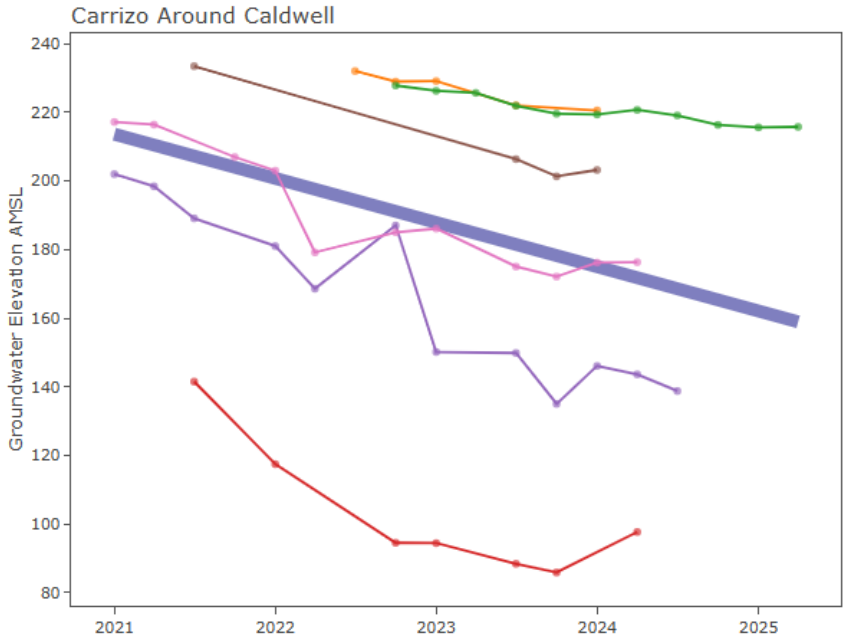
TAGD
TEXAS ALLIANCE OF GROUNDWATER DISTRICTS

Elevating Data Management to Improve Operations and Outcomes



Michael Redman, Post Oak Savannah GCD
Charles Dunning, Wellntel

Wellntel

POST OAK SAVANNAH GCD: Data Challenges

Urgent need for reliable, decision-making data driven by:

- Rapid growth in Milam and Burleson Counties
- Groundwater Export Projects

Data management was made complicated by three District monitoring systems and two Permit Holders

Significant staff time was devoted to responding to the requests of local stakeholders for data and information

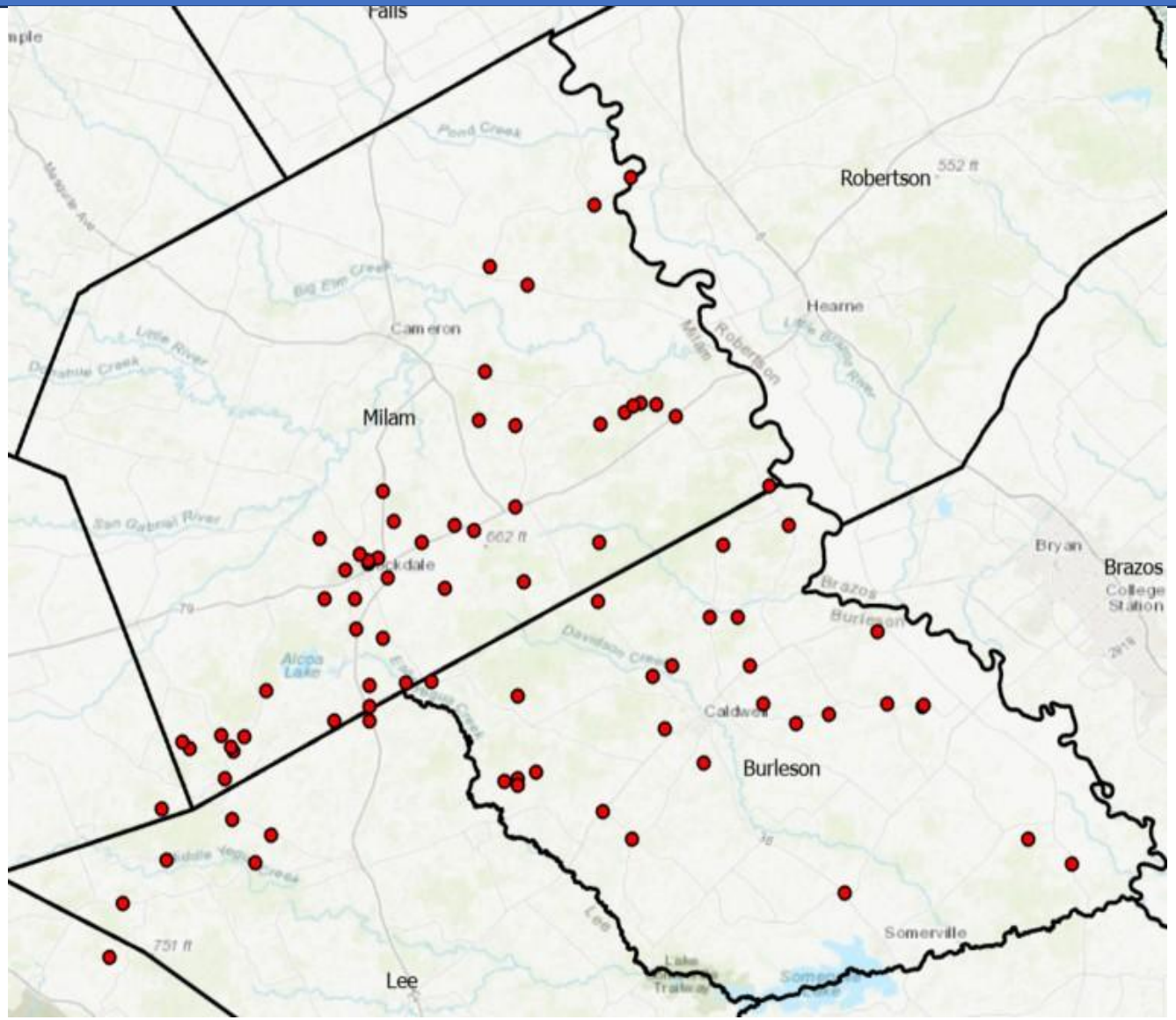
POSGCD Monitoring Network: Where We Were

Prior to 2015

- 23 Carrizo Wells
- 85 Total Monitoring Wells

2018 – Contract with Wellntel

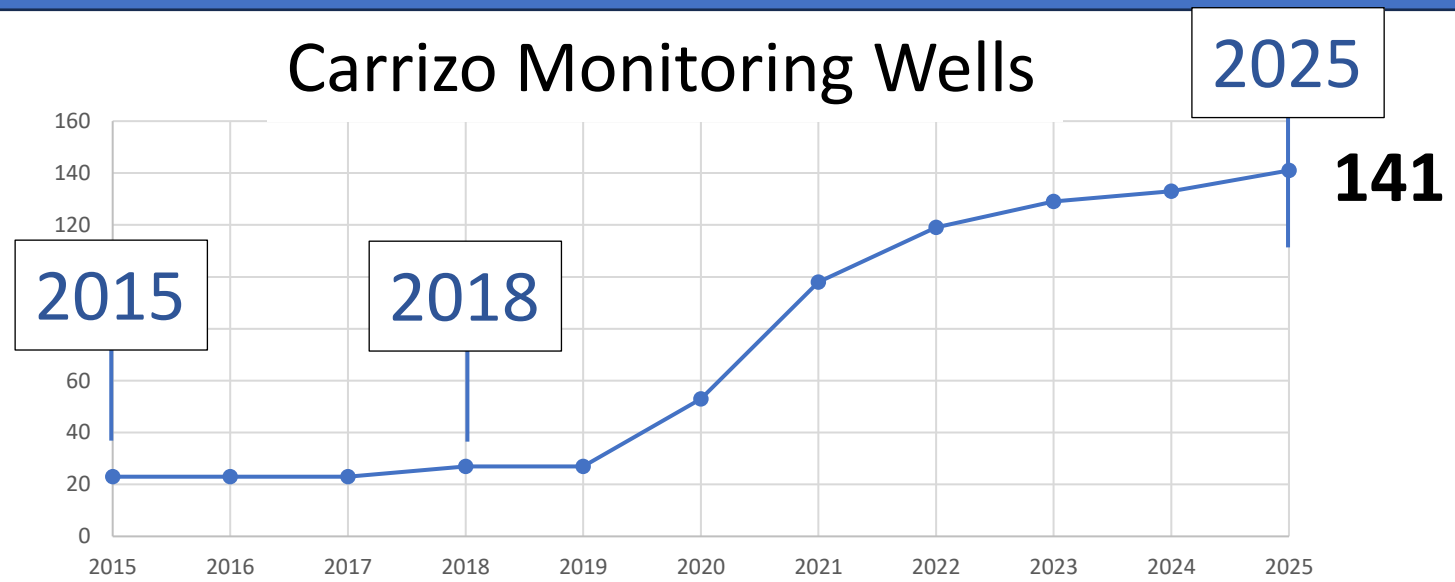
- Gathering baseline data prior to large scale production in Carrizo & Simsboro
- Data for impacted areas

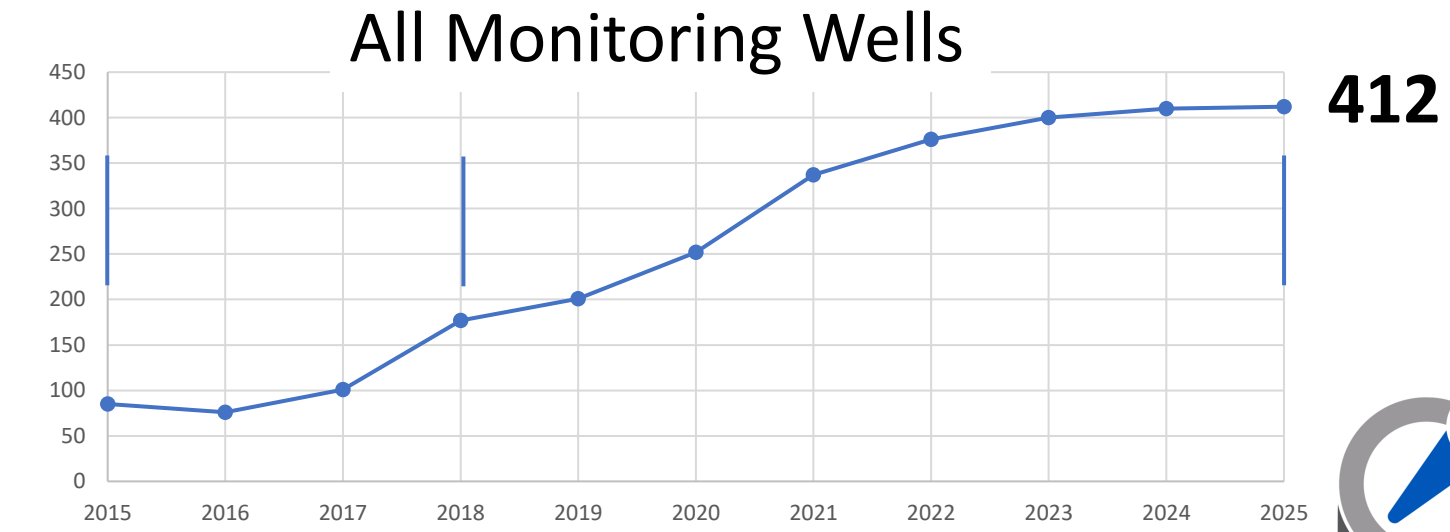


POSGCD Monitoring Network: Where We Are 2025

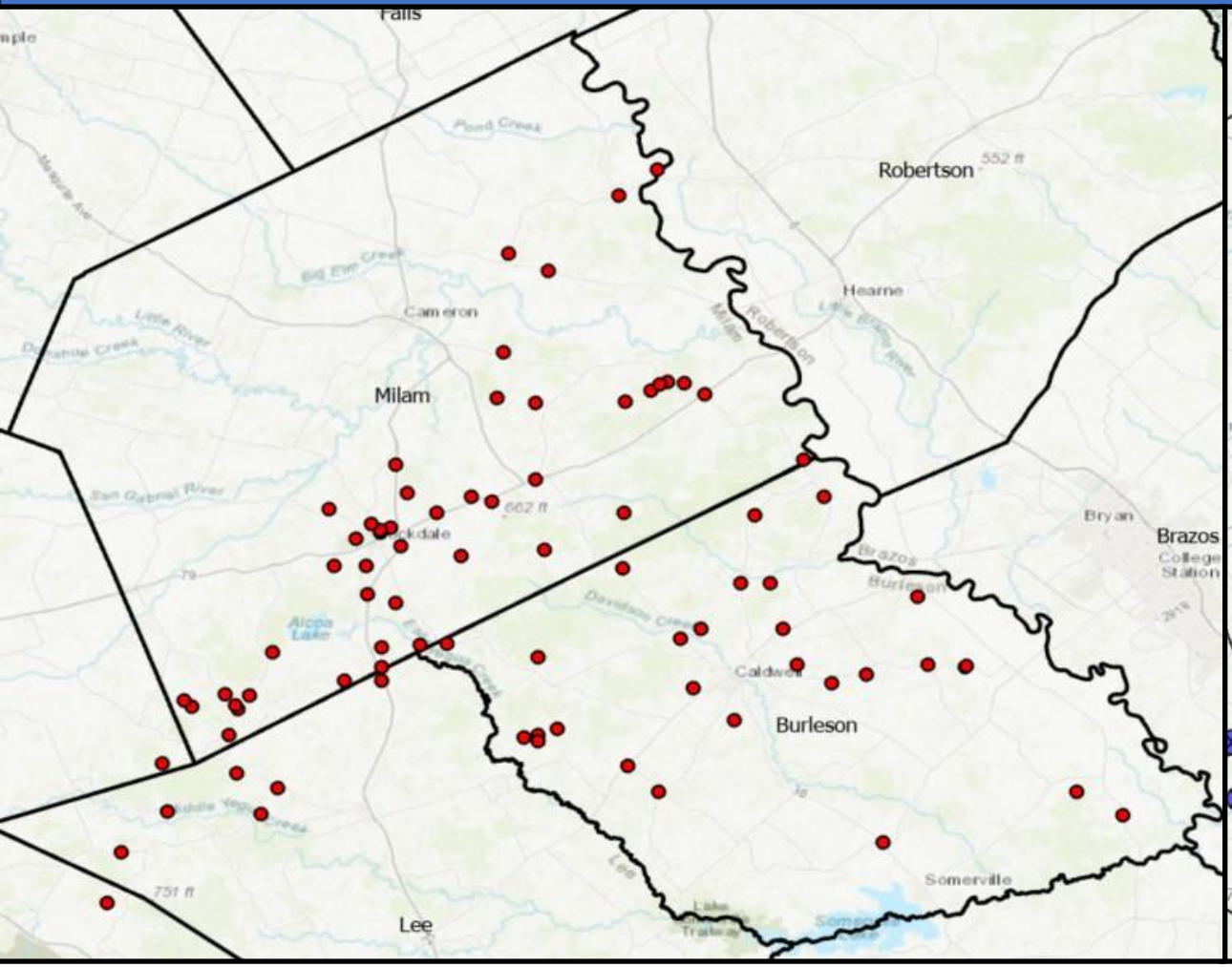
2025

- Carrizo monitoring
  - 118 added
  - 141 total active
- Total monitoring
  - 327 added
  - 412 total active
- Wellntel Units
  - 37 active
  - 23 additional units being deployed

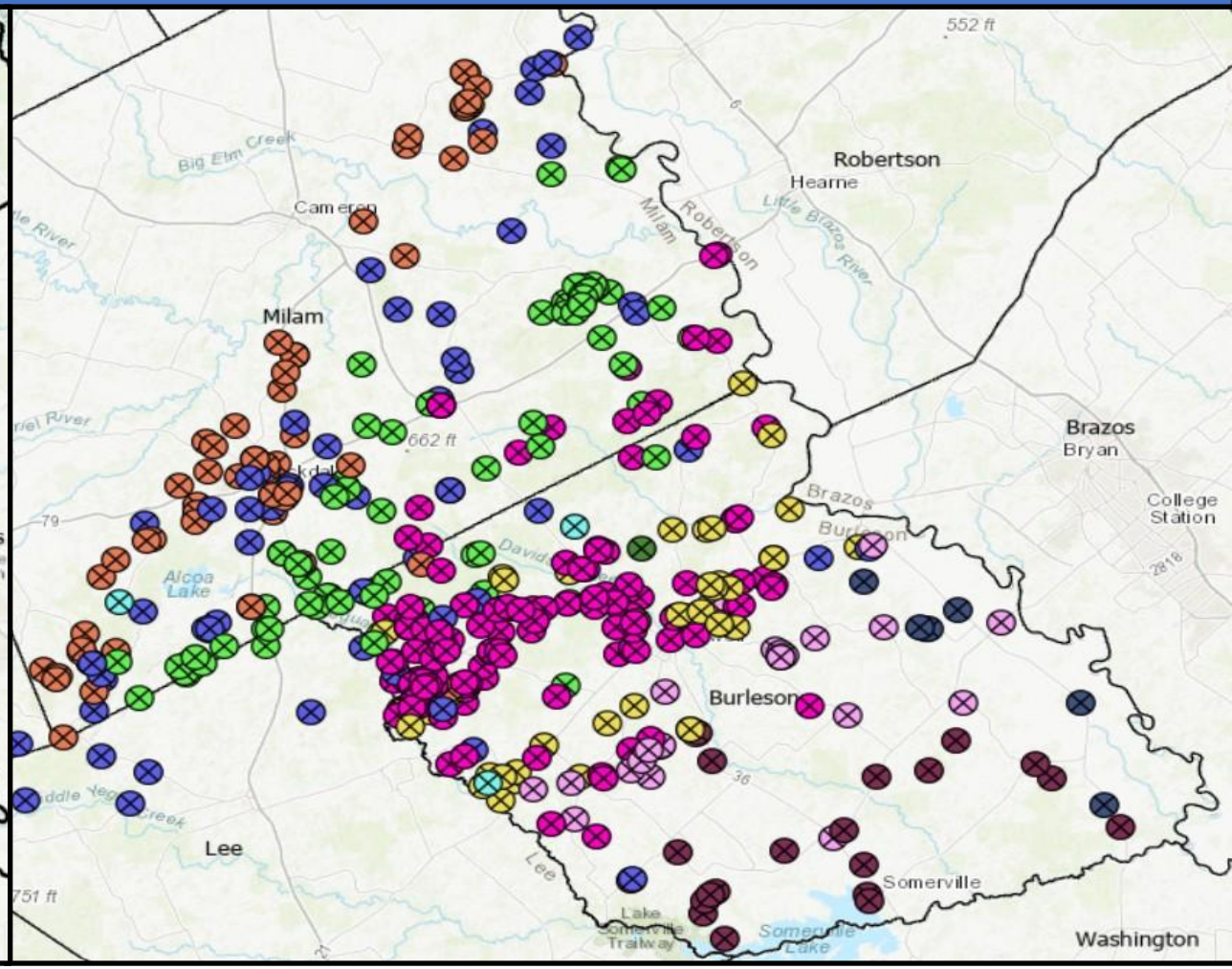




POSGCD Monitoring Network: Where We Are 2025



2015

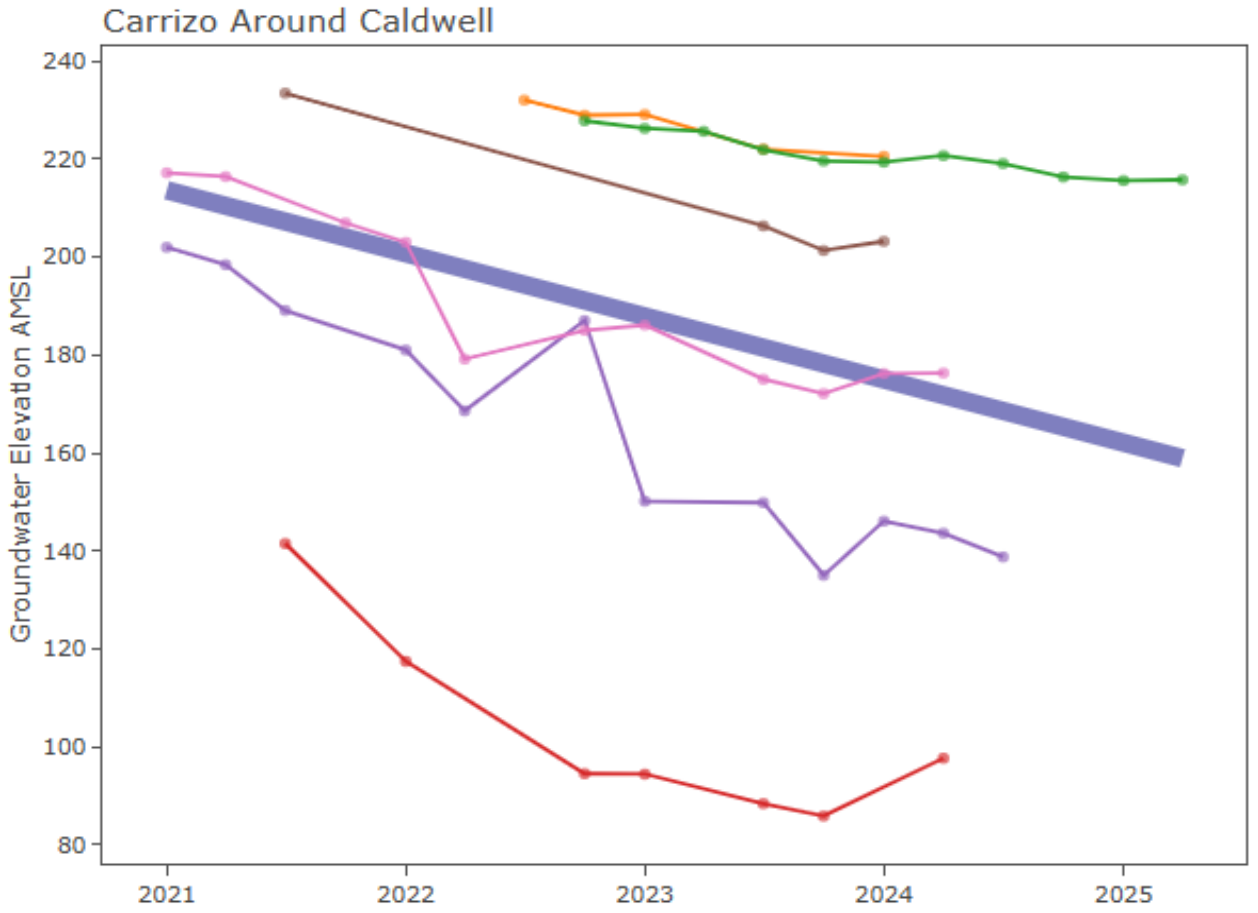


2025

POSGCD: Motivation For Improvement

- 2024 - Board directed Staff to work with WellIntel to develop a tool that improves District operations and data management

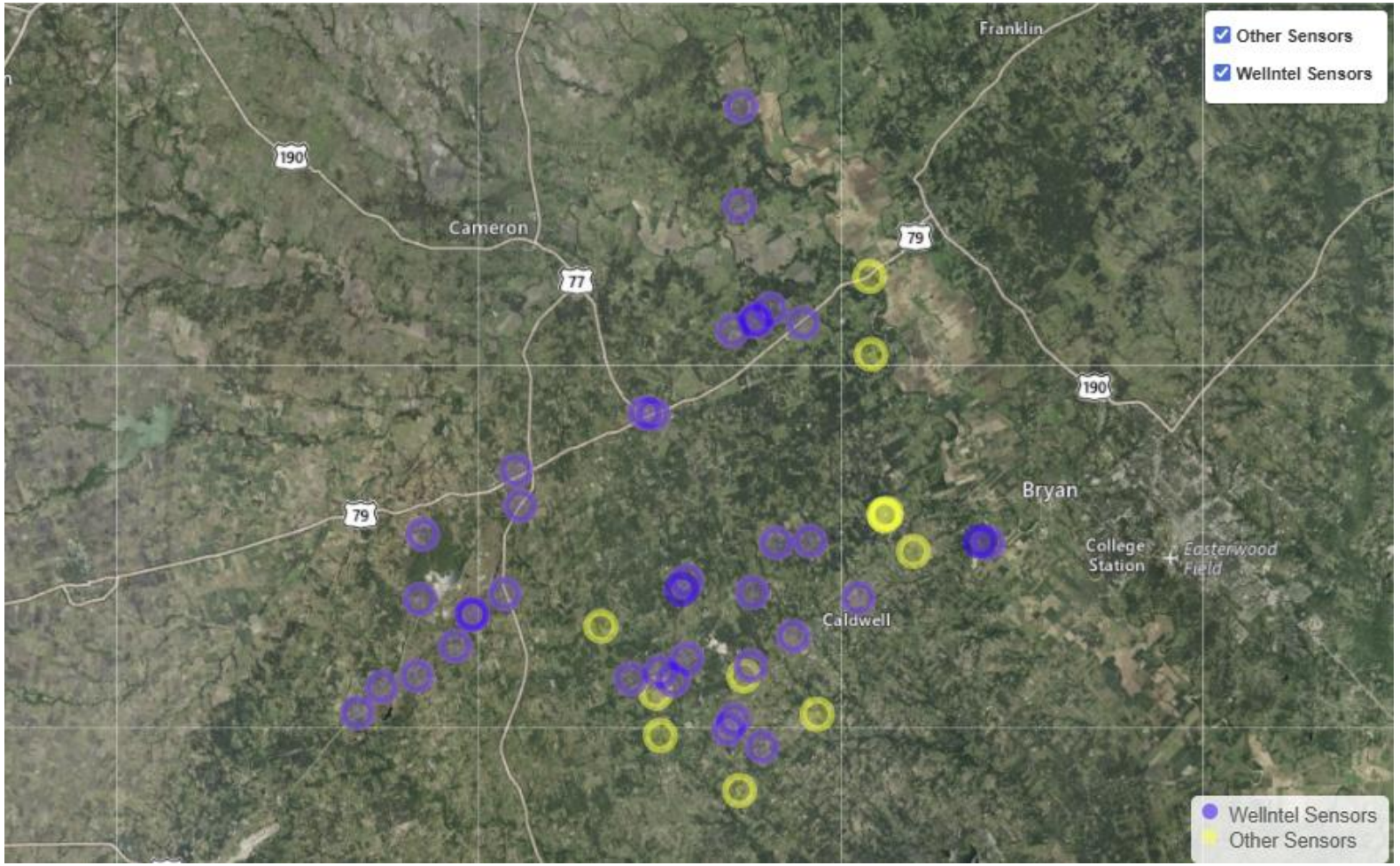
  - Transparency
  - Streamline data collection efforts
  - Data Management and Consolidation



POSGCD: WellIntel Tool

- Transparency
  - Allows users to view trend lines across multiple wells and make own assumptions
  - Allows users to look at district wide trends or local trends
- Streamline Data Collection Efforts
  - Improves efficiency of Staff
- Data Management & Consolidation
  - Vista Ridge Data (over 1 million data points)
  - Sandow Lakes Ranch Data
  - Manuel Measurements, Transducers, WellIntel systems

POSGCD Data Networks – before centralization



- POSGCD Wellntel sites
- POSGCD Manual sites
- POSGCD PT sites
- Permitted - Sandow Lakes Ranch
- Permitted - Vista Ridge

POSGCD Data – Water-level data of different types

POSGCD Wellntel sites

- Acoustic sensor
- Continuous data
- Cloud-based, real-time
- These data land in Wellntel Water Data System

POSGCD Manual sites

- E-tape or steel tape
- Periodic data
- Individual data upload to Halff database
- API daily to Wellntel Water Data System

POSGCD Data – Water-level data of different types

POSGCD PT sites

- Pressure transducer
- Continuous data
- Cloud-based, real-time
- These data land in PT server
- API daily to WellIntel Water Data System

POSGCD Data – Water-level data of different types

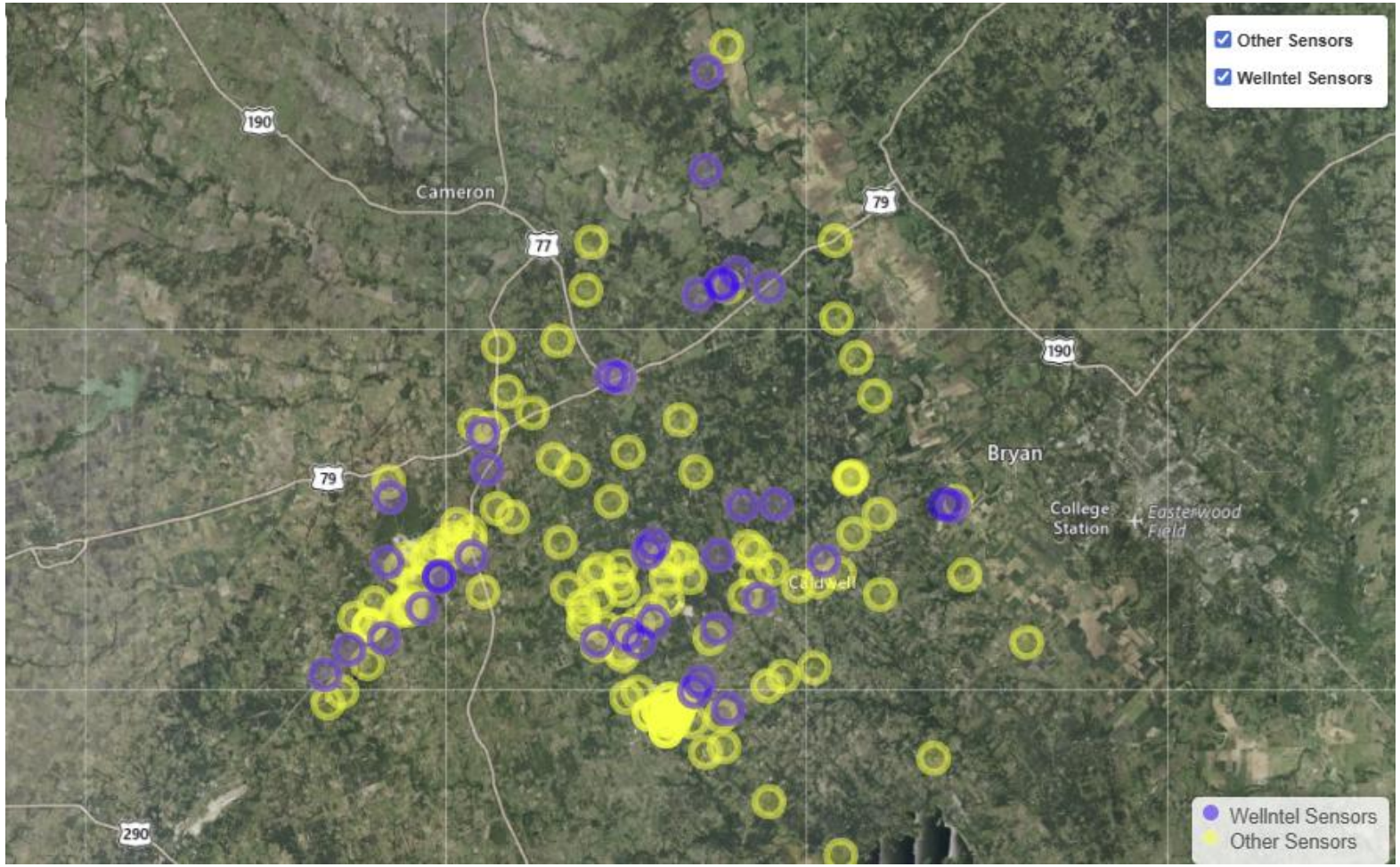
Permitted - Sandow Lakes Ranch

- Wellntel acoustic sensor
- Continuous data
- Cloud-based, real-time
- These data land in Wellntel Water Data System
- One-month delay in posting by POSGCD

Permitted - Vista Ridge

- Pressure transducer
- Continuous data
- Monthly summary data files submitted to POSGCD
- Monthly upload to Wellntel Water Data System
- One-month delay in posting by POSGCD

POSGCD Data Networks – after centralization

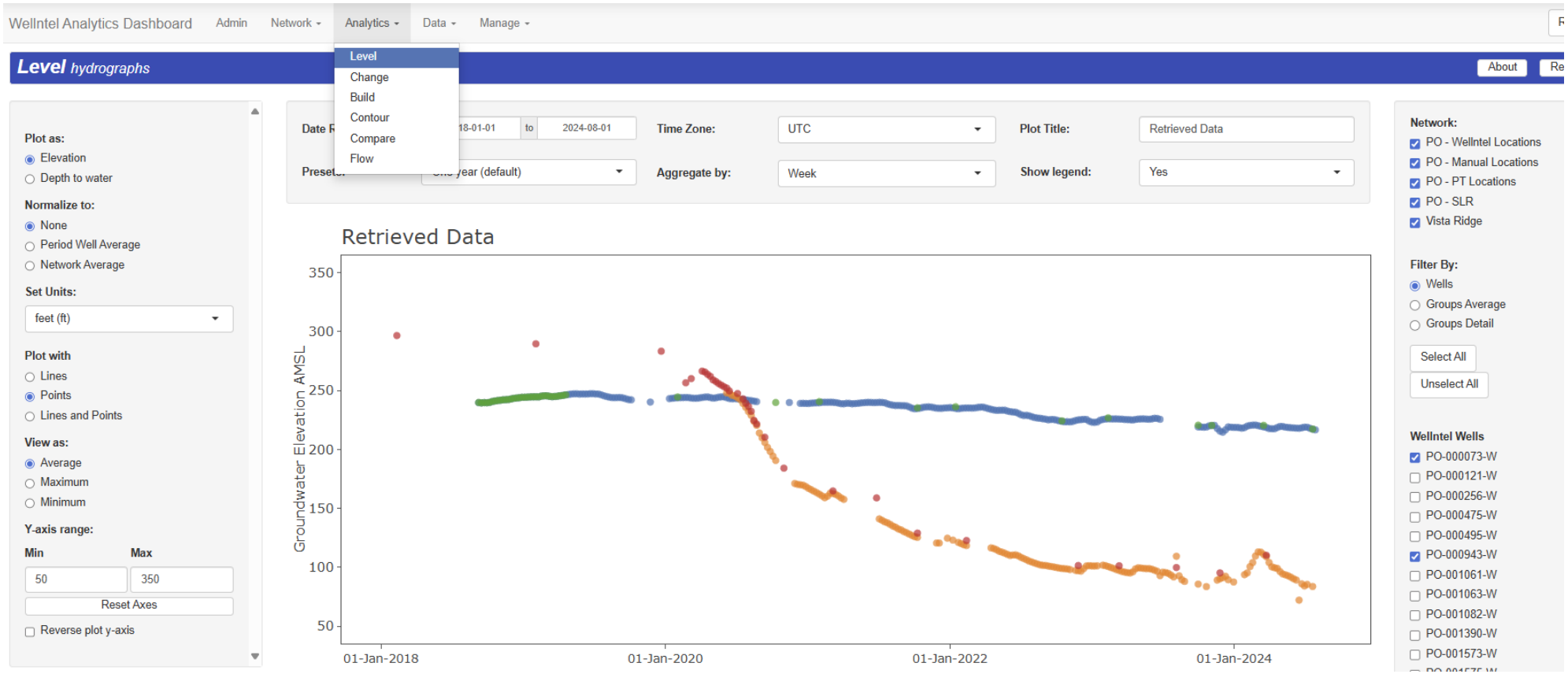


- POSGCD WellIntel sites
- POSGCD Manual sites
- POSGCD PT sites
- Permitted - Sandow Lakes Ranch
- Permitted - Vista Ridge

Solution to data challenge:

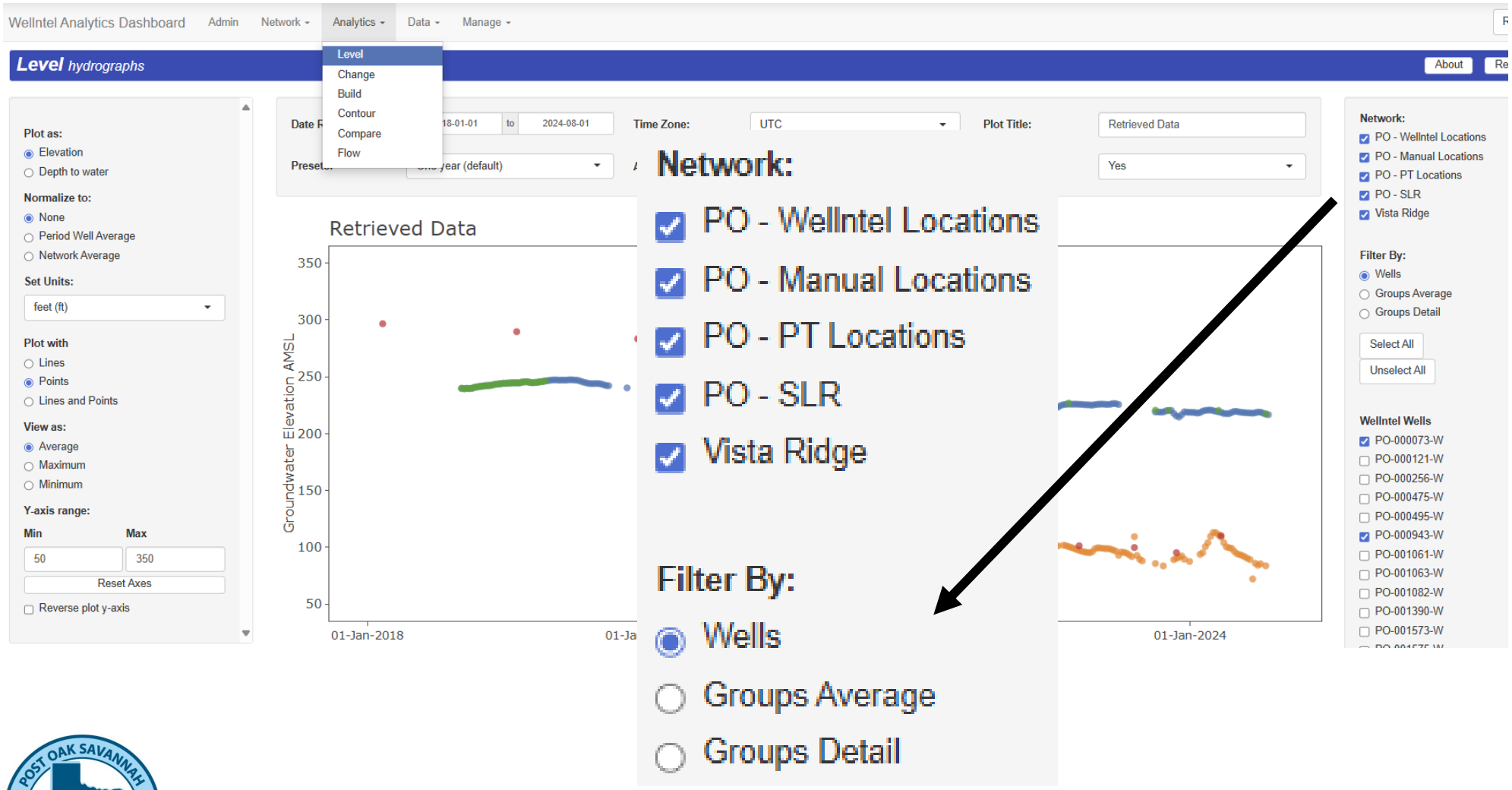
- Centralized data
- 160 key monitoring wells and growing
- Access provided to stakeholders at different levels

Elevated Data Management



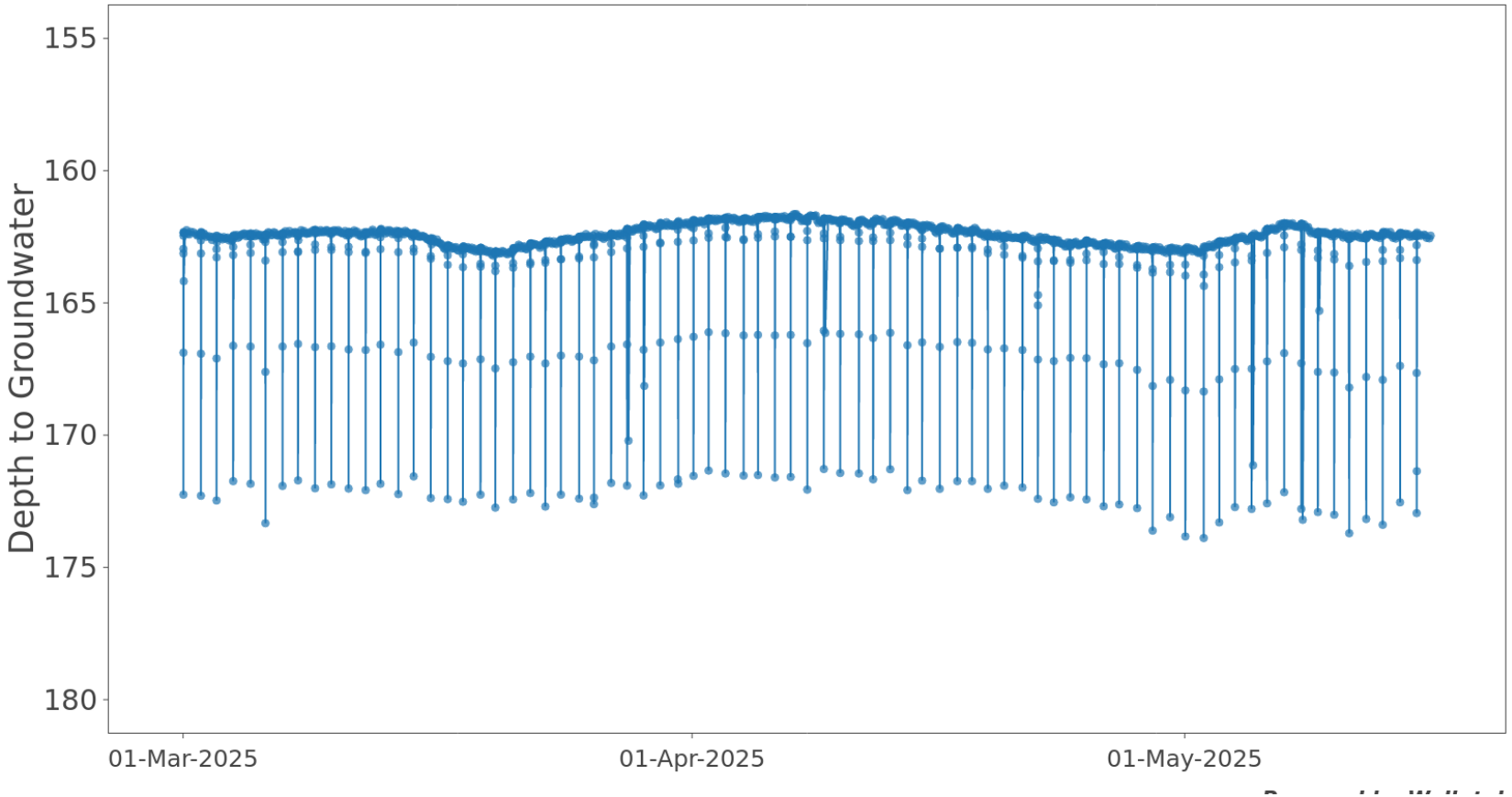
- One platform
- Siloed Data → Integrated Data
- Powerful tools

Elevated Data Management



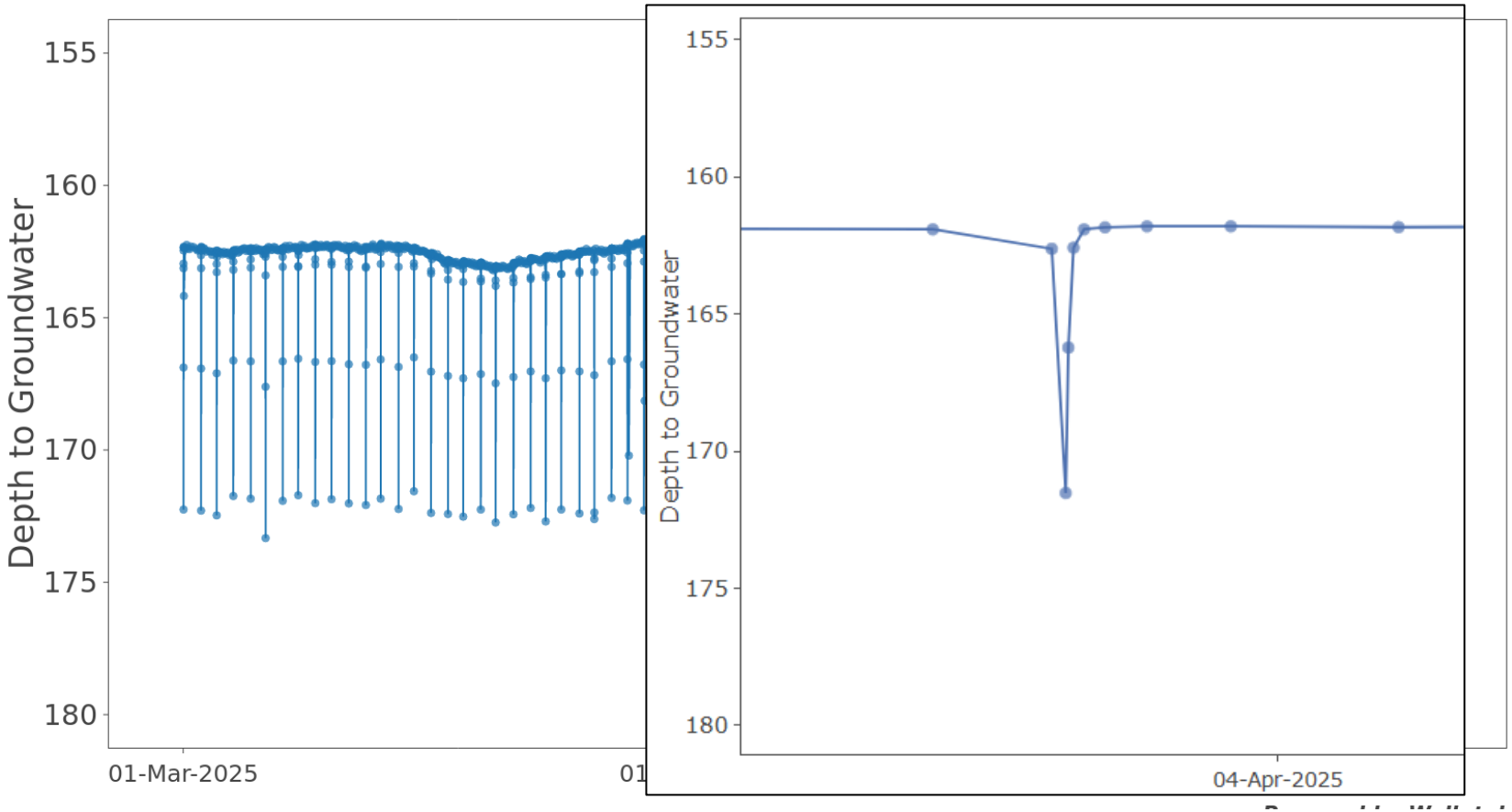
- One platform
- Siloed Data → Integrated Data
- Powerful tools
- Wells or user-defined *Groups* of wells

Elevated Data Management



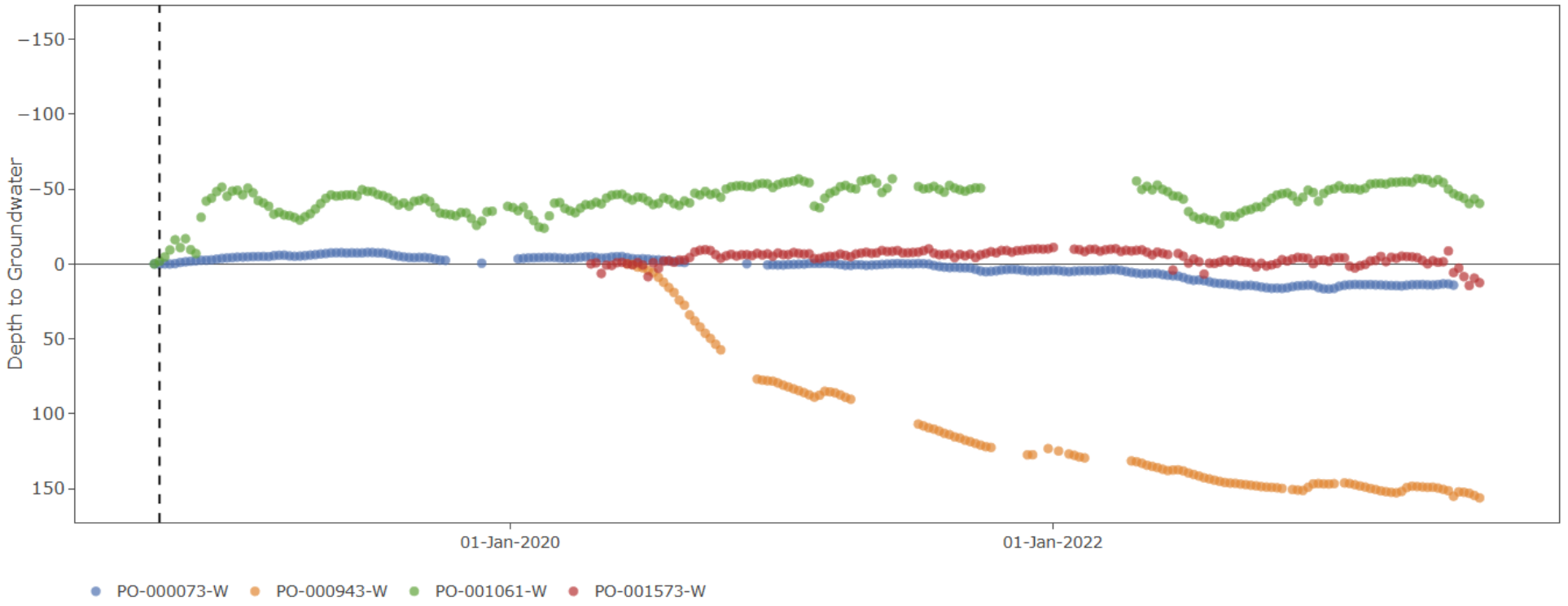
- Acoustic sensor
- Timed and Pumping events
- Static level trends isolated

Elevated Data Management



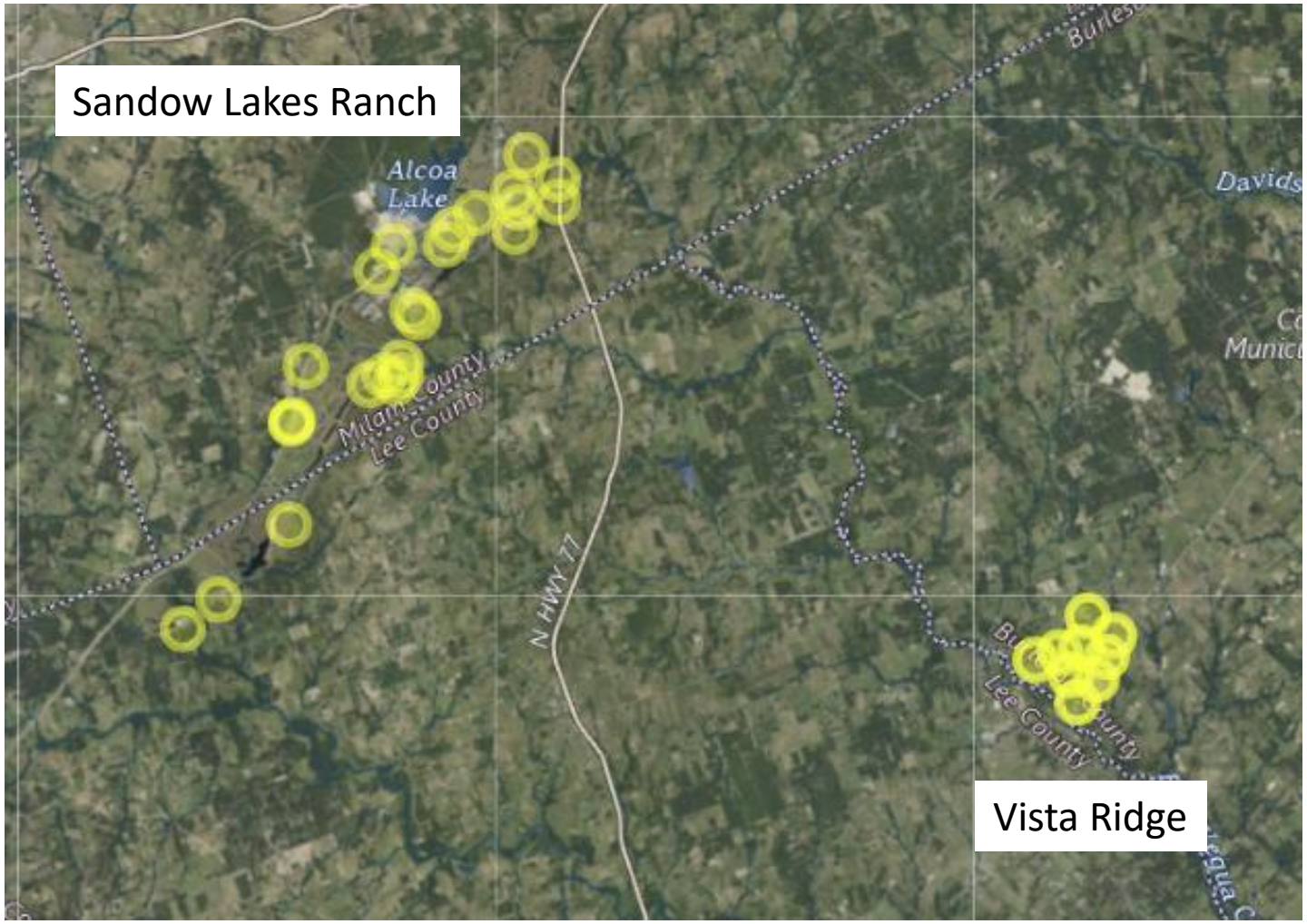
- Acoustic sensor
- Timed and Pumping events
- Static level trends isolated
- Aquifer characteristics

Elevated Data Management



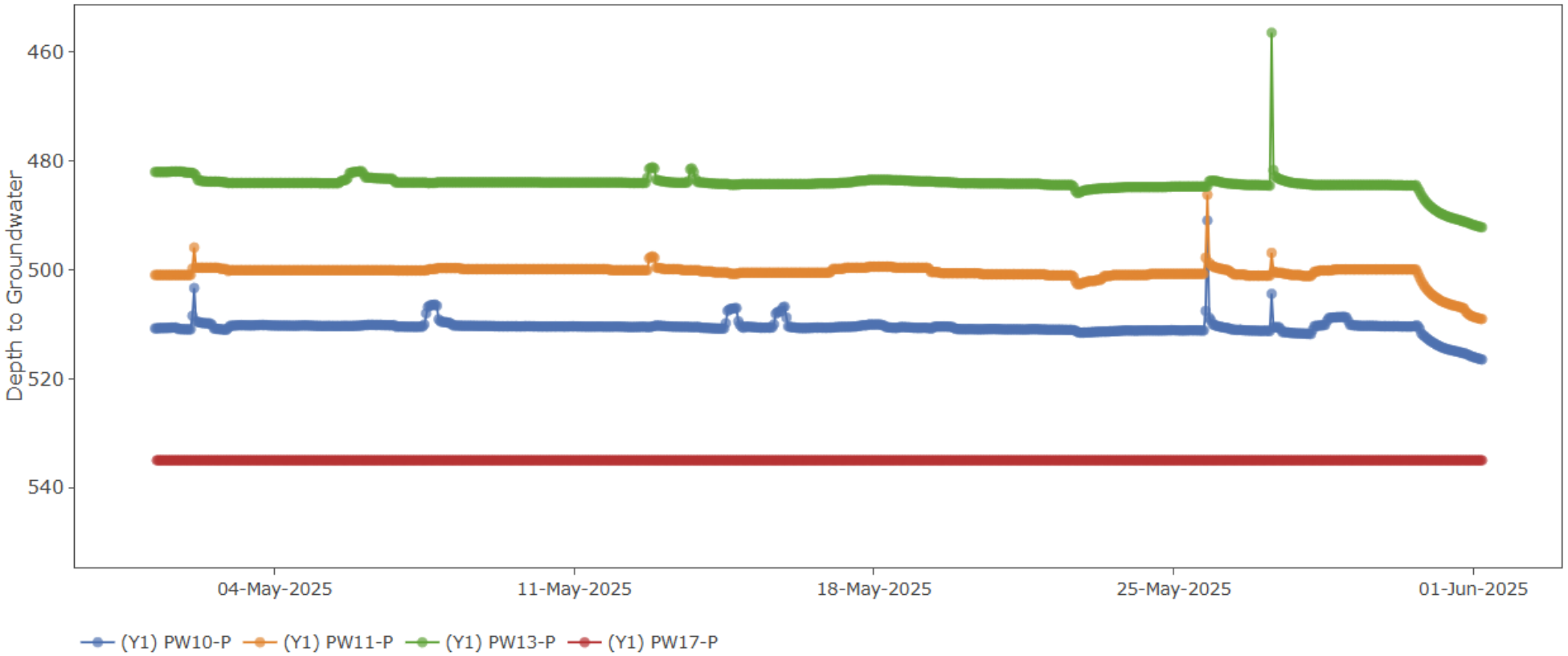
- Streamlined data access for staff and consultants
- Board has hands-on, unrestricted access to data and information

Improved Operations and Outcomes - Compliance



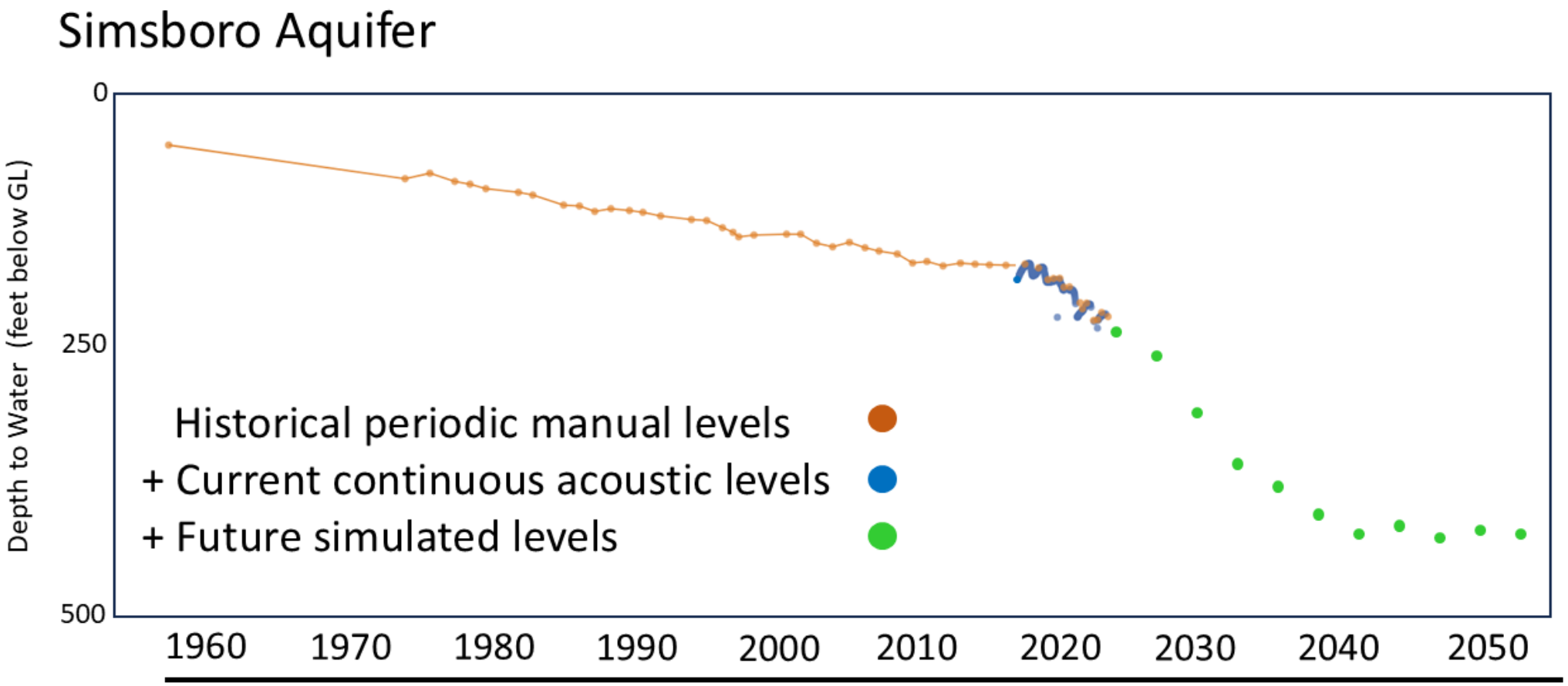
- Automated integration of Permit data

Improved Operations and Outcomes - Compliance



- Automated integration of Permit data
- Continuous compliance assessment
- Enhanced internal and regulatory reporting

Improved Operations and Outcomes: OPMAN & WellIntel



Improved Operations and Outcomes – Public Access

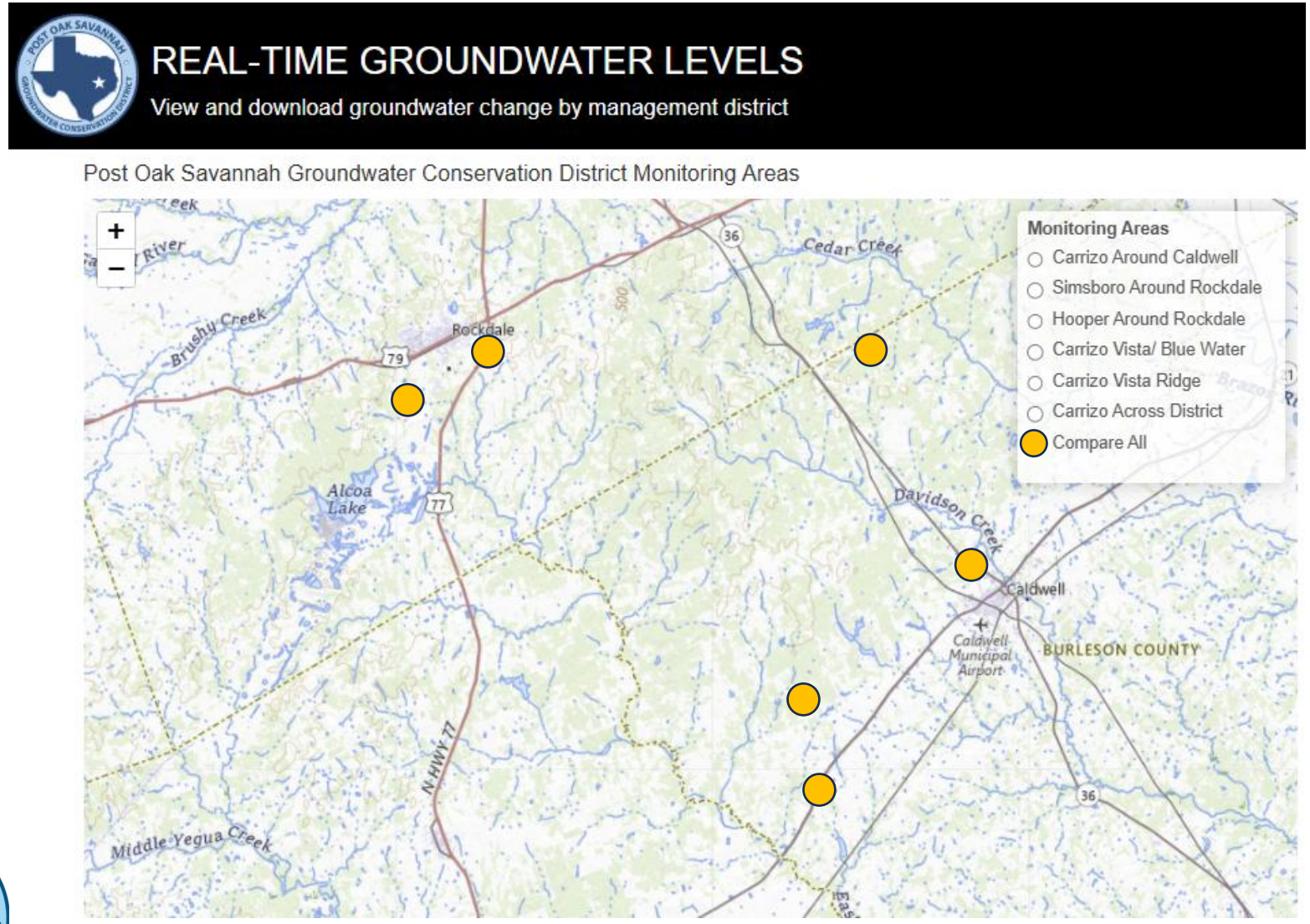
Water Level Viewer

Monitoring Tool – Grouped Wells

Download Well Data

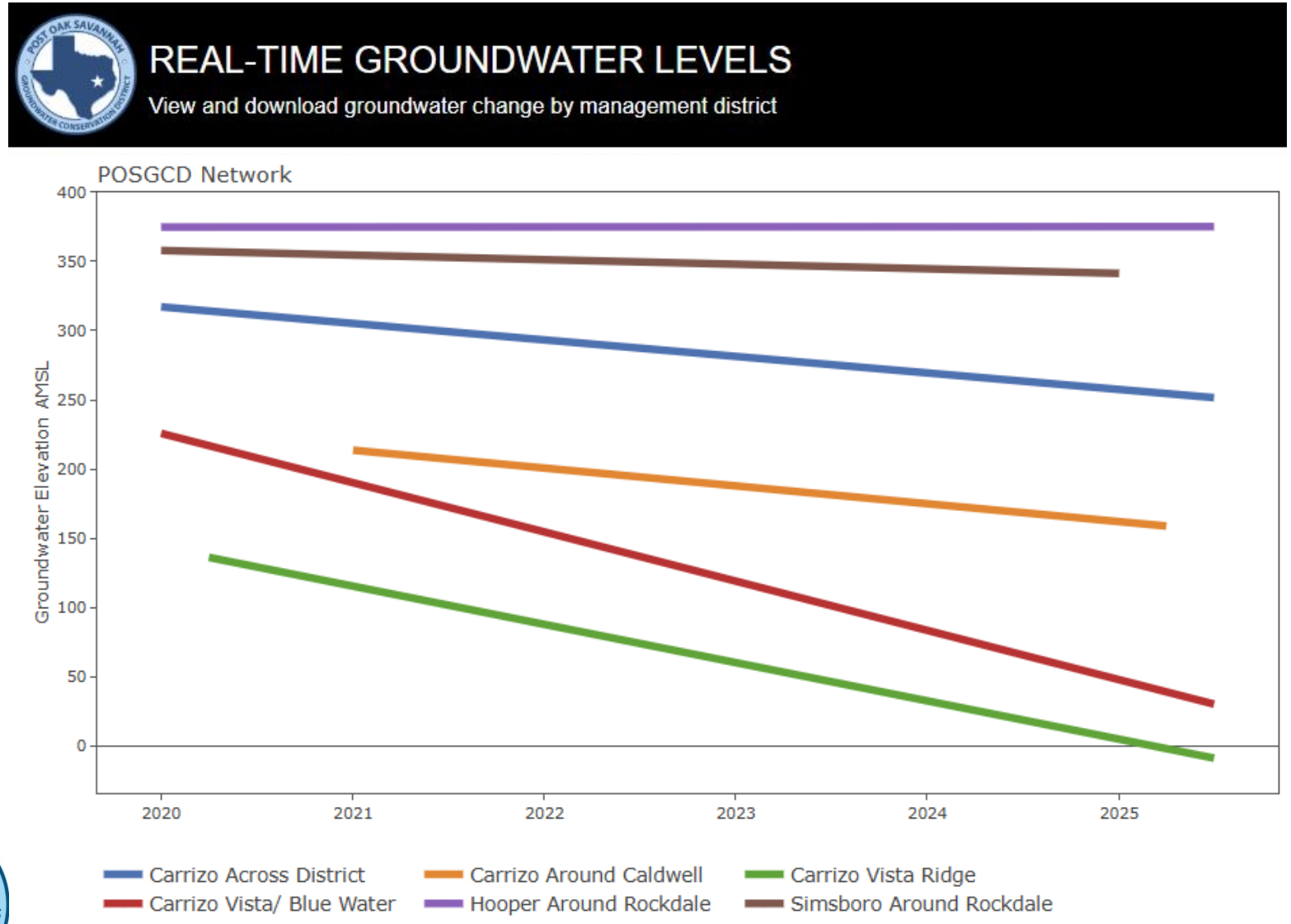
- Public access through the POSGCD website
- Direct source of information and data
- Elevate the District's relationship with stakeholders

Improved Operations and Outcomes – Public Access



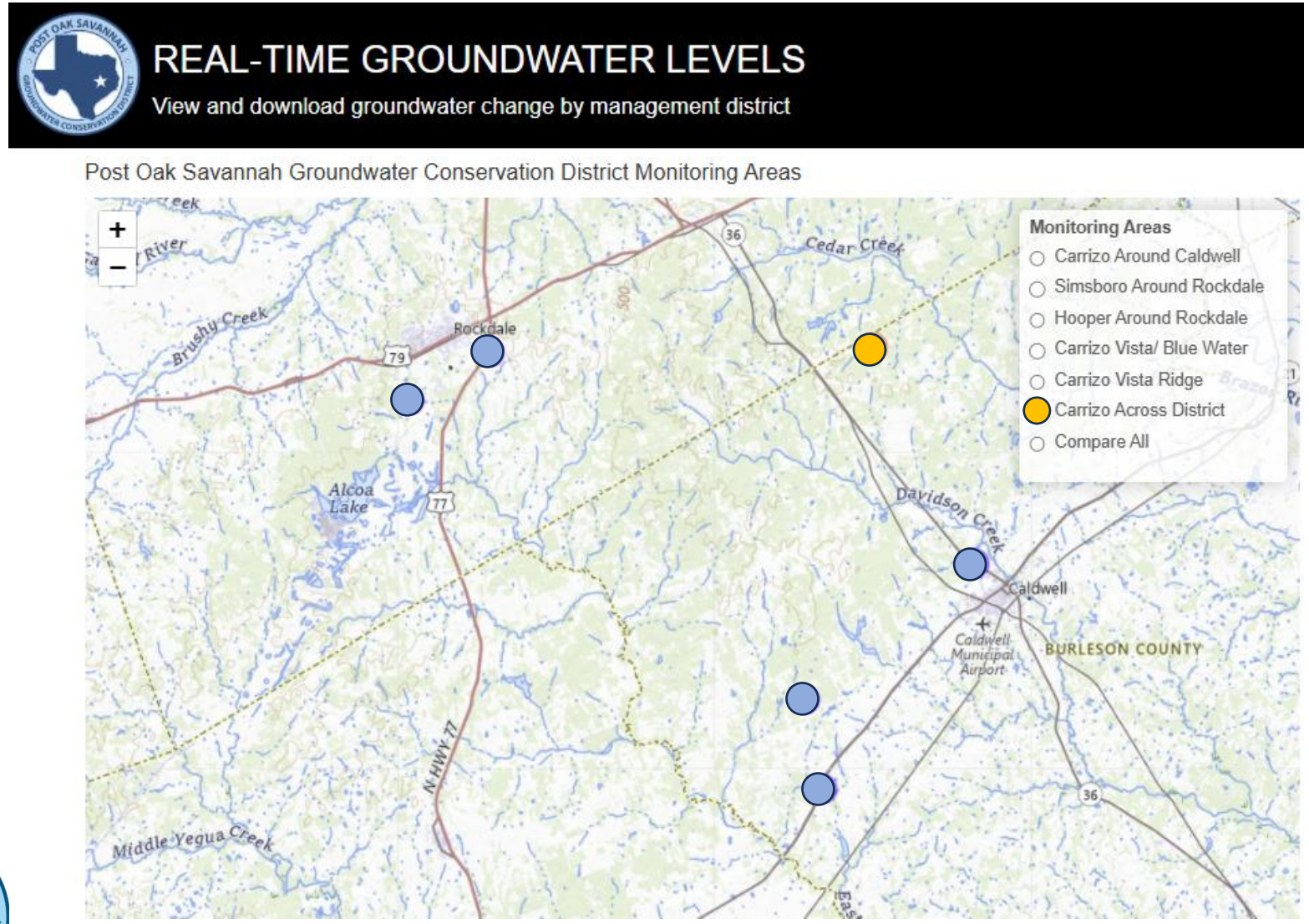
- Public access through the POSGCD website
- Groups defined by well aquifer and location

Improved Operations and Outcomes – Public Access



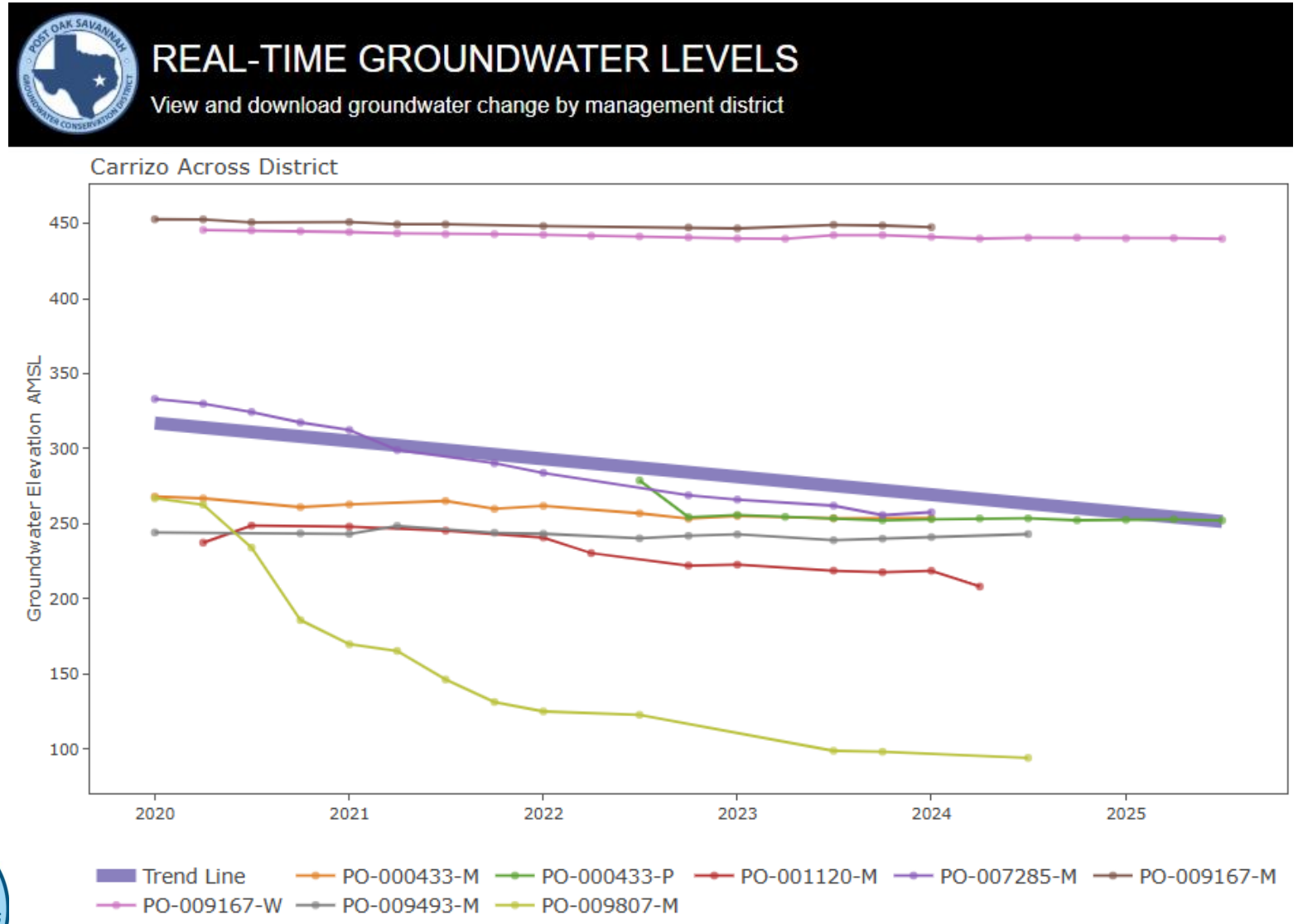
- Public access through the POSGCD website
- Groups defined by well aquifer and location
- The average level of a Group over time reveals trend

Improved Operations and Outcomes – Public Access



- Select a specific Group to see the underlying wells and data
- Interactive access for District residents and other interested stakeholders

Improved Operations and Outcomes – Public Access



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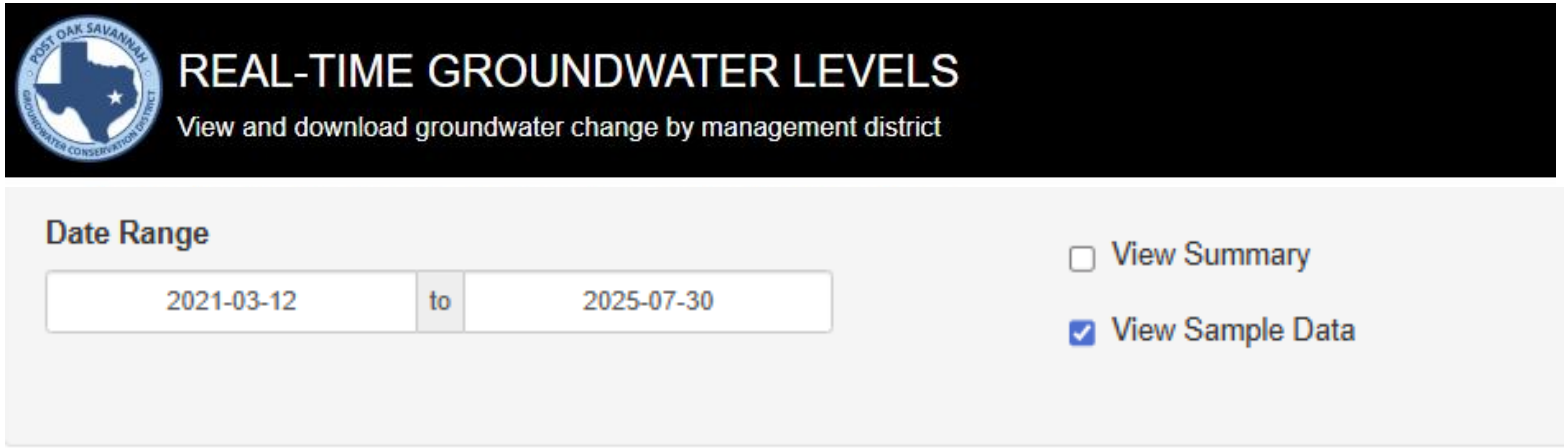
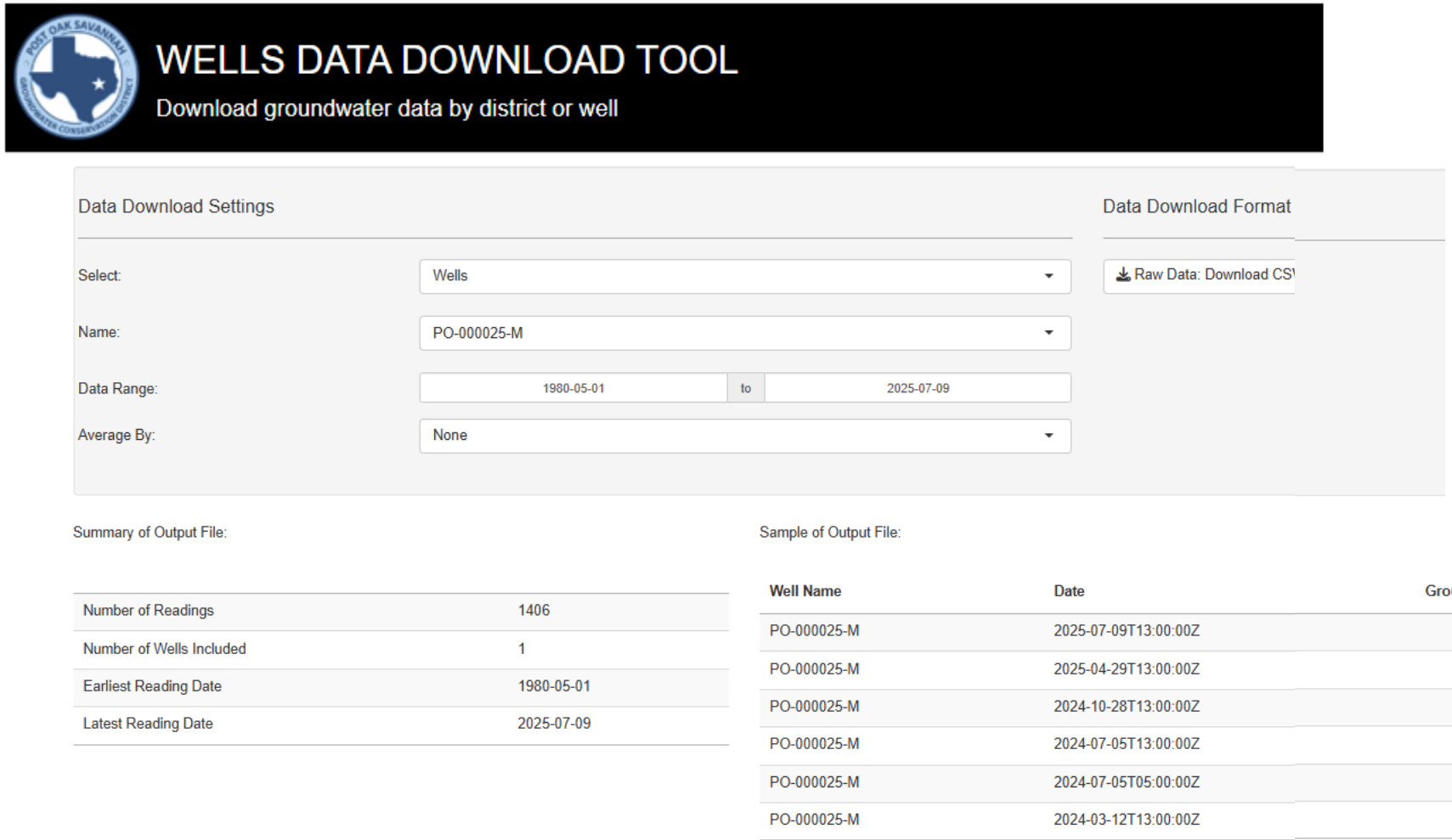


Sample of Output File:

Well Name	Date	Depth to Groundwater (ft)	Groundwater Elevation AMSL (ft)
PO-008246-M	2022-07-01	191.53	232.04
PO-008246-M	2022-10-01	194.6	228.97
PO-008246-M	2023-01-01	194.45	229.12
PO-008246-M	2023-07-01	201.51	222.06

Improved Operations and Outcomes – Public Access



WELLS DATA DOWNLOAD TOOL

Download groundwater data by district or well

Data Download Settings

Select:	Wells
Name:	PO-000025-M
Data Range:	1980-05-01 to 2025-07-09
Average By:	None

Data Download Format

Raw Data: Download CSV

Summary of Output File:

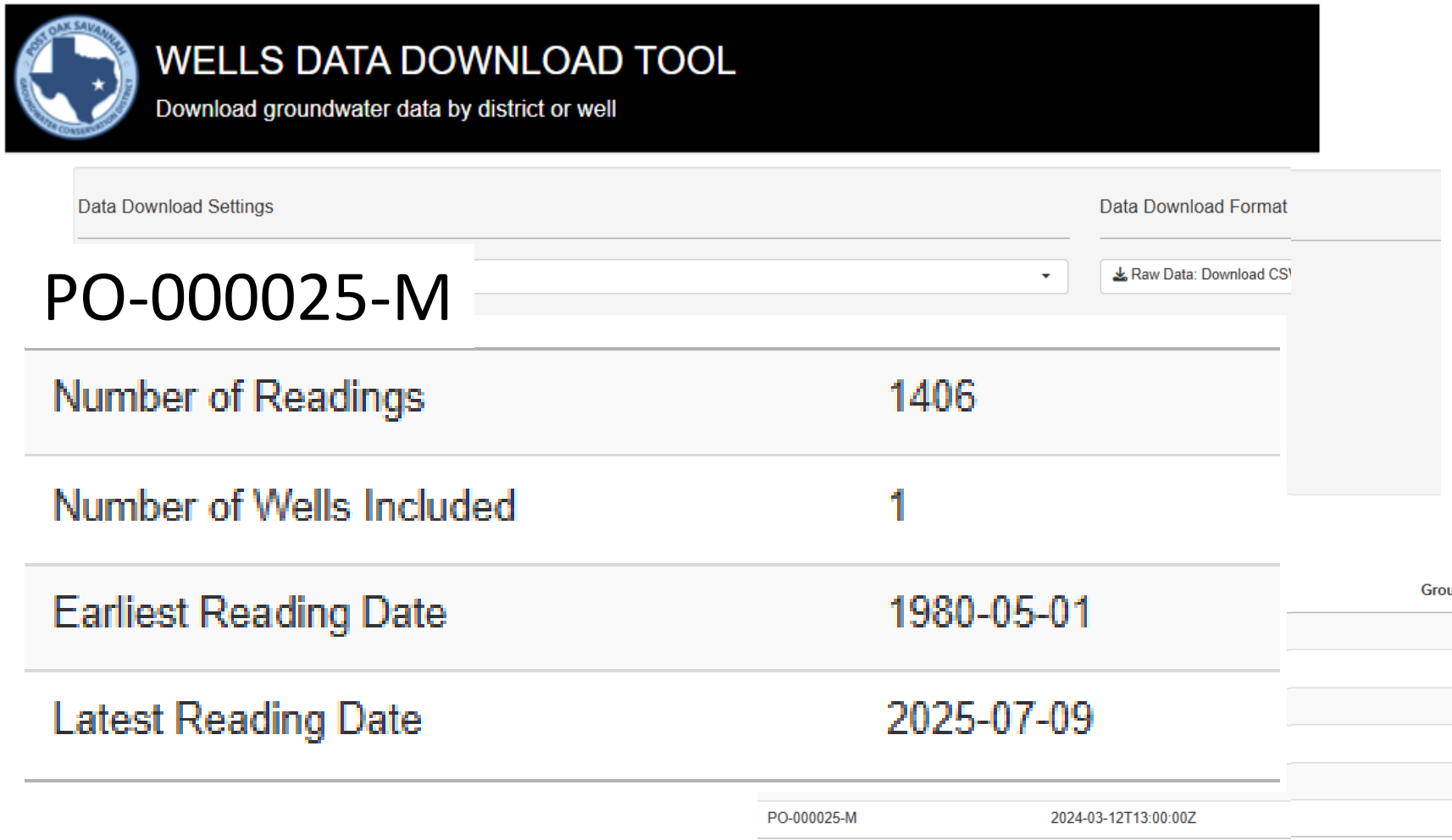
Number of Readings	1406
Number of Wells Included	1
Earliest Reading Date	1980-05-01
Latest Reading Date	2025-07-09

Sample of Output File:

Well Name	Date	Groundwater Elevation AMSL (ft)
PO-000025-M	2025-07-09T13:00:00Z	342.91
PO-000025-M	2025-04-29T13:00:00Z	343.17
PO-000025-M	2024-10-28T13:00:00Z	343.48
PO-000025-M	2024-07-05T13:00:00Z	344.1
PO-000025-M	2024-07-05T05:00:00Z	344.1
PO-000025-M	2024-03-12T13:00:00Z	344.48

- Data Download Tool provides public access to complete data for any District monitoring network well

Improved Operations and Outcomes – Public Access



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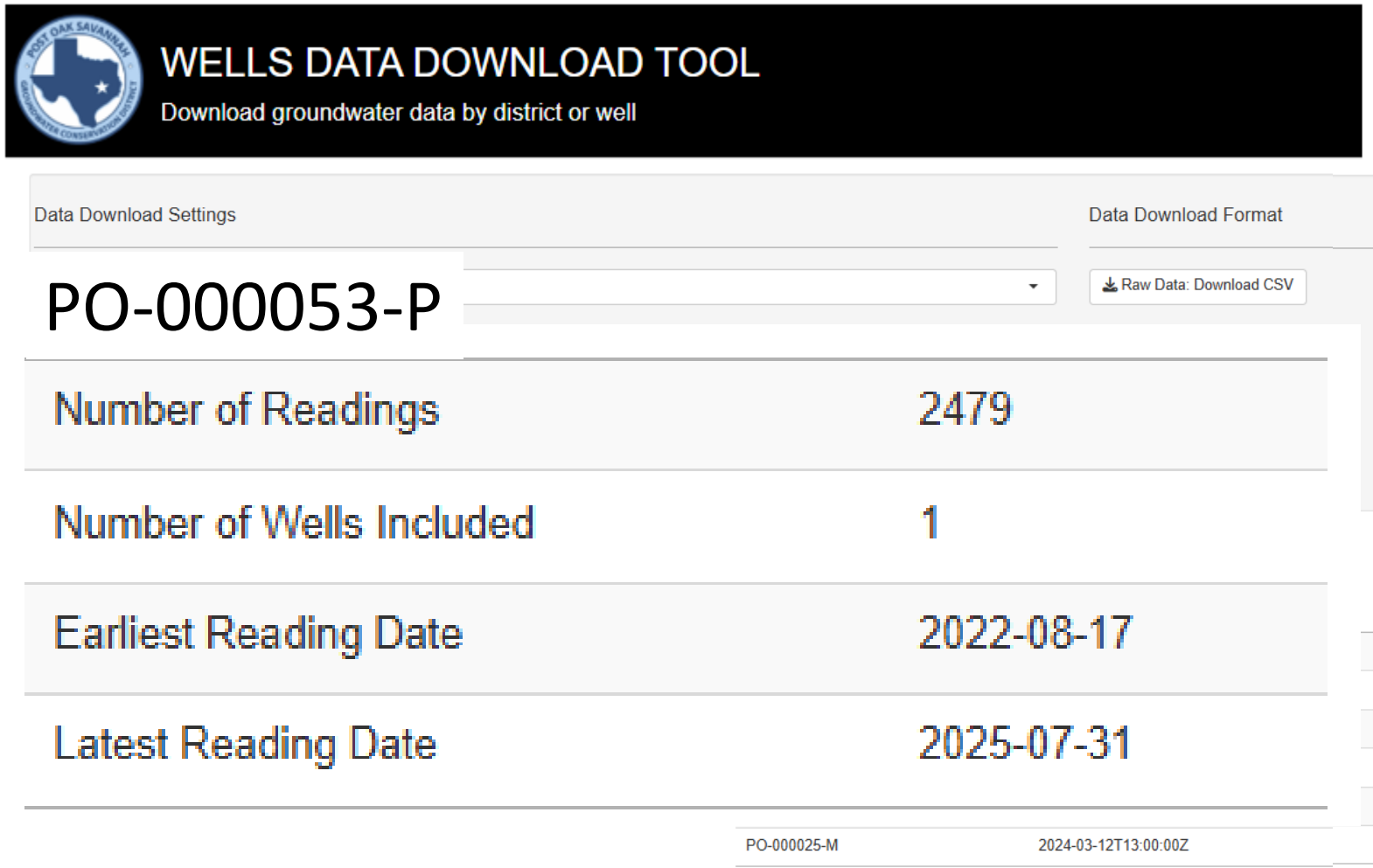
Improved Operations and Outcomes – Public Access



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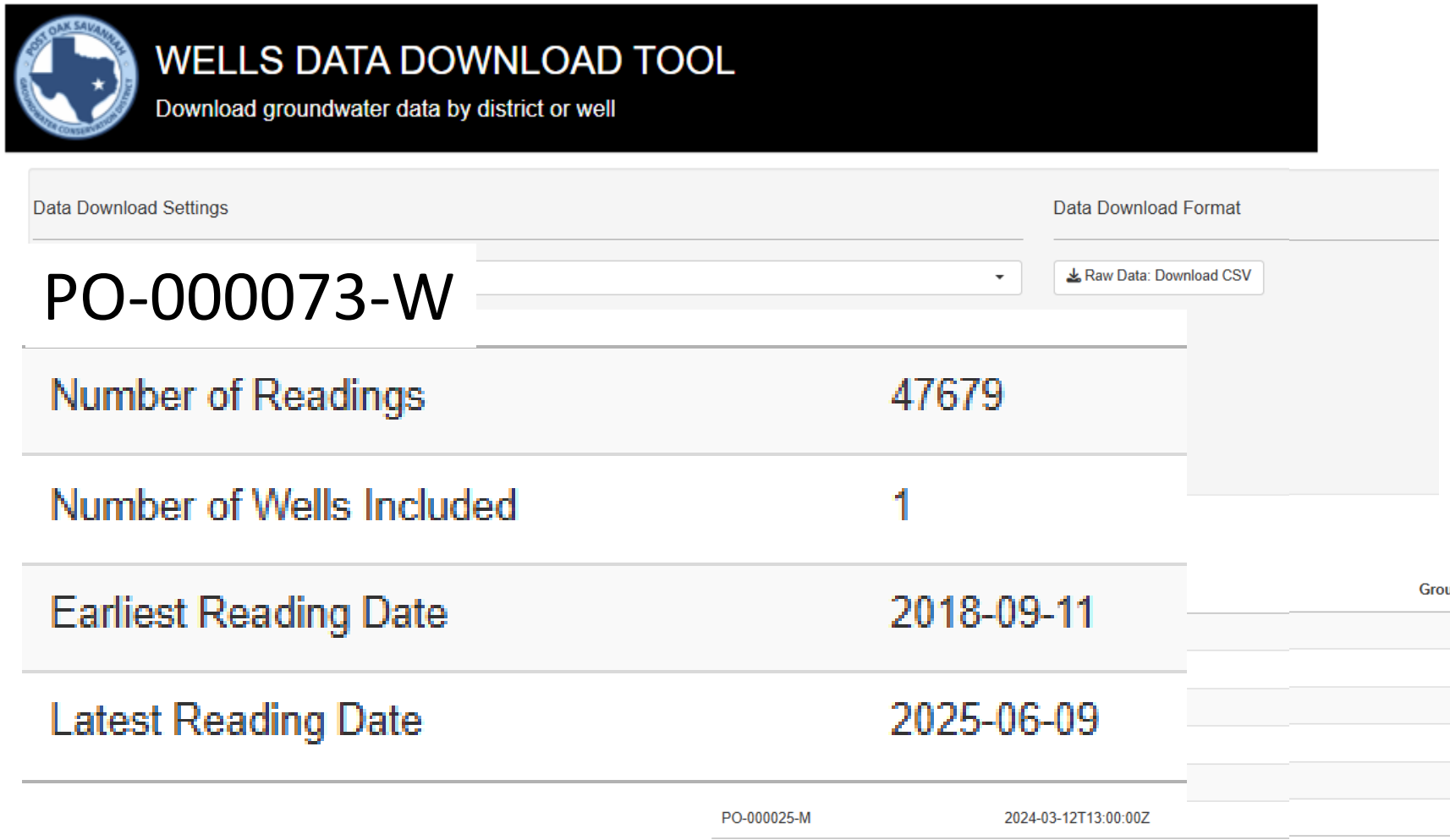


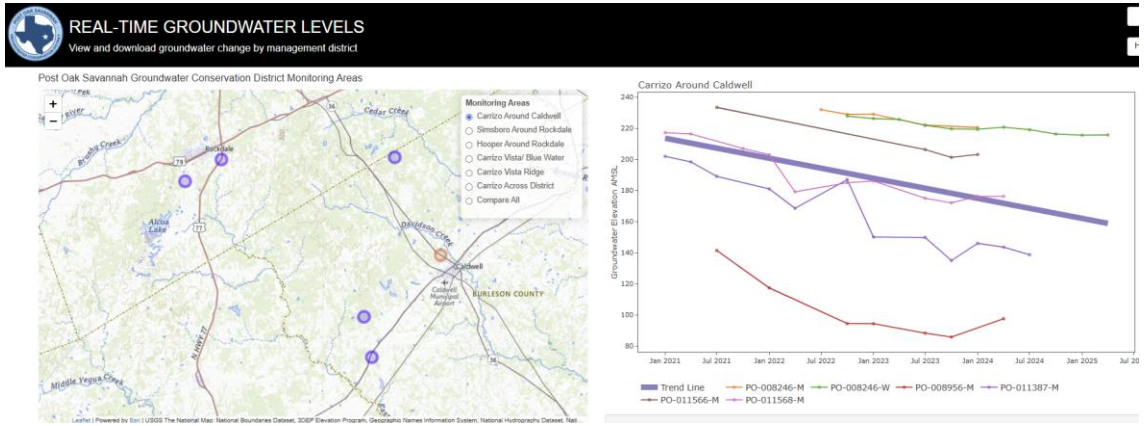
- Data Download Tool provides public access to complete data for any District monitoring network well

Take Away Points

Value of Elevating Data Management

- Data are integrated, available in one location, powerful analytics
- Investments in data collection are multiplied
- Routine tasks automated, both District staff and supporting consultants

- District stakeholders have interactive access to data important to them
- Better science, lower risk, more insightful analysis and reporting
- Real-time impacts illuminated, enable adaptive management, GWAP



Thank You!
…..and Contact Information

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Water Level Viewer - https://posgcd.org/water-level-viewer/