LOWER LOUP
NATURAL RESOURCES DISTRICT

2026 Spring Static Water Level Monitoring Program

2026 Static Water Level Summary

Lower Loup Natural Resources District (LLNRD or the District) staff collected static water levels (SWL) on 501 irrigation and monitoring wells from March 13 to March 31, 2026. 451 of the 501 wells were measured in both 2025 and 2026. Compared to spring 2025, 311 wells (62.1%) showed an increase in water level, with an average change of 1.02 ft. Three wells (0.6%) showed no change from spring 2025 measurements. 137 wells (27.3%) were measured with a decline in water level since spring 2025, averaging -0.73 ft. Overall, the average water level increased 0.48 ft.

In Table 1, from spring 2025 to spring 2026, 11 counties had greater proportion of individual wells with a positive or zero SWL change, while four counties had a greater proportion of wells with a negative SWL change. No measurements were taken in Hall County. The LLNRD's well in Logan County, right outside of the District, increased. The largest single well decline was -7.44 ft in Custer County, and the largest single well increase was 9.35 ft in Greeley County.

Table 1. LLNRD wells with an increase in static water level (SWL) measurements between spring 2025 and spring 2026.

County	Wells measured with SWL increase or no change	Total wells measured	Proportion of wells measured with a SWL increase
Logan	1	1	100.00%
Platte	44	46	95.65%
Greeley	33	35	94.29%
Sherman	15	16	93.75%
Boone	28	32	87.50%
Wheeler	25	29	86.21%
Valley	17	21	80.95%
Nance	22	32	68.75%
Garfield	13	19	68.42%
Rock	8	13	61.54%
Merrick	3	5	60.00%
Custer	79	140	56.43%
Howard	10	22	45.45%
Buffalo	10	23	43.48%
Loup	6	16	37.50%
Butler	0	1	0.00%
Hall	0	0	N/A

164 SWL locations measured in spring 2026 have a historical record dating back to 1982, the baseline date for water level comparisons per the LLNRD Groundwater Management Plan. Large concentrations of decreasing SWL measurements are found south of the Loup River and in LLNRD's northwest. The largest measured single-well decrease in water level between 1982 and 2026 is -12.36 ft in Buffalo County. Increases in SWL measurements have continued in the North Loup River Groundwater Transfer Basin where recharge from existing canals and surface water irrigation is abundant. The largest measured single-well SWL increase from 1982 to 2026 is +38.51 ft in Valley County.

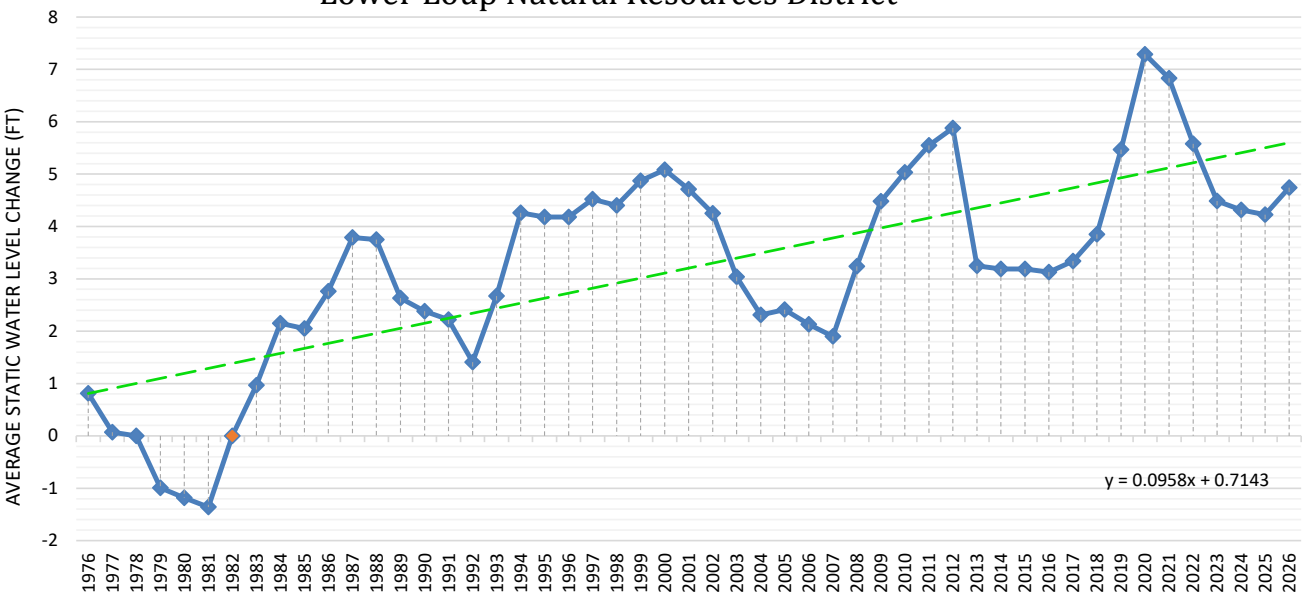
In the districtwide *Trend* map, SWL measurement locations that did not report at least 8 readings (spring and fall) in the last 5 years (fall 2021 through spring 2026) were not included in interpolation analyses. For both *Static Water Level Change* and *Trend* maps, the inverse distance weighted (IDW) spatial interpolation method was used with default settings. IDW assumes that wells close to one another have more similarities than those that are farther apart. The area between the two measured points is assigned a value based on the trends calculated on all other wells in proximity. The software used for all maps in this report was Esri ArcGIS Pro v3.4.5 with the Spatial Analyst extension.

In the *Static Water Level Change [All/number] Years* maps, negative values indicate that the groundwater level has gone down. Around the time of 2026 SWL measurements, approximately 16 wells were actively pumping. This can cause a lower SWL measurement, as the aquifer is under stress at that location. This can impact the SWL Change maps, particularly the 1-year change map, in locations nearest to the pumping wells. The *Static Water Level Trend All Years* map represents the linear regression coefficient from the observed depth to SWL measurements plotted back to when data is first available, if they meet the Trend criteria. These criteria are that the well was measured in the current year, and they have been measured in a minimum of eight of the last 10 springs (2017-2026).

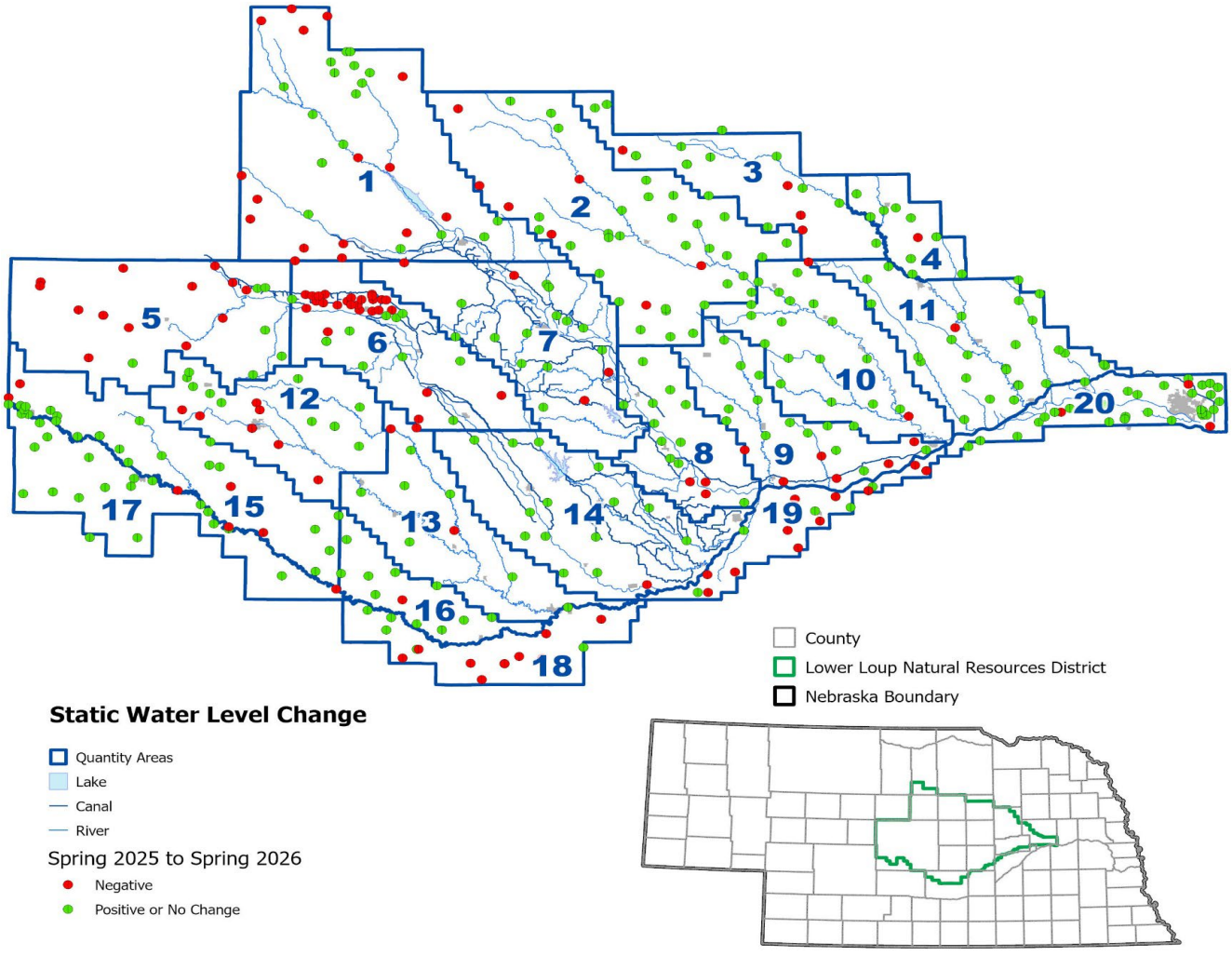
Trend values show an expected water level increase or decrease in feet. In spring 2026, the trend values indicate that most of the District shows a rise or little change in the depth to water level, with some areas seeing a drop in depth to water level. Negative trend values indicate a decrease in depth to water, which is an increase in water level over time. The greatest measured water level trend drop is 1.04 ft in Platte County, and the greatest water level trend rise is -4.27 ft in Garfield County.

These districtwide maps are further broken down to show change and trend by county and Quantity Area. 20 Quantity Areas were established in 2023 by the LLNRD Board of Directors from the previous 10 Groundwater Quantity Management Areas. These larger scale maps utilize all measurements available in 2026 to show individual changes in measurement sites between spring 2025 and spring 2026 and trend graphs going back to the baseline 1982 measurement, the Groundwater Management Plan's priority year, and earlier where data is available.

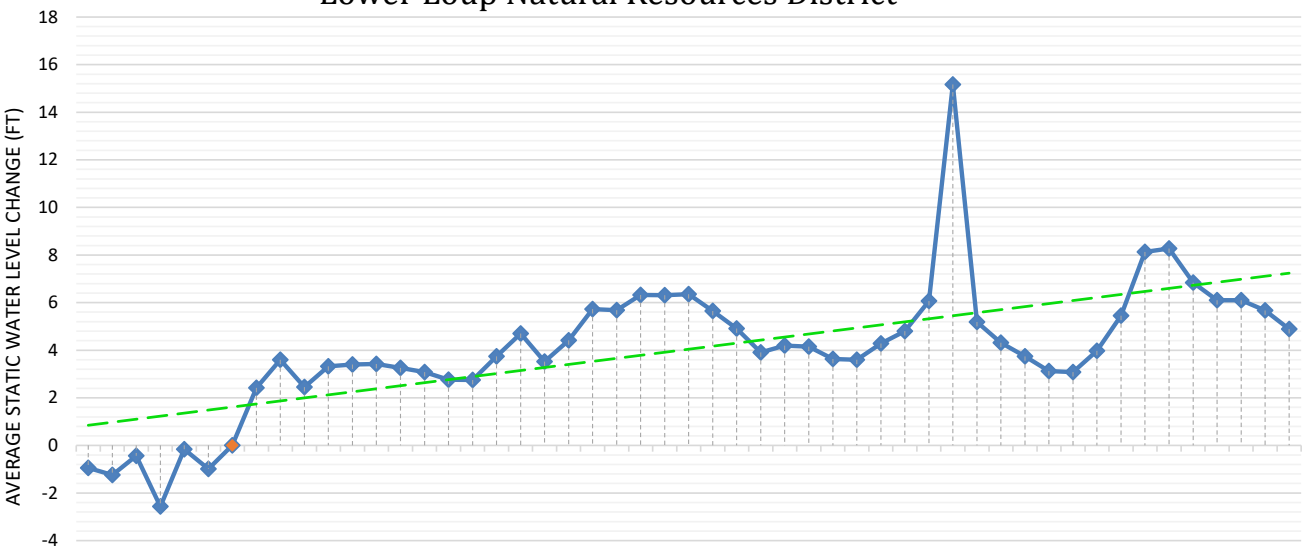
District-Wide Spring SWL Change
Lower Loup Natural Resources District



The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

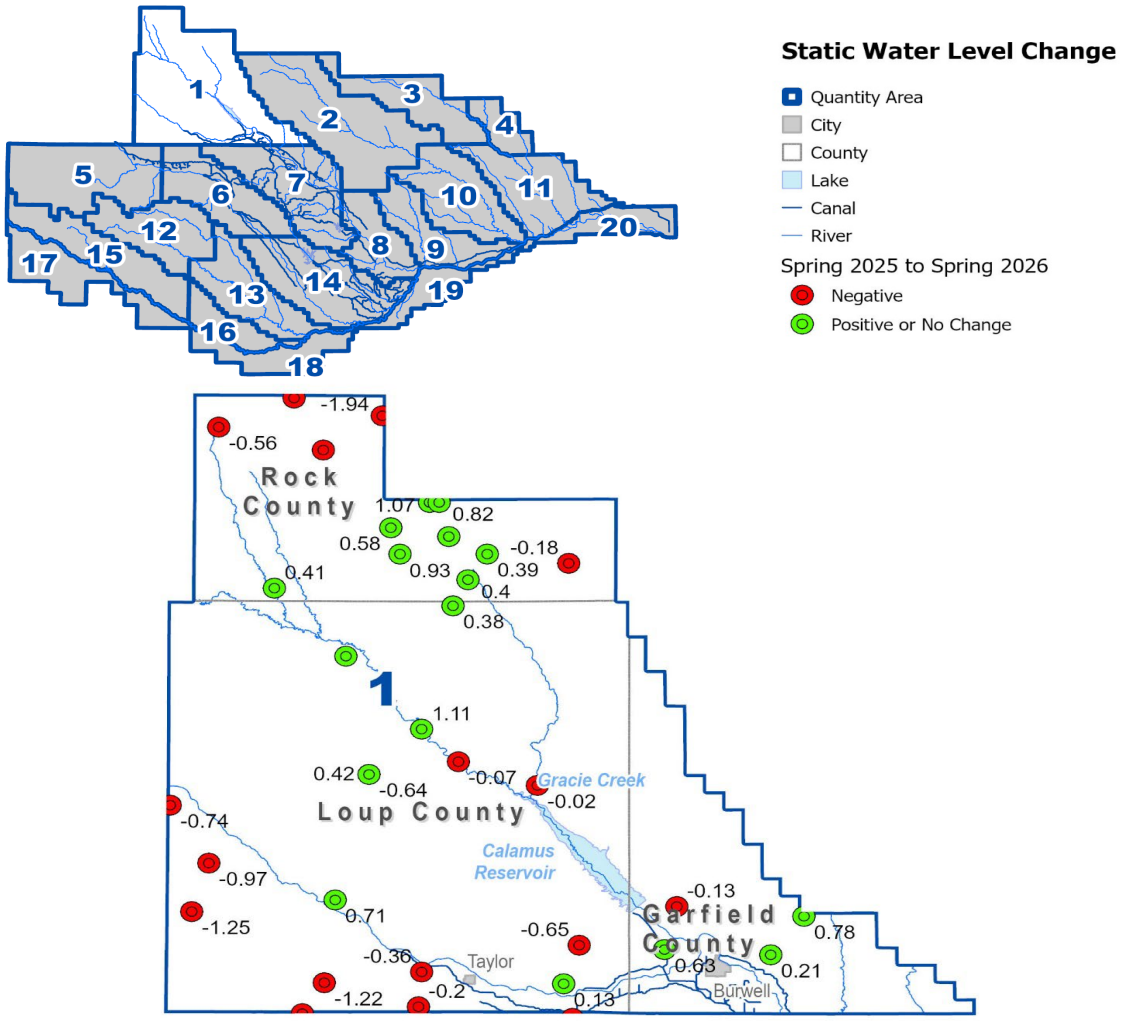


Quantity Area 1 - Spring SWL Change
Lower Loup Natural Resources District

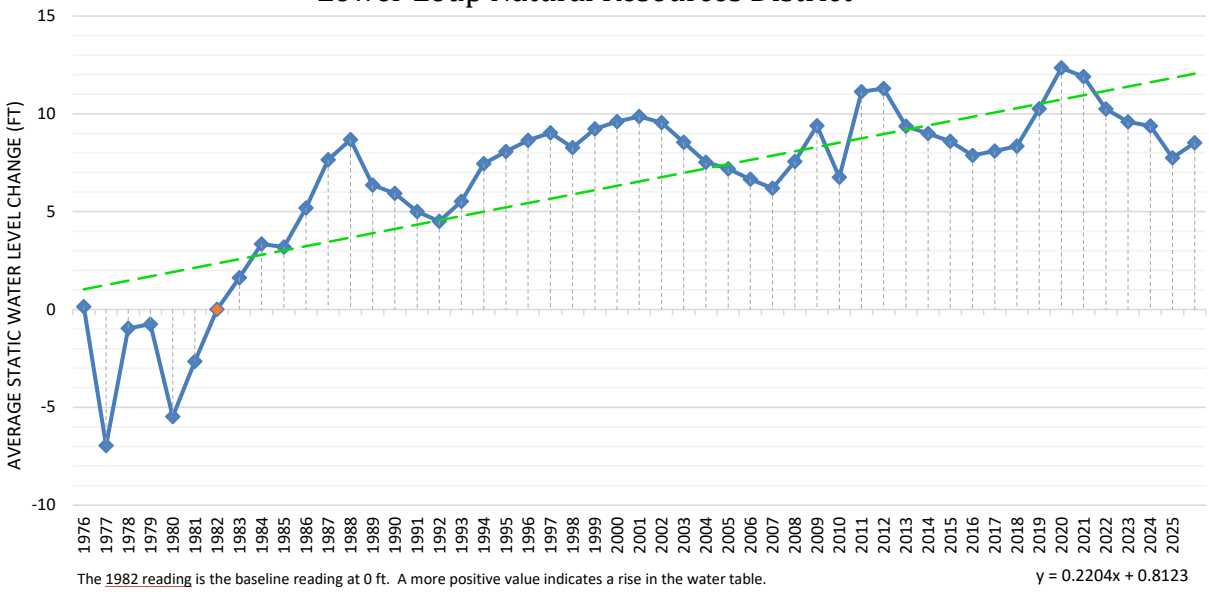


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = 0.1278x + 0.7185

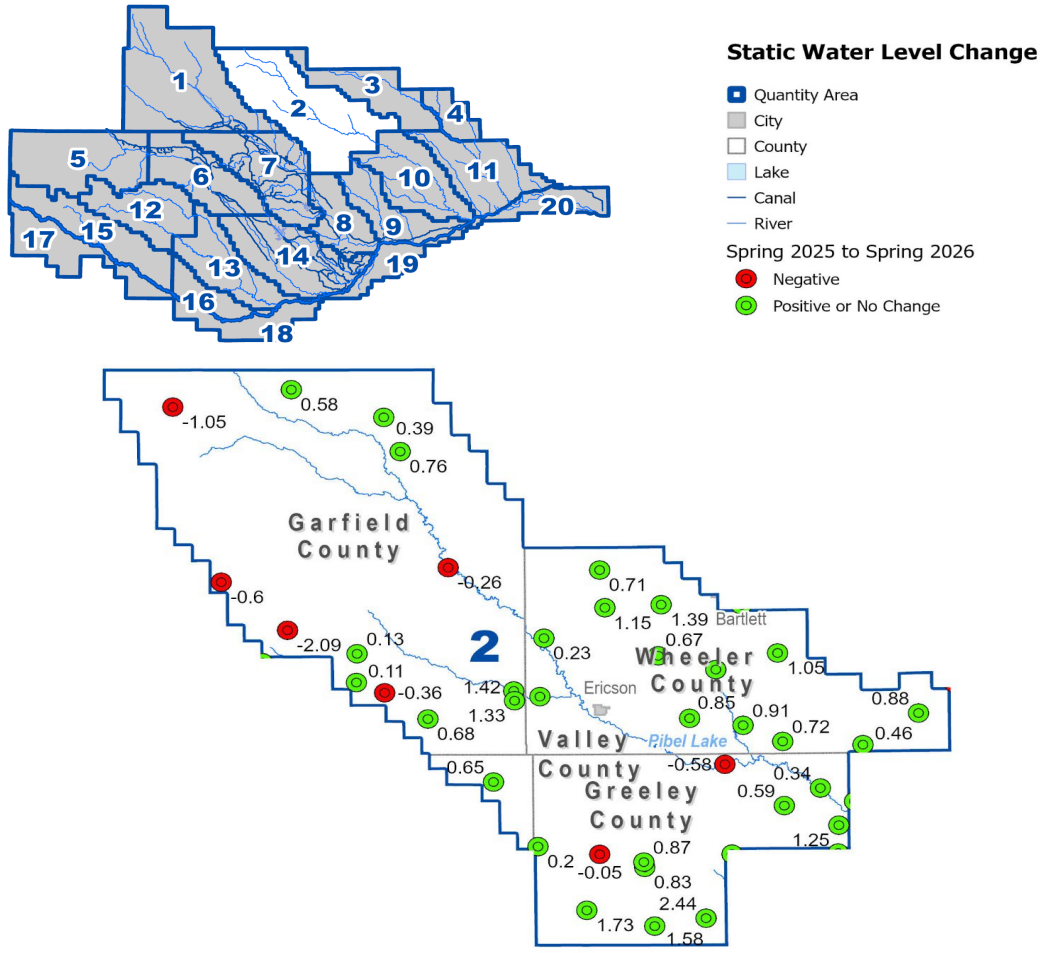


Quantity Area 2 - Spring SWL Change
Lower Loup Natural Resources District

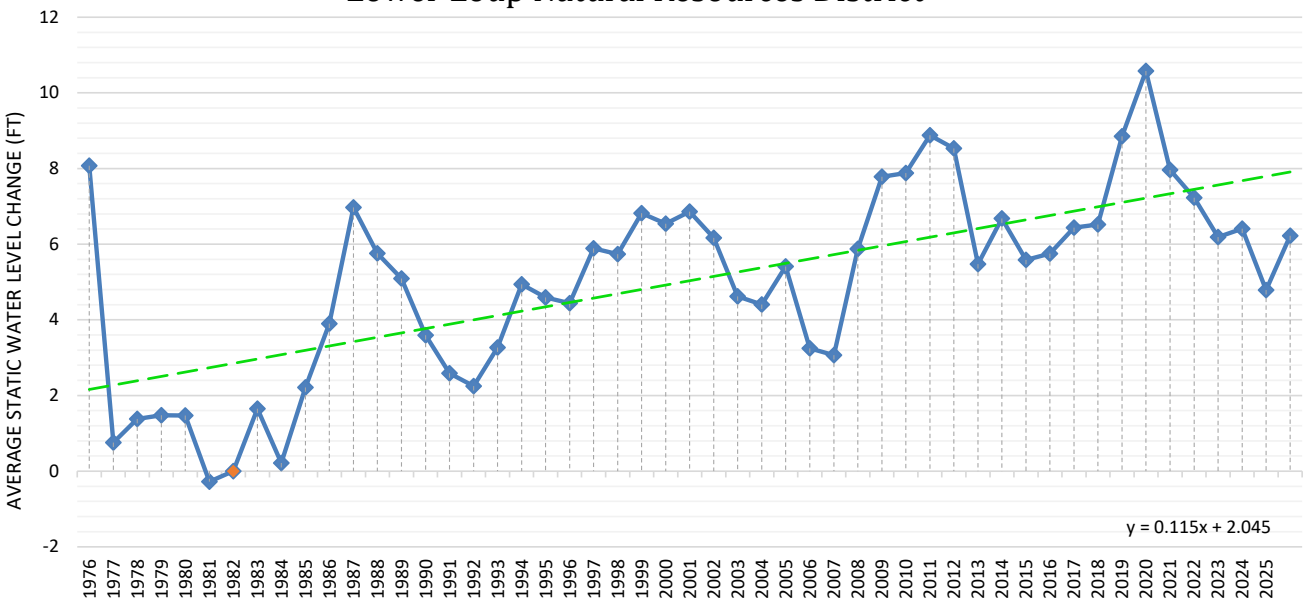


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

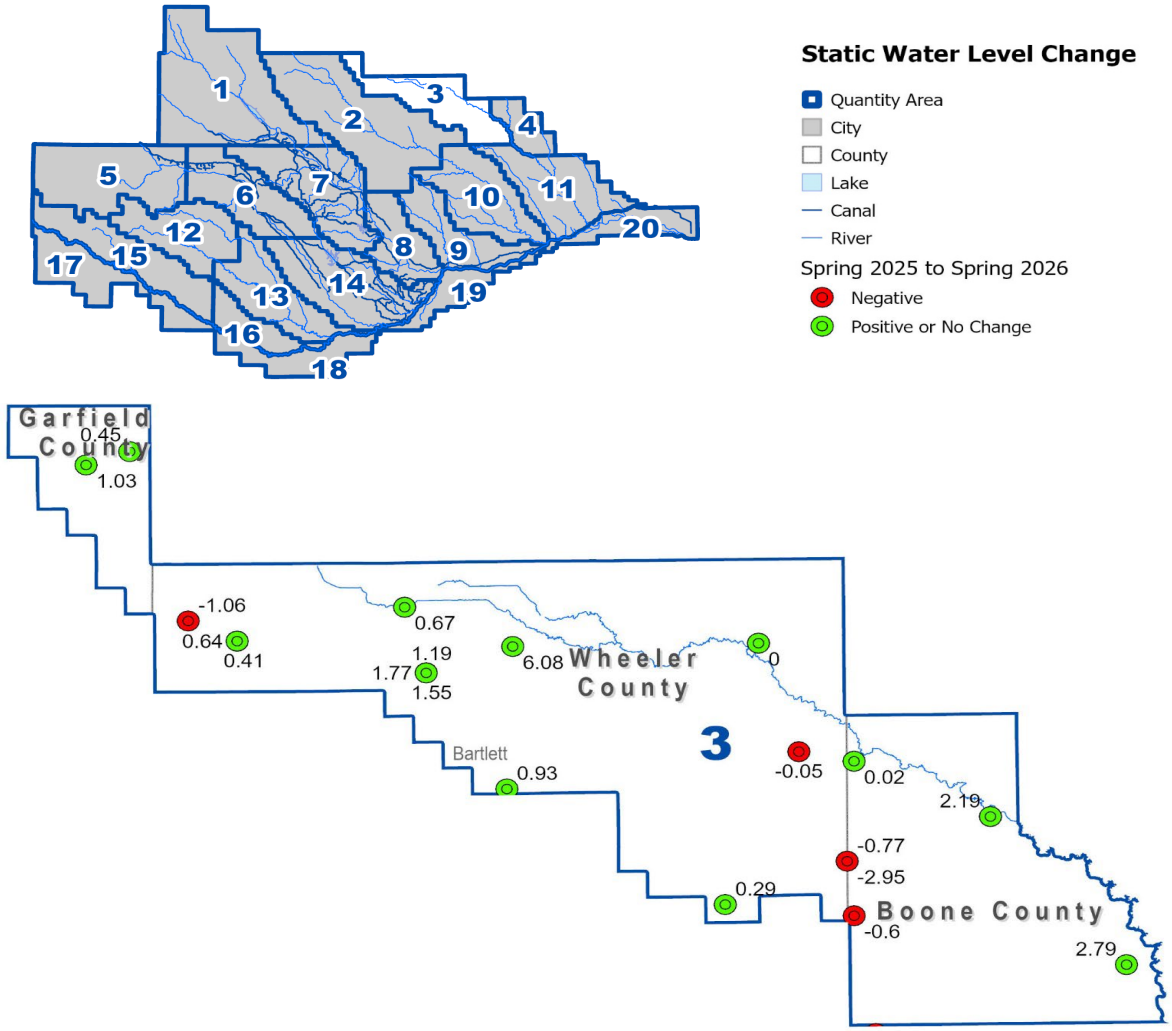
y = 0.2204x + 0.8123



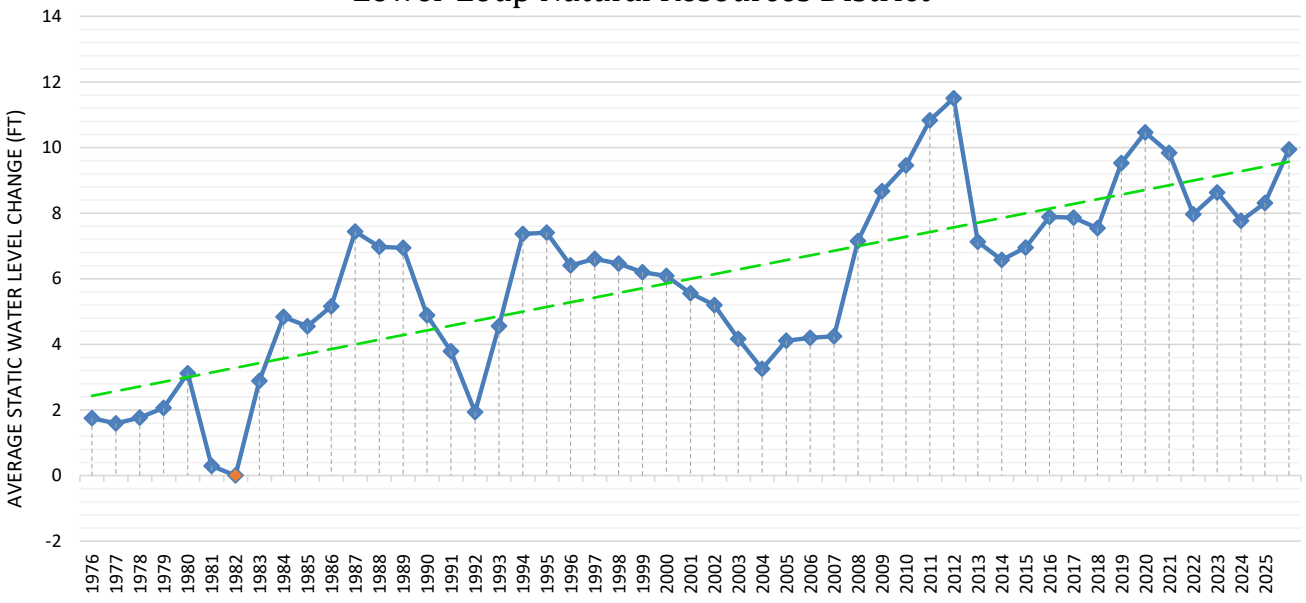
Quantity Area 3 - Spring SWL Change
Lower Loup Natural Resources District



The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

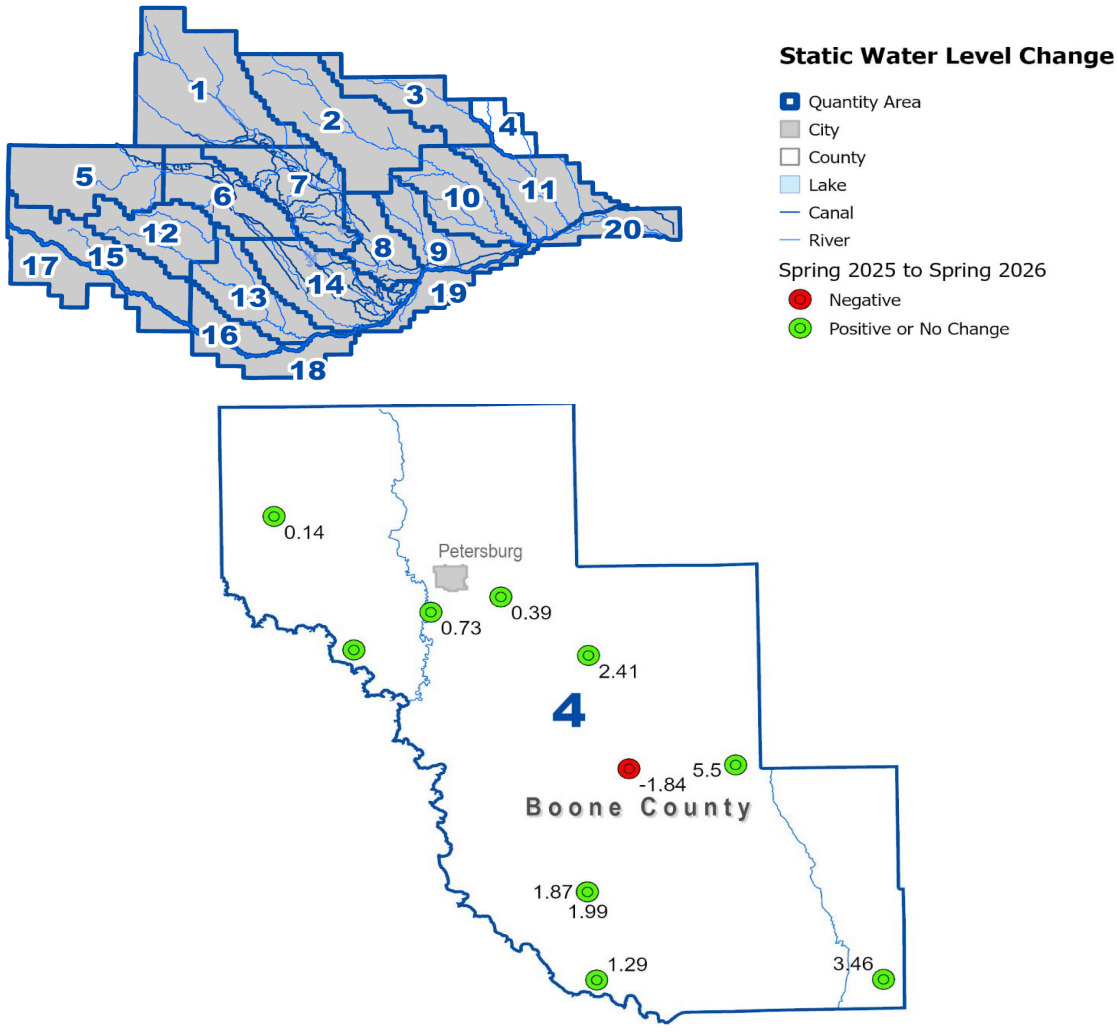


Drought Zone 4 - Spring SWL Change
Lower Loup Natural Resources District

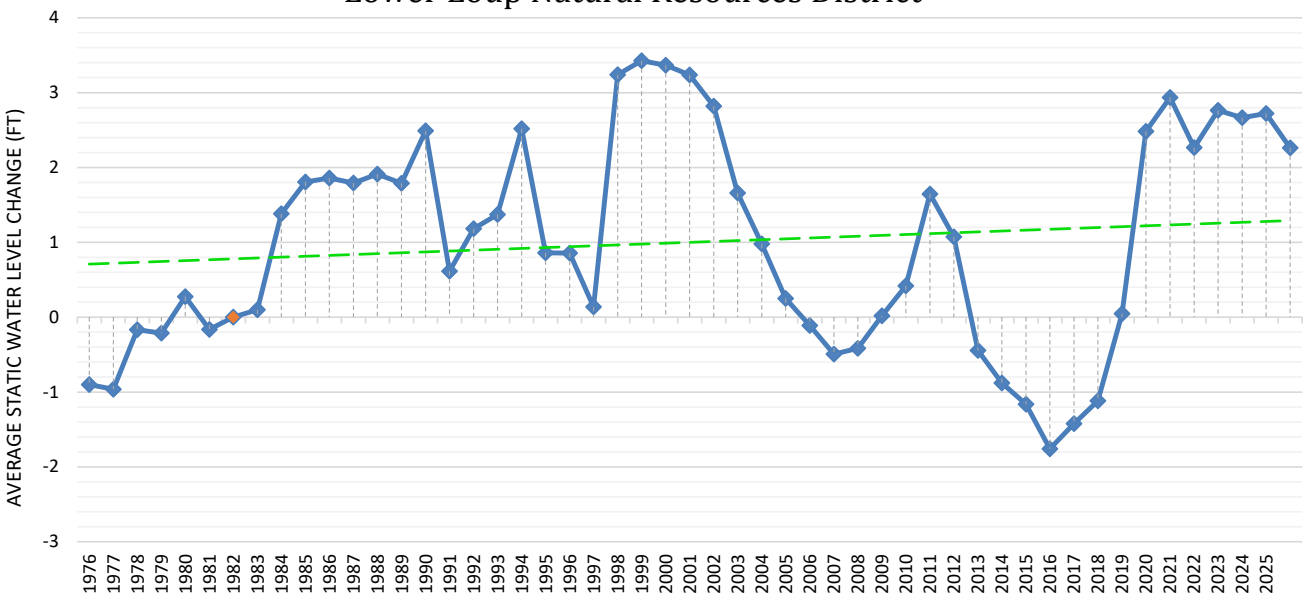


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = 0.1427x + 2.286

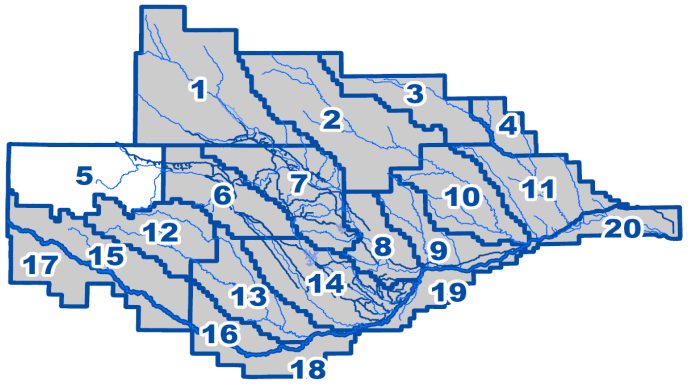


Quantity Area 5 - Spring SWL Change
Lower Loup Natural Resources District



The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = 0.0116x + 0.6977

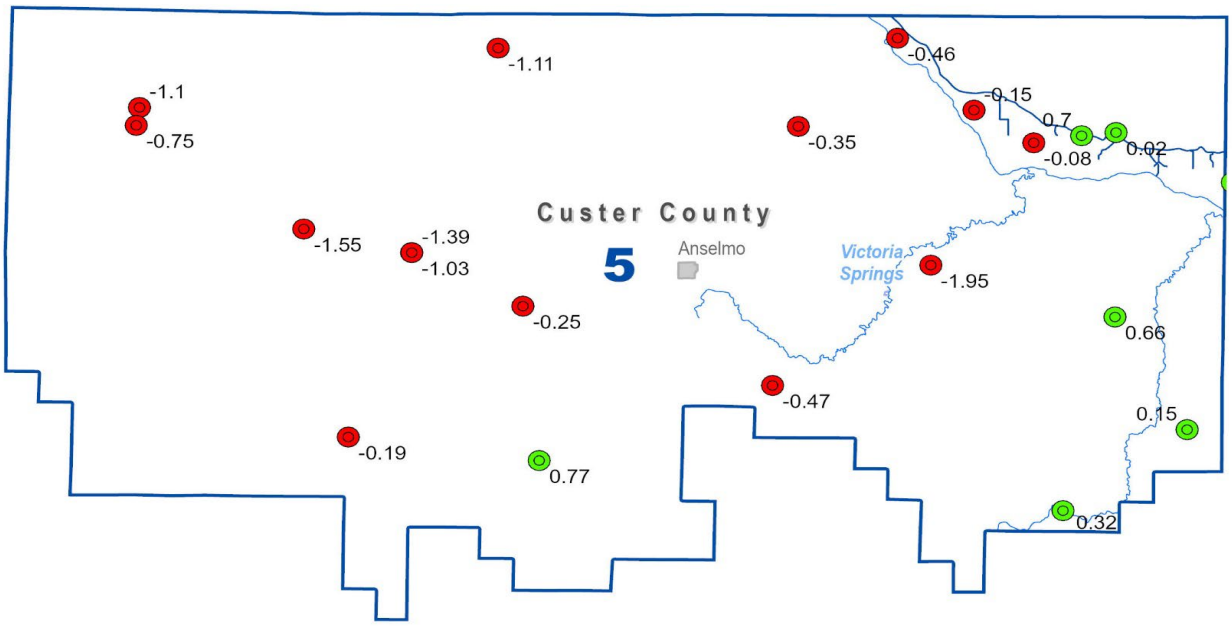


Static Water Level Change

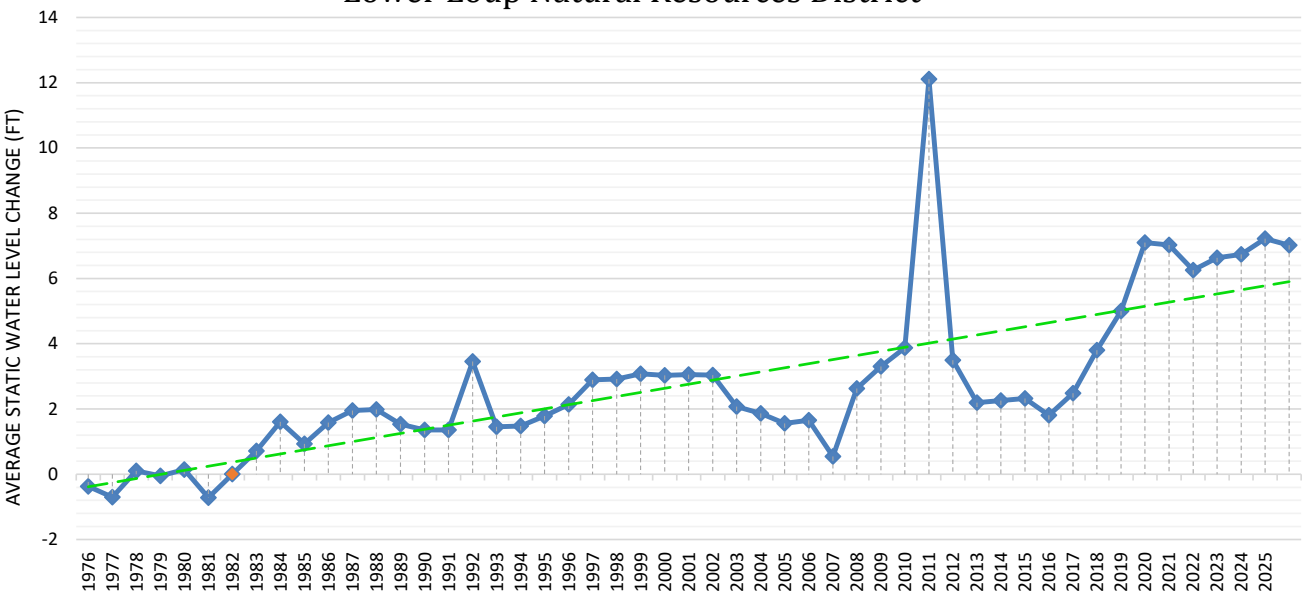
- Quantity Area
- City
- County
- Lake
- Canal
- River

Spring 2025 to Spring 2026

- Negative
- Positive or No Change

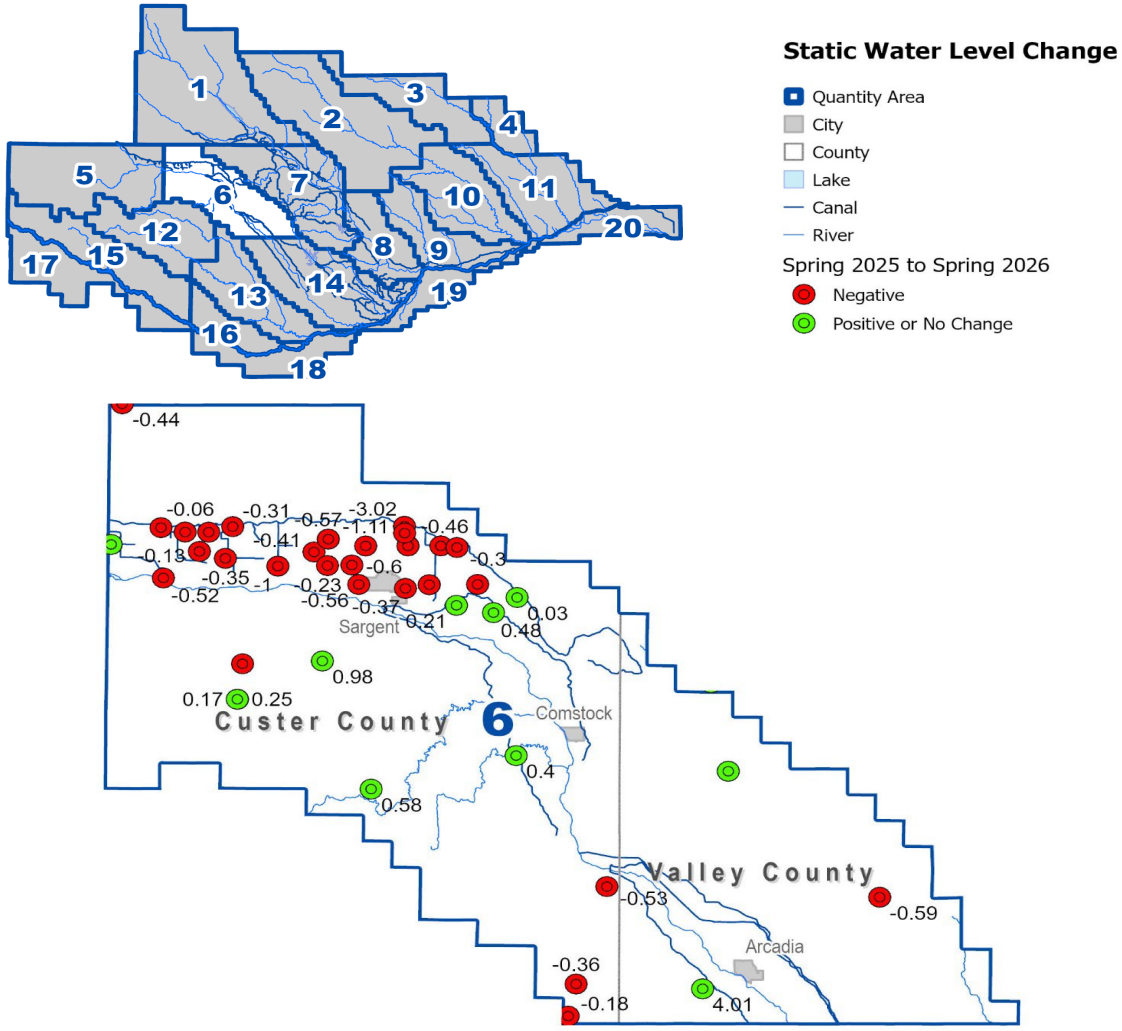


Quantity Area 6 - Spring SWL Change
Lower Loup Natural Resources District

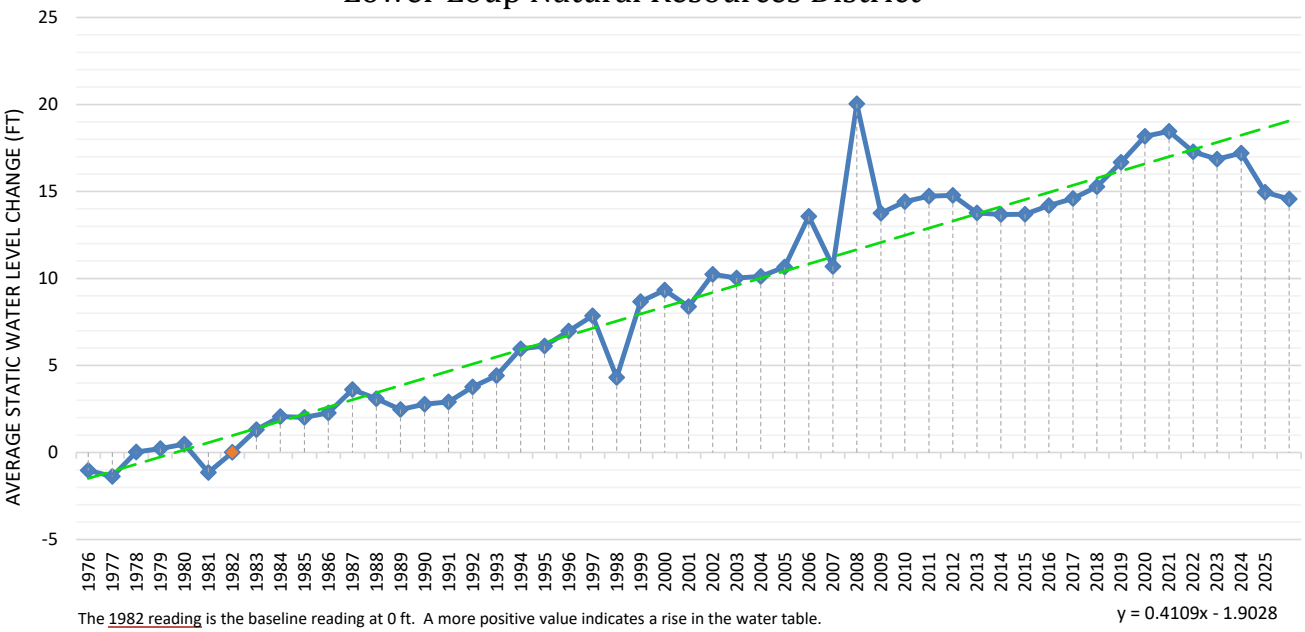


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = 0.1257x - 0.5091

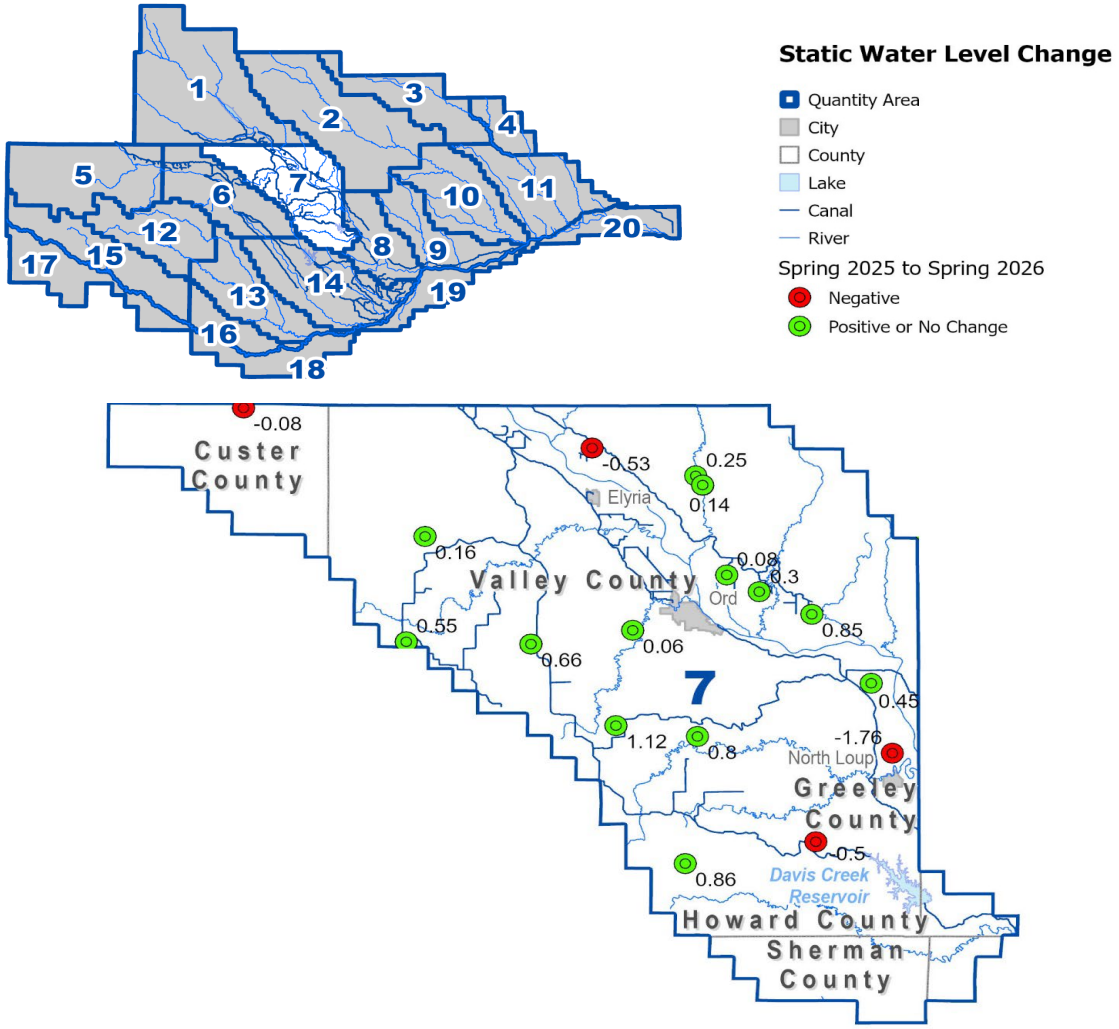


Quantity Area 7 - Spring SWL Change
Lower Loup Natural Resources District

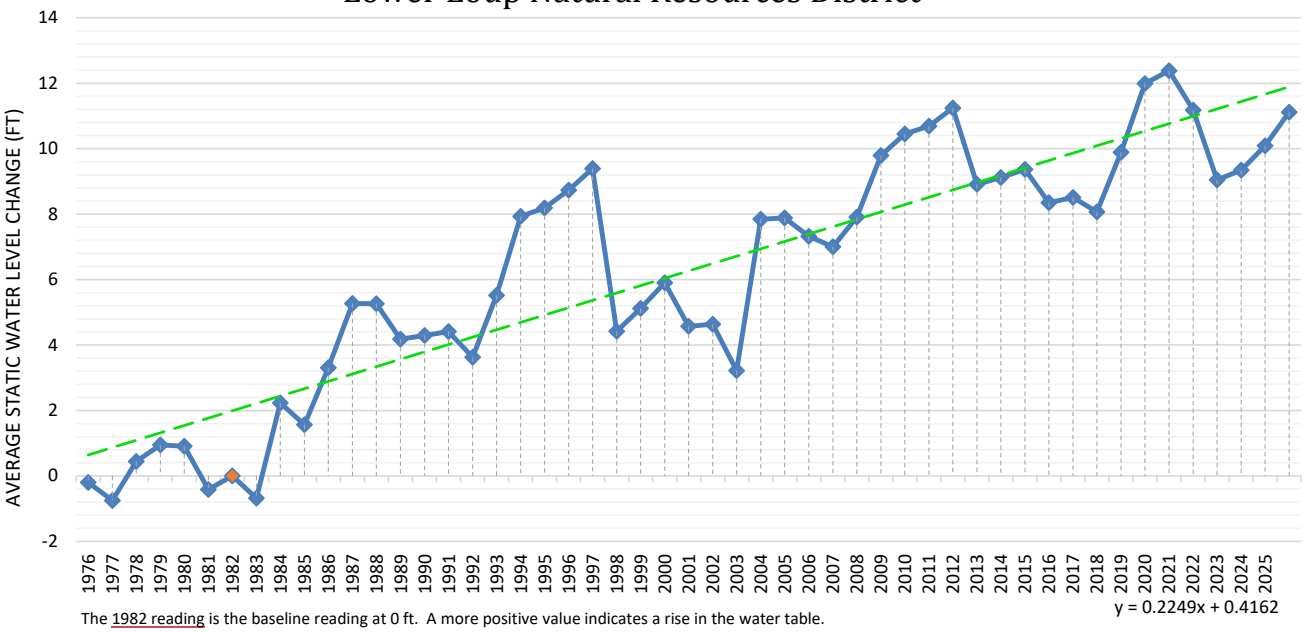


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

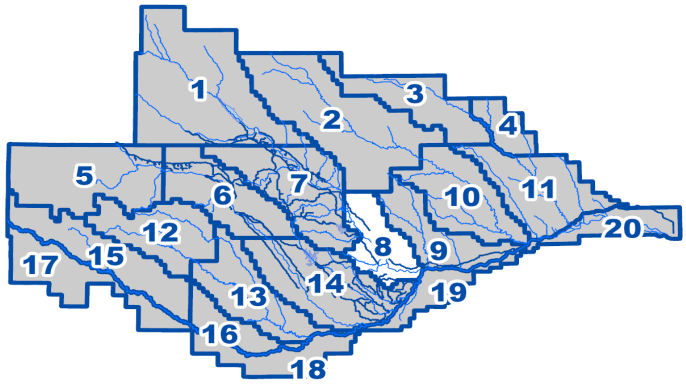
y = 0.4109x - 1.9028



Quantity Area 8 - Spring SWL Change
Lower Loup Natural Resources District



The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

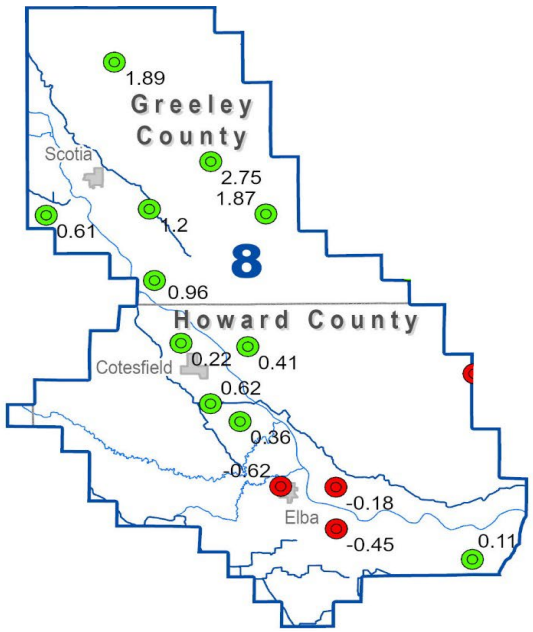


Static Water Level Change

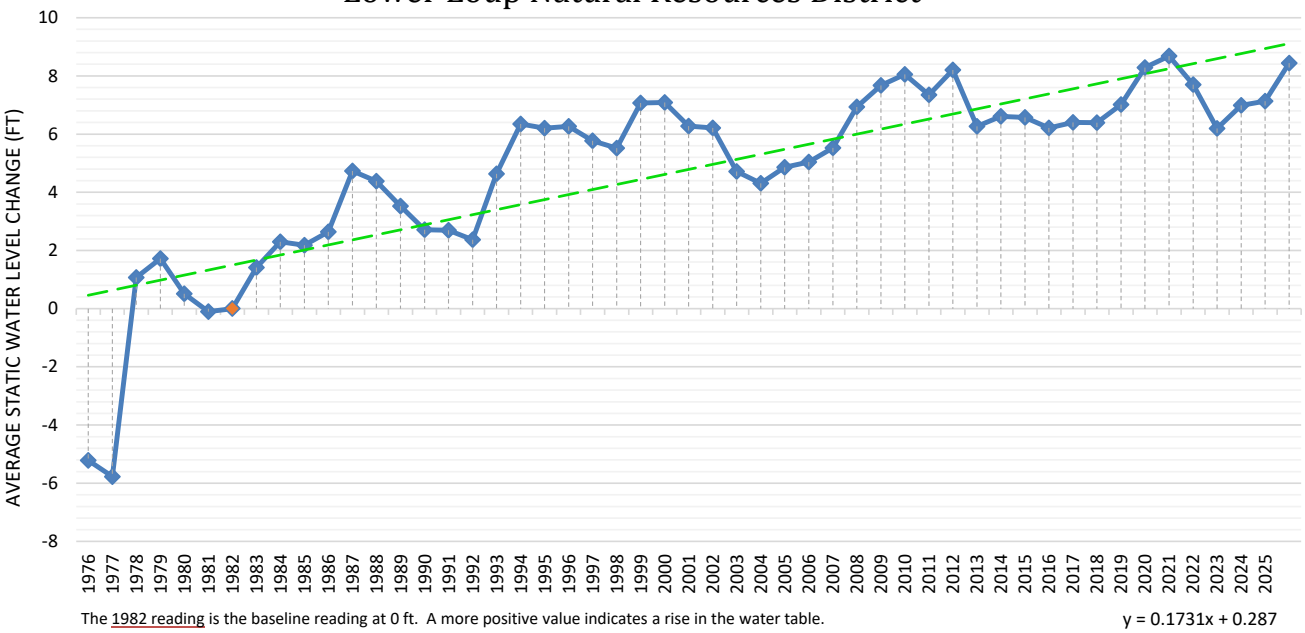
- Quantity Area
- City
- County
- Lake
- Canal
- River

Spring 2025 to Spring 2026

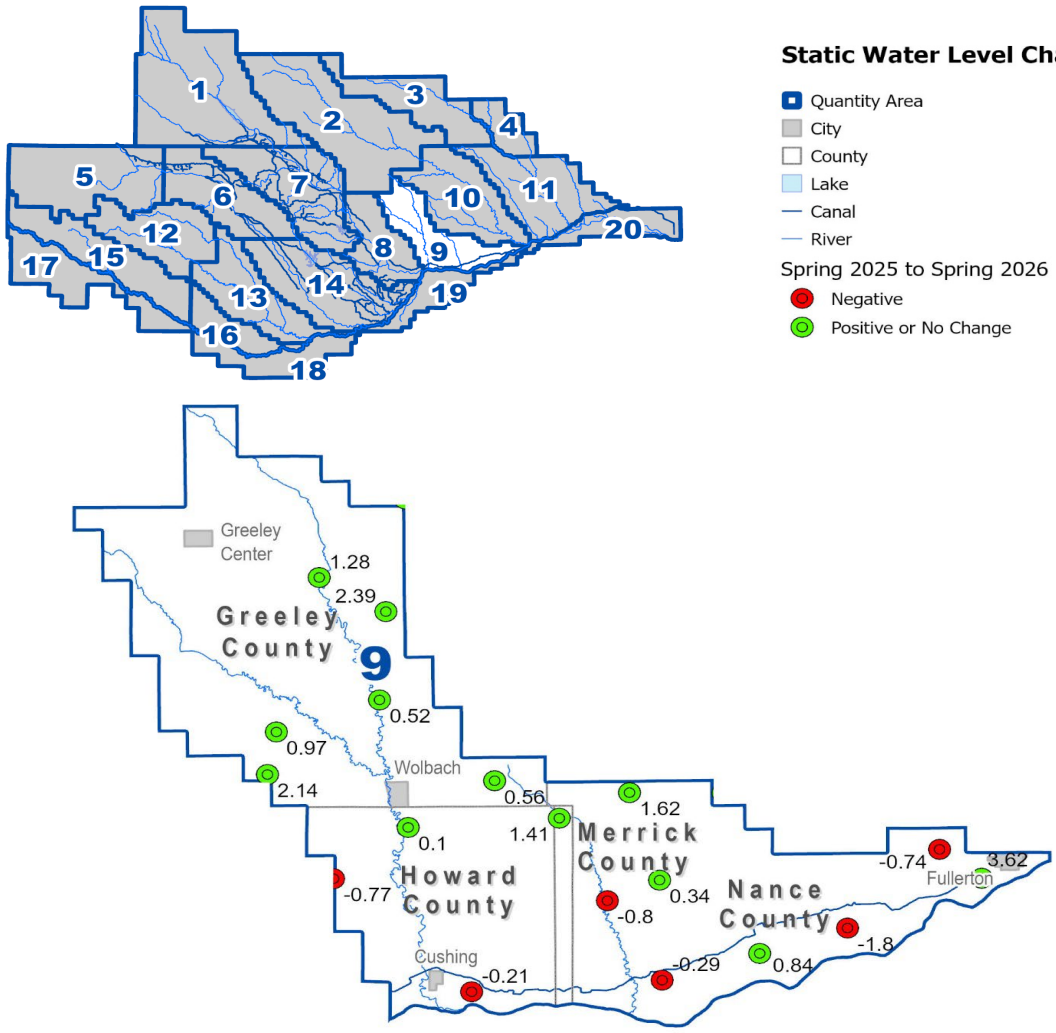
- Negative
- Positive or No Change



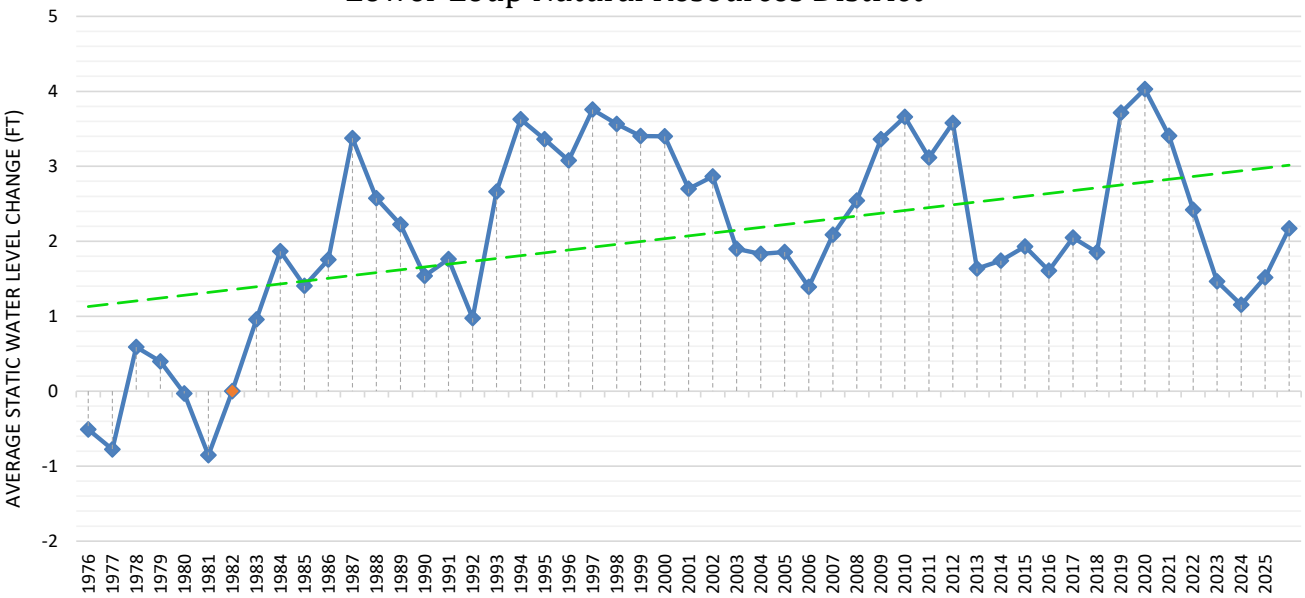
Quantity Area 9 - Spring SWL Change
Lower Loup Natural Resources District



The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table. y = 0.1731x + 0.287

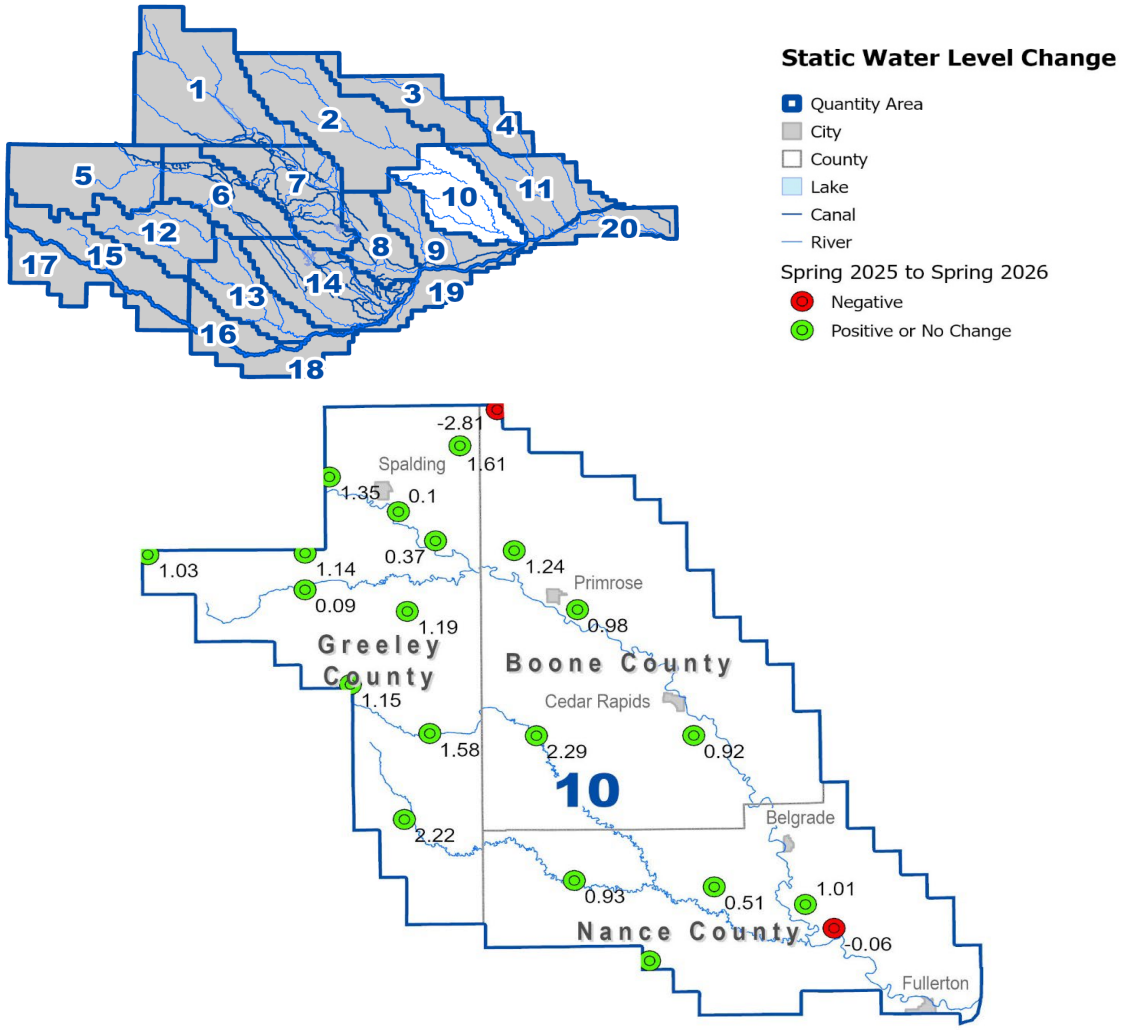


Quantity Area 10 - Spring SWL Change
Lower Loup Natural Resources District

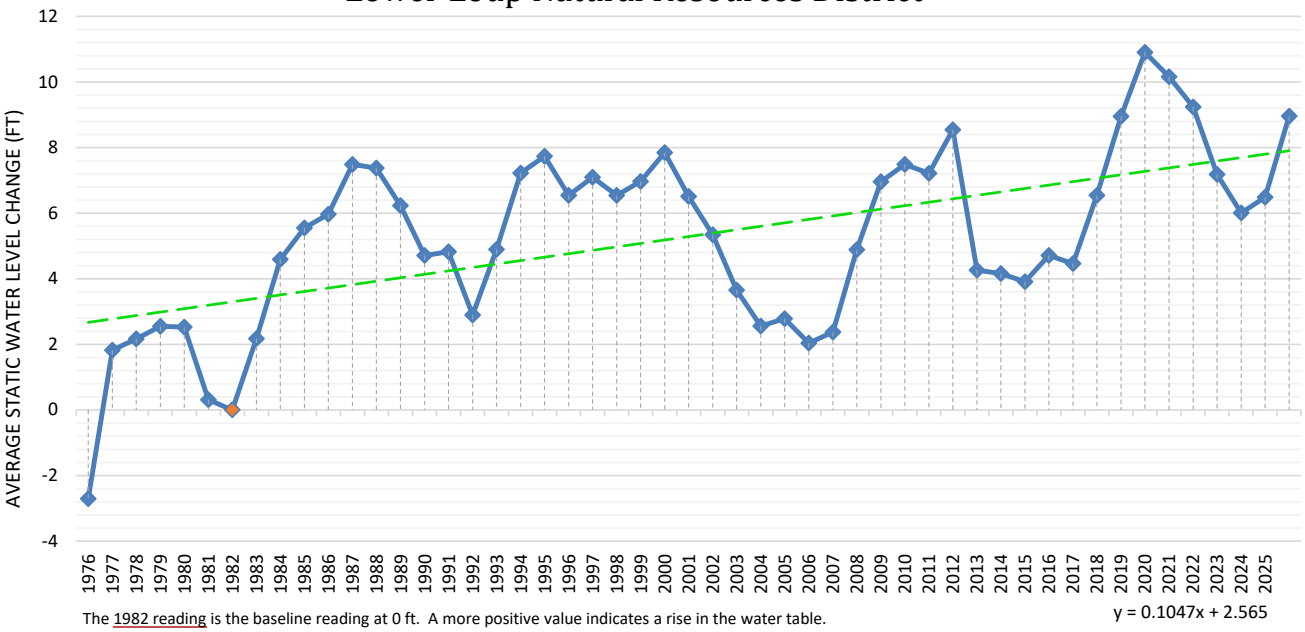


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = 0.0377x + 1.0913

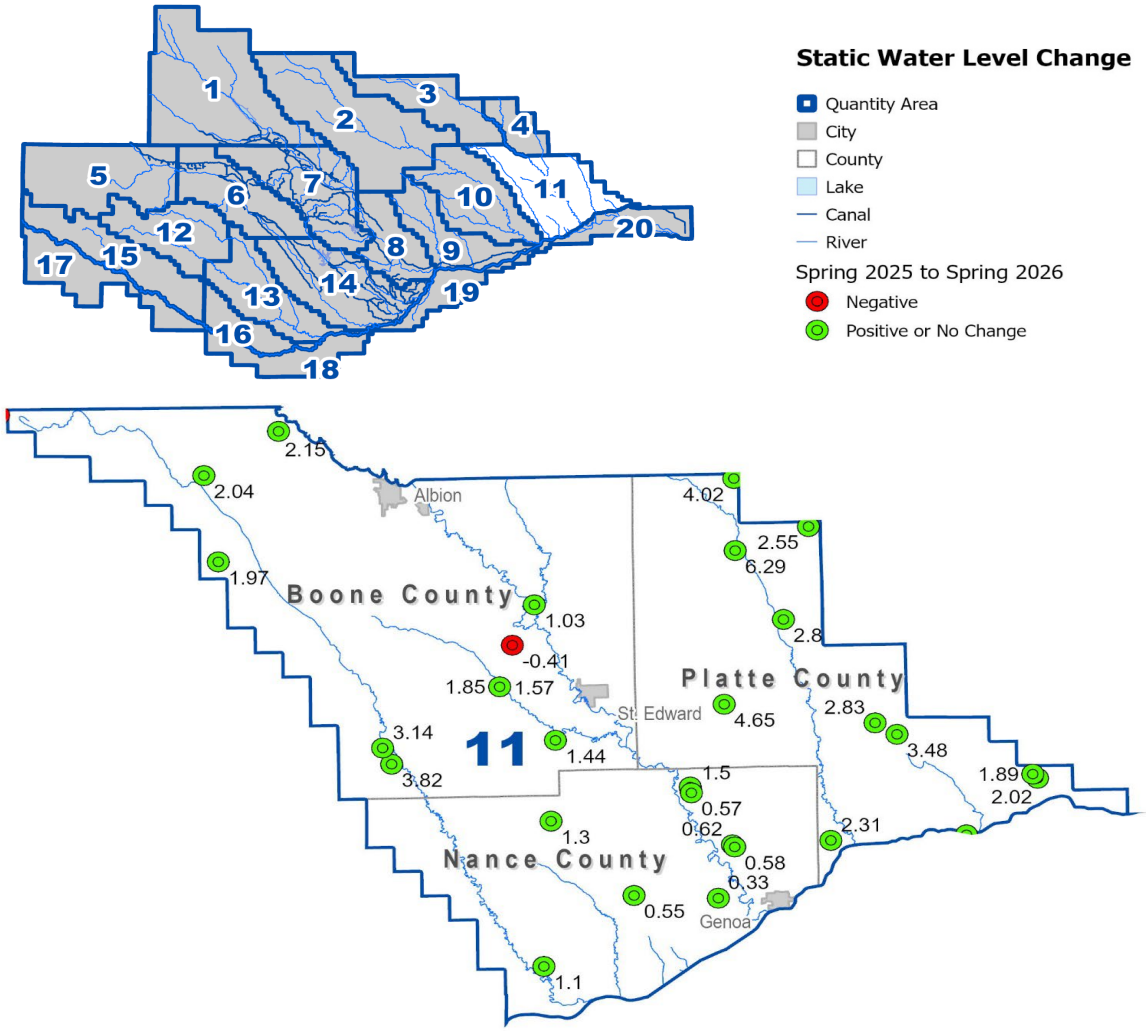


Quantity Area 11 - Spring SWL Change
Lower Loup Natural Resources District

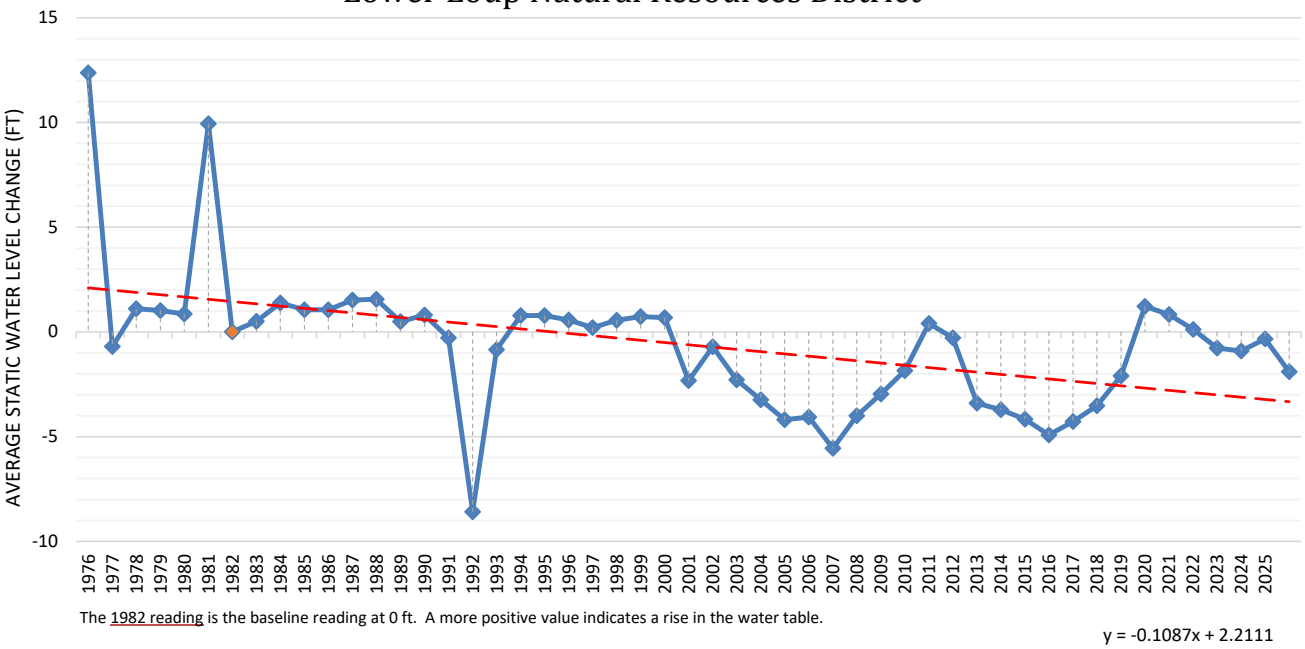


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = 0.1047x + 2.565

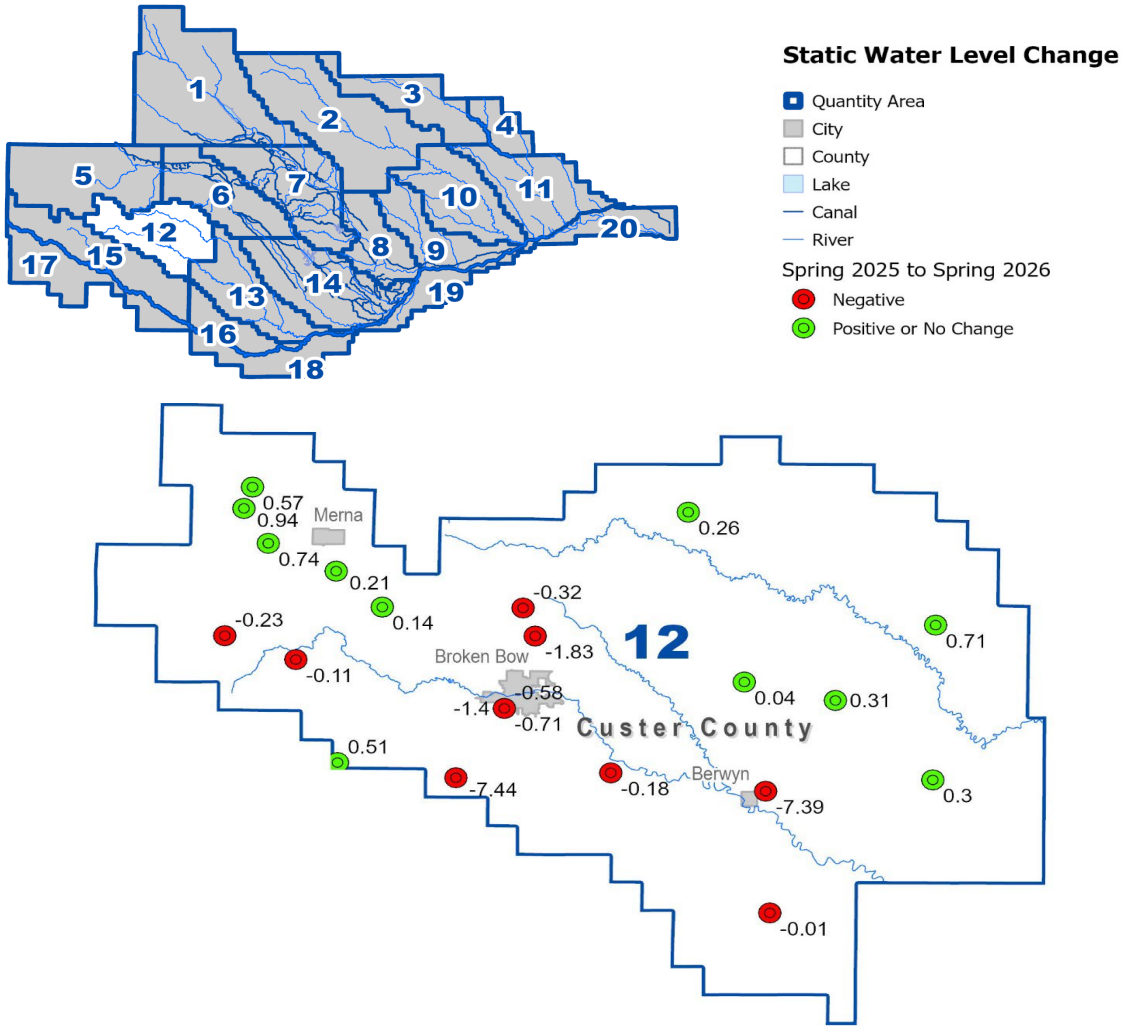


Quantity Area 12 - Spring SWL Change
Lower Loup Natural Resources District

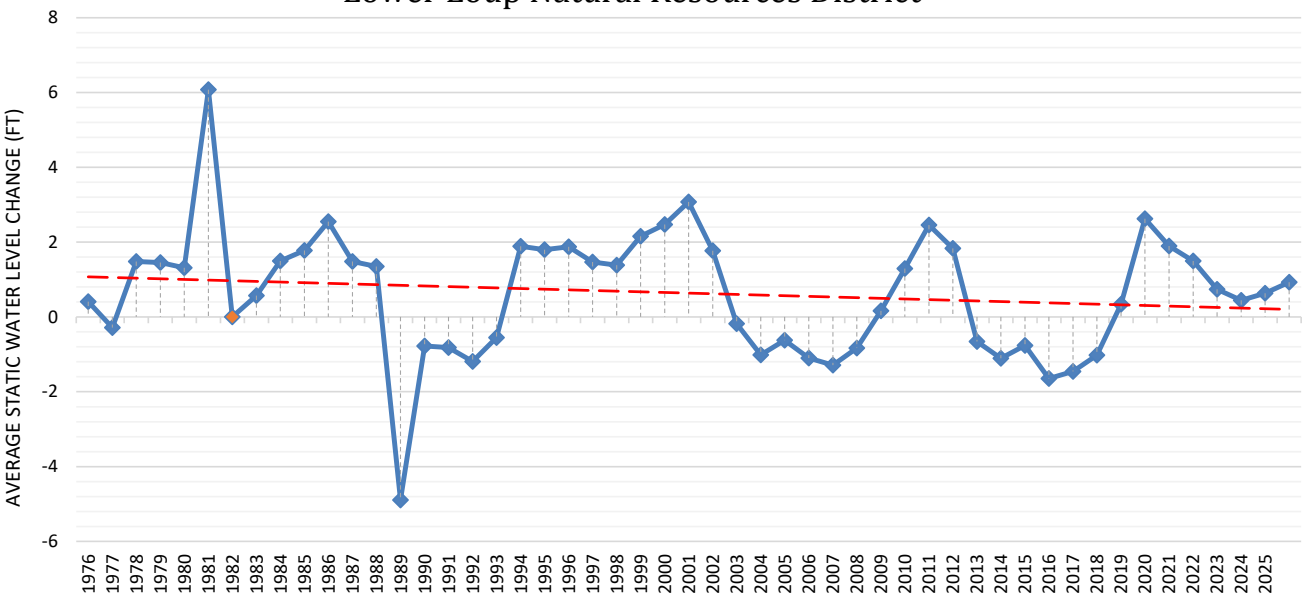


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = -0.1087x + 2.2111

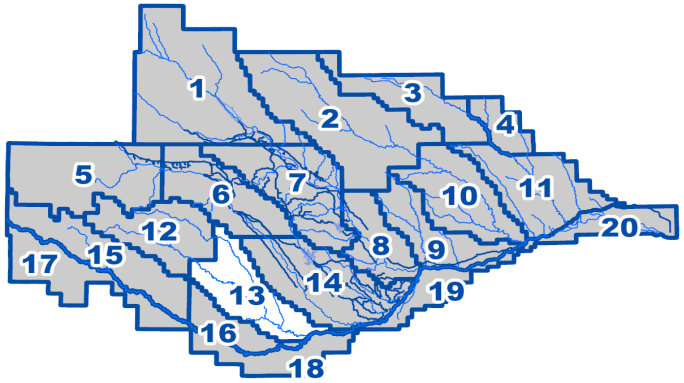


Quantity Area 13 - Spring SWL Change
Lower Loup Natural Resources District



The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = -0.0174x + 1.0901

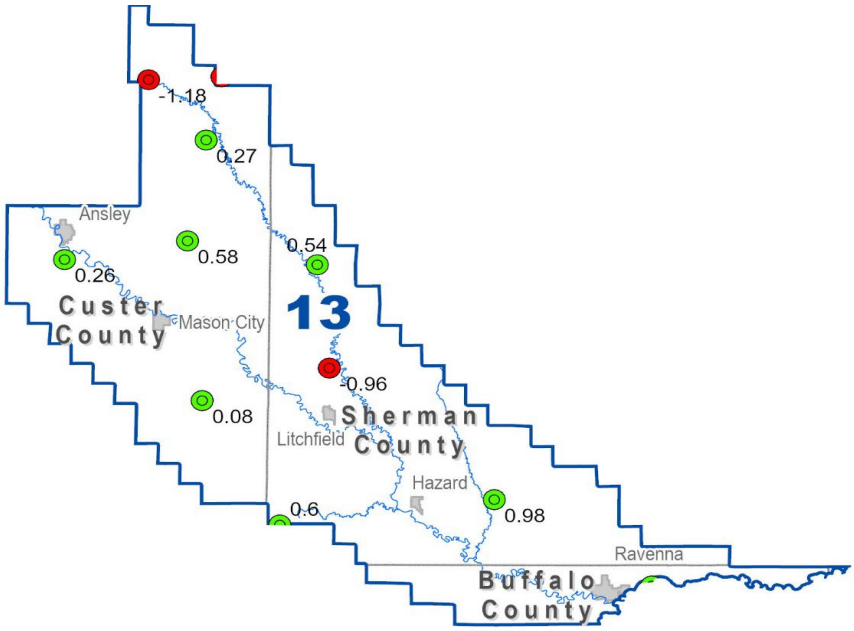


Static Water Level Change

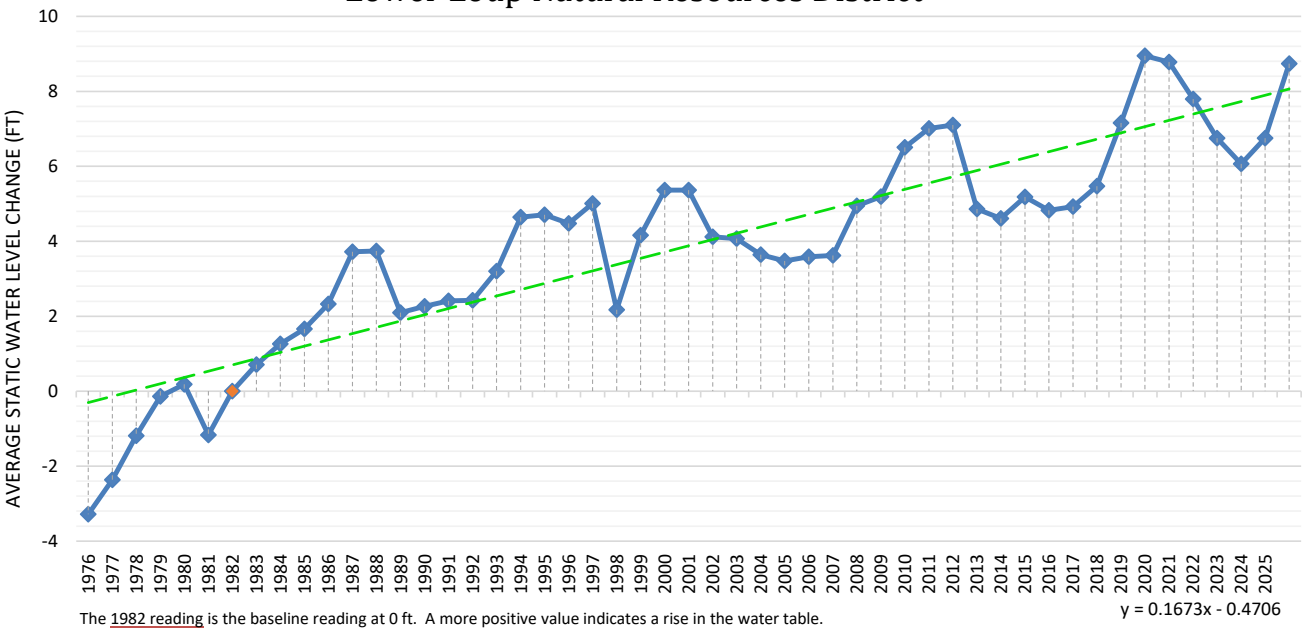
- Quantity Area
- City
- County
- Lake
- Canal
- River

Spring 2025 to Spring 2026

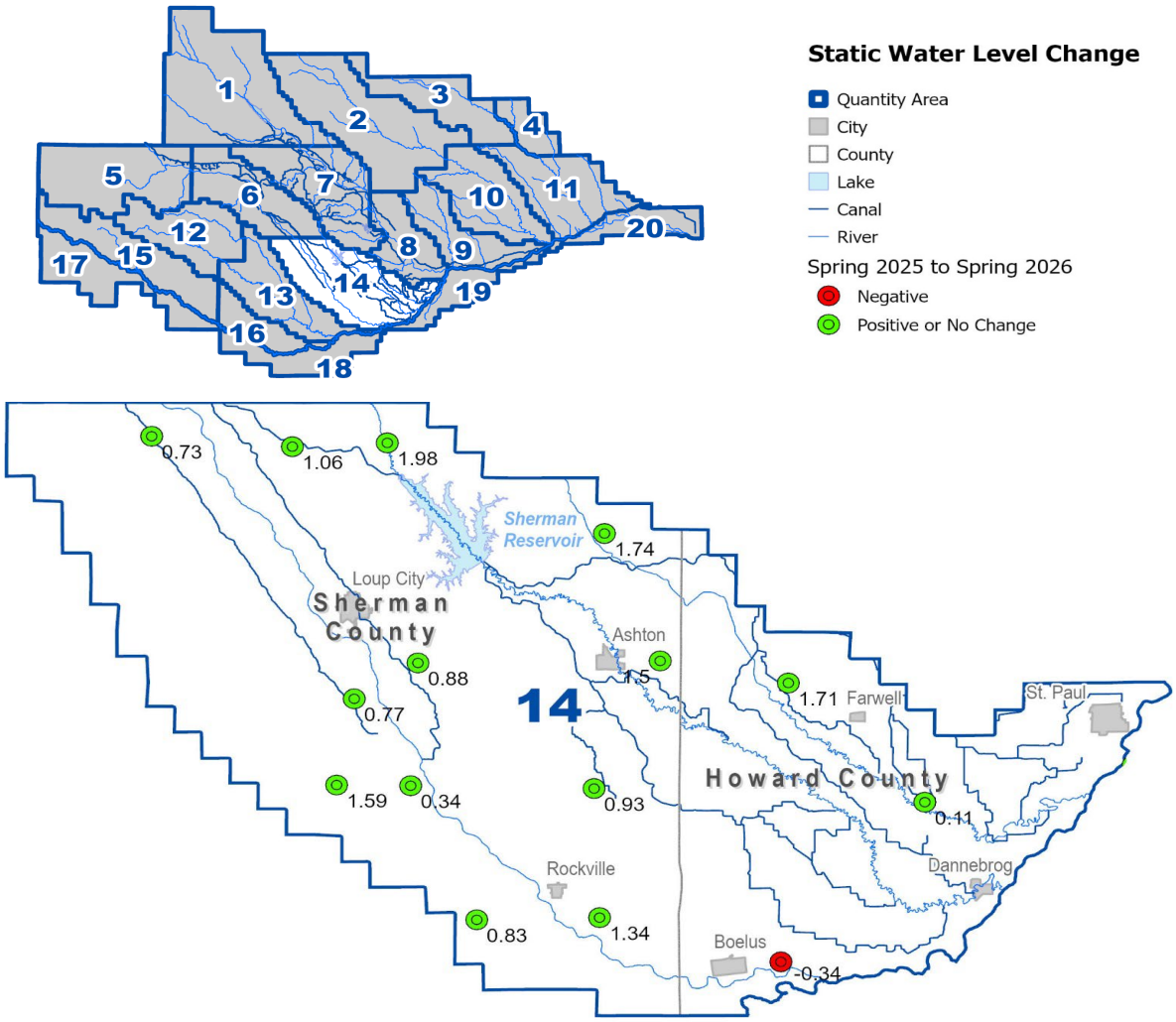
- Negative
- Positive or No Change



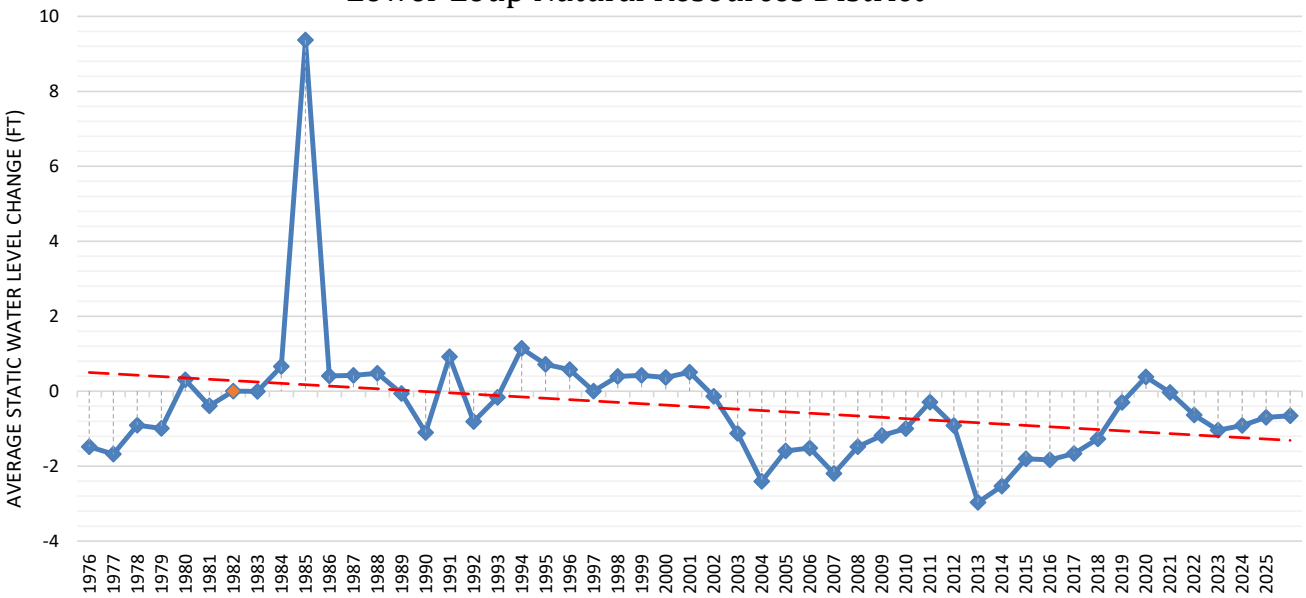
Quantity Area 14 - Spring SWL Change
Lower Loup Natural Resources District



The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

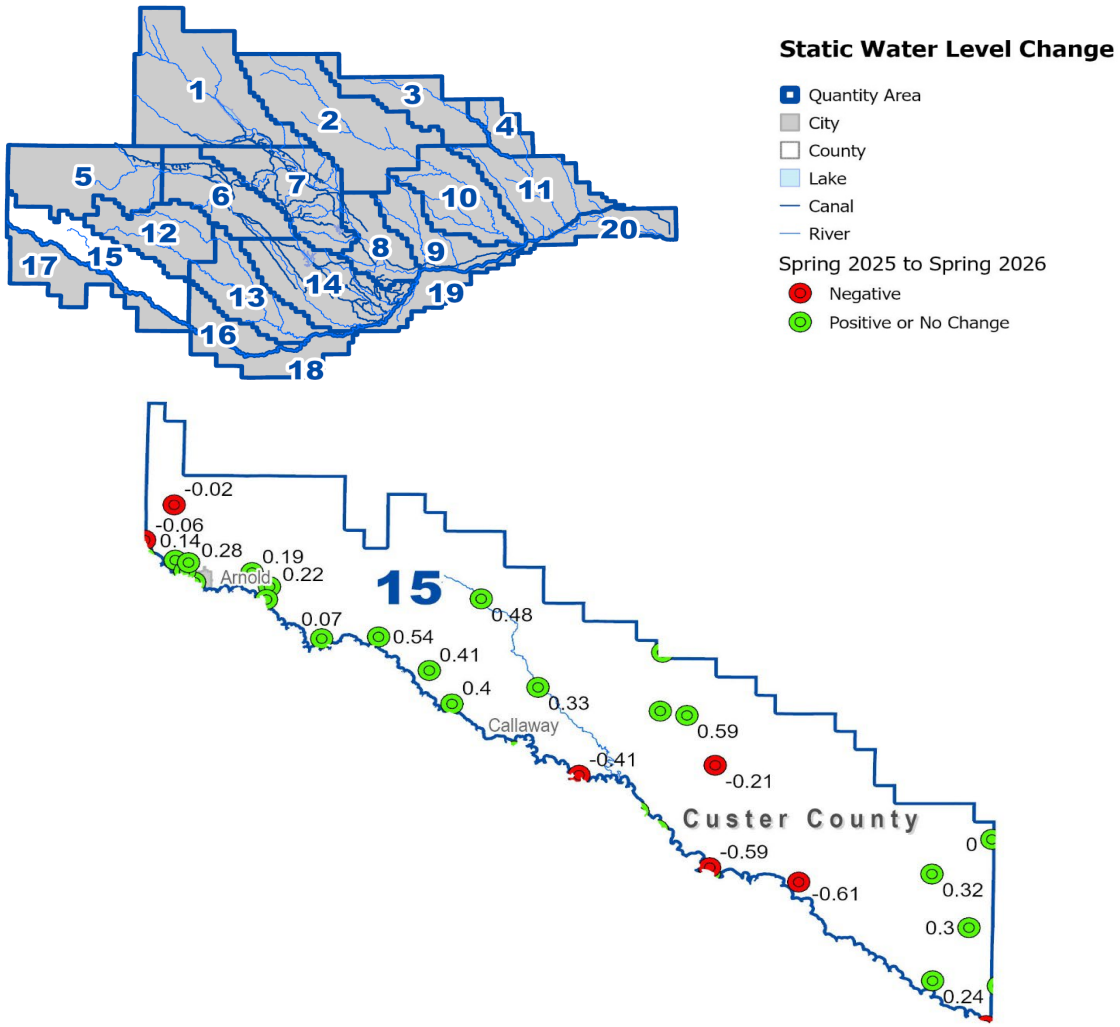


Quantity Area 15 - Spring SWL Change
Lower Loup Natural Resources District

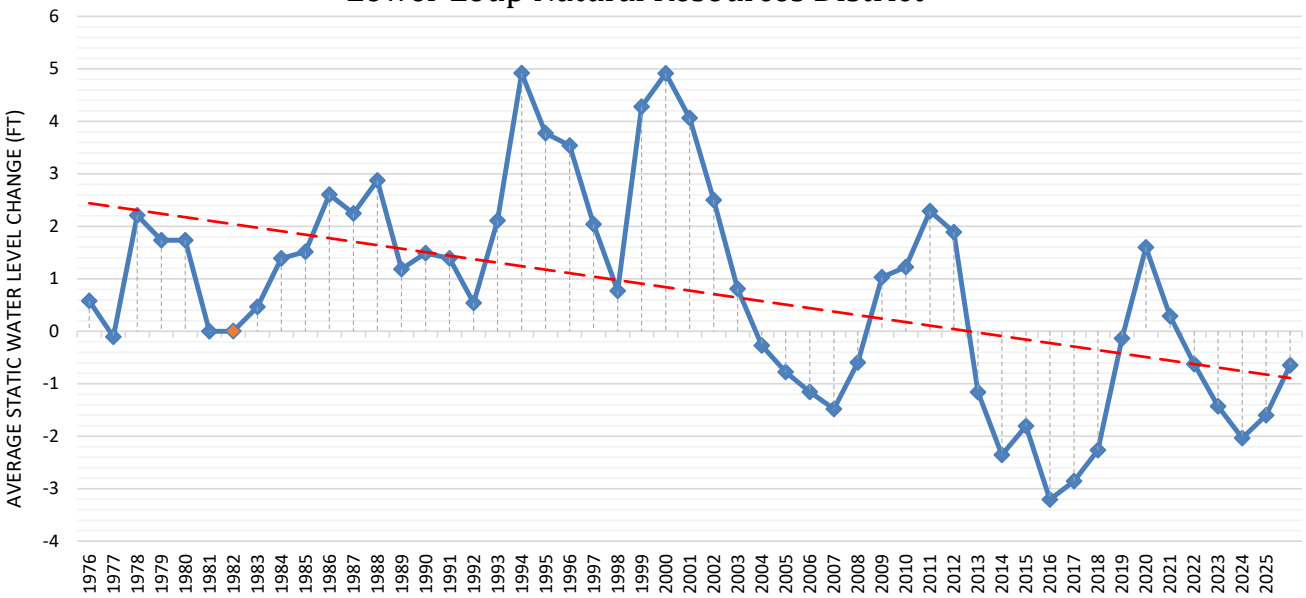


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = -0.0362x + 0.5359

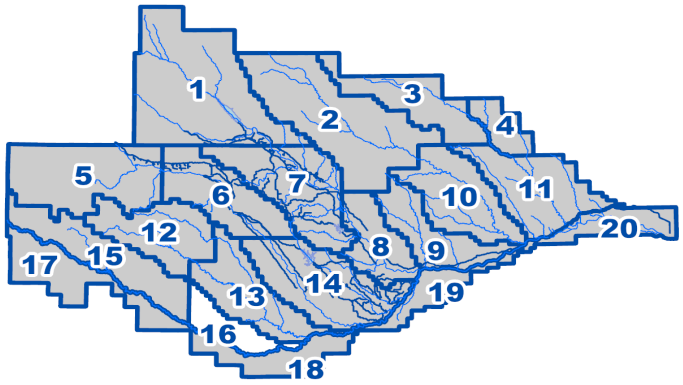


Quantity Area 16 - Spring SWL Change
Lower Loup Natural Resources District



The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = -0.0666x + 2.5058



Static Water Level Change

- Quantity Area
- City
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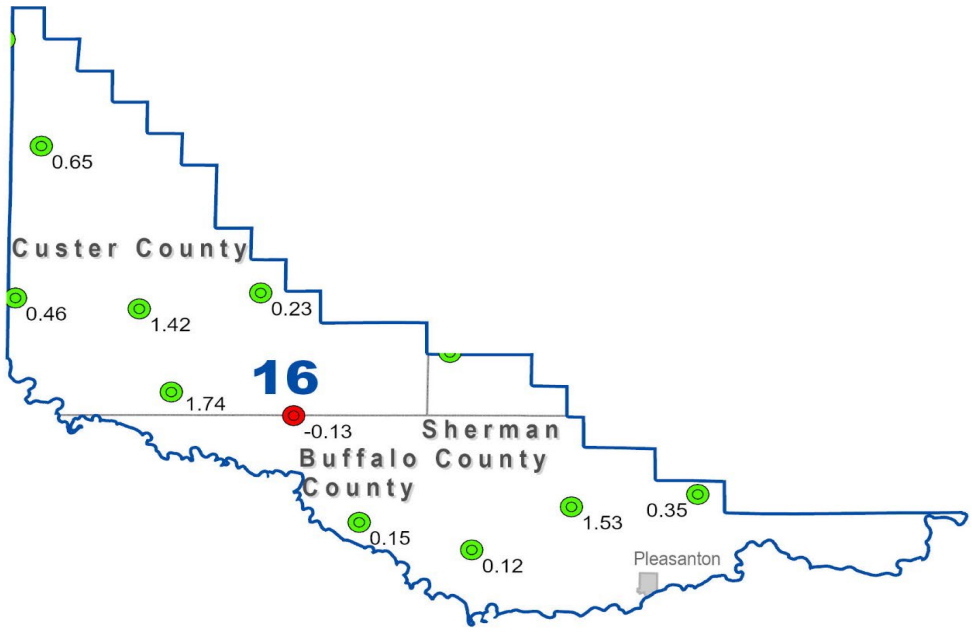
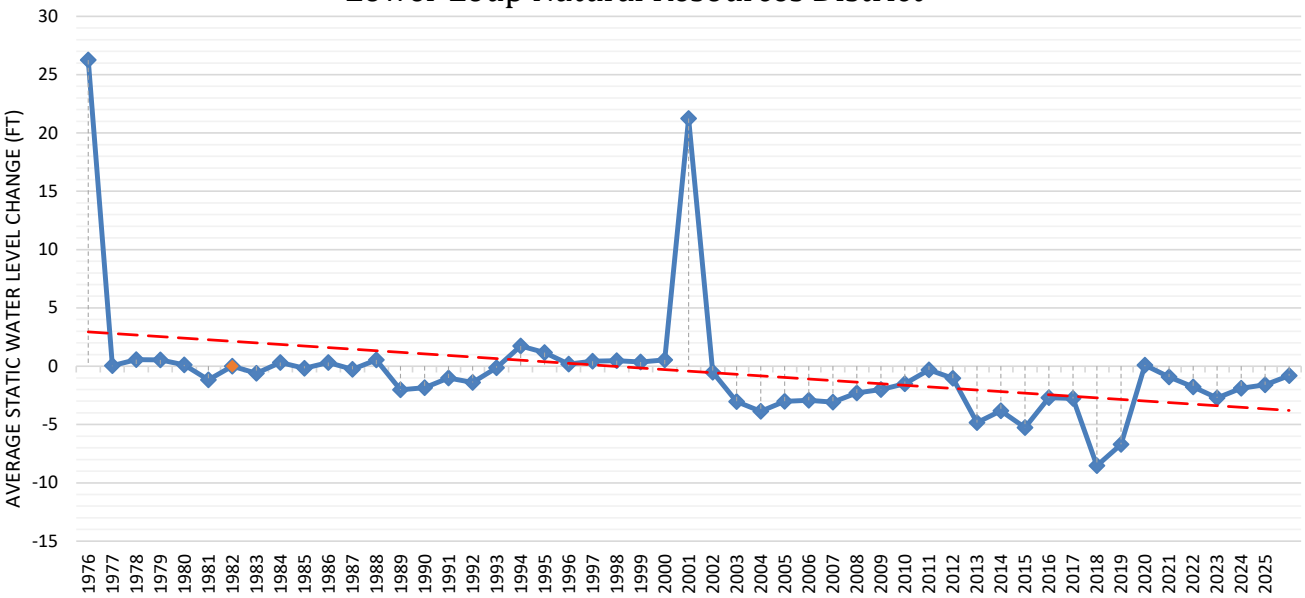
Spring 2025 to Spring 2026

- Negative
- Positive or No Change

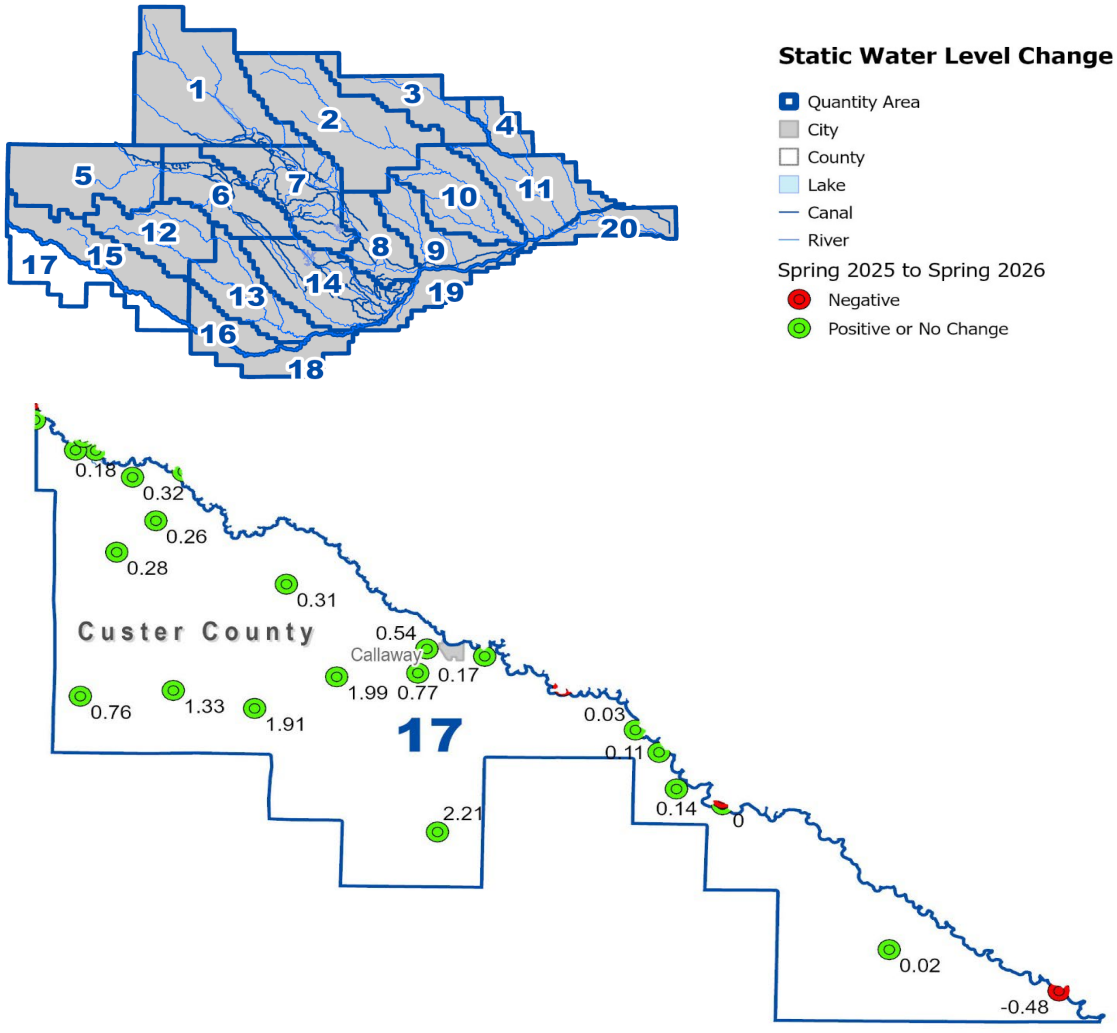


Quantity Area 17 - Spring SWL Change
Lower Loup Natural Resources District

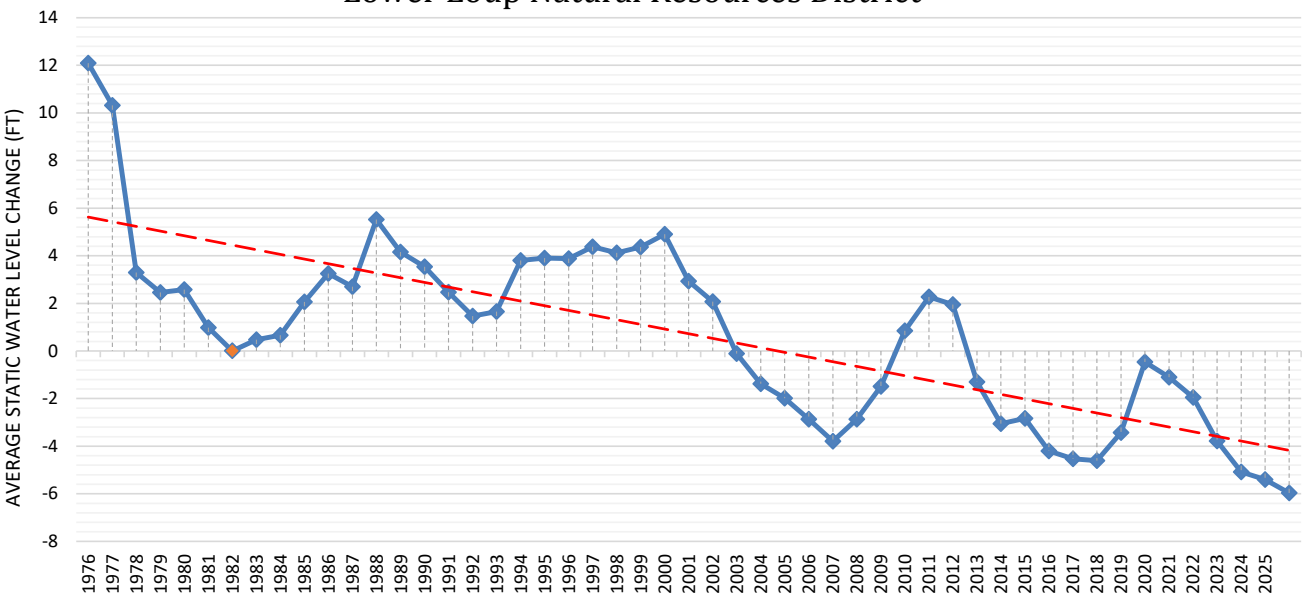


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = -0.1347x + 3.0789

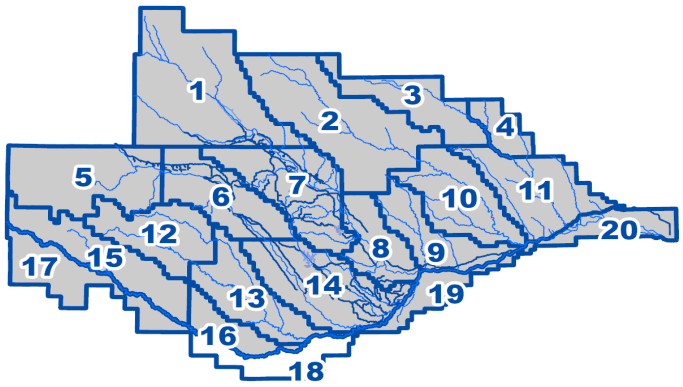


Quantity Area 18 - Spring SWL Change
Lower Loup Natural Resources District



The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = -0.196x + 5.8211



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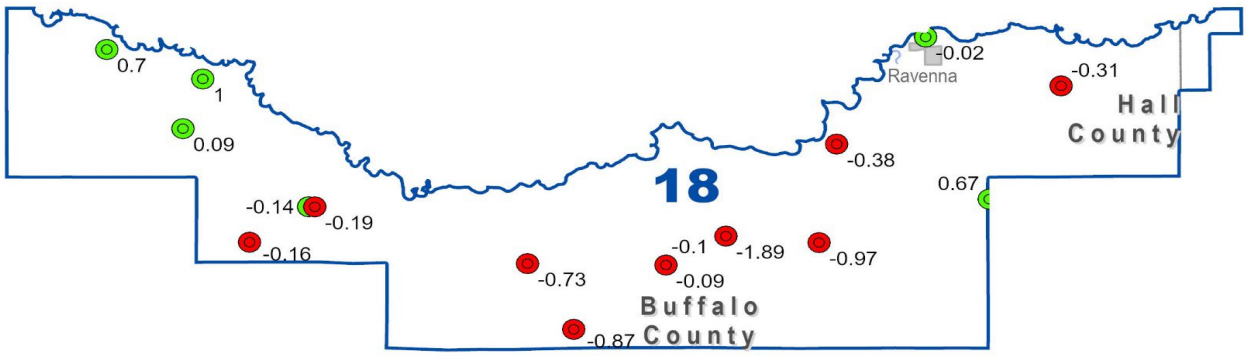
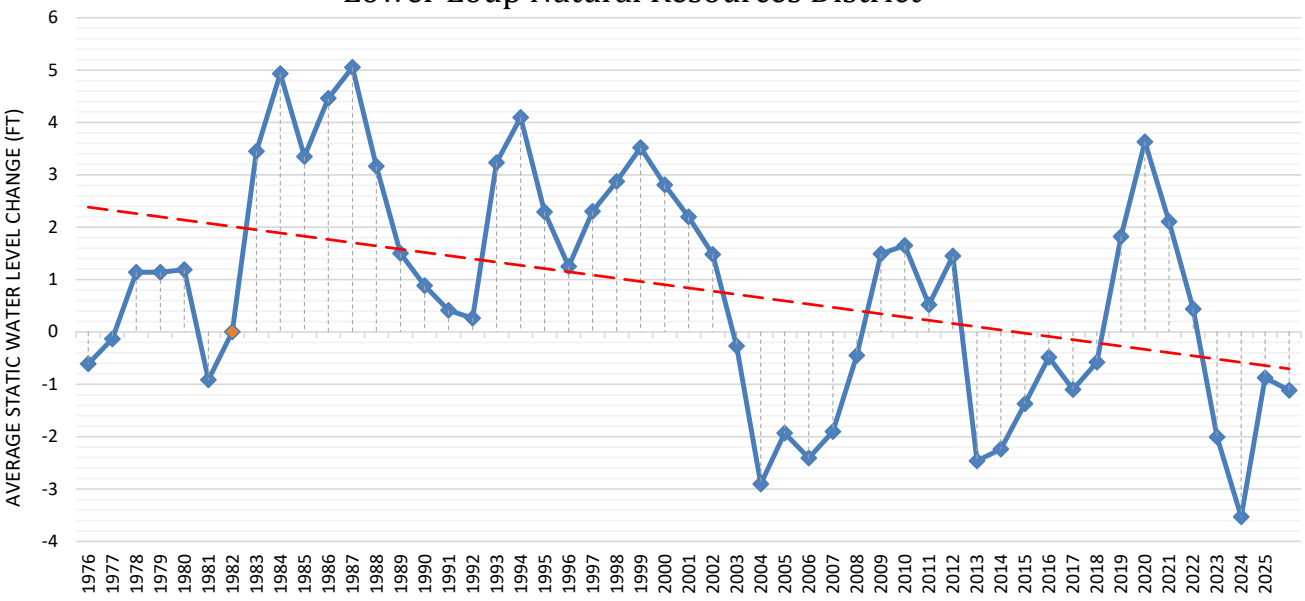
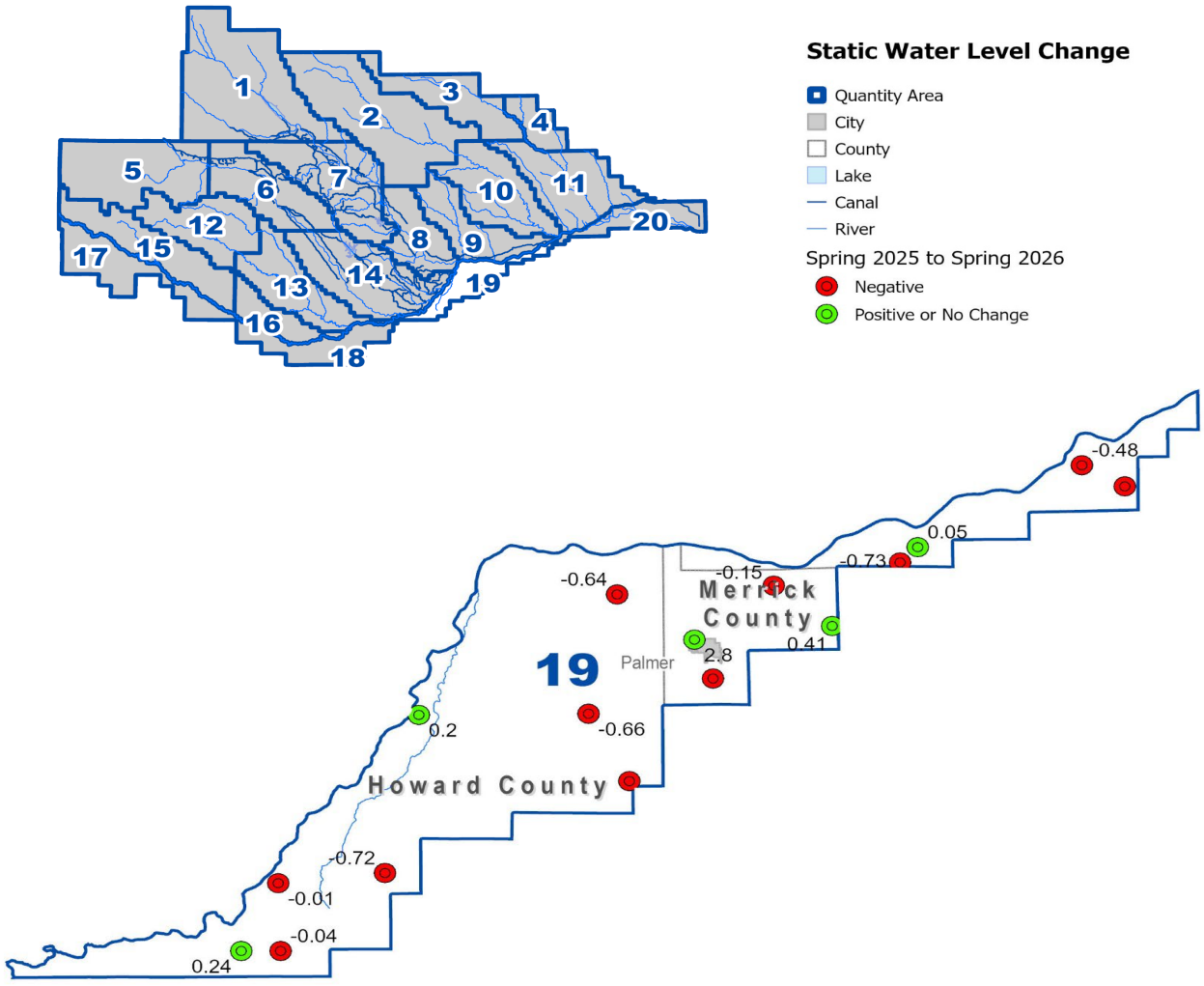


Quantity Area 19 - Spring SWL Change
Lower Loup Natural Resources District

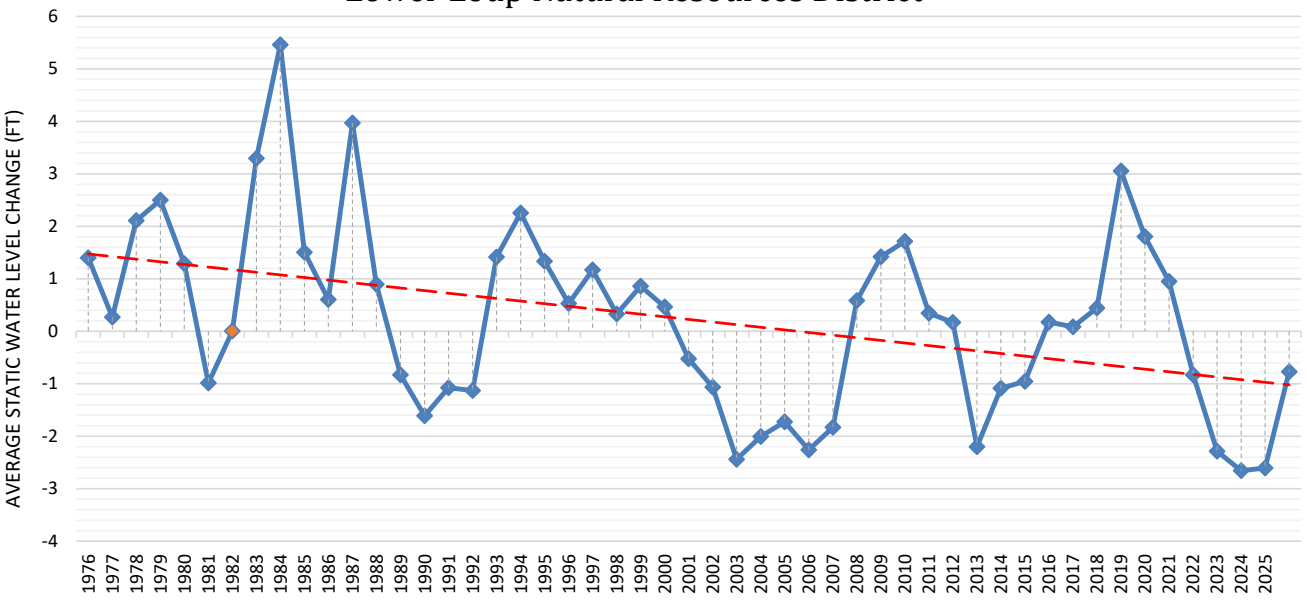


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = -0.0617x + 2.4448

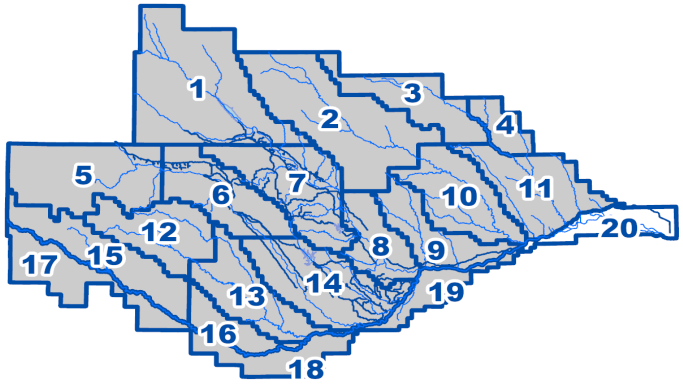


Quantity Area 20 - Spring SWL Change
Lower Loup Natural Resources District



The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = -0.0499x + 1.5227

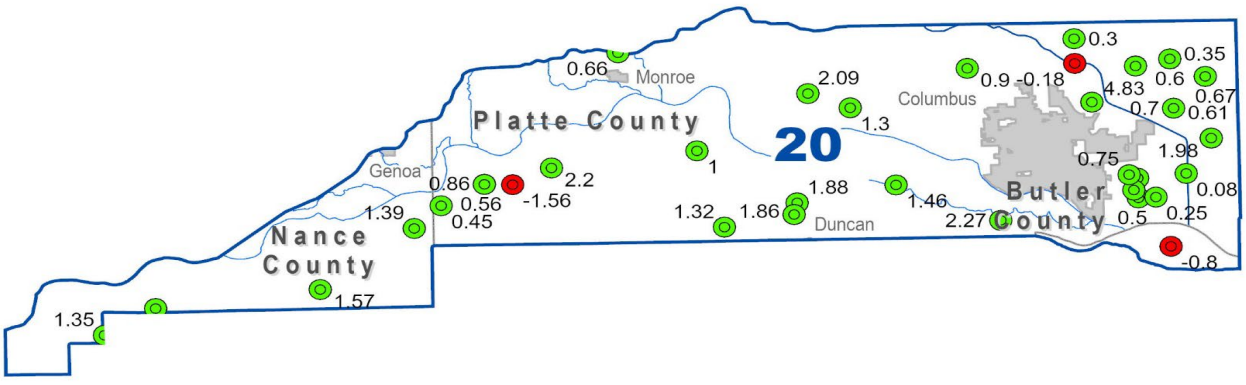


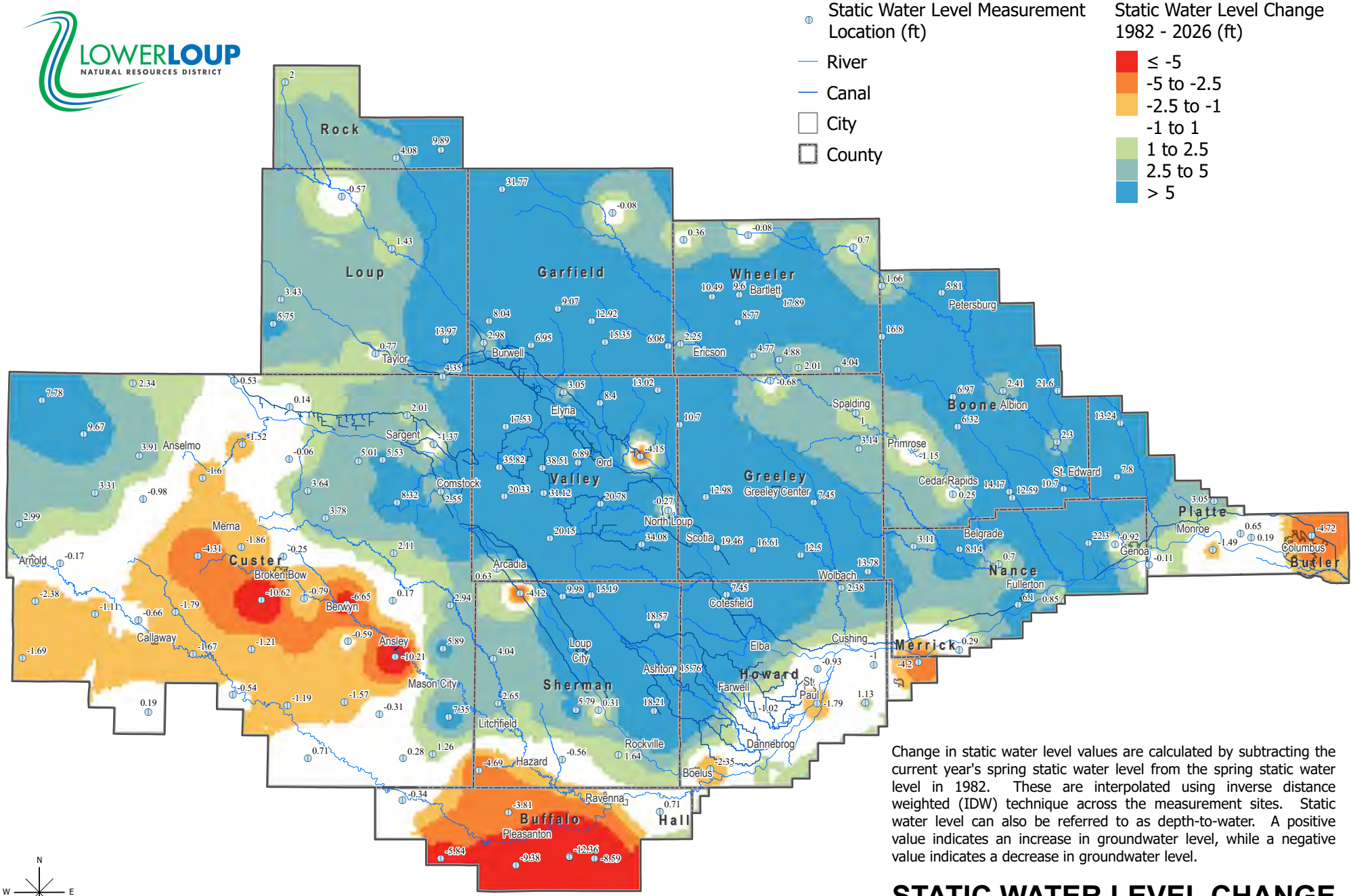
Static Water Level Change

- Quantity Area
- City
- County
- Lake
- Canal
- River

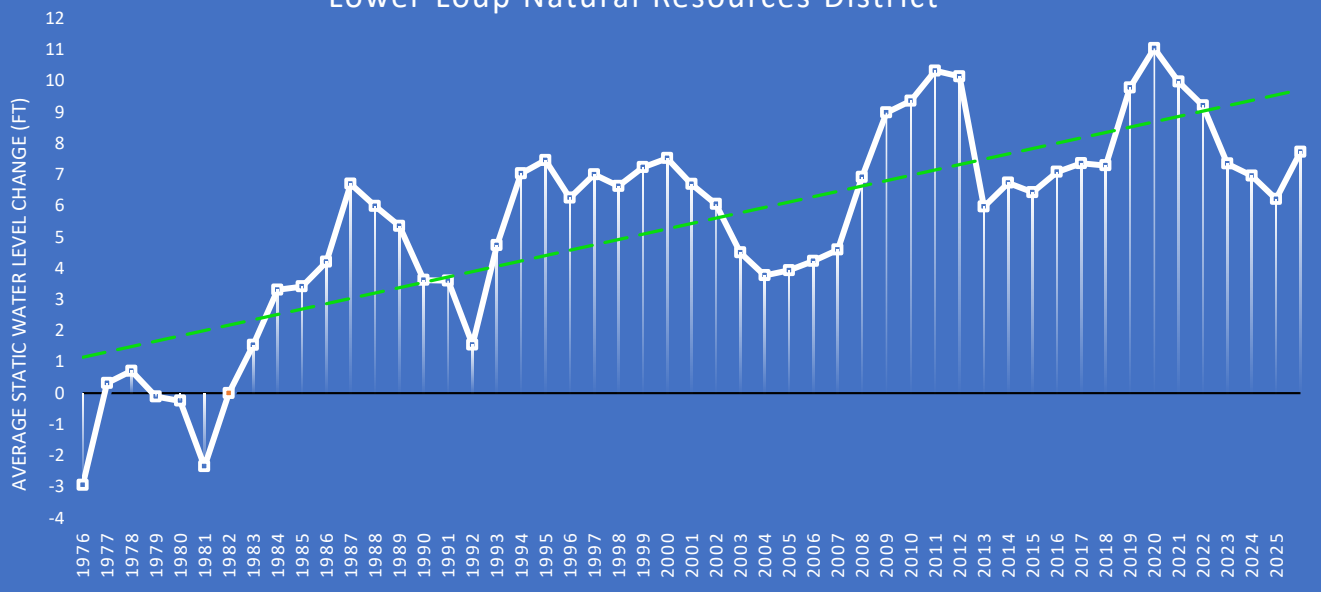
Spring 2025 to Spring 2026

- Negative
- Positive or No Change



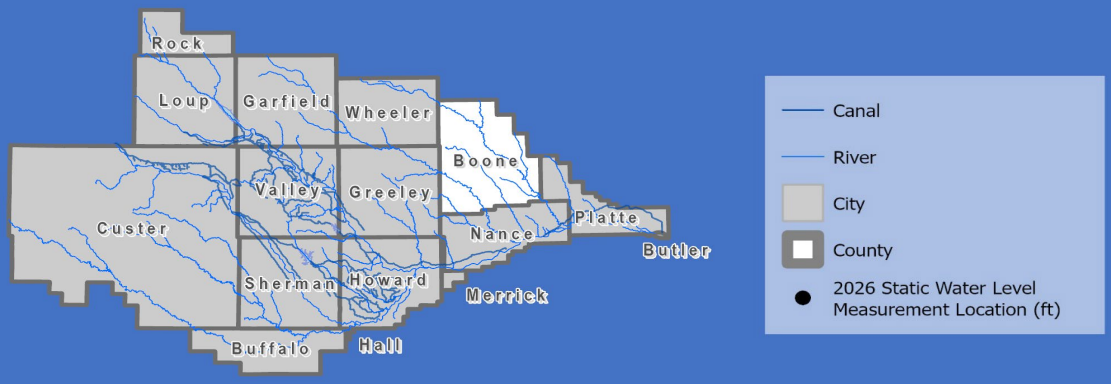

LOWER LOUP
NATURAL RESOURCES DISTRICT
Static Water Level Measurement Location (ft)
River
Canal
City
County
Static Water Level Change 1982 - 2026 (ft)
≤ -5
-5 to -2.5
-2.5 to -1
-1 to 1
1 to 2.5
2.5 to 5
> 5
Rock
Loup
Garfield
Wheeler
Boone
Platte
Greeley
Valley
Sherman
Howard
Nance
Merrick
Hall
Buffalo
Custer
Arnold
Anselmo
Merna
Broken Bow
Berwyn
Callaway
Ansley
Mason City
Litchfield
Taylor
Burwell
Sargent
Comstock
Elyria
Ord
North Loup
Arcadia
Loup City
Rockville
Hazard
Pleasanton
Ravenna
Boelus
Dannebrog
Farwell
St. Paul
Ashton
Elba
Cotesfield
Wolbach
Fullerton
Cushing
Ericson
Bartlett
Petersburg
Spalding
Albion
Primrose
Cedar Rapids
St. Edward
Belgrade
Genoa
Columbus
Monroe
Scotia
Greeley Center
N
W
E
S
1:955,000
0 5 10 20 30 40 50
Miles
Change in static water level values are calculated by subtracting the current year's spring static water level from the spring static water level in 1982. These are interpolated using inverse distance weighted (IDW) technique across the measurement sites. Static water level can also be referred to as depth-to-water. A positive value indicates an increase in groundwater level, while a negative value indicates a decrease in groundwater level.
STATIC WATER LEVEL CHANGE
ALL YEARS
SPRING 1982 TO SPRING 2026
\GIS_Projects\WaterQuantity\StaticWaterLevel

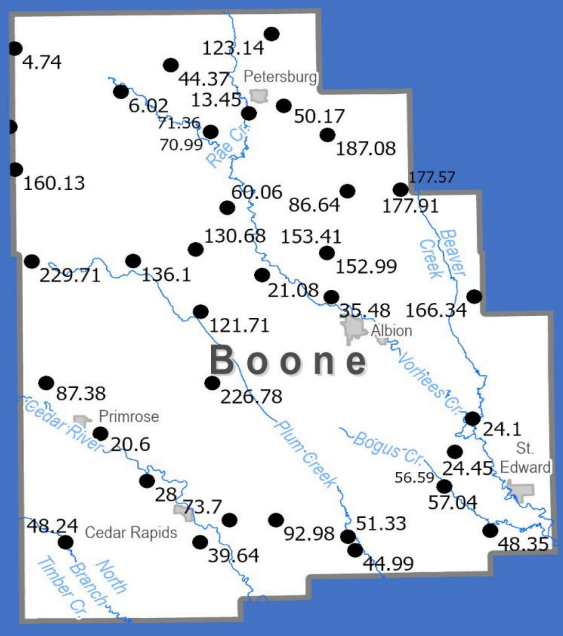
BOONE COUNTY - Spring SWL Change
Lower Loup Natural Resources District



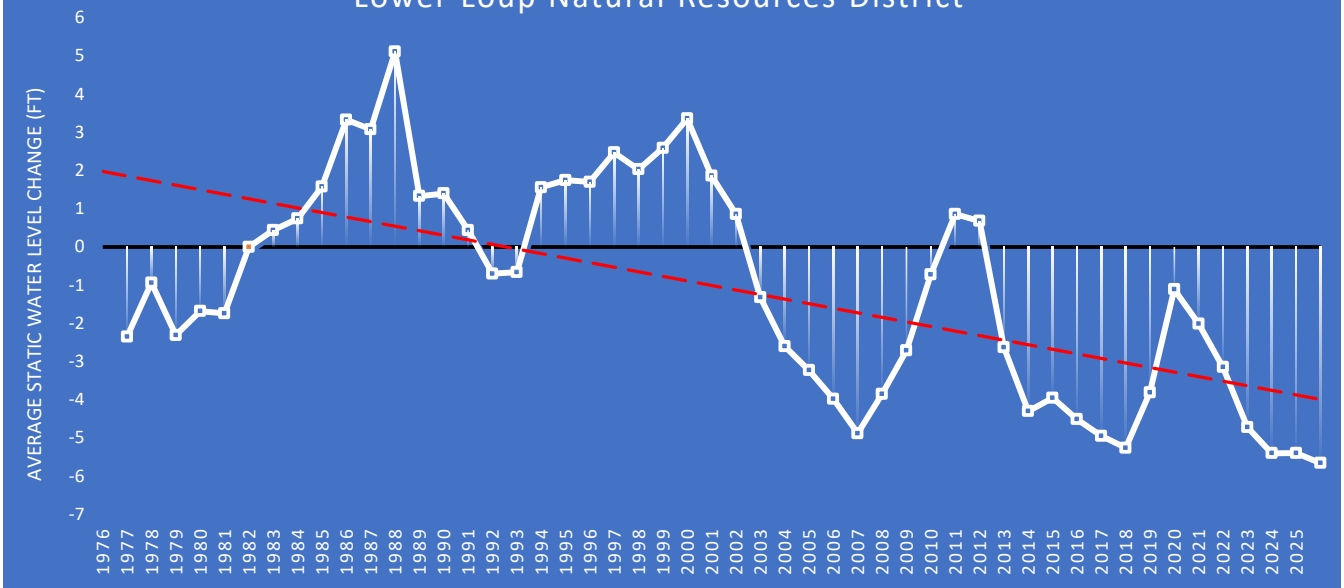
The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = 0.1714x + 0.9774



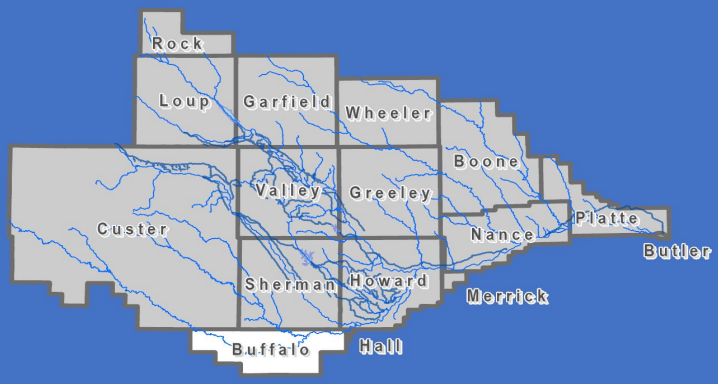


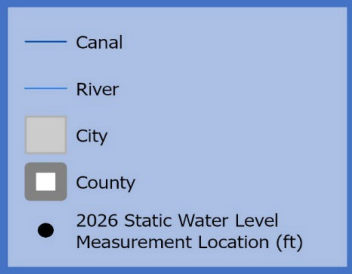
BUFFALO COUNTY - Spring SWL Change
Lower Loup Natural Resources District

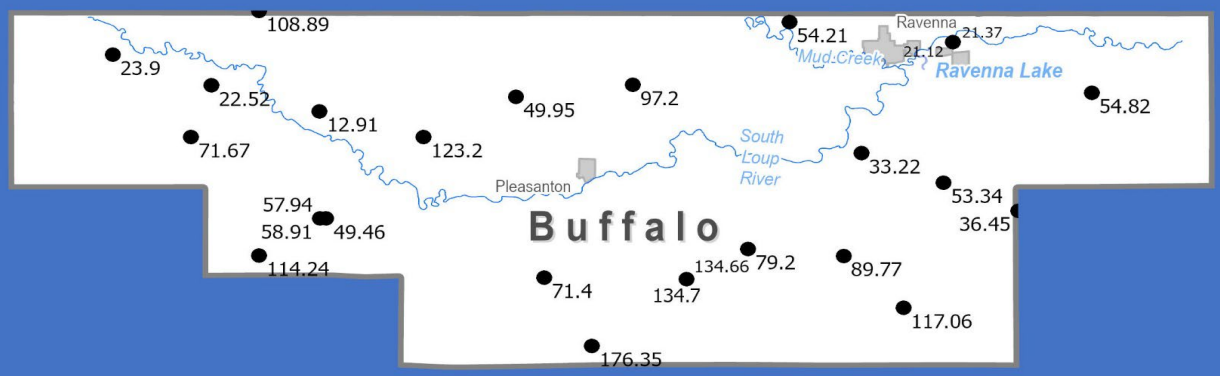


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

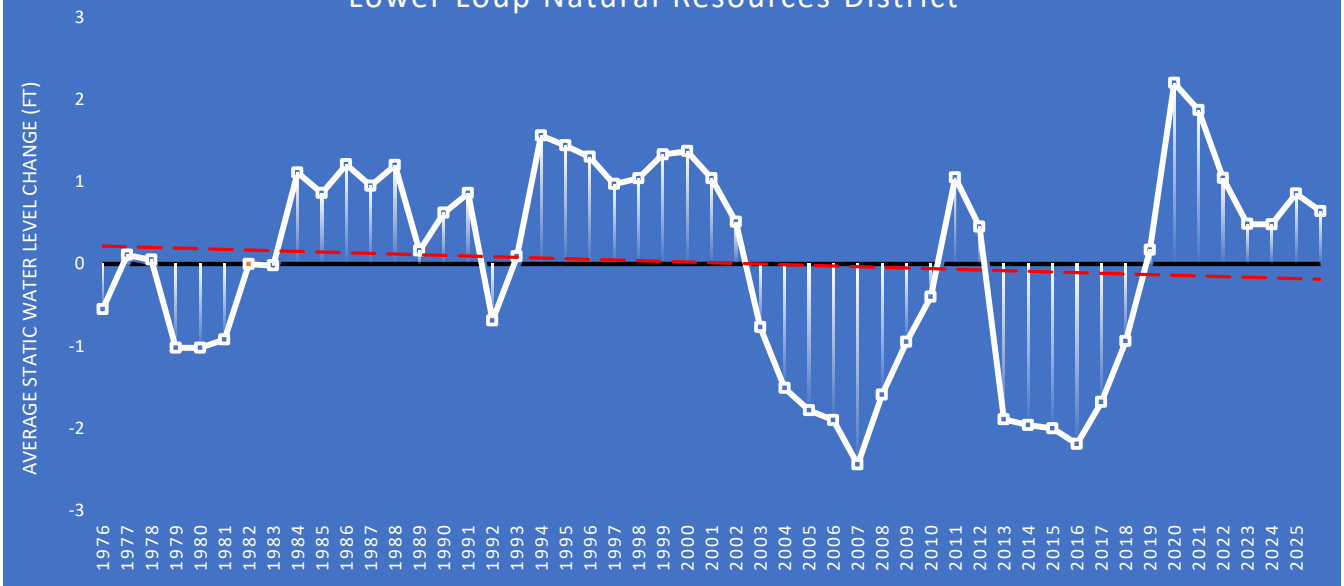
y = -0.1194x + 2.0964





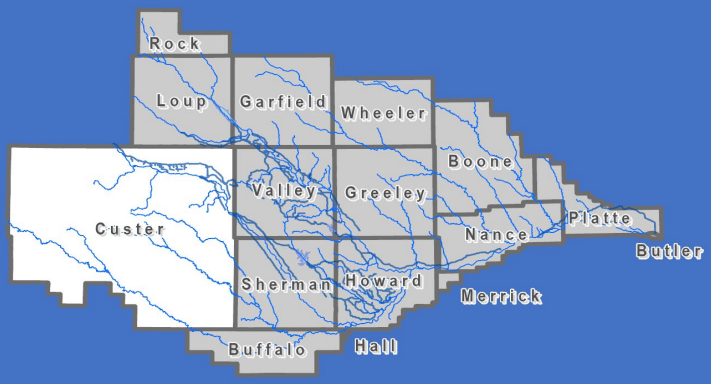


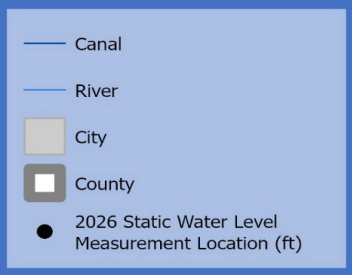
CUSTER COUNTY - Spring SWL Change
Lower Loup Natural Resources District

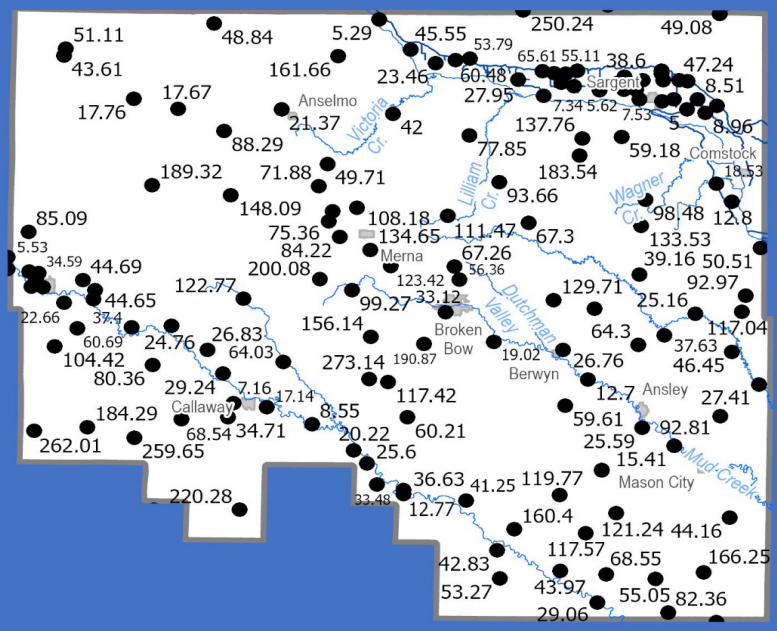


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

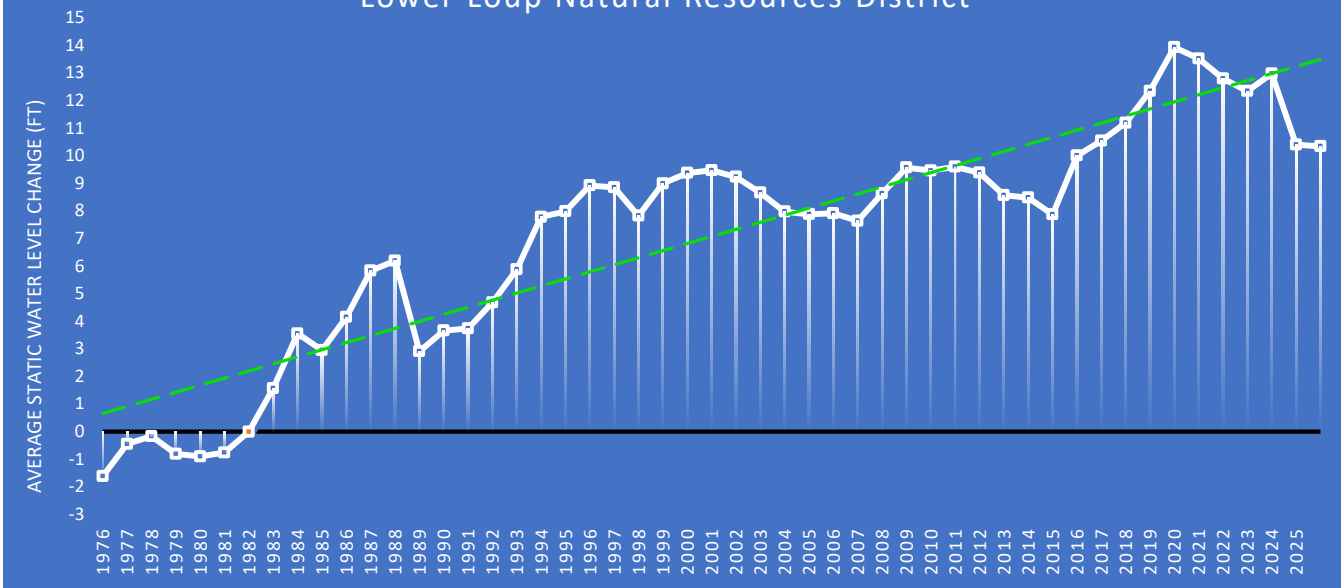
y = -0.0081x + 0.2256





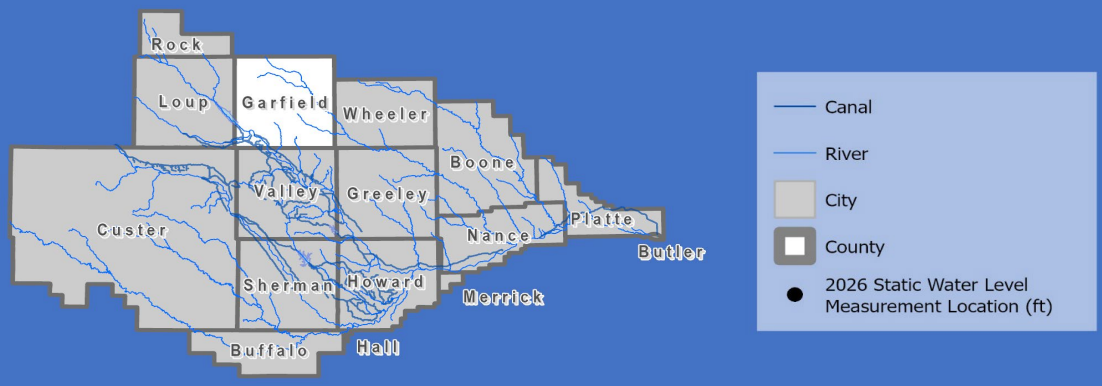


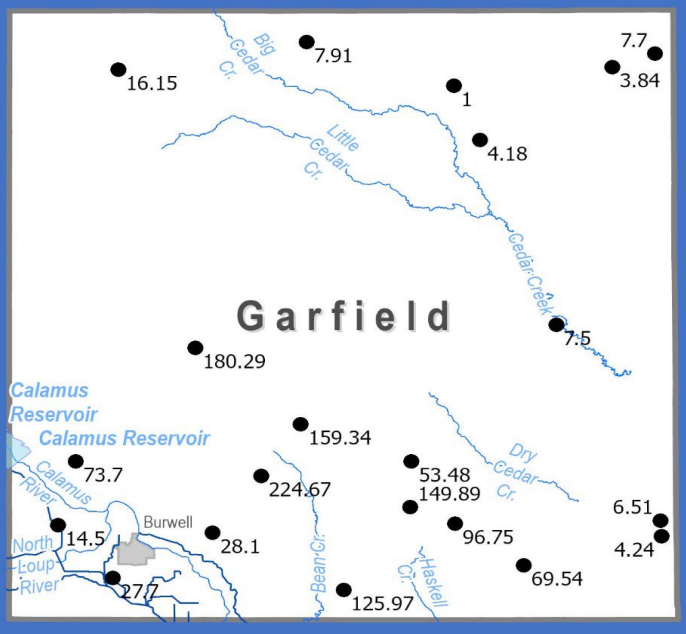
GARFIELD COUNTY - Spring SWL Change
Lower Loup Natural Resources District



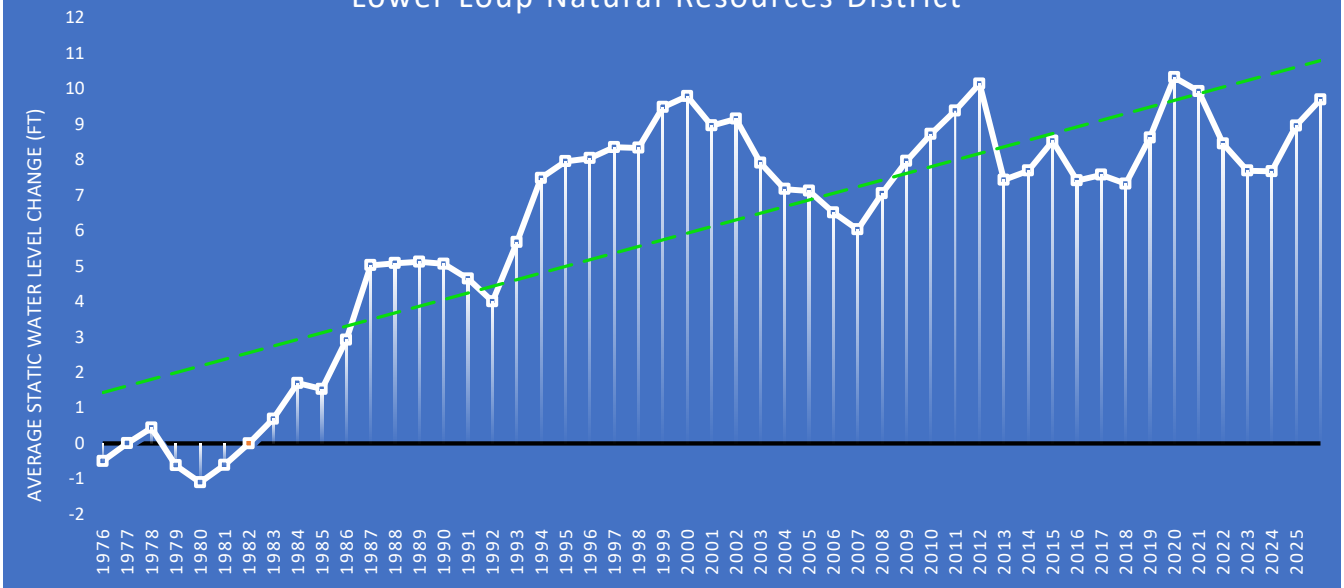
The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = 0.2567x + 0.3994

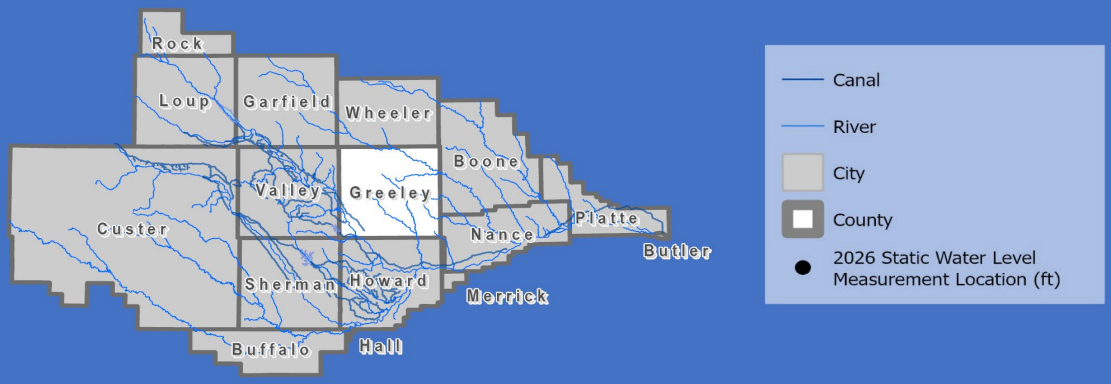


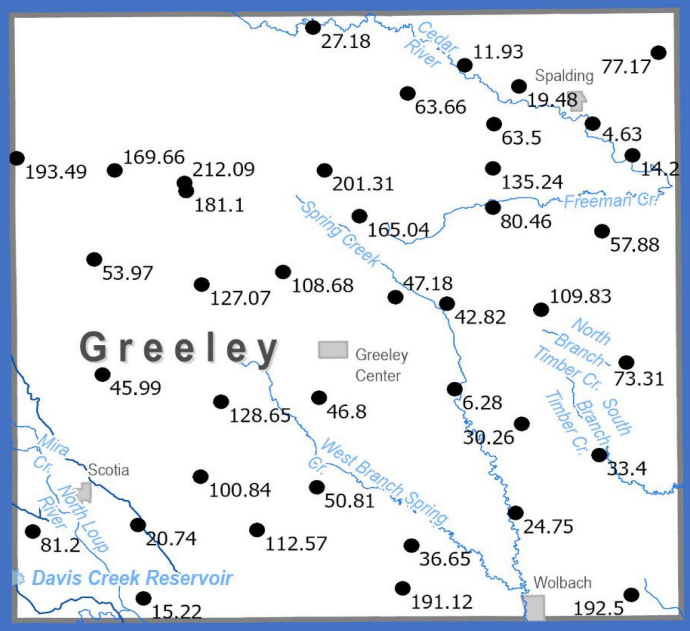


GREELEY COUNTY - Spring SWL Change
Lower Loup Natural Resources District

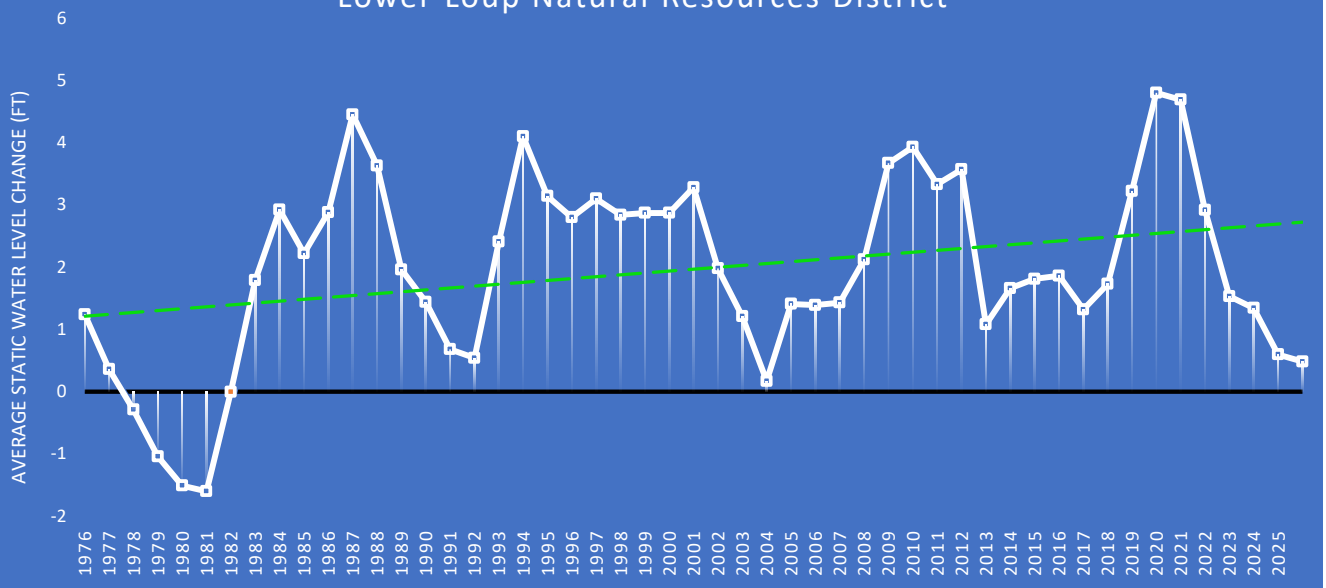


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.



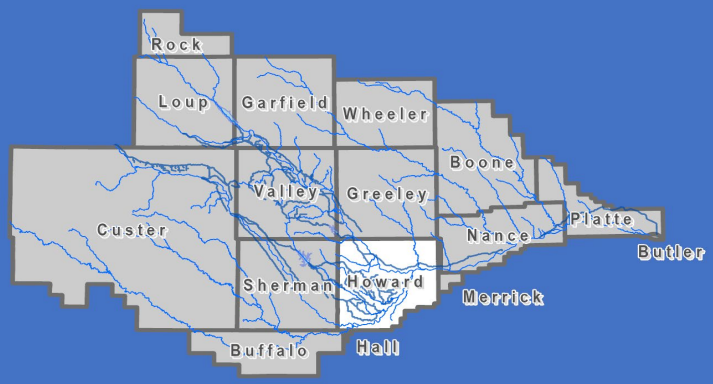


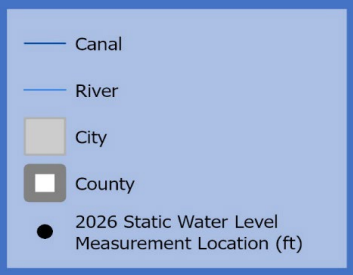
HOWARD COUNTY - Spring SWL Change
Lower Loup Natural Resources District

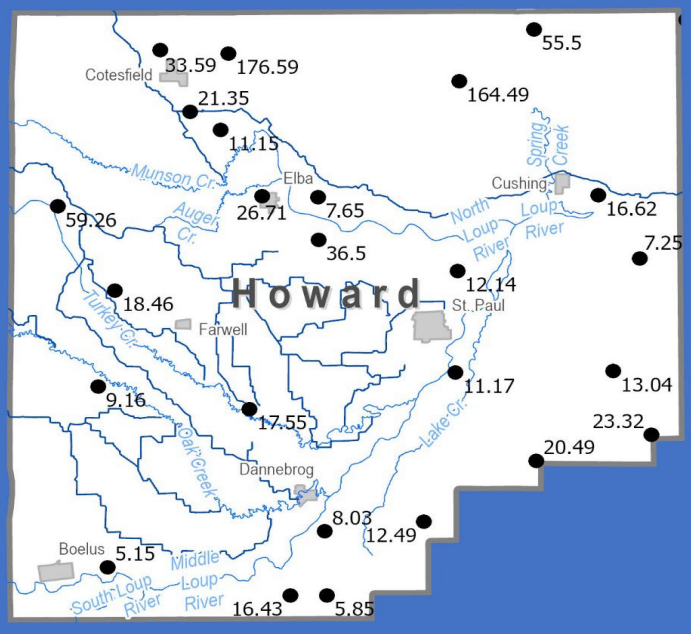


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

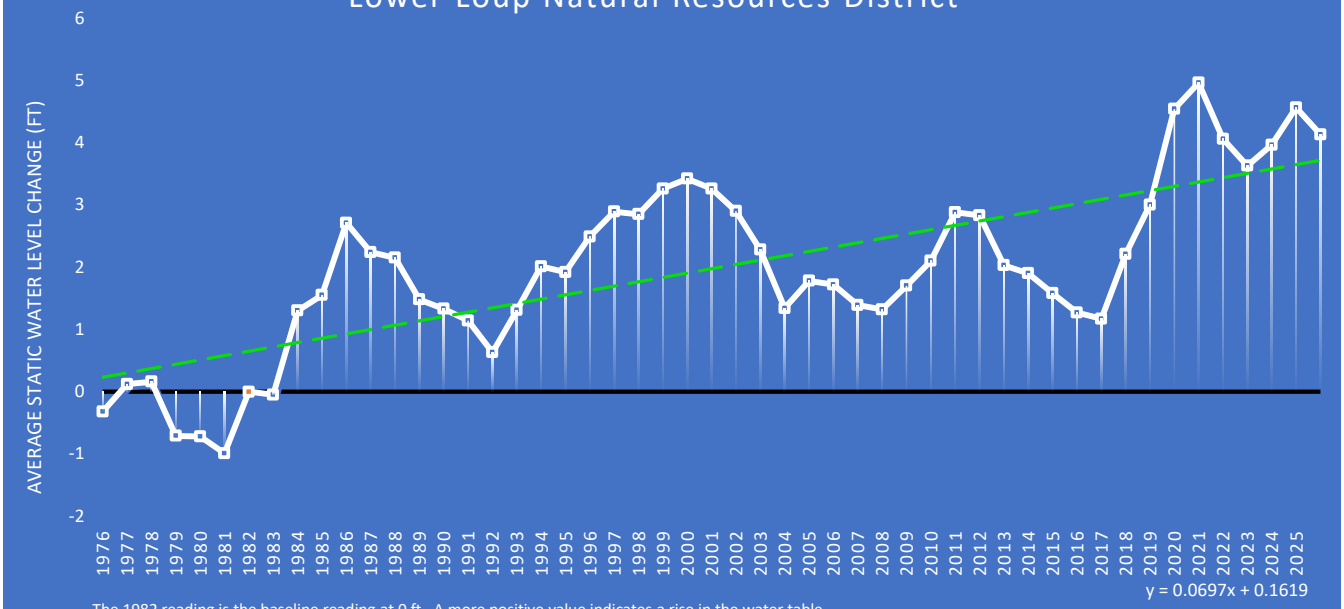
y = 0.0302x + 1.1815



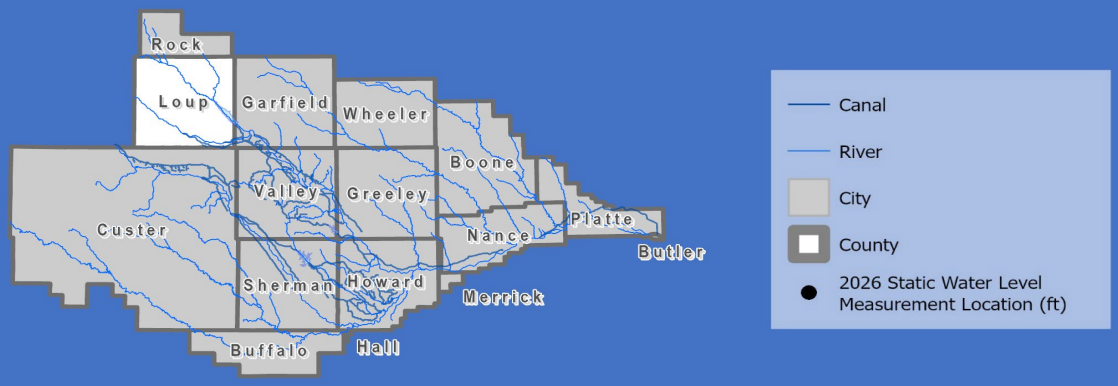


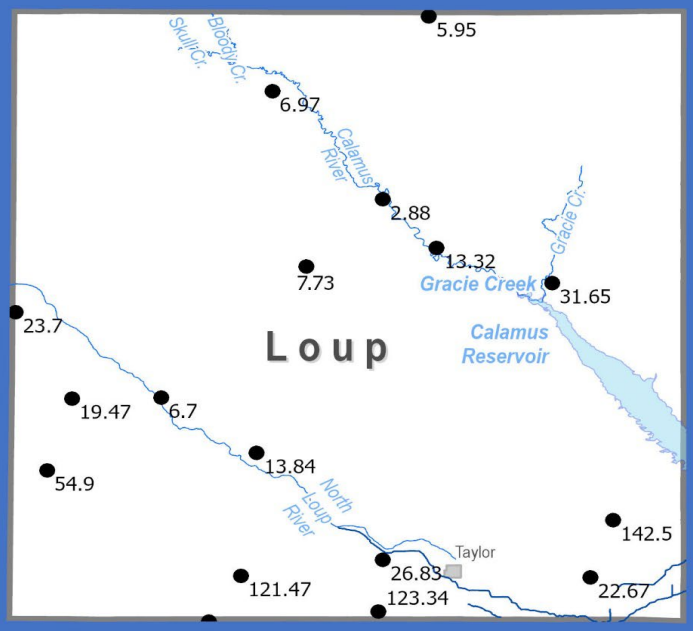


LOUP COUNTY - Spring SWL Change
Lower Loup Natural Resources District

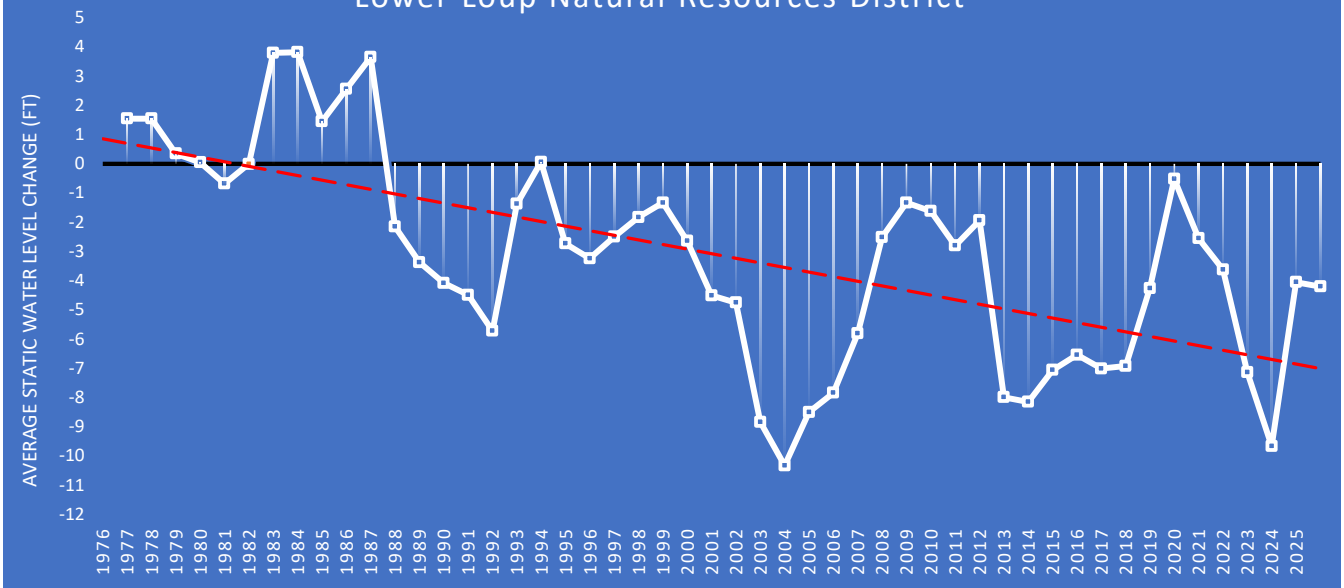


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.



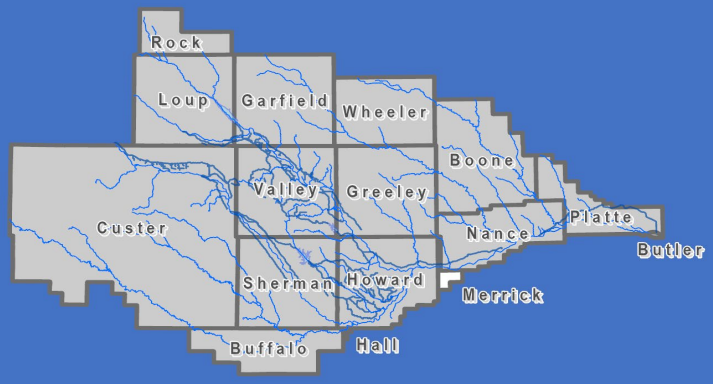


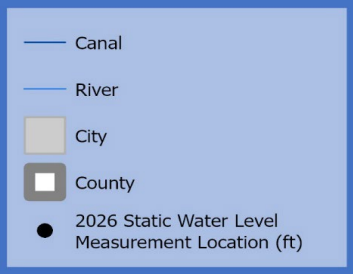
MERRICK COUNTY - Spring SWL Change
Lower Loup Natural Resources District

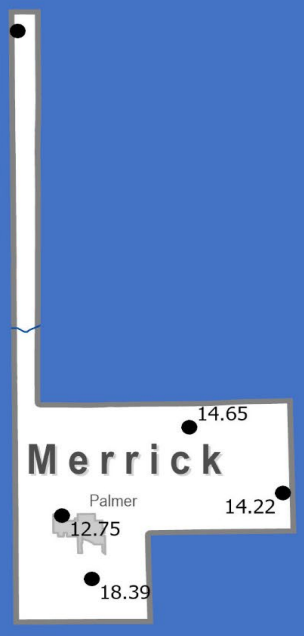


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

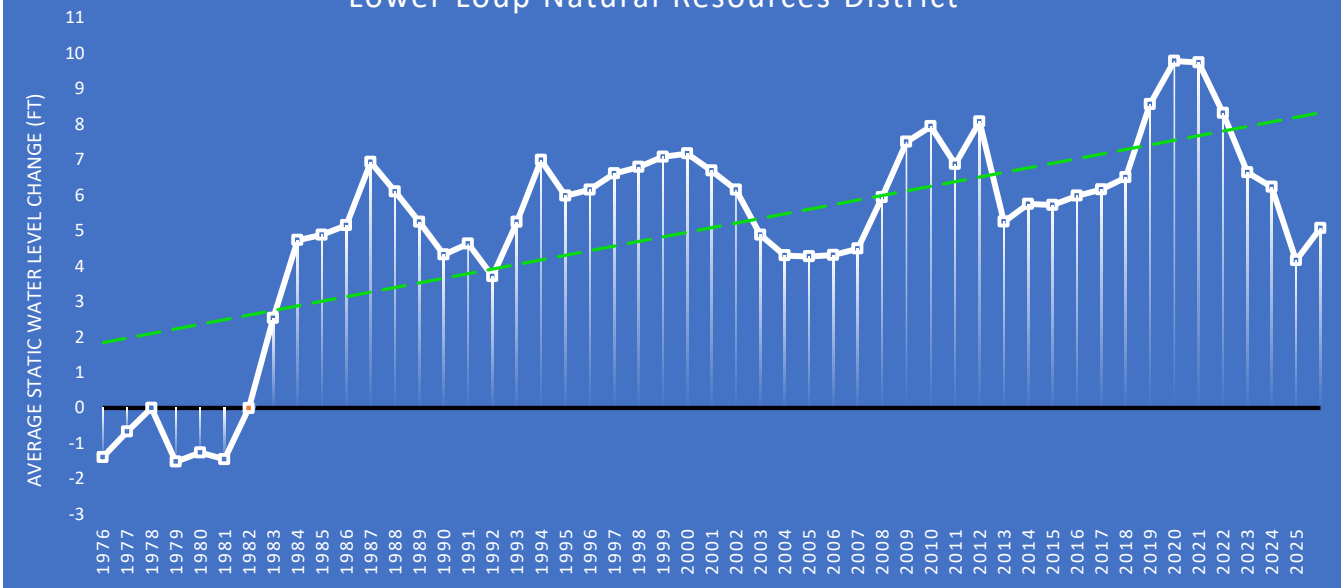
y = -0.1574x + 1.0161





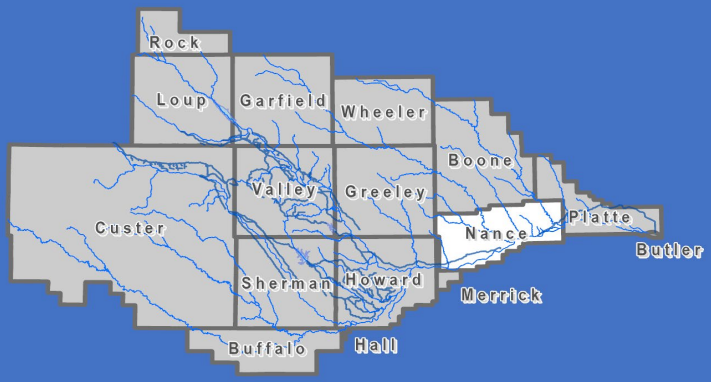


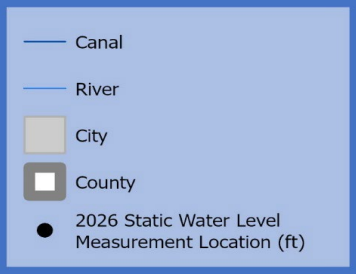
NANCE COUNTY - Spring SWL Change
Lower Loup Natural Resources District

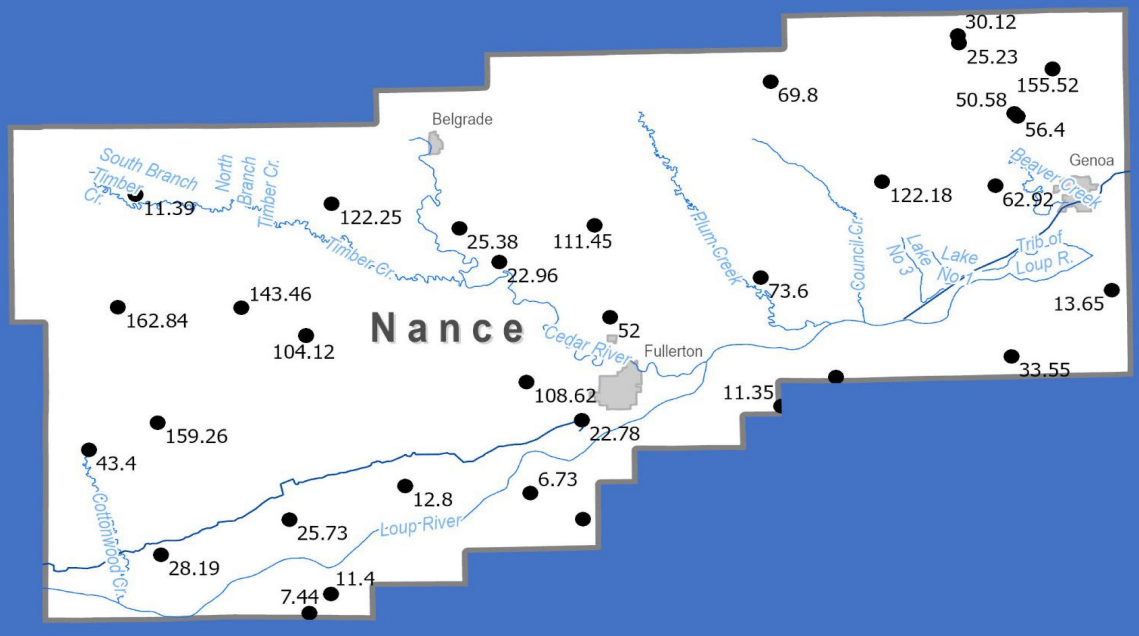


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

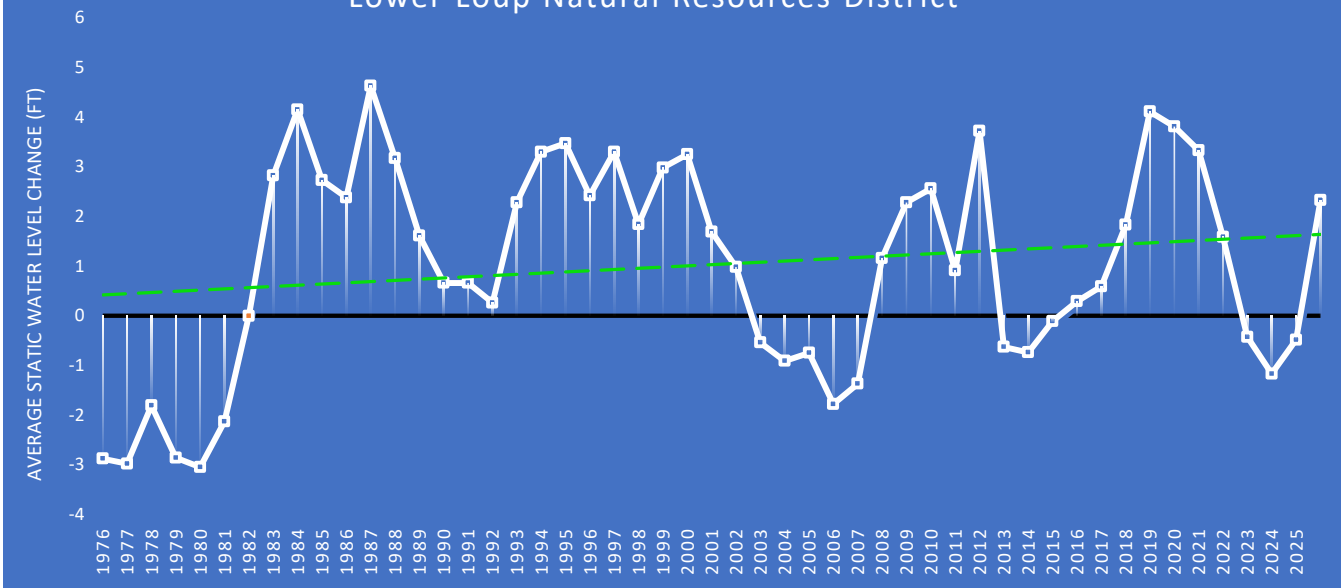
y = 0.1297x + 1.7102





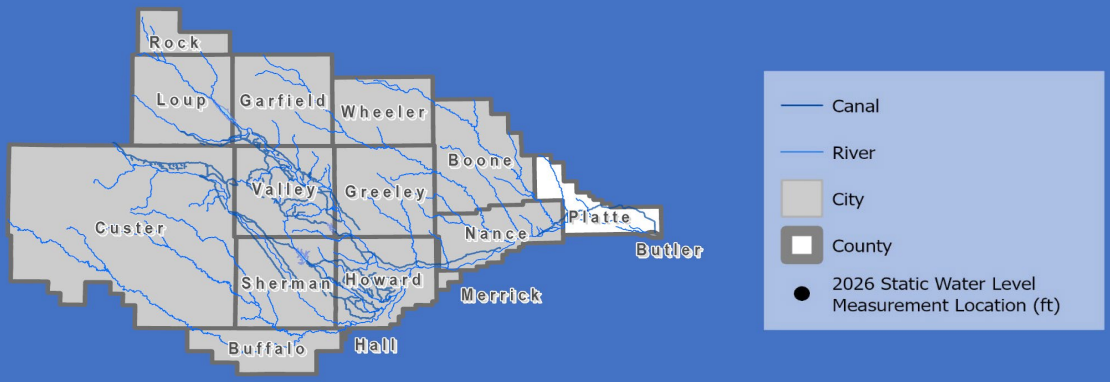


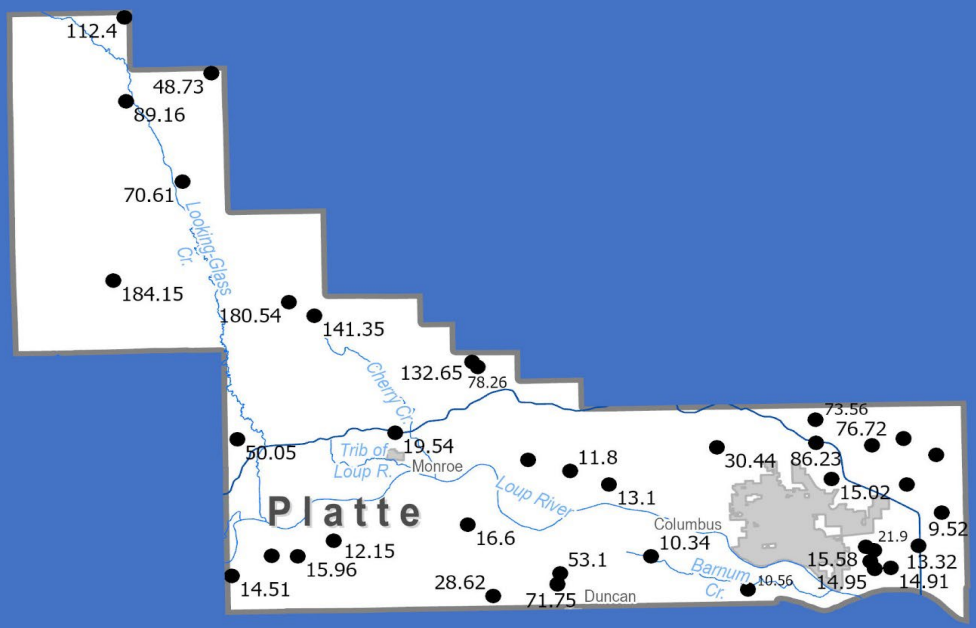
PLATTE COUNTY - Spring SWL Change
Lower Loup Natural Resources District



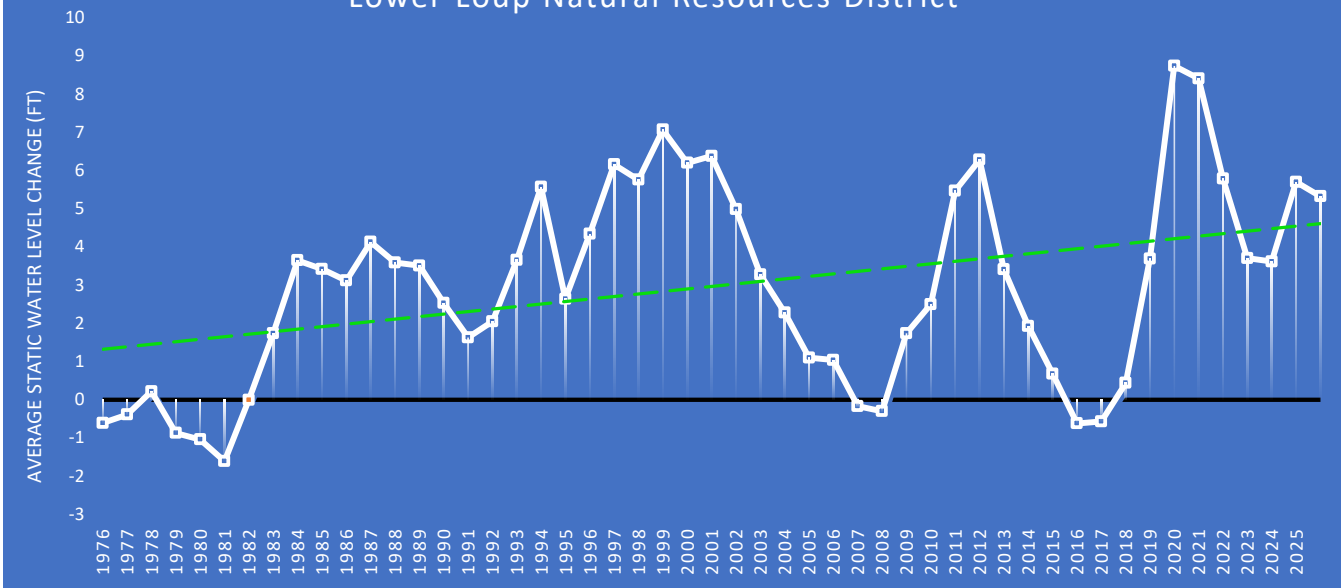
The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = 0.0244x + 0.3948



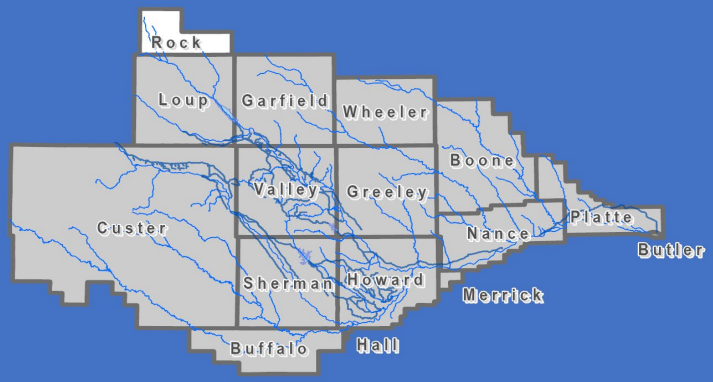


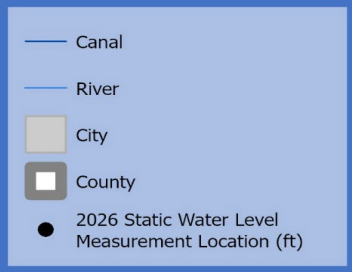
ROCK COUNTY - Spring SWL Change
Lower Loup Natural Resources District

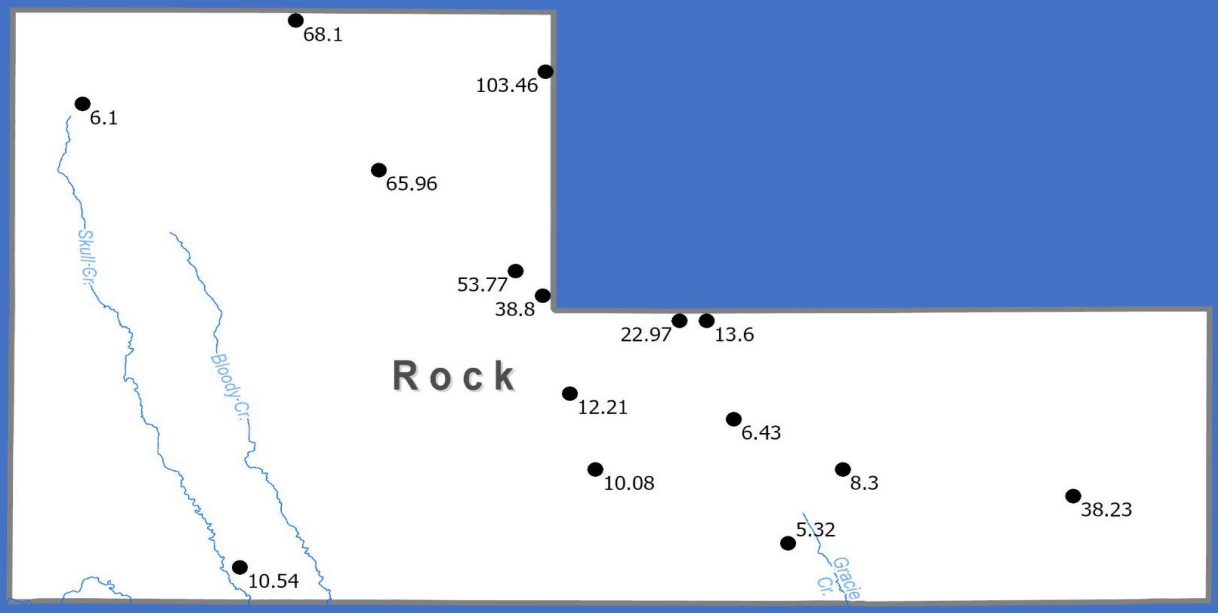


The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

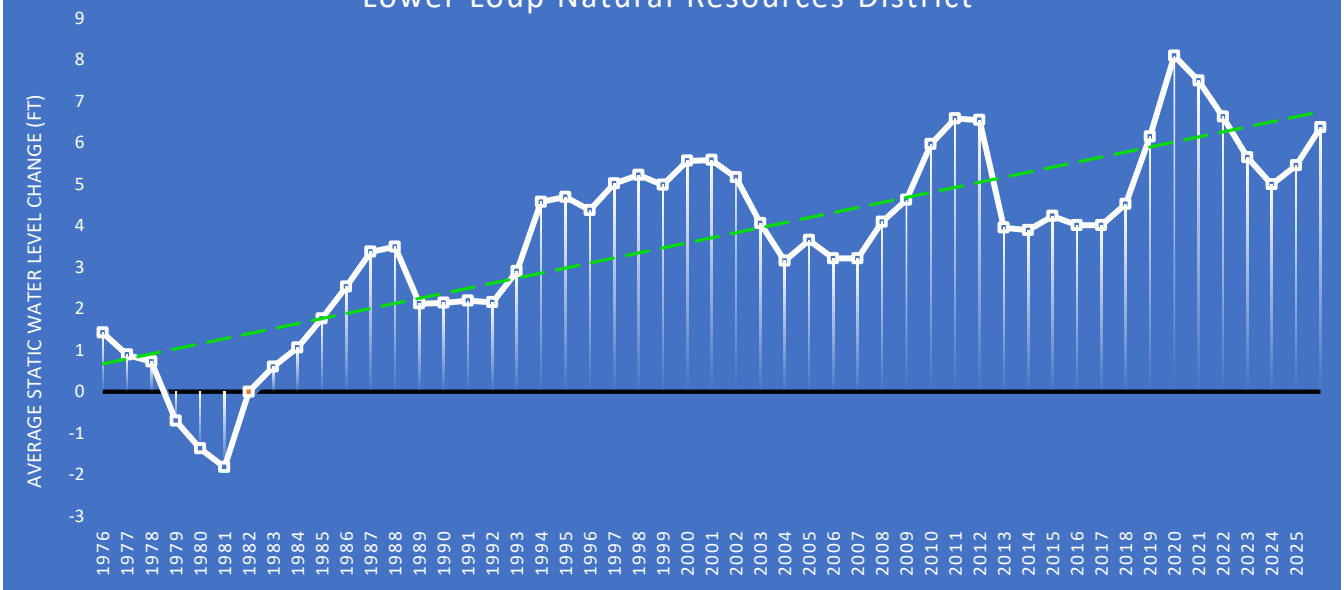
y = 0.0658x + 1.2559





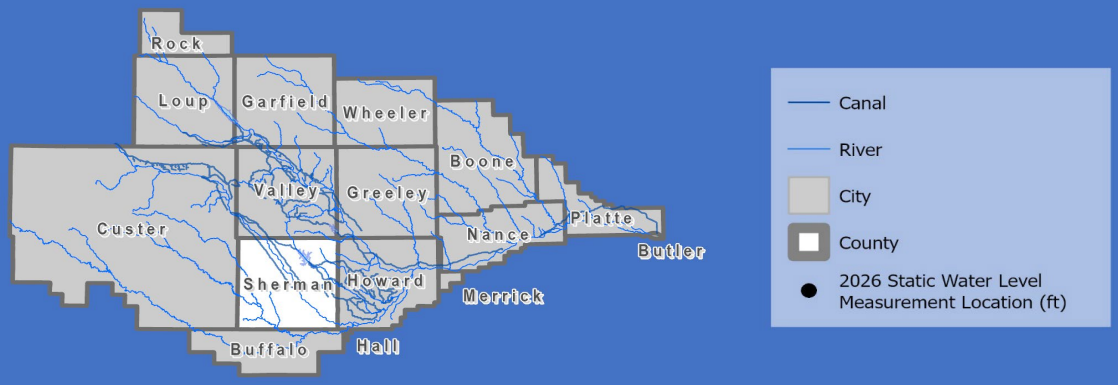


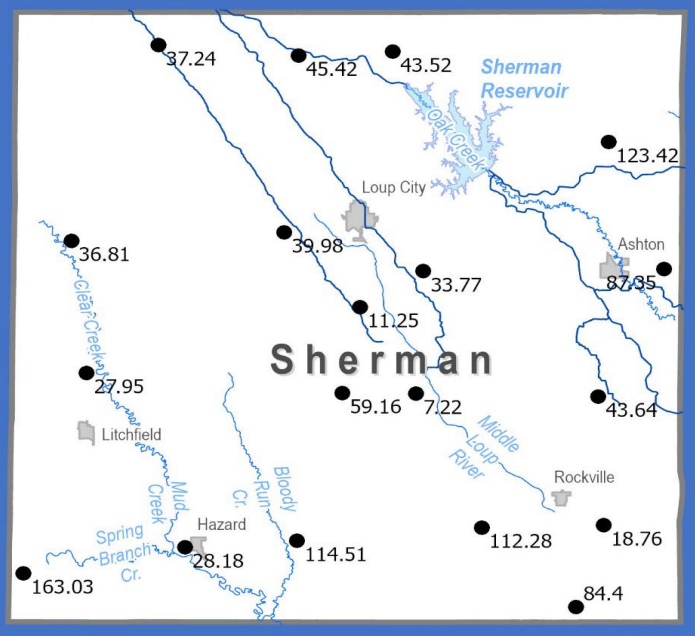
SHERMAN COUNTY - Spring SWL Change
Lower Loup Natural Resources District



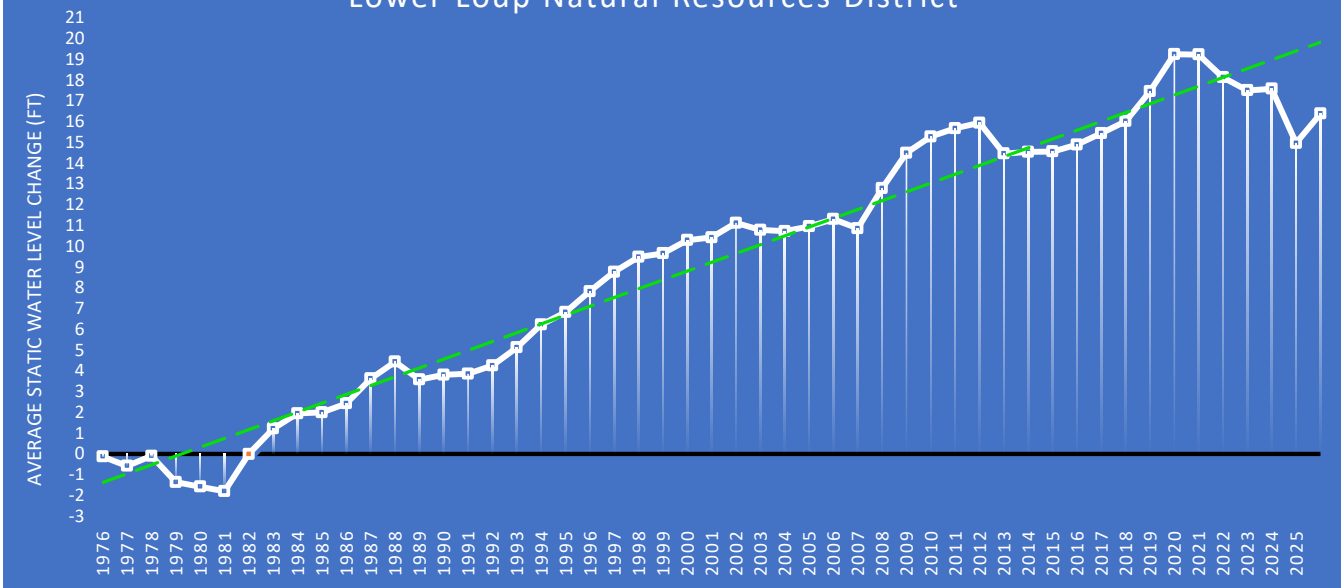
The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = 0.1215x + 0.5472



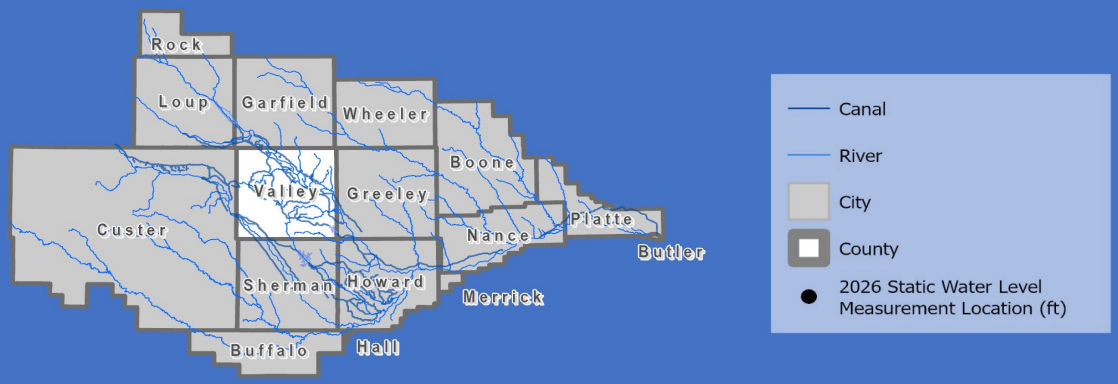


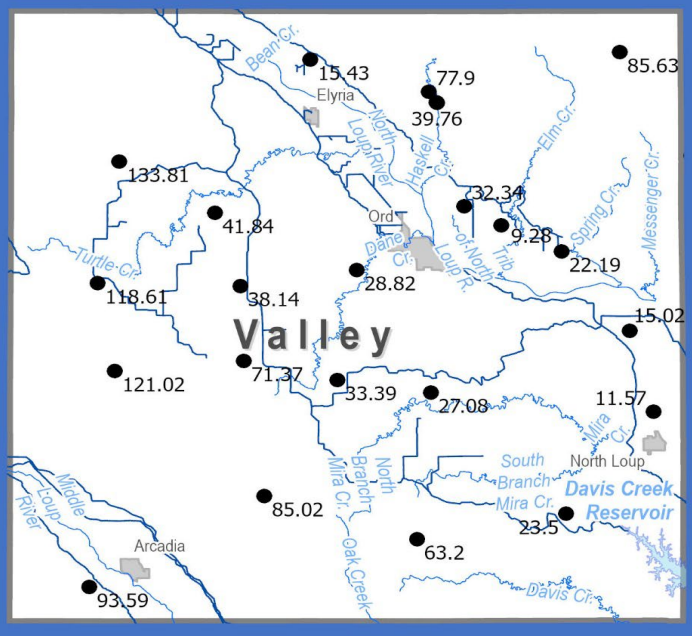
VALLEY COUNTY - Spring SWL Change
Lower Loup Natural Resources District



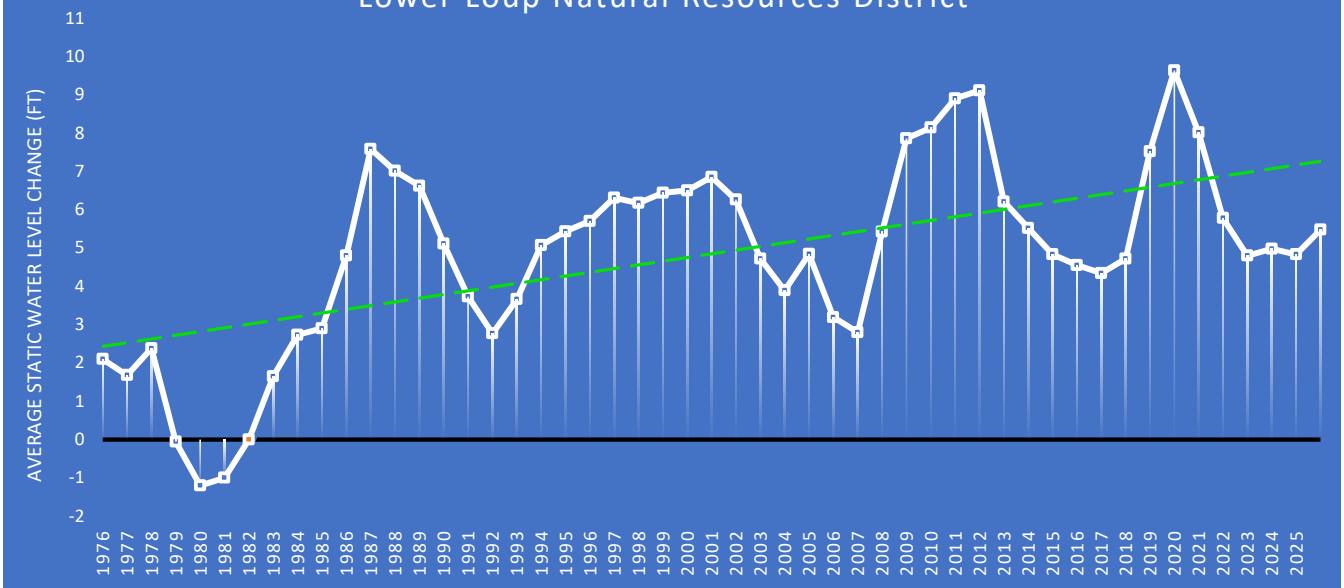
The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

y = 0.4243x - 1.7981



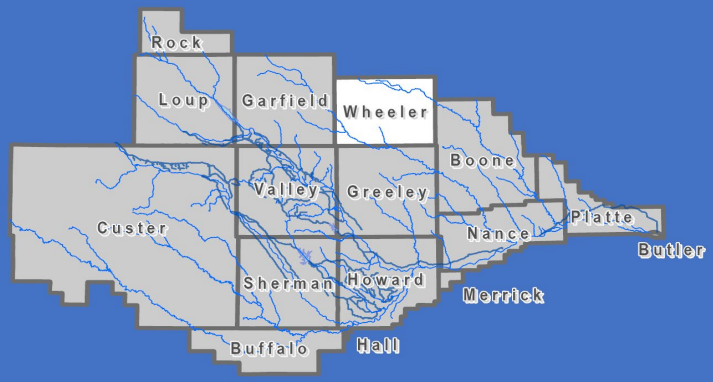


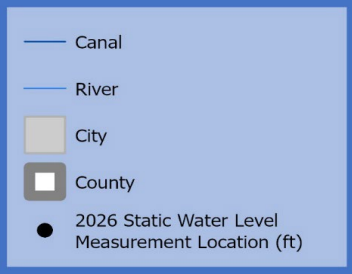
WHEELER COUNTY - Spring SWL Change
Lower Loup Natural Resources District

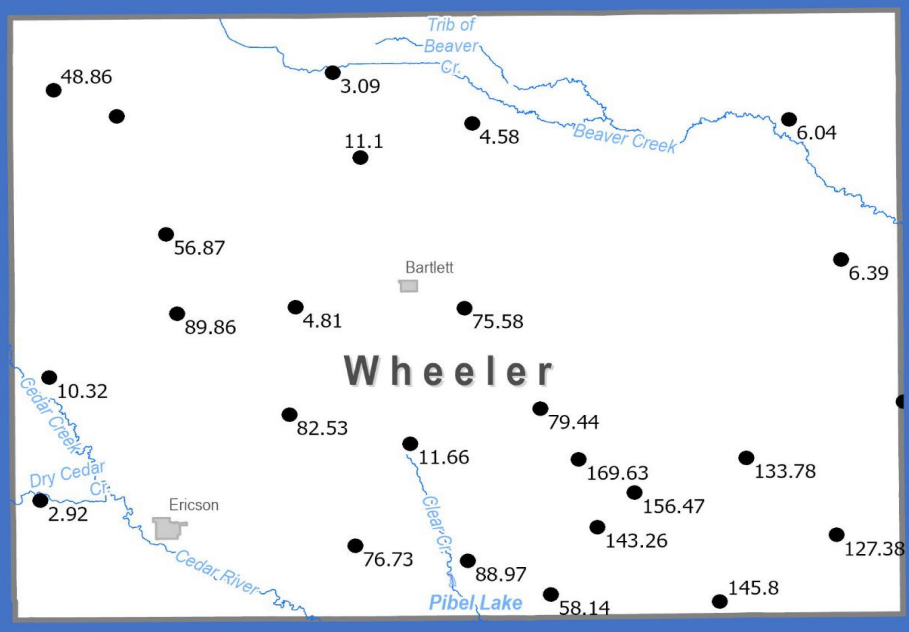


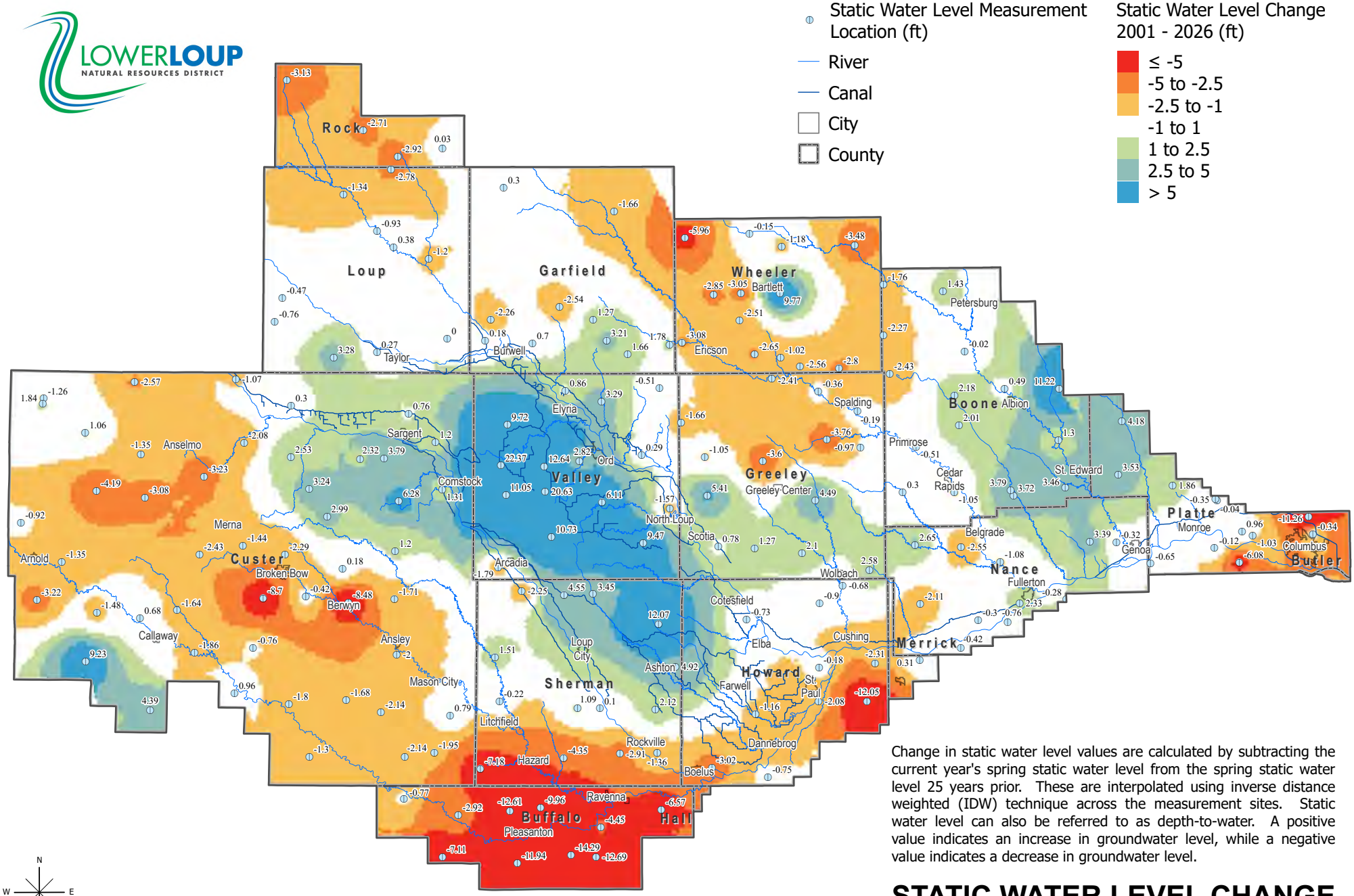
The 1982 reading is the baseline reading at 0 ft. A more positive value indicates a rise in the water table.

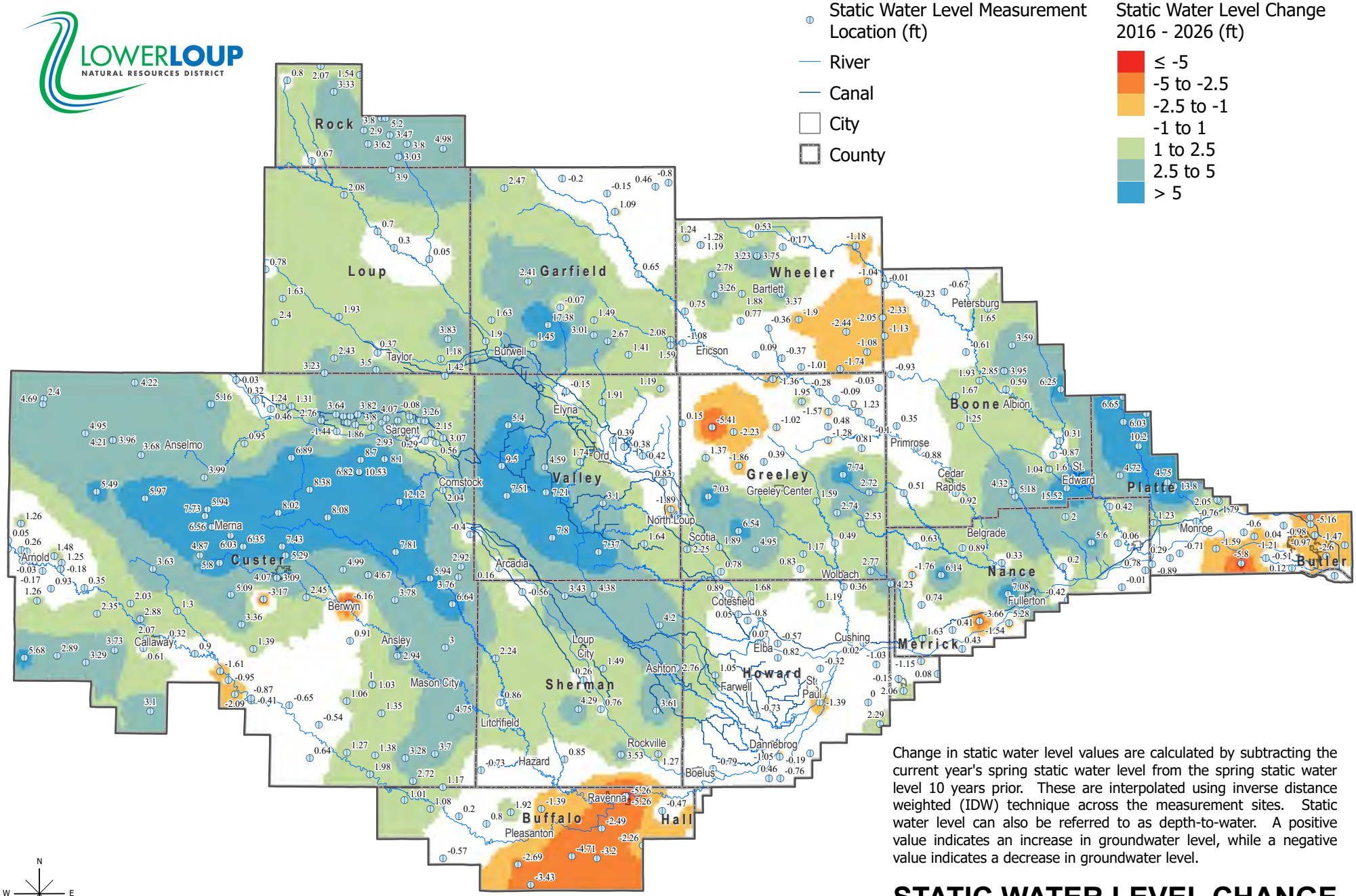
y = 0.0966x + 2.3359





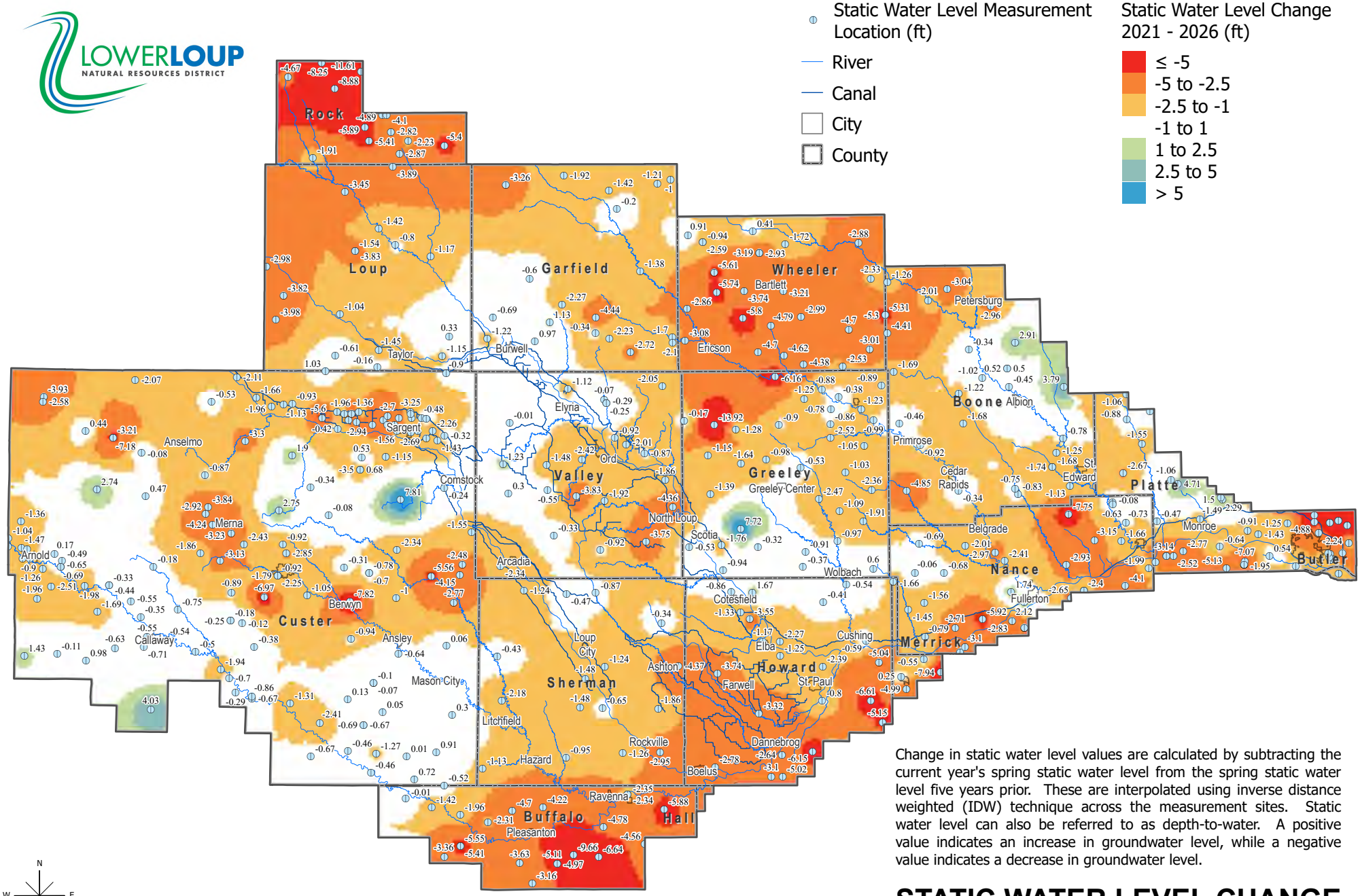



LOWERLOUP
NATURAL RESOURCES DISTRICT
Static Water Level Measurement Location (ft)
River
Canal
City
County
Static Water Level Change 2001 - 2026 (ft)
≤ -5
-5 to -2.5
-2.5 to -1
-1 to 1
1 to 2.5
2.5 to 5
> 5
Rock
Loup
Garfield
Wheeler
Boone
Platte
Greeley
Valley
Sherman
Howard
Nance
Merrick
Custer
Buffalo
Hall
Butler
Change in static water level values are calculated by subtracting the current year's spring static water level from the spring static water level 25 years prior. These are interpolated using inverse distance weighted (IDW) technique across the measurement sites. Static water level can also be referred to as depth-to-water. A positive value indicates an increase in groundwater level, while a negative value indicates a decrease in groundwater level.
STATIC WATER LEVEL CHANGE
25-YEAR
SPRING 2001 TO SPRING 2026
N
W
E
S
1:955,000
0 5 10 20 30 40 50
Miles
\GIS_Projects\WaterQuantity\StaticWaterLevel



Change in static water level values are calculated by subtracting the current year's spring static water level from the spring static water level 10 years prior. These are interpolated using inverse distance weighted (IDW) technique across the measurement sites. Static water level can also be referred to as depth-to-water. A positive value indicates an increase in groundwater level, while a negative value indicates a decrease in groundwater level.

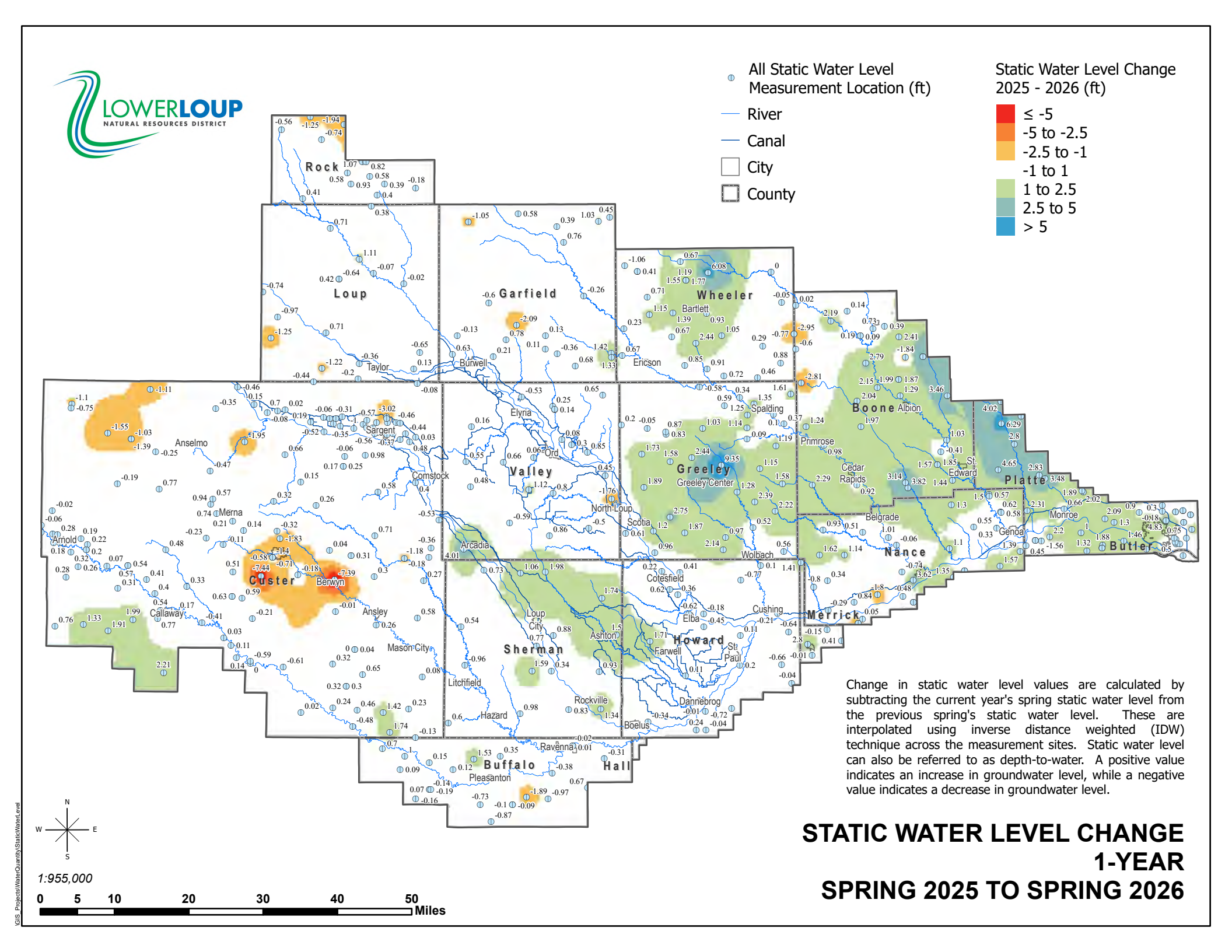
STATIC WATER LEVEL CHANGE 10-YEAR SPRING 2016 TO SPRING 2026

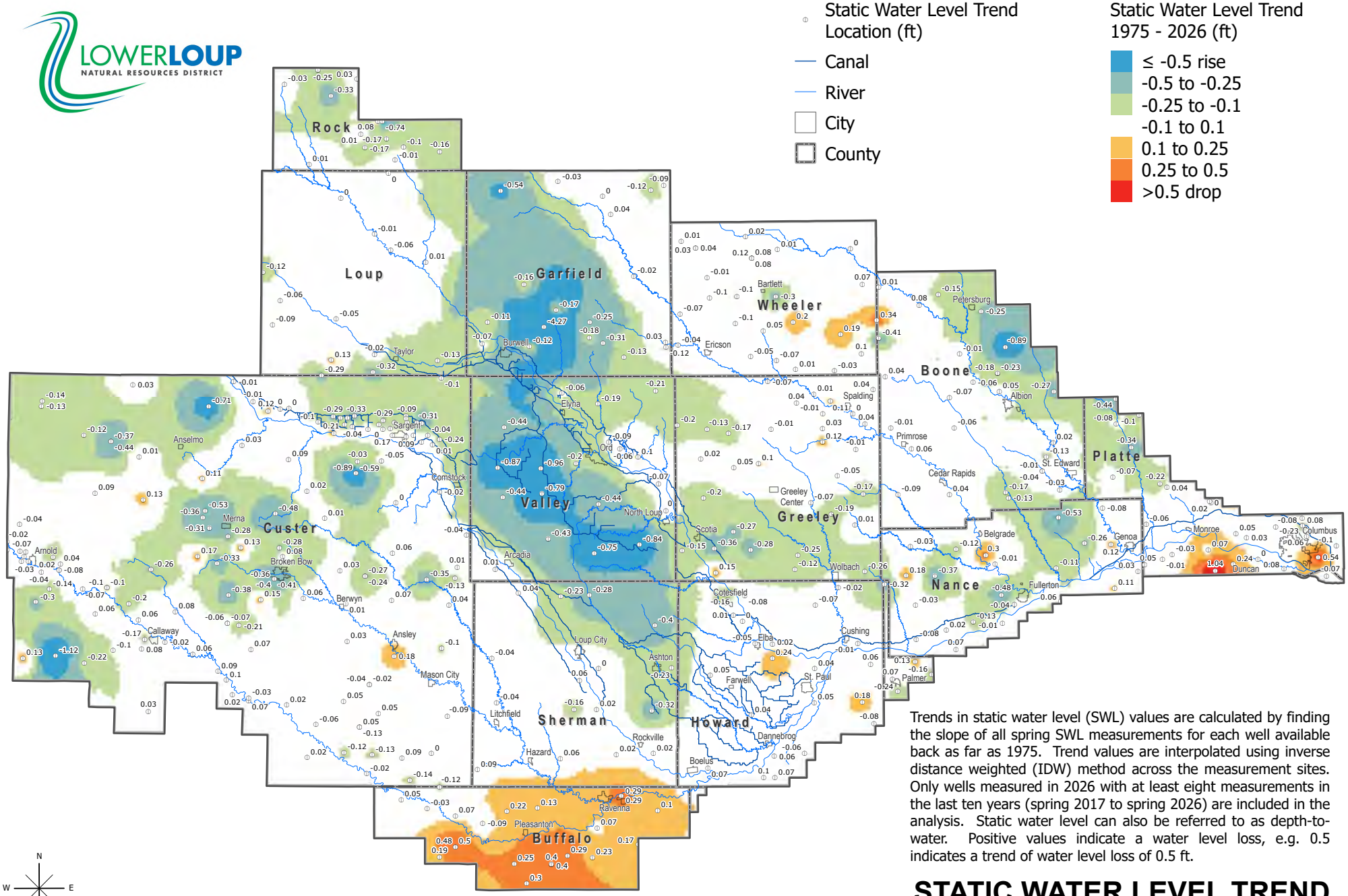


Change in static water level values are calculated by subtracting the current year's spring static water level from the spring static water level five years prior. These are interpolated using inverse distance weighted (IDW) technique across the measurement sites. Static water level can also be referred to as depth-to-water. A positive value indicates an increase in groundwater level, while a negative value indicates a decrease in groundwater level.

STATIC WATER LEVEL CHANGE 5-YEAR SPRING 2021 TO SPRING 2026

\GIS_Projects\WaterQuantity\StaticWaterLevel


LOWER LOUP
NATURAL RESOURCES DISTRICT
All Static Water Level Measurement Location (ft)
River
Canal
City
County
Static Water Level Change 2025 - 2026 (ft)
≤ -5
-5 to -2.5
-2.5 to -1
-1 to 1
1 to 2.5
2.5 to 5
> 5
Rock
Loup
Garfield
Wheeler
Boone
Platte
Greeley
Valley
Sherman
Howard
Nance
Merrick
Custer
Butler
Hall
Buffalo
Anselmo
Taylor
Burwell
Ericson
Bartlett
Spalding
Albion
Primrose
Cedar Rapids
St. Edward
Monroe
Genoa
Belgrade
Elyria
Ord
Sargent
Comstock
North Loup
Scotia
Greeley Center
Wolbach
Arcadia
Berwyn
Ansley
Callaway
Merna
Arnold
Cotesfield
Elba
Cushing
Farwell
St. Paul
Loup City
Ashton
Mason City
Litchfield
Rockville
Hazard
Dannebrog
Boelus
Ravenna
Pleasanton
N
W
E
S
1:955,000
0 5 10 20 30 40 50
Miles
Change in static water level values are calculated by subtracting the current year's spring static water level from the previous spring's static water level. These are interpolated using inverse distance weighted (IDW) technique across the measurement sites. Static water level can also be referred to as depth-to-water. A positive value indicates an increase in groundwater level, while a negative value indicates a decrease in groundwater level.
STATIC WATER LEVEL CHANGE
1-YEAR
SPRING 2025 TO SPRING 2026
\GIS_Projects\WaterQuantity\StaticWaterLevel



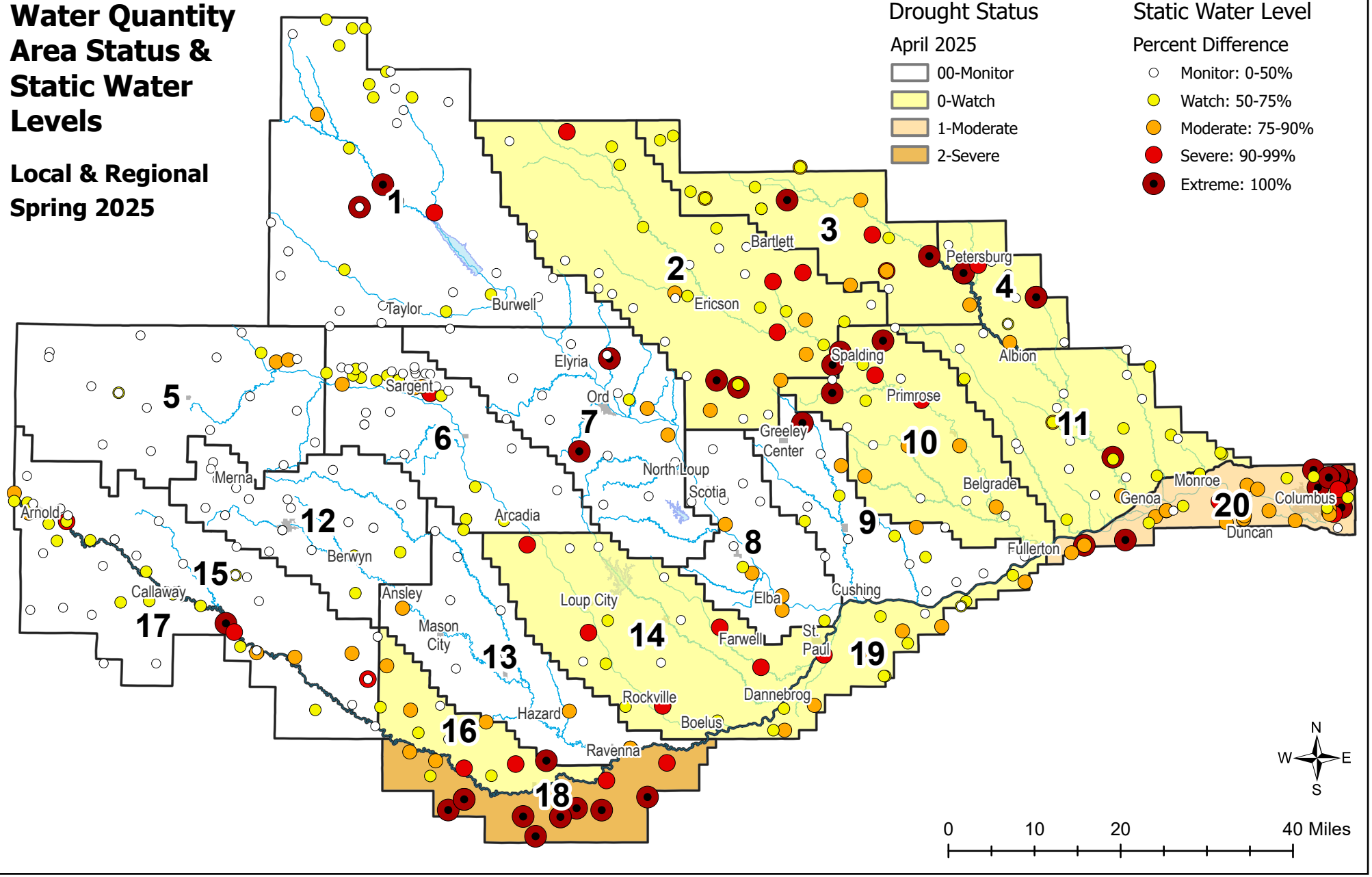
Trends in static water level (SWL) values are calculated by finding the slope of all spring SWL measurements for each well available back as far as 1975. Trend values are interpolated using inverse distance weighted (IDW) method across the measurement sites. Only wells measured in 2026 with at least eight measurements in the last ten years (spring 2017 to spring 2026) are included in the analysis. Static water level can also be referred to as depth-to-water. Positive values indicate a water level loss, e.g. 0.5 indicates a trend of water level loss of 0.5 ft.

STATIC WATER LEVEL TREND ALL YEARS AVAILABLE SPRING 1975 TO SPRING 2026

GIS_Projects\WaterQuantity\StaticWaterLevel

Water Quantity Area Status & Static Water Levels

Local & Regional Spring 2025



Updated April 10, 2025

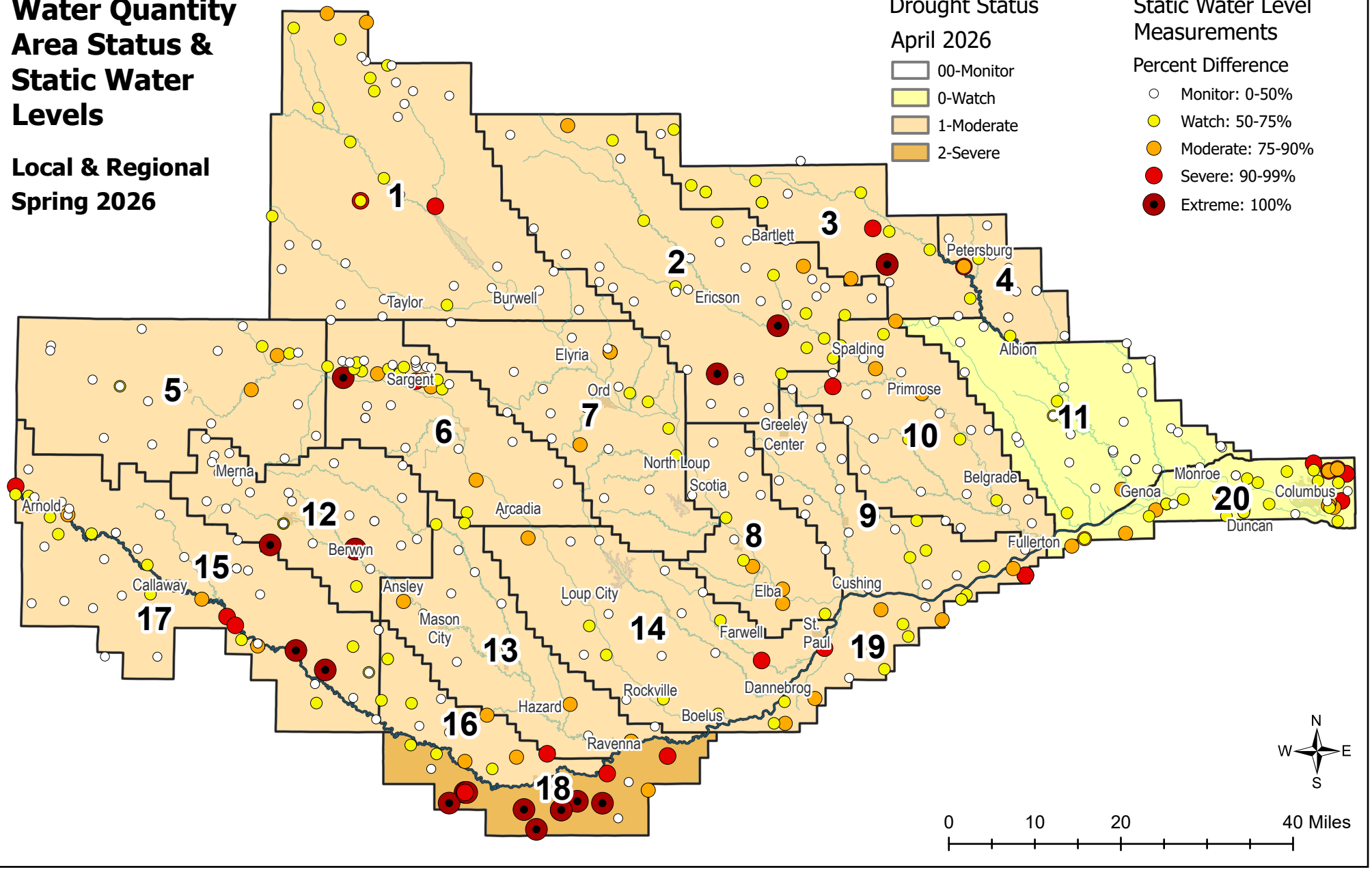
LOWERLOUP
NATURAL RESOURCES DISTRICT

Percentage Difference is calculated as: The difference in the current year spring Static Water Level (SWL) minus the minimum spring SWL the well has on record divided by the difference in the spring maximum and minimum SWLs the well has on record back up to 25 years.

Local Status of Drought Zones are classified using criteria outlined in the District's November 2022 Drought Management Plan. It can be found at https://www.llnrd.org/resources/drought-management-plan. The U.S. Drought Monitor live map is overlaid on the LLNRD Drought Zones to determine which status is most prominent in each zone during SWL measurements. The local and regional statuses are averaged to determine the final combined status.

Water Quantity Area Status & Static Water Levels

Local & Regional Spring 2026



Updated May 13, 2026

LOWERLOUP NATURAL RESOURCES DISTRICT

Percentage Difference is calculated as: The difference in the current year spring Static Water Level (SWL) minus the minimum spring SWL the well has on record divided by the difference in the spring maximum and minimum SWLs the well has on record back up to 25 years.

Local Status of Drought Zones are classified using criteria outlined in the District's November 2022 Drought Management Plan. It can be found at https://www.llnrd.org/resources/drought-management-plan. The U.S. Drought Monitor live map is overlaid on the LLNRD Drought Zones to determine which status is most prominent in each zone during SWL measurements. The local and regional statuses are averaged as best as possible to determine the final combined status.