

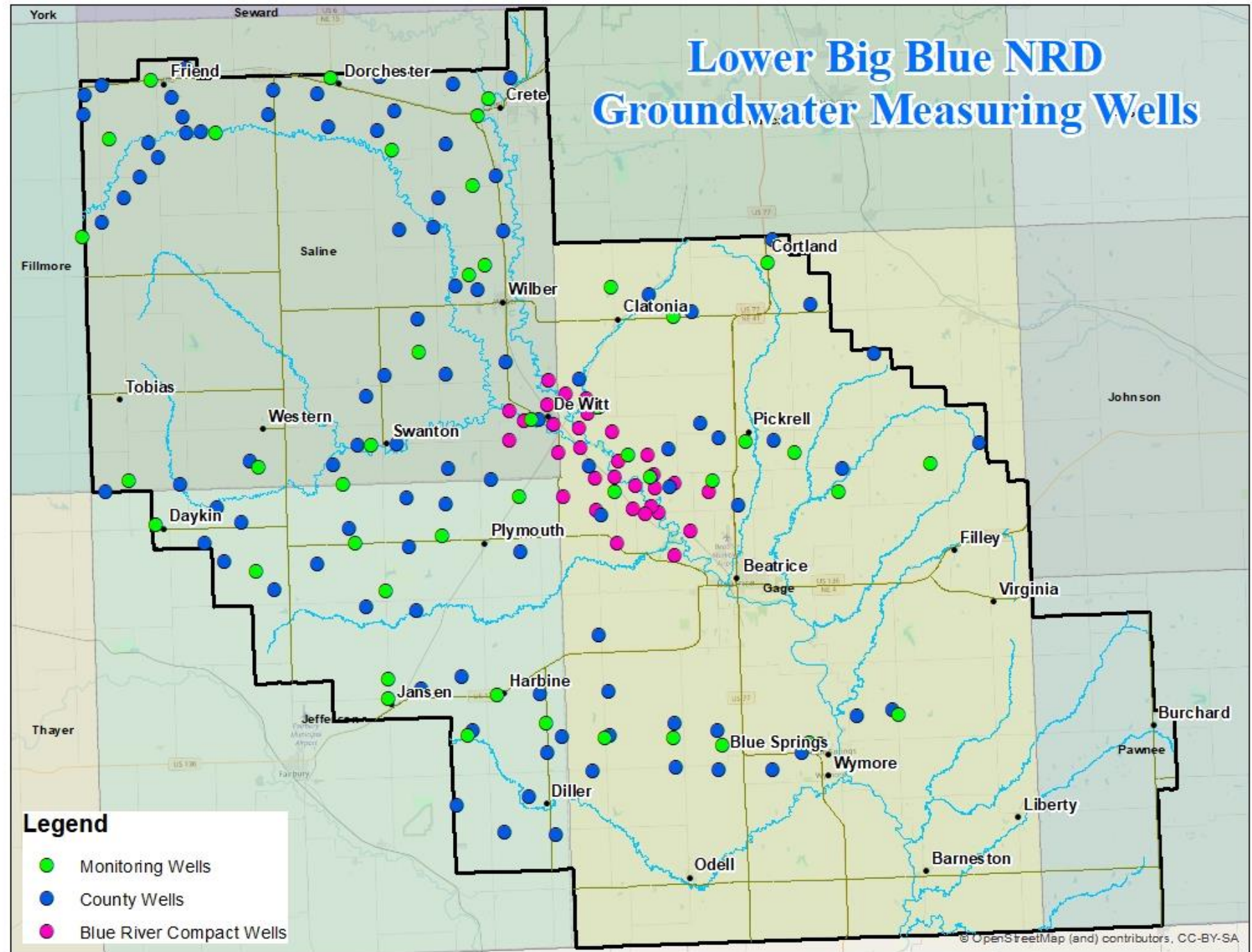
Lower Big Blue Natural Resources District

"Watershed Capital of Nebraska"



2023 IMP Report

Added 2 New Monitoring Wells



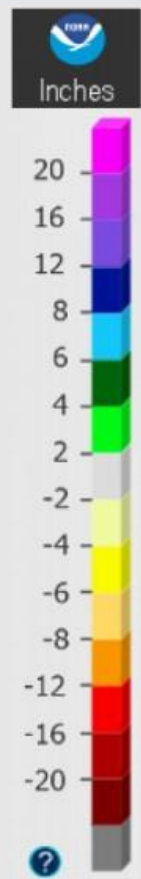
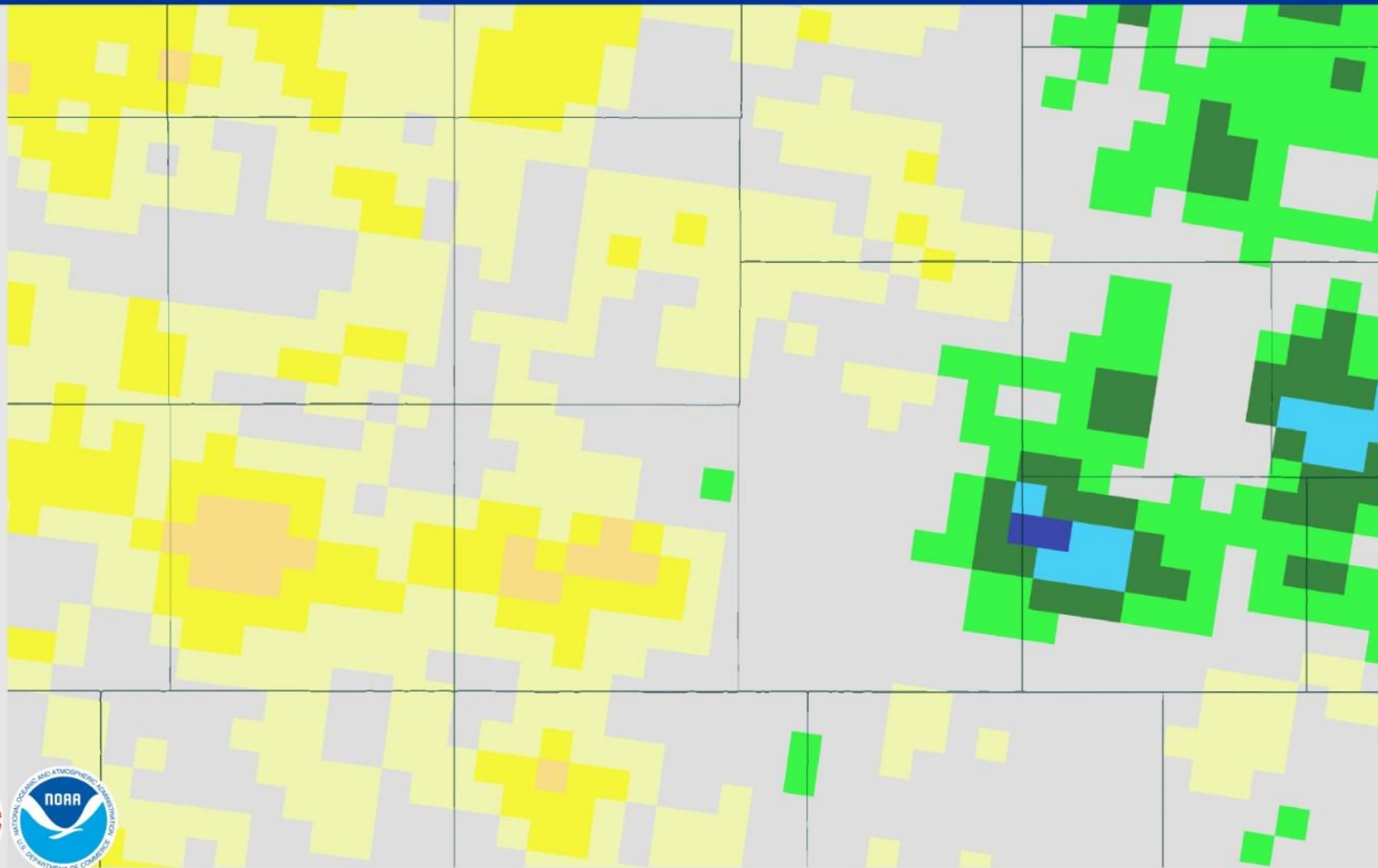
Groundwater Levels

Wells	Number of Wells	Water Level Change From Spring 2022 to Spring 2023	Water Level From Baseline
Gage County	27	-1.91	-2.36
Jefferson County	24	-0.65	-5.60
Saline County	42	-1.07	-0.68
Dedicated Monitoring Wells	46	-1.65	-0.90
Blue River Compact Wells	32	-0.90	-2.05
District-Wide	171	-1.24	-2.32

September 19, 2023 Year to Date Departure Precipitation

Created on: September 19, 2023 - 14:14 UTC

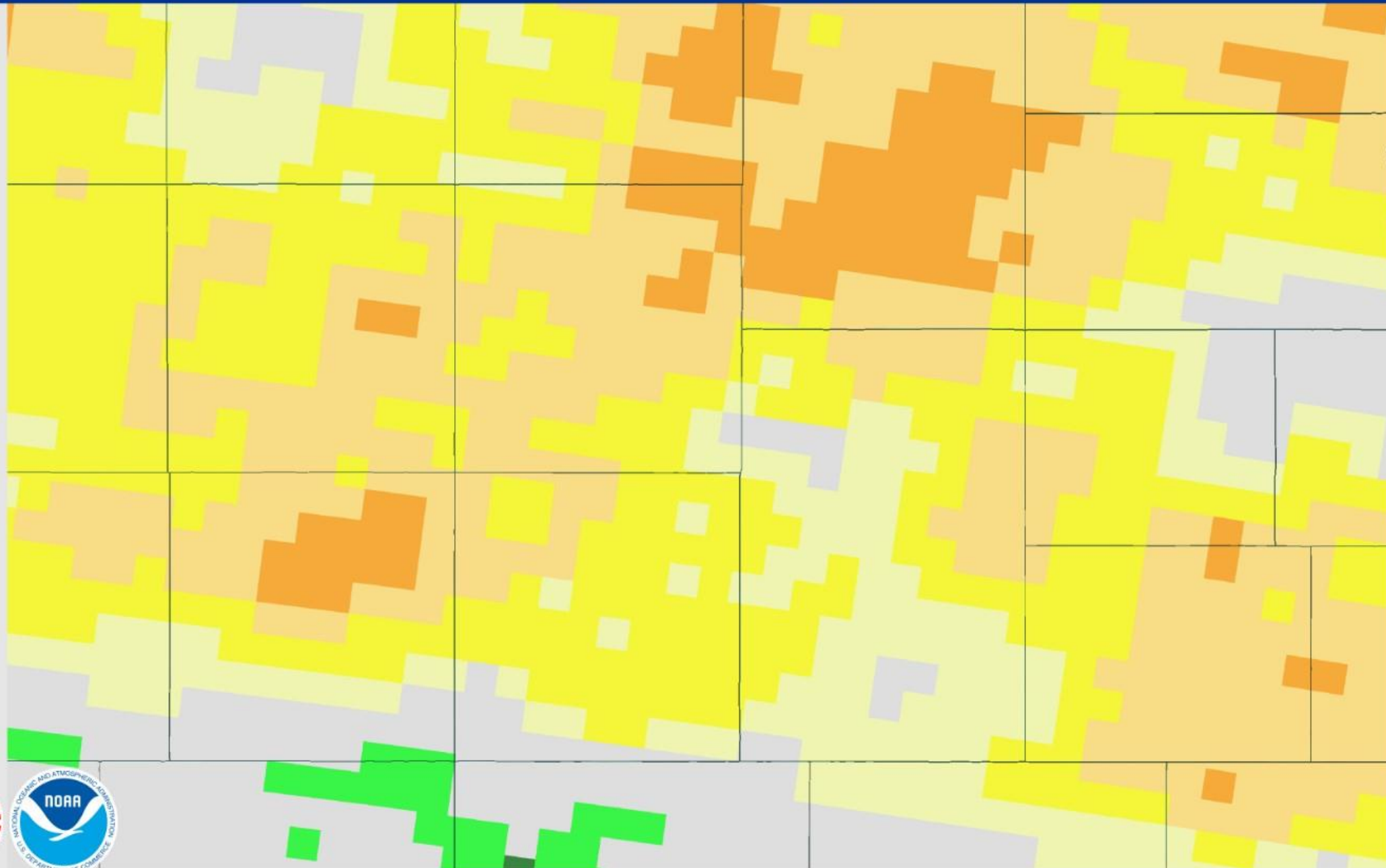
Valid on: September 19, 2023 12:00 UTC



January 01, 2022 Annual Departure Precipitation

Created on: September 19, 2023 - 14:10 UTC

Valid on: January 01, 2023 12:00 UTC



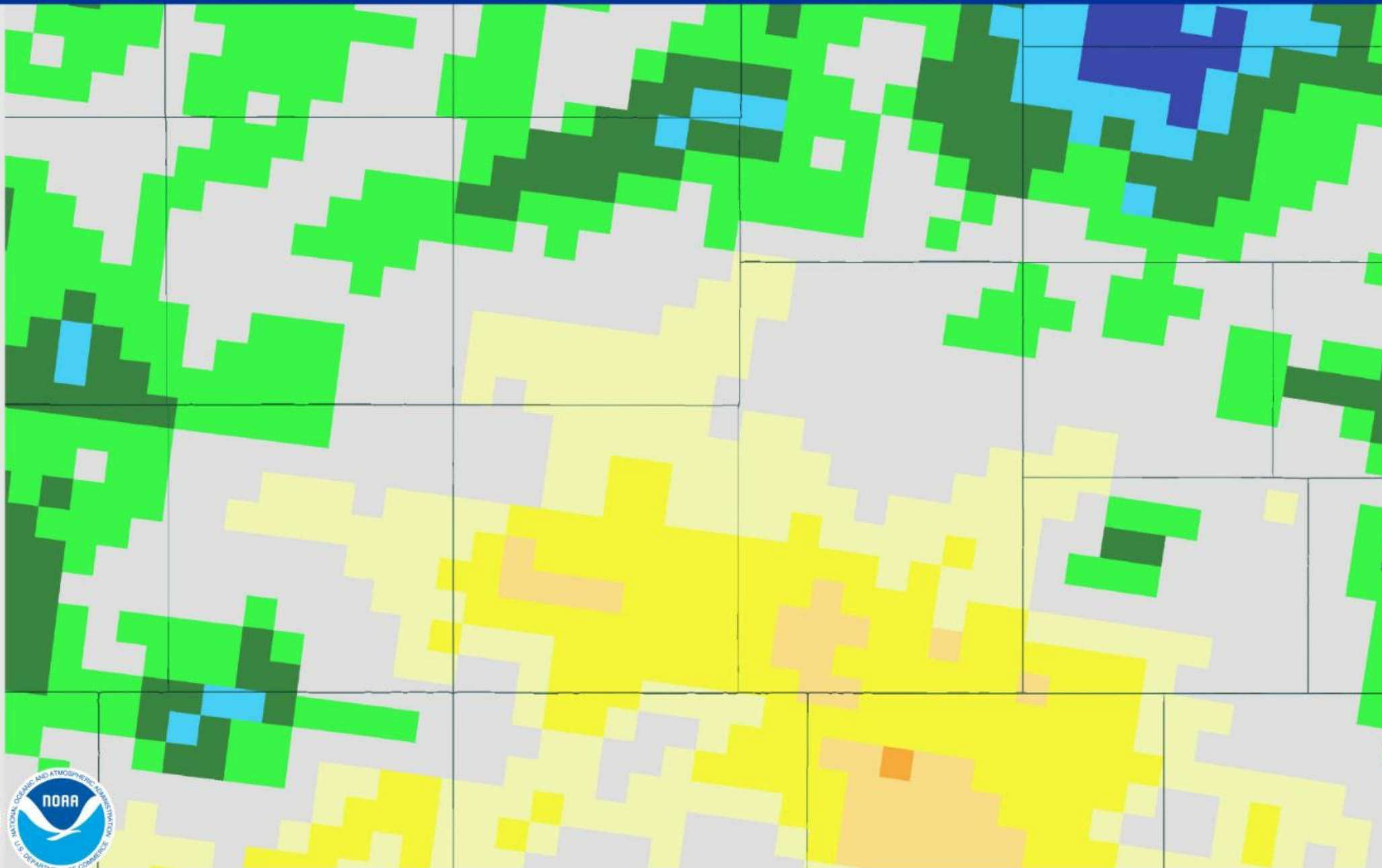
NOAA
Inches



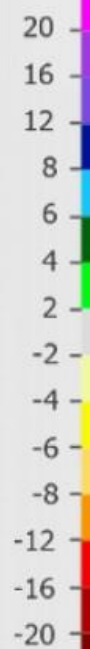
January 01, 2021 Annual Departure Precipitation

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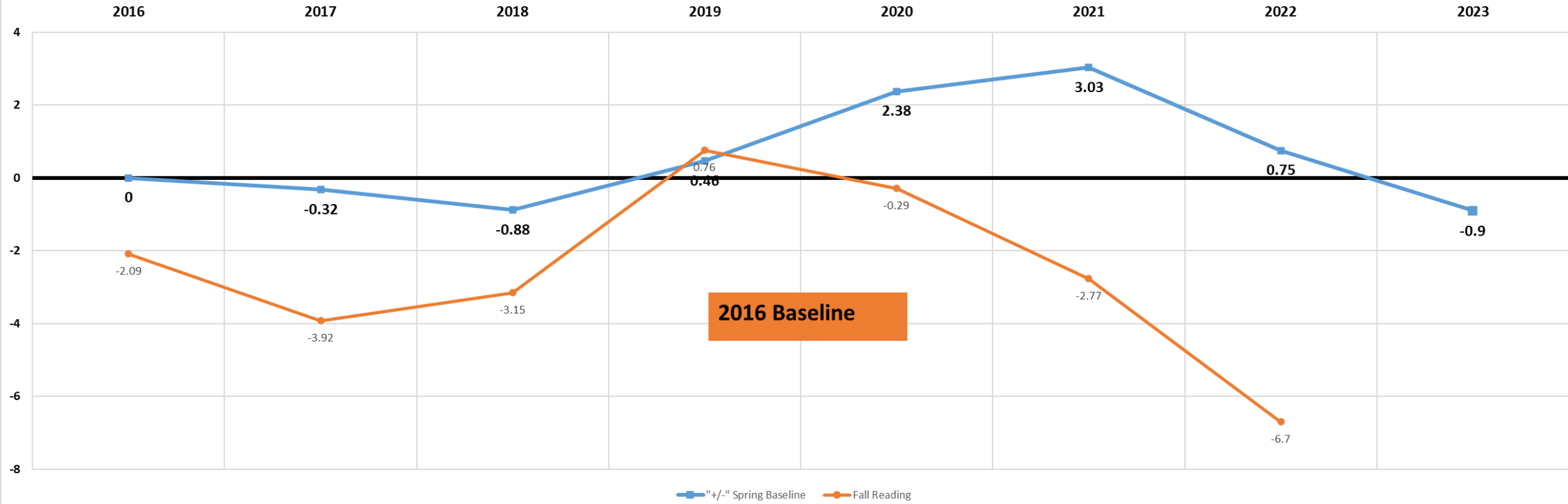
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Inches

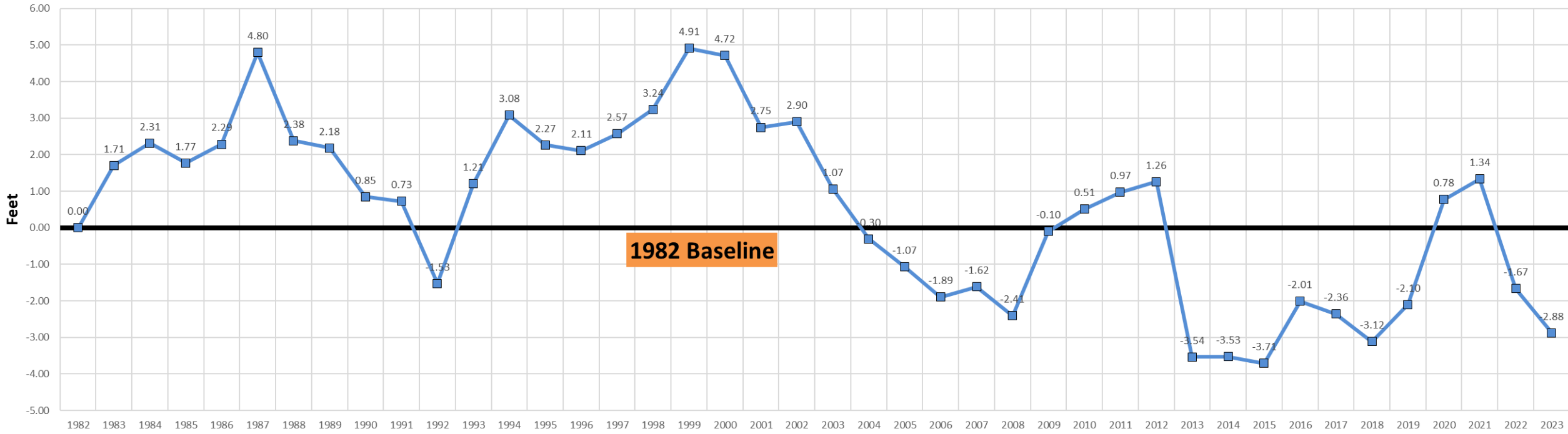


Dedicated Monitoring Well Static Water Level Average From Baseline



'21-'23 decline 3.93 feet

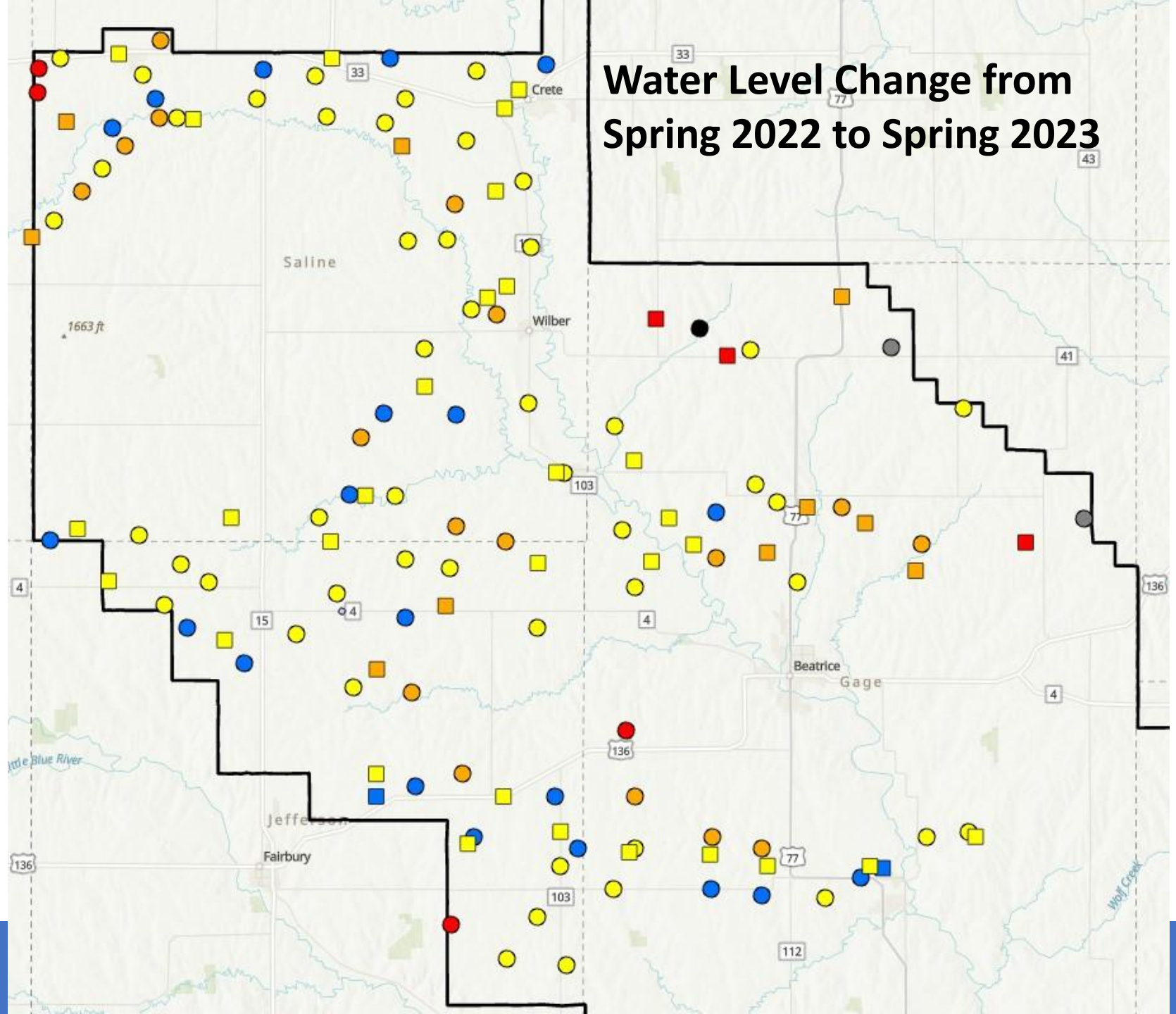
County Well District Average



'21 to '23 decline 4.22 feet

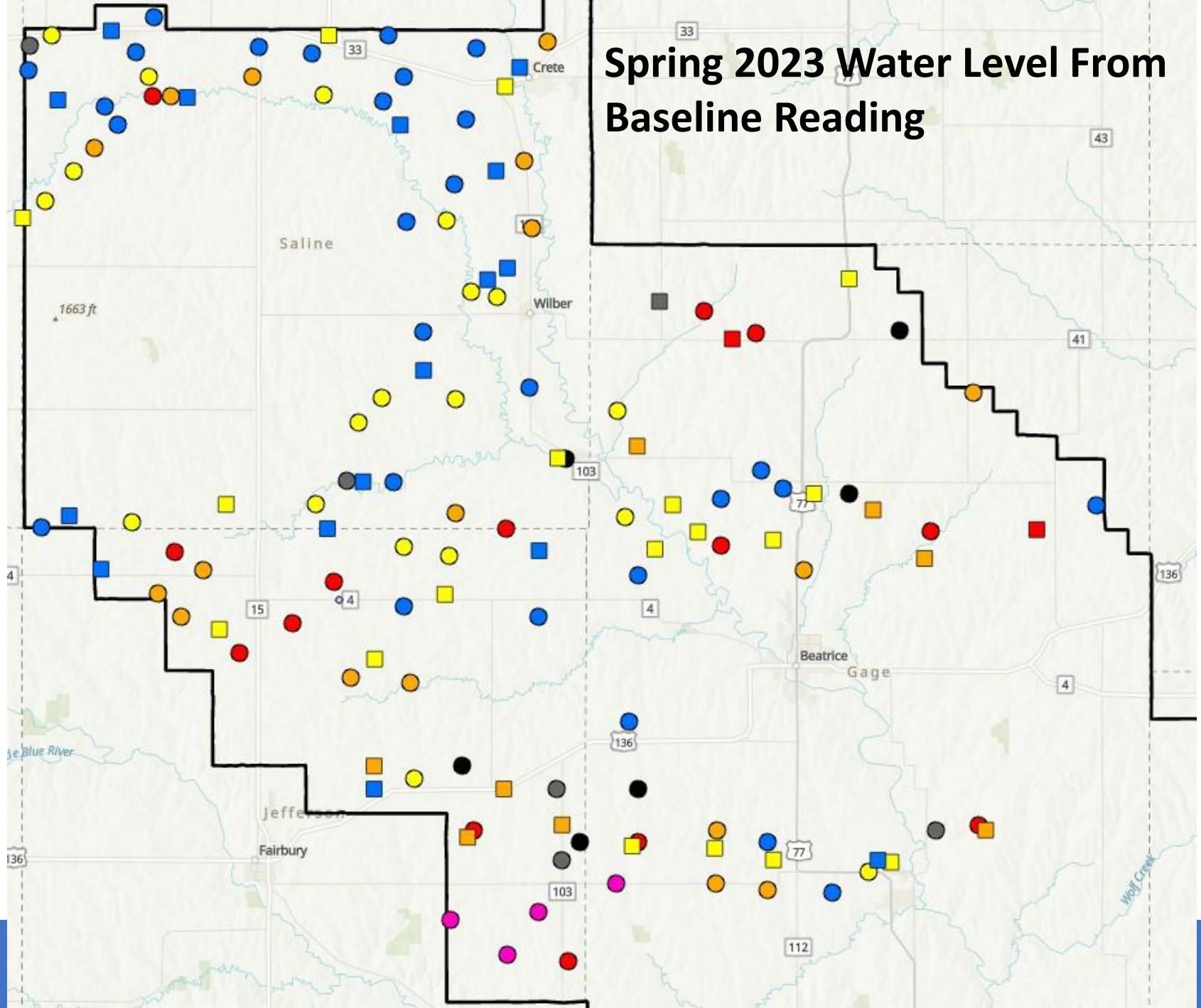
Water Level Change from Spring 2022 to Spring 2023

- >0.00
- -0.00 - -2.00
- -2.00 - -4.00
- -4.00 - -6.00
- -6.00 - -8.00
- -8.00 - -10.00



Spring 2023 Water Level From Baseline Reading

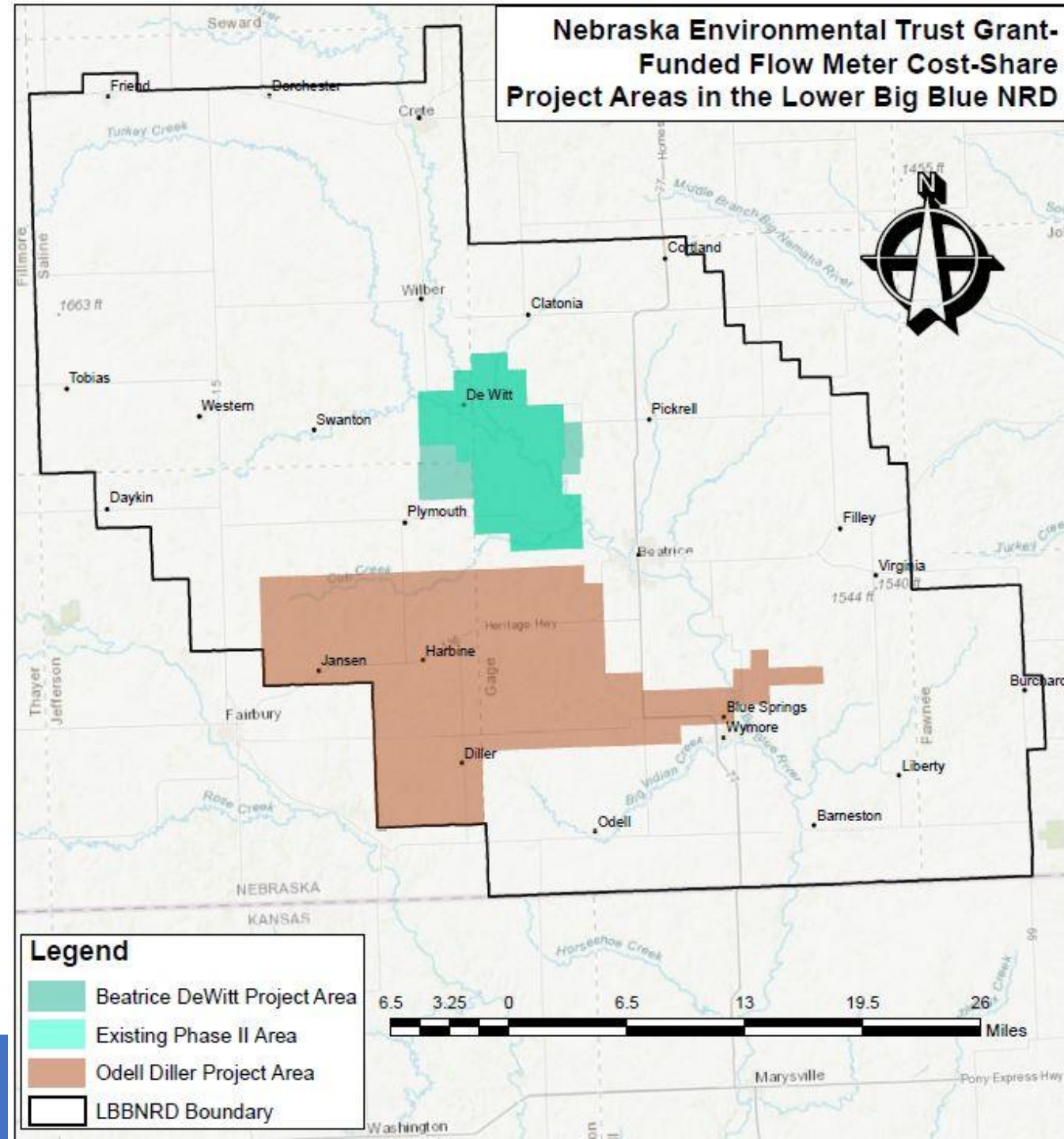
- >0.00
- -0.00 – -2.00
- -2.00 - -4.00
- -4.00 - -6.00
- -6.00 - -8.00
- -8.00 - -10.00
- <-10.00



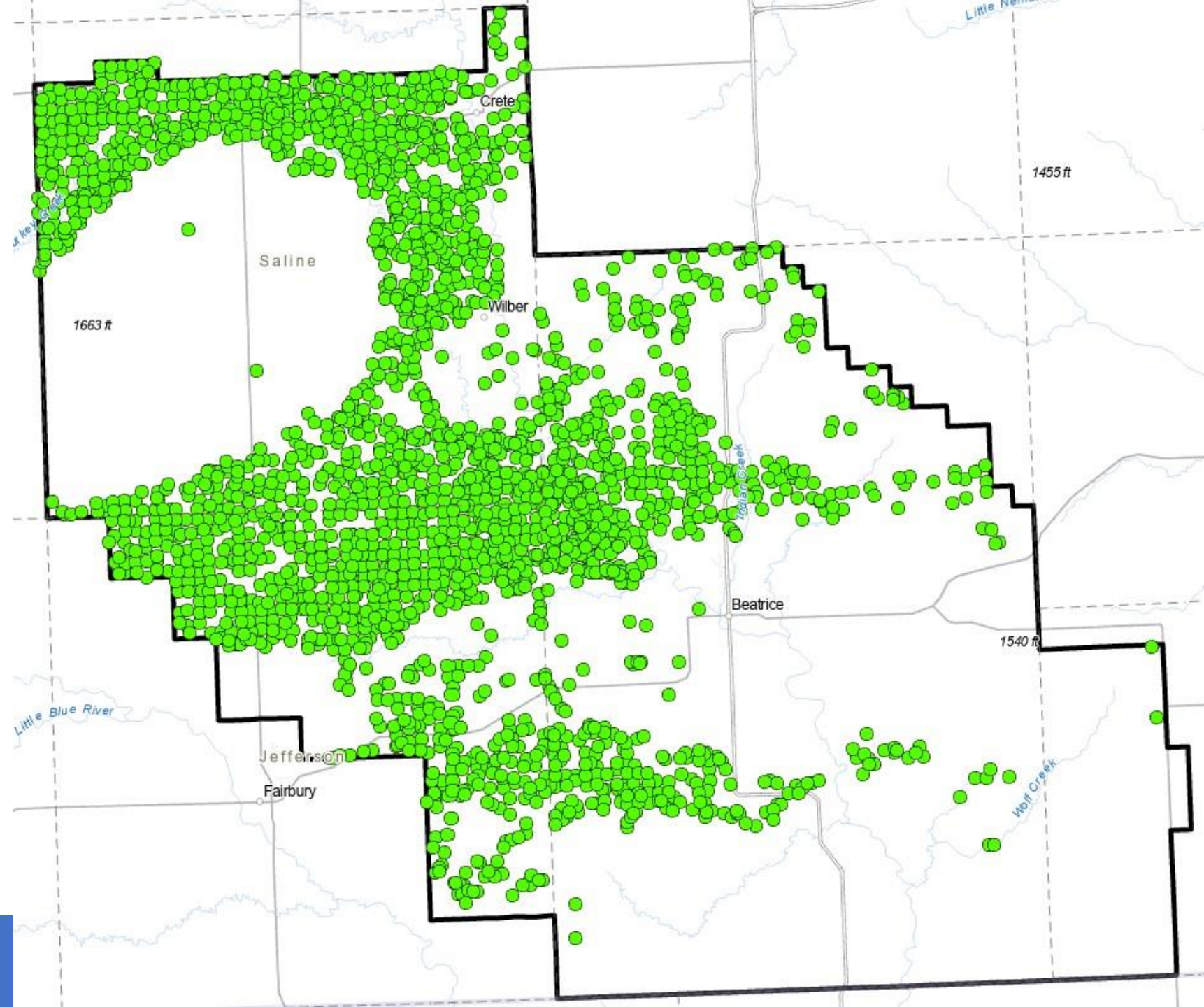
Permanent Moratorium

- Rules revisions approved Sept. 20, 2022
- 5 – new irrigation wells met 200 points of Well Permit Ranking System
- The permitted wells were all in areas of groundwater quantity concern
- Board entered temporary stay on Dec. 8, 2022
- Held public hearing on May 18, 2023
- Imposed permanent moratorium on June 5, 2023
- Contracted with Olsson to develop subareas based on aquifer characteristics
- Revising rules and regulations

- Applied for ~600 flowmeters
- 53- Flowmeters cost-shared at true 50%

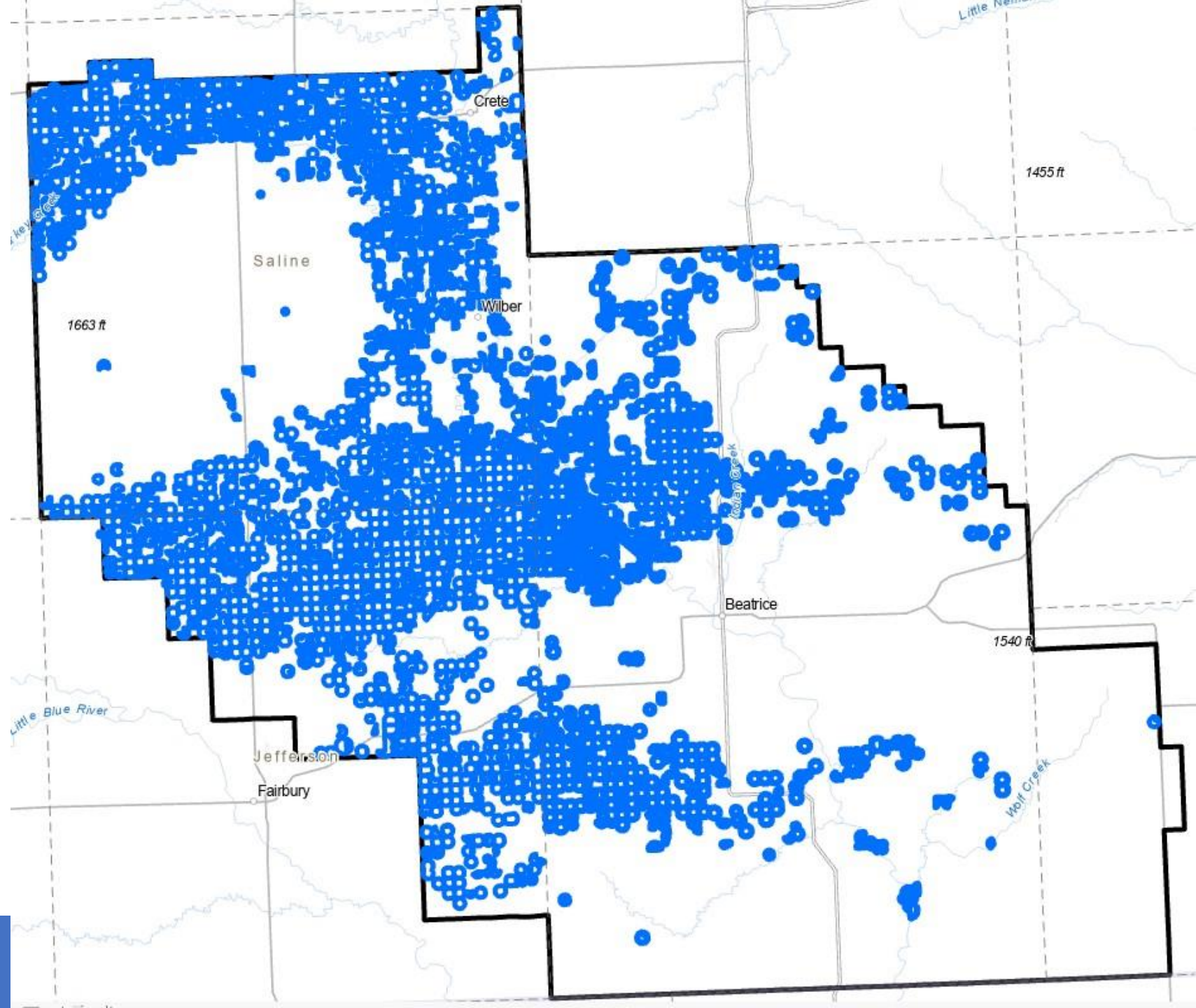


- 2,452 Active Irrigation Wells
- ~700 Flowmeters



Certified Irrigated Acres

- Initial certification in 2016
- ~177,000 certified acres
- Transitioning database to NRDApp



Permitting - Sept. 2022 to Sept. 2023



- 7 - New Irrigation Wells
- 9 - Replacement Irrigation Wells
- 5 - Livestock System (commingled)

Irrigation Well Permitting Process

- Well Permit Ranking System
- NRD staff collect test log material to analyze

Permitting - Sept. 2022 to Sept. 2023



Groundwater Transfers

- Definition - The conveyance of Groundwater from a Water Well or Water Wells located in one Government Survey Section to be used for a beneficial purpose in another Government Survey Section.
- Adjacent tracts
- Destination tract is no more than 3000 feet from the source well
- Certified acres cannot exceed the source tract and cannot be more than 160 certified acres
- 1 – Permitted transfer
- 1 – Denied transfer

Conductance Permits

- 1 – Permitted temporary conductance from well into stream

Permitting - Sept. 2022 to Sept. 2023



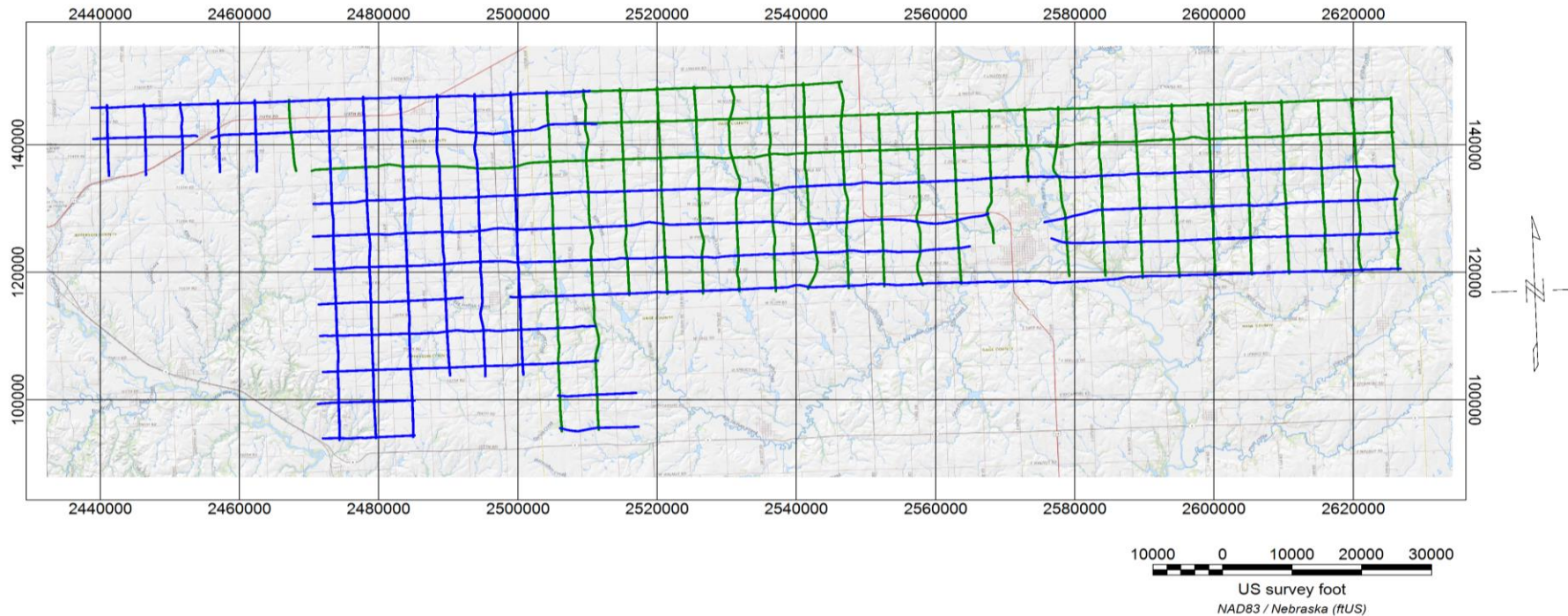
Variations

- Variations to District rules are considered on a case-by-case basis
- 1 – Approved Variation to drilling new well greater than 300 feet from test hole
- 1 – Denied Variation to a transfer with more acres in the destination tract than in the source tract

WSF Grant Application – AEM (Airborne Electromagnetic Hydrogeologic Mapping) Project



Survey



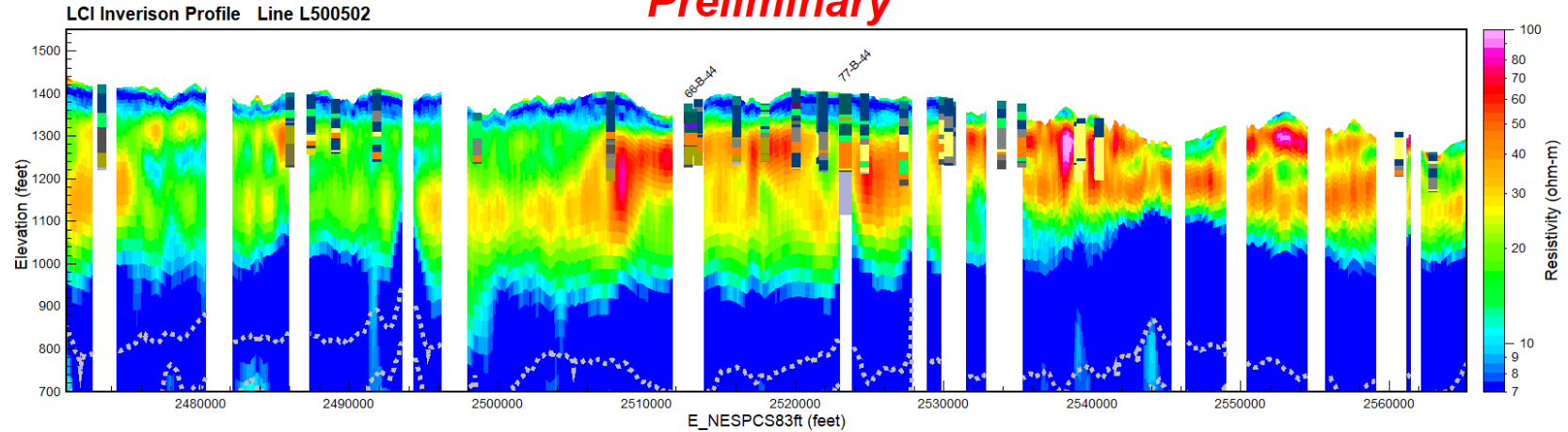
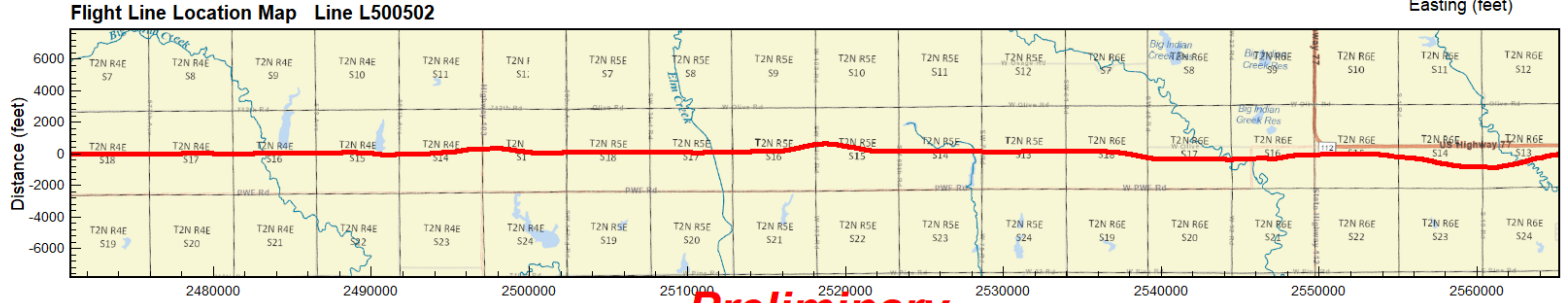
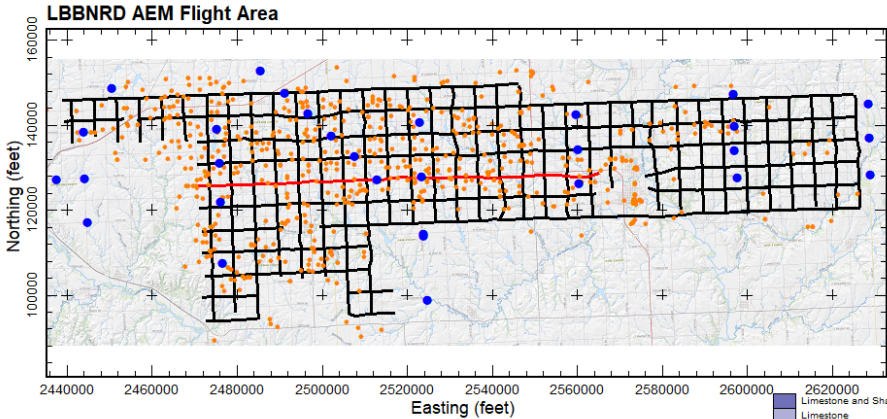
- 429.0 line-miles (690.4 line-km)
- Contracted 390 line-miles or (628 line-km)
- 39 line-miles bonus
- Airport
 - Beatrice, NE

Bonus was due to reduced line rate and mobilization/demobilization rate due to combining with Colorado Survey, MRNRD, and NNRD

Preliminary Profiles (24 hours after flights)

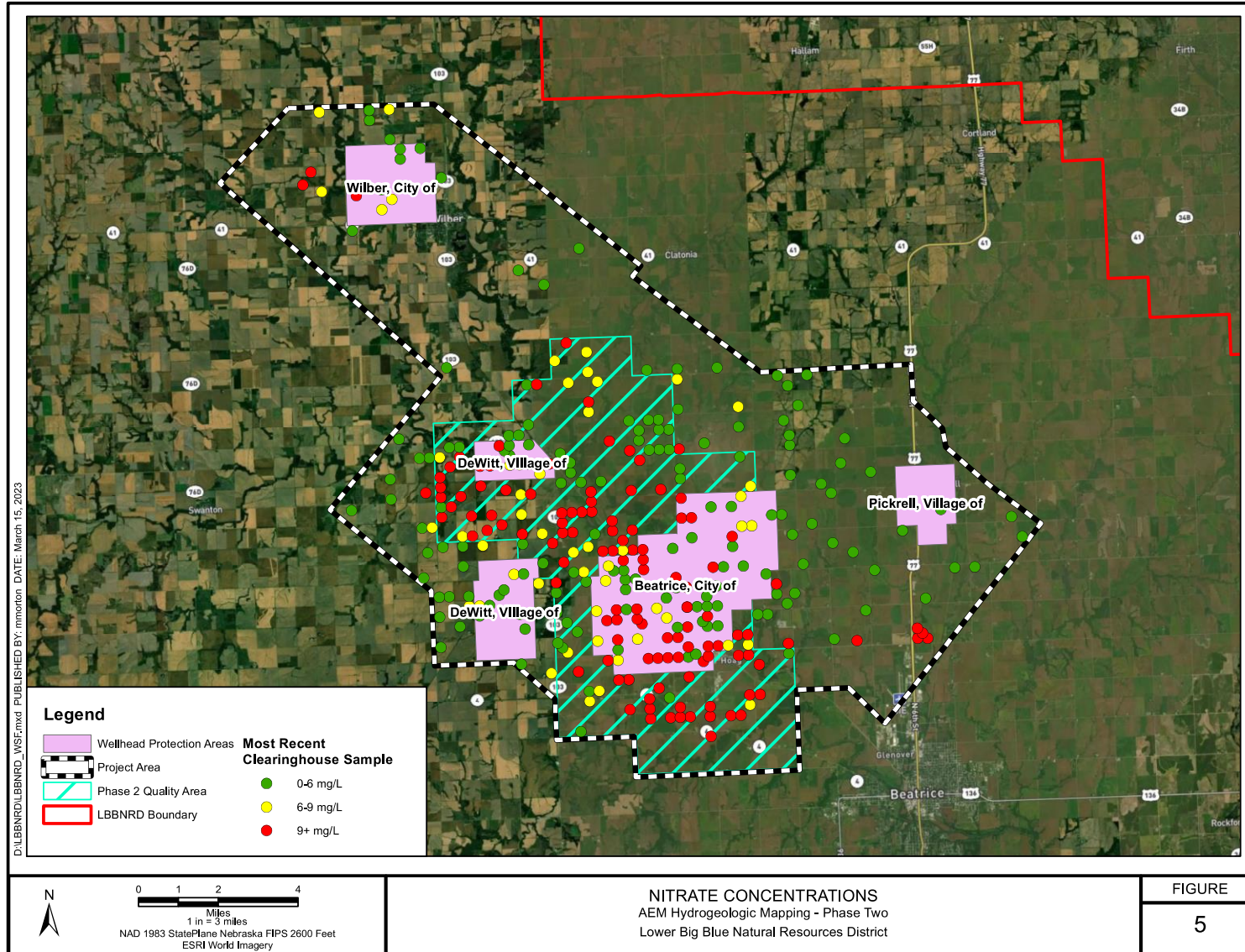


Preliminary Laterally-Constrained Inversions (LCI) of Airborne Electromagnetic (AEM) data collected over portions of the Lower Big Blue Natural Resources District (LBBNRD). Data acquisition from June 21-22, 2023. The LBBNRD AEM Flight Area map inset to the right indicates all the flight lines as black lines. The current line displayed in the profiles is indicated in red on the USGS topography map of the area. Blue dots are CSD test holes and orange dots are Nebraska Department of Natural Resources (NE-DNR) registered wells. The Flight Location Map indicates the flight path on a Public Land Survey System Map. The LCI Inversion Profile shows the results of the inversion as electrical resistivity. Gaps in the resistivity profile are a result of editing areas of EM-coupling out of the data, noise removal, or of areas that were not over flown due to infrastructure. When visible the dashed gray lines indicate the depth of investigation (DOI). For the AEM resistivity profile CSD and NE-DNR test holes and wells that are within 1,000 feet of the flight line are plotted indicating lithology. The project projection and vertical datum are NAD83 Nebraska State Plane (feet) and NAVD88 (feet).



- 2620000 Limestone and Shale
- Limestone
- Sandstone
- Sandstone and Sand
- Sand and Sandstone
- Silt and Sandstone
- Sandstone and Silt
- Sandstone and Shale
- Sandstone and Clay
- Clay and Sandstone
- Siltstone
- Mudstone
- Gravel and Shale
- Sand and Shale
- Shale and Sandstone
- Shale and Clay
- Clay and Shale
- Shale
- Sandstone and Gravel
- Gravel and Sandstone
- Coarse-Gravel
- Medium-Coarse-Gravel
- Fine-Medium-Gravel
- Medium-Gravel
- Gravel/Boulders
- Fine-Medium-Coarse-Gravel
- Fine-Coarse-Gravel
- Fine-Gravel
- Gravel and Sand
- Gravel and Silt
- Sand and Gravel
- Coarse-Sand
- Medium-Coarse-Sand
- Medium-Sand
- Sand
- Fine-Medium-Coarse-Sand
- Fine-Coarse-Sand
- Fine-Medium-Sand
- Fine-Sand
- Sand and Silt
- Silt and Gravel
- Silt and Sand
- Silt
- Silt
- Silt and Clay
- Gravel and Clay
- Clay and Gravel
- Sandy and Clay
- Clay and Sand
- Clay and Silt
- Clay
- Fill

Survey Area 2



Questions?