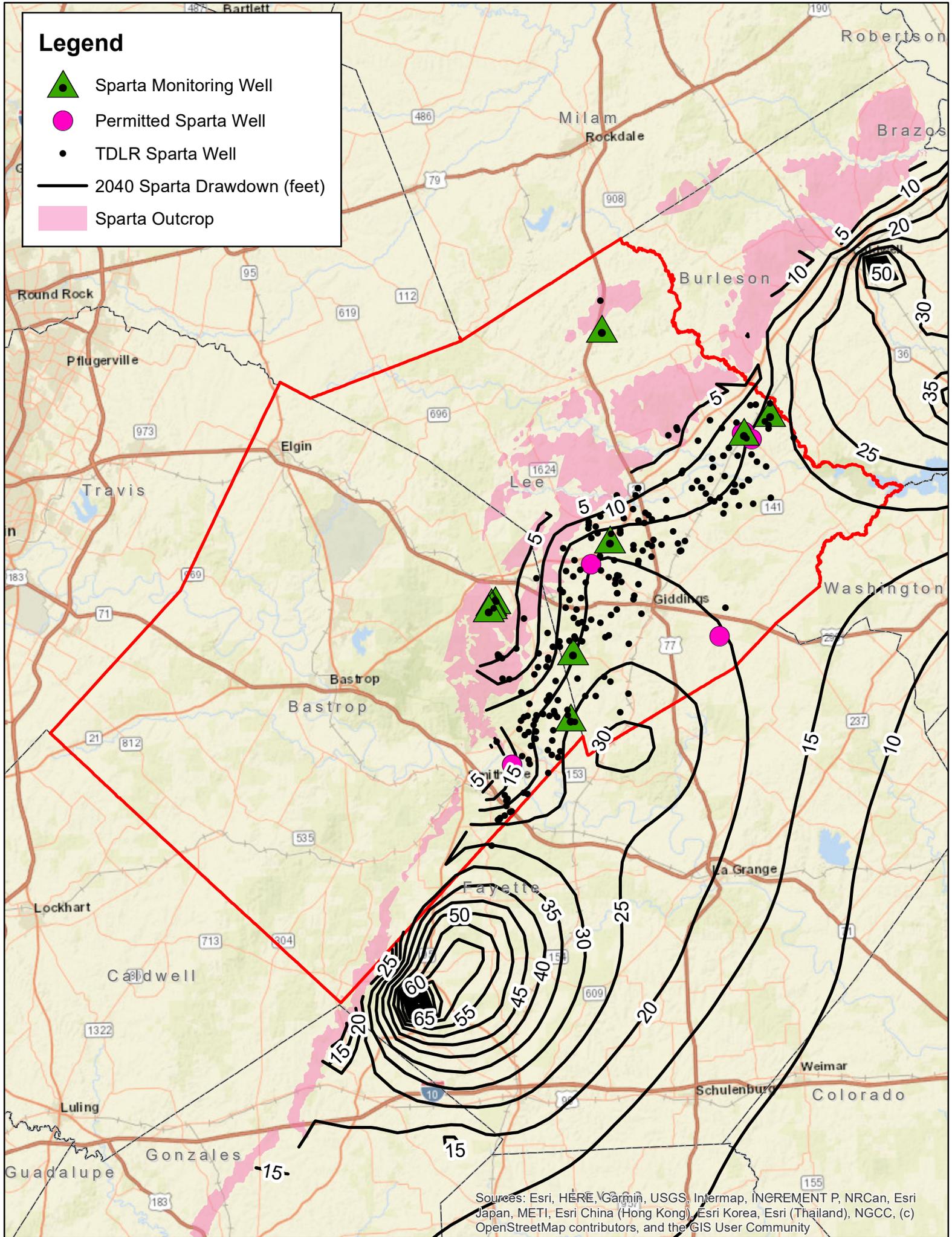
-  Sparta Monitoring Well
-  Permitted Sparta Well
-  TDLR Sparta Well
-  2030 Sparta Drawdown (feet)
-  Sparta Outcrop



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

# Legend

-  Sparta Monitoring Well
-  Permitted Sparta Well
-  TDLR Sparta Well
-  2040 Sparta Drawdown (feet)
-  Sparta Outcrop

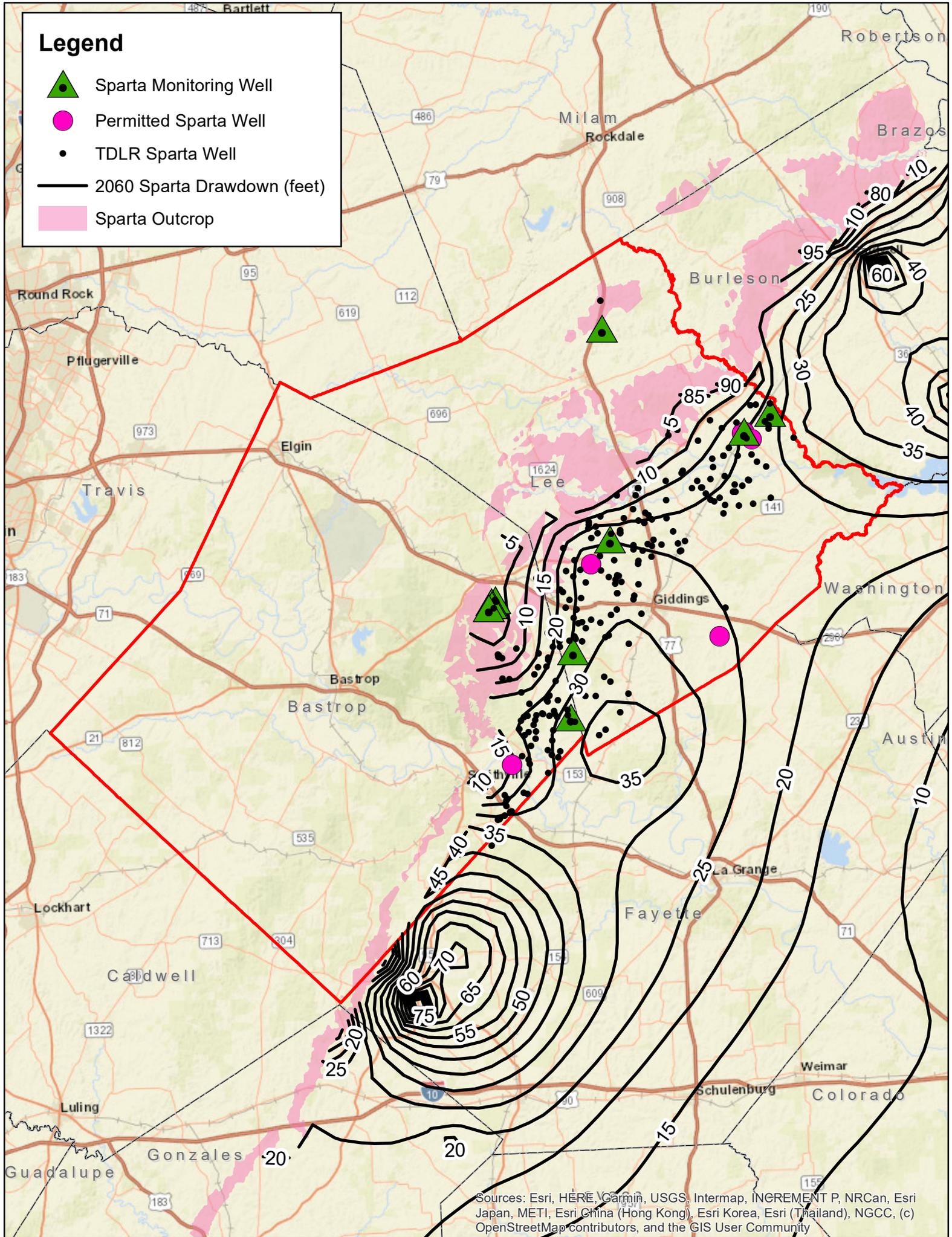


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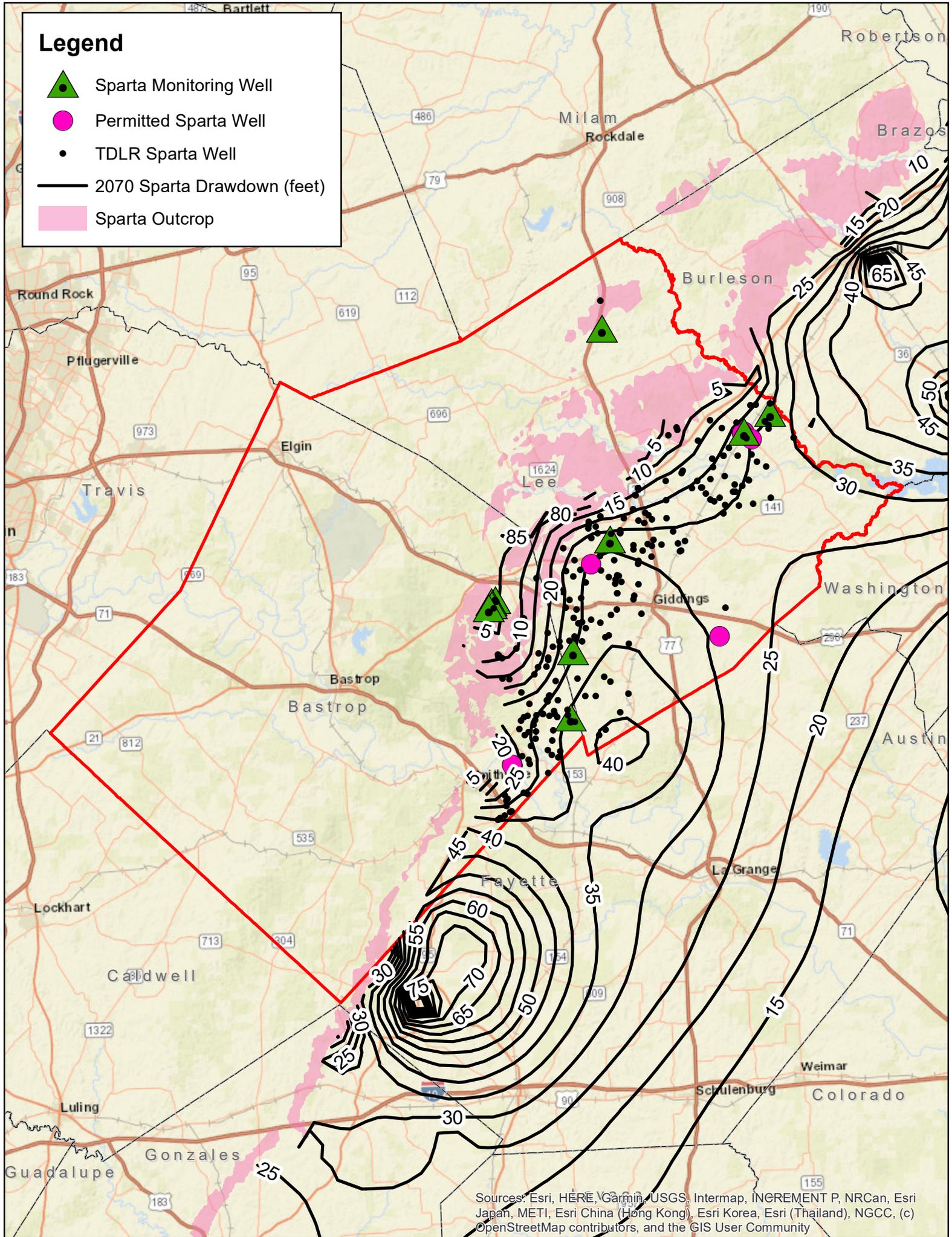
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-  Permitted Sparta Well
-  TDLR Sparta Well
-  2060 Sparta Drawdown (feet)
-  Sparta Outcrop



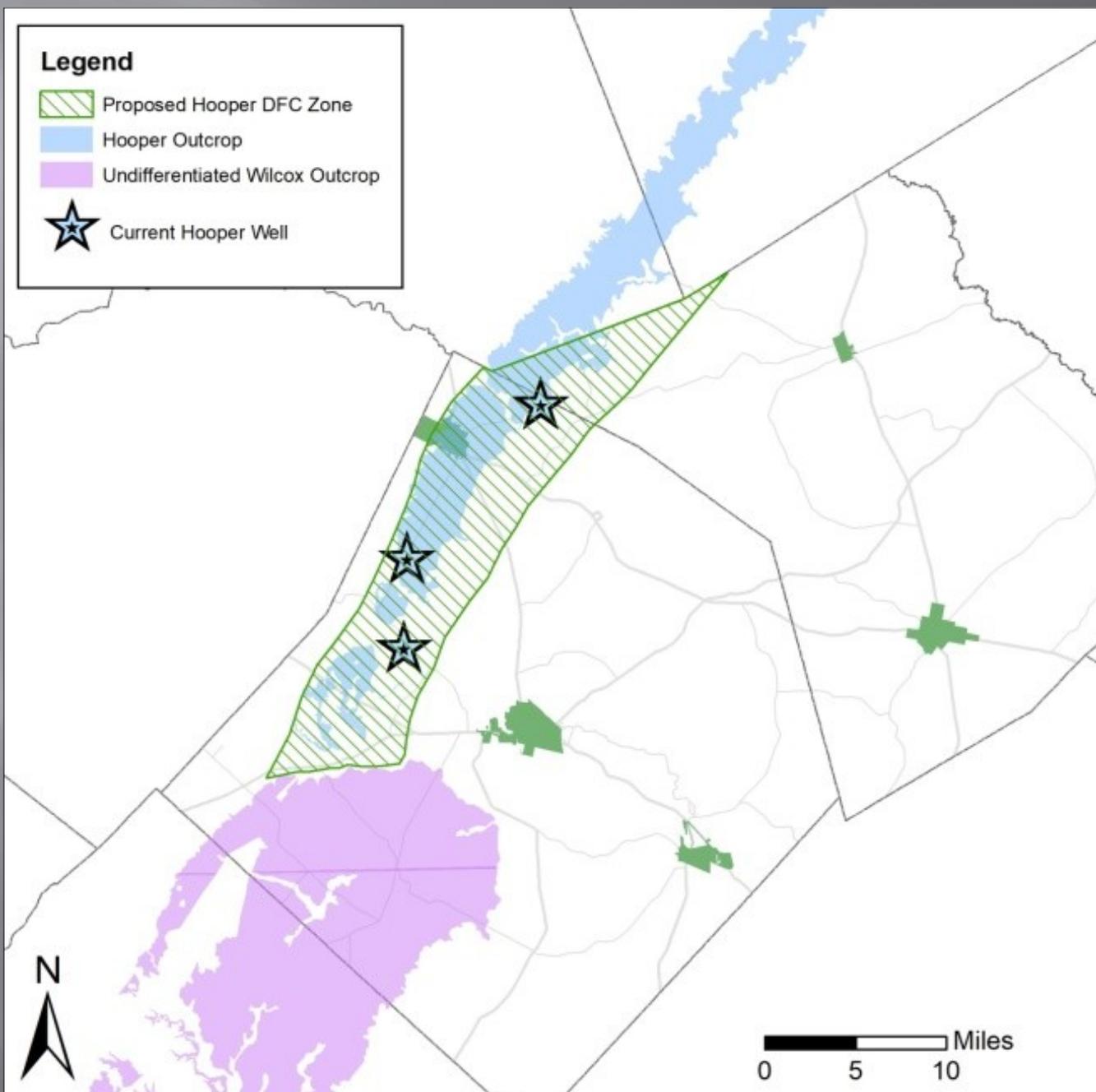
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# Legend

-  Sparta Monitoring Well
-  Permitted Sparta Well
-  TDLR Sparta Well
-  2070 Sparta Drawdown (feet)
-  Sparta Outcrop



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**Legend**

-  Proposed Hooper DFC Zone
-  Hooper Outcrop
-  Undifferentiated Wilcox Outcrop
-  Current Hooper Well



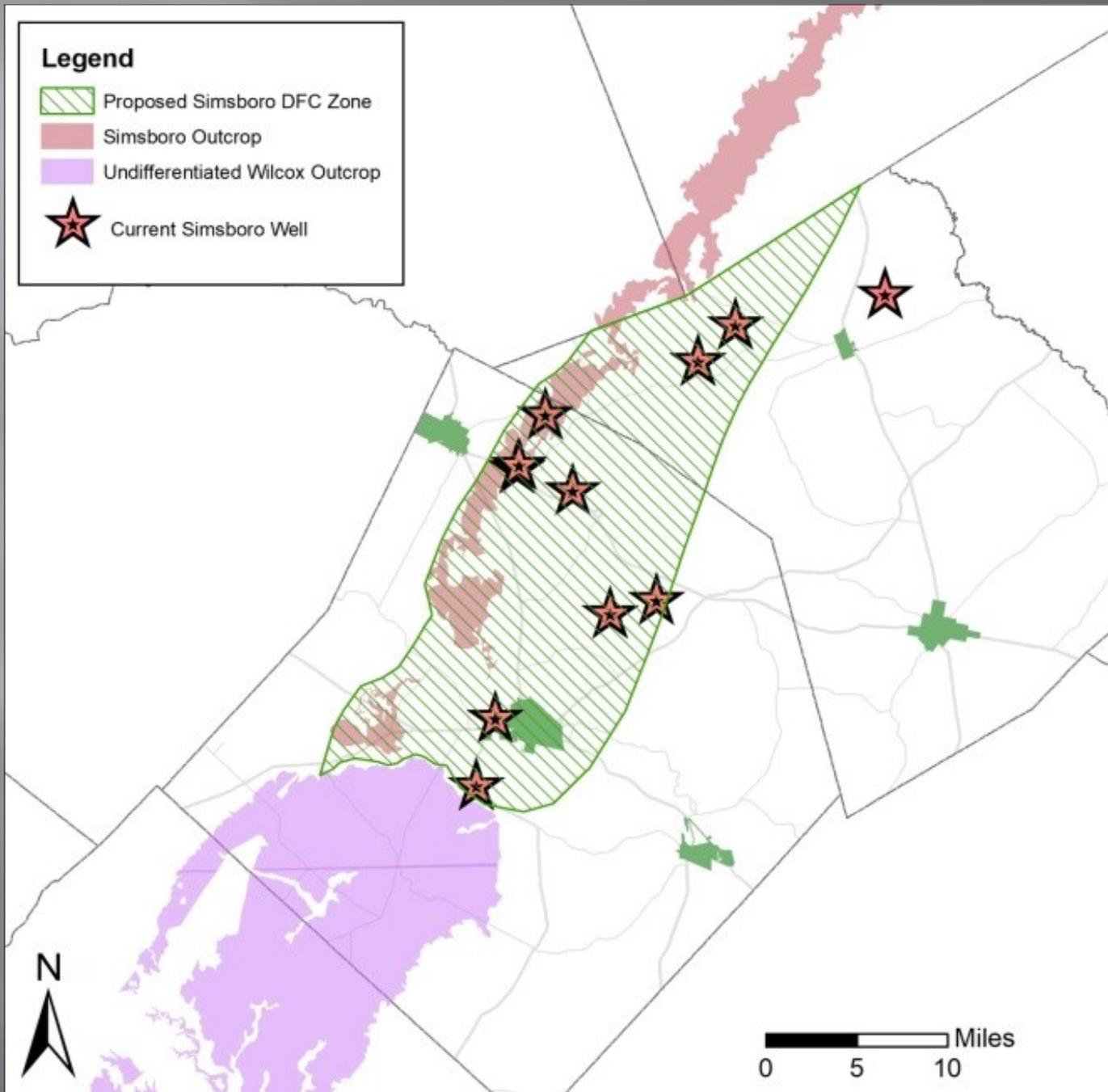
**Legend**

 Proposed Simsboro DFC Zone

 Simsboro Outcrop

 Undifferentiated Wilcox Outcrop

 Current Simsboro Well



**Legend**

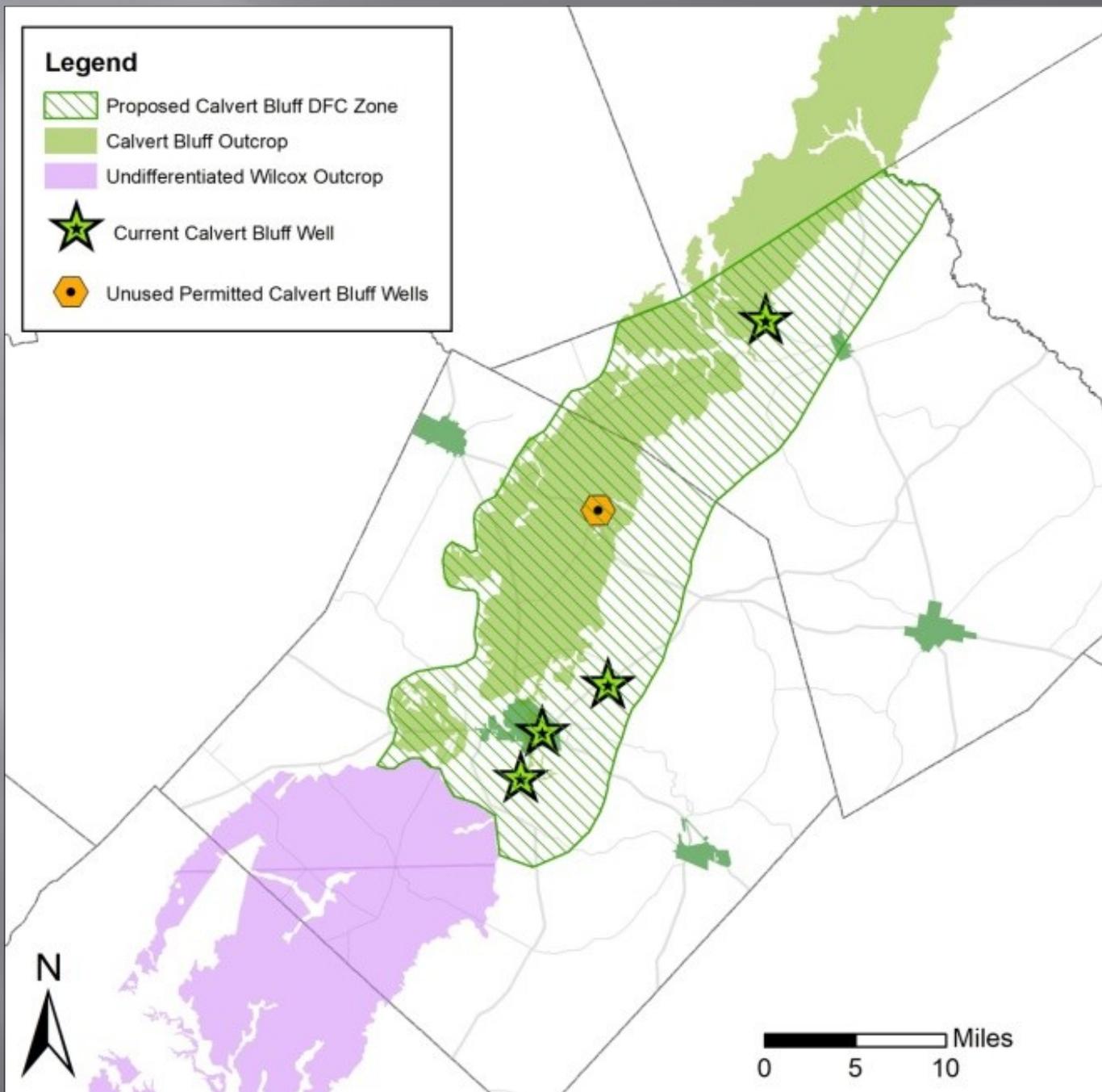
 Proposed Calvert Bluff DFC Zone

 Calvert Bluff Outcrop

 Undifferentiated Wilcox Outcrop

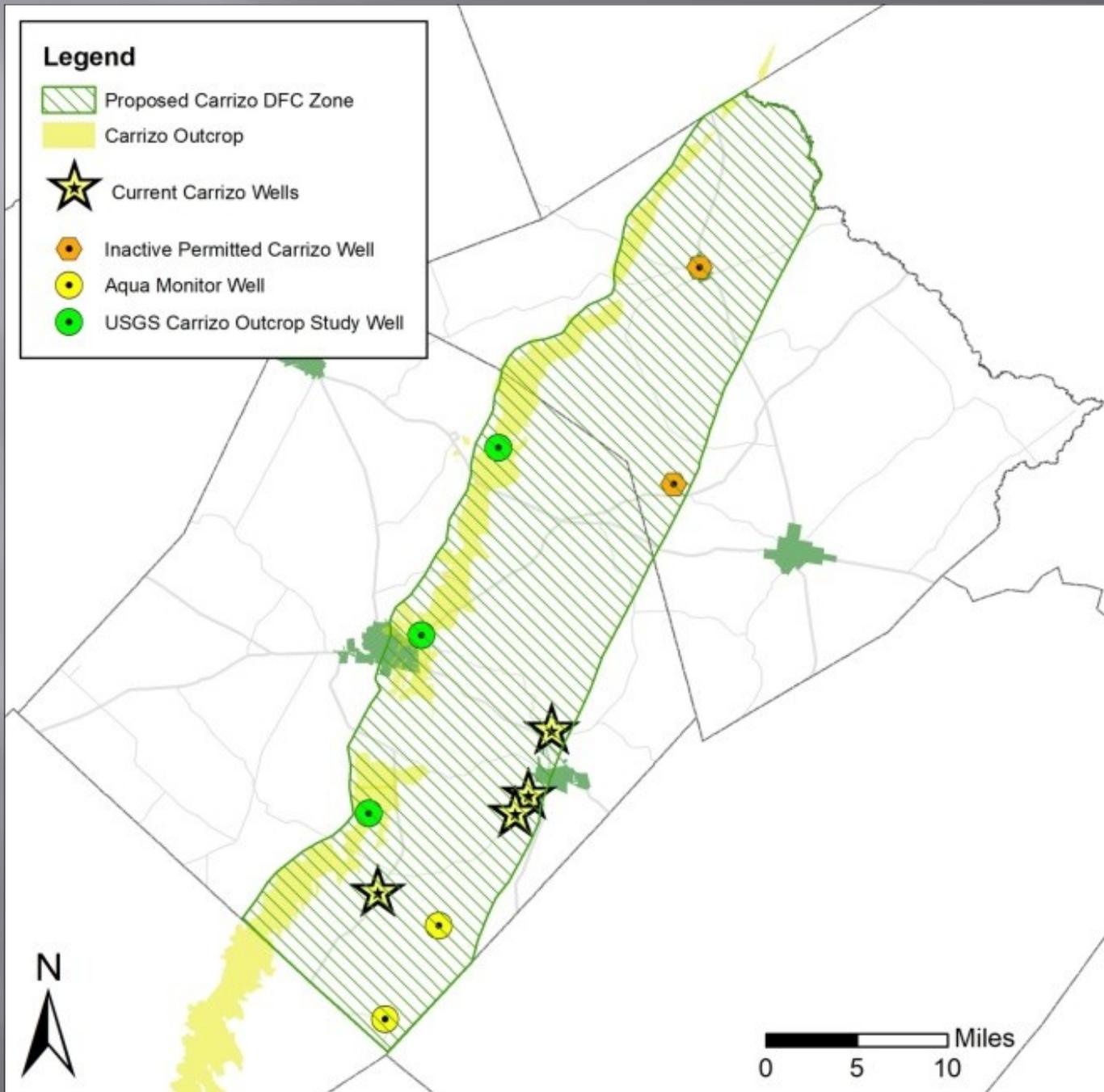
 Current Calvert Bluff Well

 Unused Permitted Calvert Bluff Wells



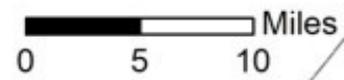
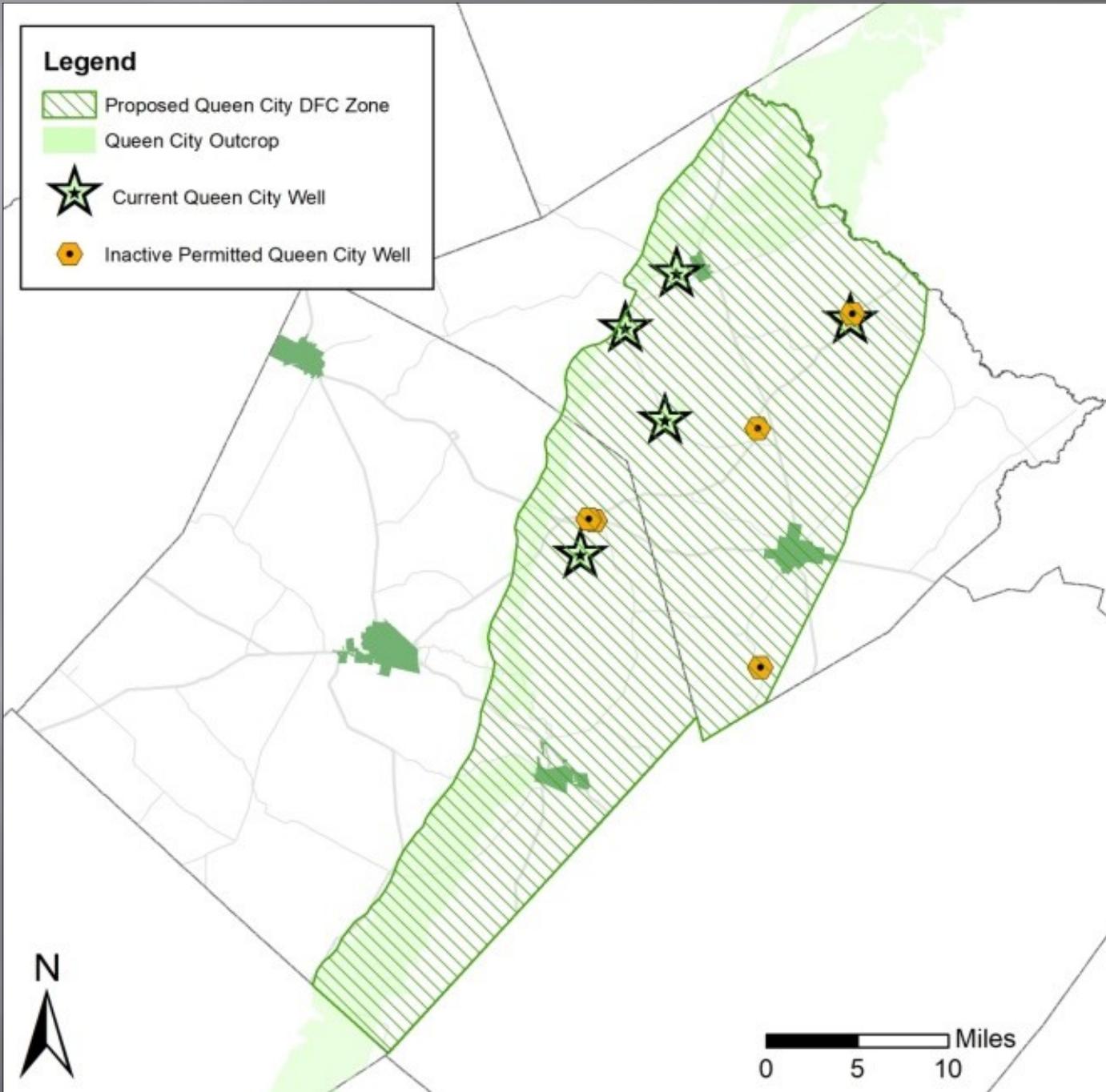
### Legend

-  Proposed Carrizo DFC Zone
-  Carrizo Outcrop
-  Current Carrizo Wells
-  Inactive Permitted Carrizo Well
-  Aqua Monitor Well
-  USGS Carrizo Outcrop Study Well



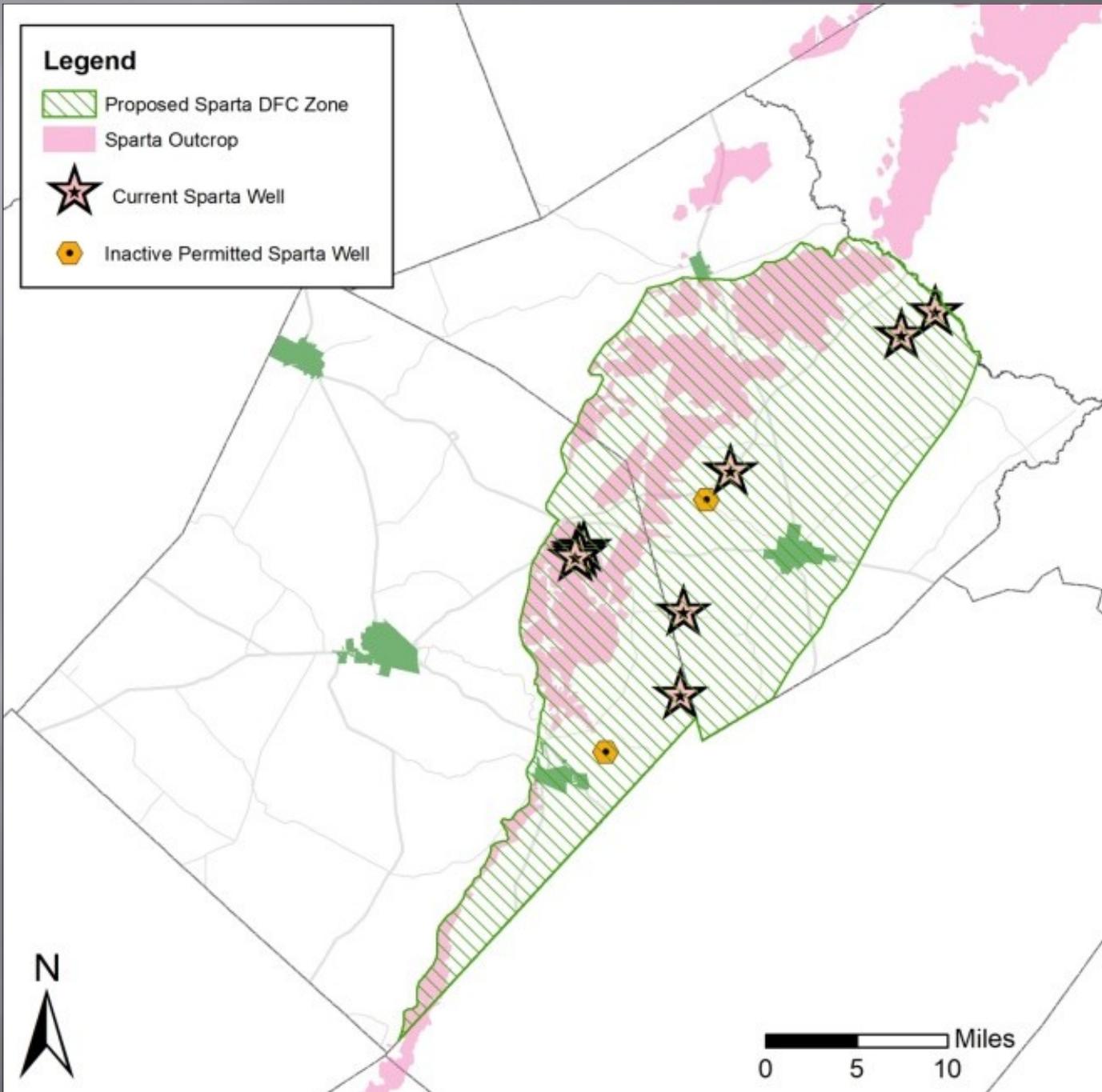
**Legend**

-  Proposed Queen City DFC Zone
-  Queen City Outcrop
-  Current Queen City Well
-  Inactive Permitted Queen City Well



### Legend

-  Proposed Sparta DFC Zone
-  Sparta Outcrop
-  Current Sparta Well
-  Inactive Permitted Sparta Well



# Impact of “DFC Zones”

- Evaluation of S-12 using the new GAM
- Drawdowns for 2010 - 2070

	County Average Drawdowns	DFC Zone Drawdowns
	(feet)	(feet)
Sparta	22	19
Queen City	28	27
Carrizo	139	94
Calvert Bluff	156	83
Simsboro	313	201
Hooper	174	43

Updated  
6/2/21