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# 2024 Water Quality Report





# 2024 Nitrate Sampling Results

## Lower Loup Natural Resources District



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**Nitrate (ppm) - Irrigation Wells**

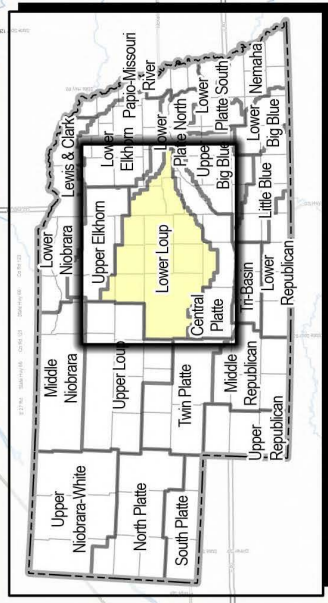
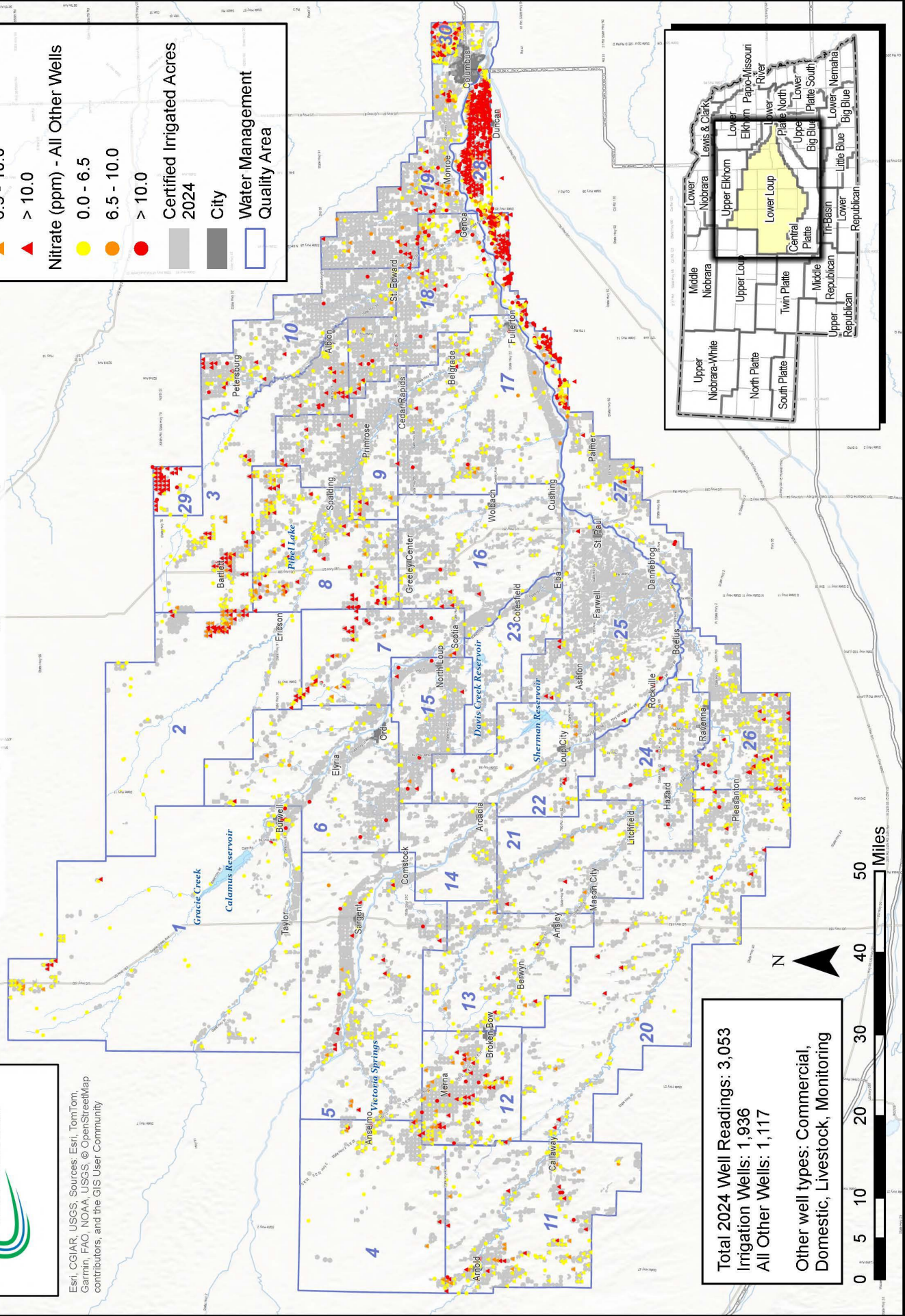
- ▲ 0 - 6.5
- ▲ 6.5 - 10.0
- ▲ > 10.0

**Nitrate (ppm) - All Other Wells**

- 0.0 - 6.5
- 6.5 - 10.0
- > 10.0

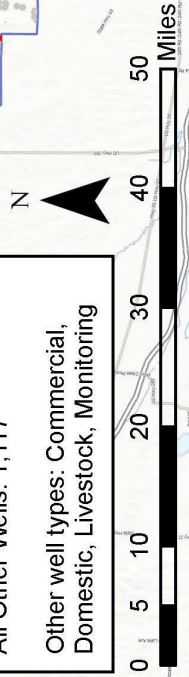
**Certified Irrigated Acres 2024**

- City
- Water Management
- Quality Area



**Total 2024 Well Readings: 3,053**  
**Irrigation Wells: 1,936**  
**All Other Wells: 1,117**

**Other well types: Commercial, Domestic, Livestock, Monitoring**





# 2024 Water Quality Report

LLNRD staff collected a total of 3,036 water samples across the District in 2024, all values are in Parts Per Million (ppm). This total comes from Irrigation wells (1,926), Domestic wells (923), Livestock wells (54), Monitoring wells (129), and Commercial wells (4). The overall trend of the District is a slight decrease in the median nitrates to 4.8 ppm (-0.6 compared to 2023) with the average slightly down to 9.4 ppm (-0.1 compared to 2023). Districtwide, without the three Water Quality Management areas (Areas 28, 29, & 30), the median samples were at 2.4 ppm (-0.3 from 2023) and the average was 5.6 ppm (+0.2 from 2023).

There are currently three Water Quality Management areas in the LLNRD. To become a Phase II WQMA, the median nitrate level in that area has tested greater than 6.5 ppm for four (4) consecutive years. In Phase II, a yearly 0-36" soil sample, an irrigation water nitrate, and manure analysis are required on all row-cropped fields. Nitrogen fertilizer application is not allowed until after March 1<sup>st</sup> and split application before and after crop emergence is required unless a labeled N inhibitor is used. Flow meters are required for monitoring water application as well as passing a certification class every four (4) years. LLNRD water technicians collected 927 water samples in these three areas in 2024. Area 28 (South of the Loup River from Palmer to Columbus) has shown a slight increase this year. Median NO<sub>3</sub> is at 19.7 ppm (+0.8 from 2023) and the average in this area is 19.4 ppm (+0.5 from 2023). Area 29 (Northeast Wheeler County 23N-09W) has an increase in 2024 NO<sub>3</sub> tests. Median is 16.0 ppm (+1.0 from 2023) and average is 14.9 ppm (+1.7 from 2023). Area 30 shows a decrease in NO<sub>3</sub> samples in 2024. Median is 7.9 ppm (-1.6 from 2023) and average is at 11.4 ppm (-0.8 from 2023).

The LLNRD has been sampling nitrate levels in water wells since 1977. The number of samples and the amount of data collected has been increasing every year, so a series of trend analyses has been assembled. Of the 30 Water Quality areas, we are seeing an increasing trend of nitrates in 14 of the 30 areas, just under half. A few areas that are nearing the 6.5 ppm WQMA designation threshold include Areas 7 (East Valley/West Greeley Counties), 12 (Custer County), and 19 (Platte County). That being stated, 16 areas are staying consistently below the 6.5 ppm threshold or are trending slightly down in the amounts of nitrates being found in the water.



Wheeler County has been an area of ongoing concern as it relates to groundwater quality. Of the 12 Wheeler County Townships that are in the LLNRD, 5 Townships are trending toward a Phase II trigger as they have consistently been above the 6.5 ppm NO<sub>3</sub> threshold for the last several years. In 2019, Rules and Regulations were modified to allow the Lower Loup NRD Board of Directors to designate smaller sub-areas into Water Quality Management Areas. Township 23N-09W in Northeast Wheeler County has been WQMA 29 since January 1, 2020. Several of the higher nitrate Townships are located near the town of Bartlett. The number of samples taken from this area continues to increase, and with the increased amount of testing, the results are showing this is a widespread issue in the area. The county median is 6.75 ppm, but there are 4 Townships that range from 8.85 ppm up to 15.30 ppm.

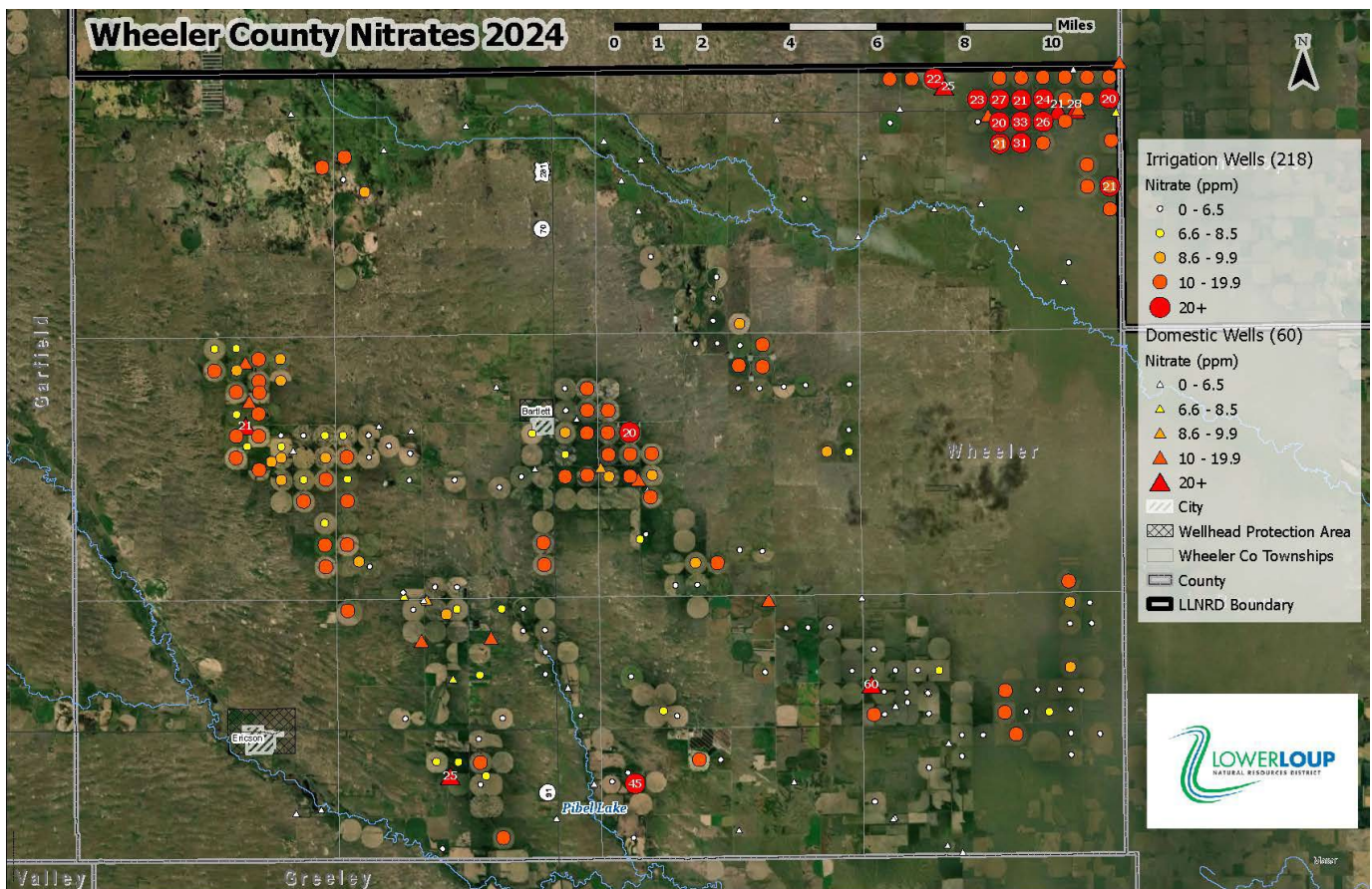
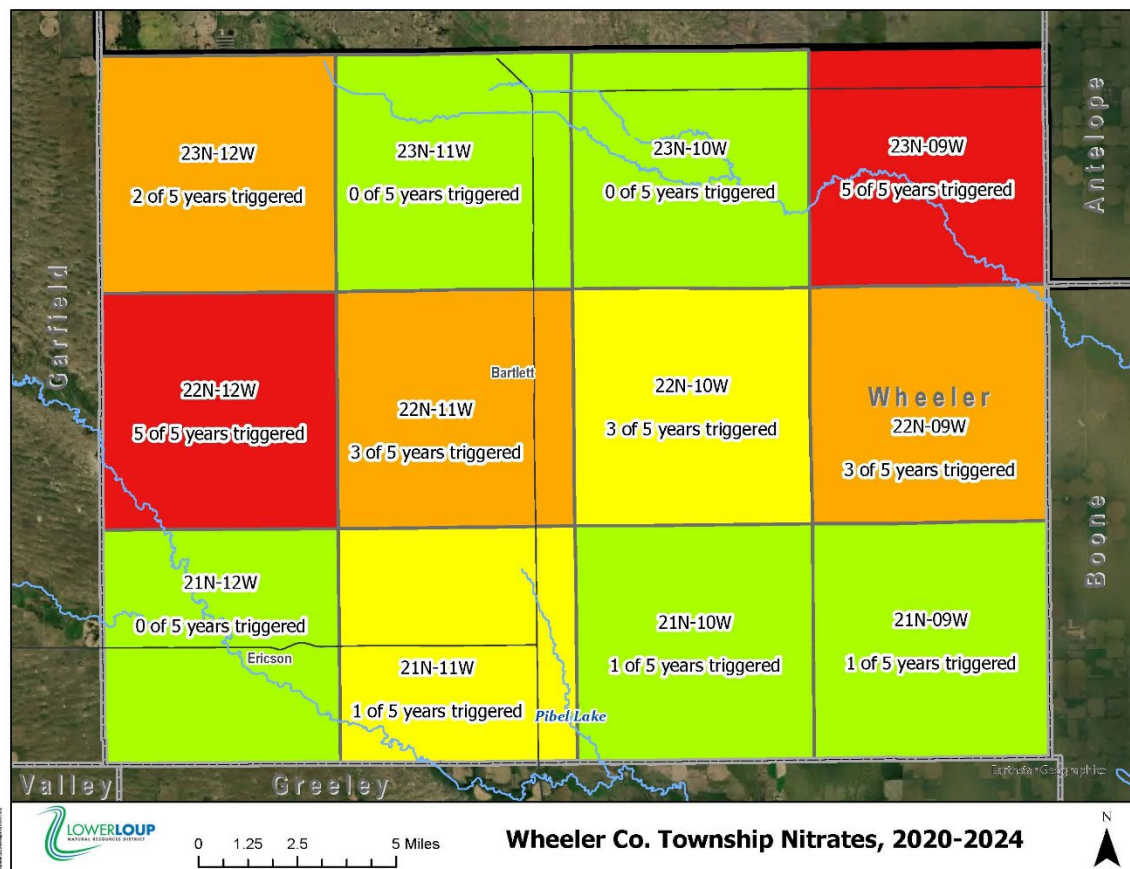


Image shows the individual well results from Wheeler County 2024  
 Irrigation wells show as circles  
 Domestic wells shown as triangles





Wheeler County - Median Nitrate Concentration (mg/L) by Township since Year 2011																				County	Count					
Year	W2109	Count	W2110	Count	W2111	Count	W2112	Count	W2209	Count	W2210	Count	W2211	Count	W2212	Count	W2309	Count	W2310	Count	W2311	Count	W2312	Count	County	Count
2015	6.35	8	4.20	5	4.55	4	12.60	1	NA	NA	11.05	12	9.55	6	11.20	5	17.65	18	0.75	2	4.10	4	2.90	18	7.60	83
2016	9.40	3	0.90	7	6.95	10	11.50	1	NA	NA	3.65	6	2.50	9	7.00	3	7.90	28	0.40	55	1.10	2	3.40	4	2.10	128
2017	2.90	1	6.90	14	3.85	14	1.90	1	NA	NA	10.55	4	7.80	12	7.95	20	7.70	13	0.60	25	2.00	4	1.60	1	4.50	109
2018	2.60	16	9.10	11	3.55	8	1.80	1	3.30	1	5.85	14	4.30	7	5.30	6	23.00	25	0.80	31	2.60	5	2.80	7	3.95	132
2019	13.60	2	19.10	11	6.50	17	1.70	1	NA	NA	5.30	7	5.90	9	7.70	9	17.20	25	0.70	33	0.75	2	1.40	1	4.60	117
2020	3.70	19	3.40	19	2.80	15	3.40	1	1.30	1	8.80	10	7.15	20	12.90	26	14.30	51	0.50	29	4.60	5	3.85	6	6.20	203
2021	2.40	19	6.60	8	3.80	11	4.45	2	20.70	1	6.40	21	5.80	11	12.60	4	11.10	45	0.65	28	0.95	2	3.95	2	5.60	154
2022	7.40	8	2.15	24	7.55	28	3.80	3	NA	NA	8.80	39	7.70	45	9.05	34	14.80	46	1.10	41	3.50	4	9.60	4	7.40	276
2023	3.05	32	2.00	37	6.35	48	4.70	3	10.40	1	4.90	44	7.80	45	9.75	38	13.95	48	1.20	43	1.20	3	6.25	4	6.10	346
2024	3.25	42	1.75	18	6.10	34	3.10	2	11.20	1	8.85	36	6.45	36	9.60	35	15.30	56	1.45	38	5.50	5	9.00	2	6.80	306
4-Year Trigger	25%		25%		25%		0%		75%		50%		50%		100%		100%		0%		0%		50%		50%	2,188
Irrigation Wells	57		52		56		9		13		70		51		46		38		35		17		37		482	
Risk	LOW		LOW		MED		LOW		MED-HIGH		MED		MED-HIGH		HIGH		HIGH		LOW		LOW		MED-HIGH			

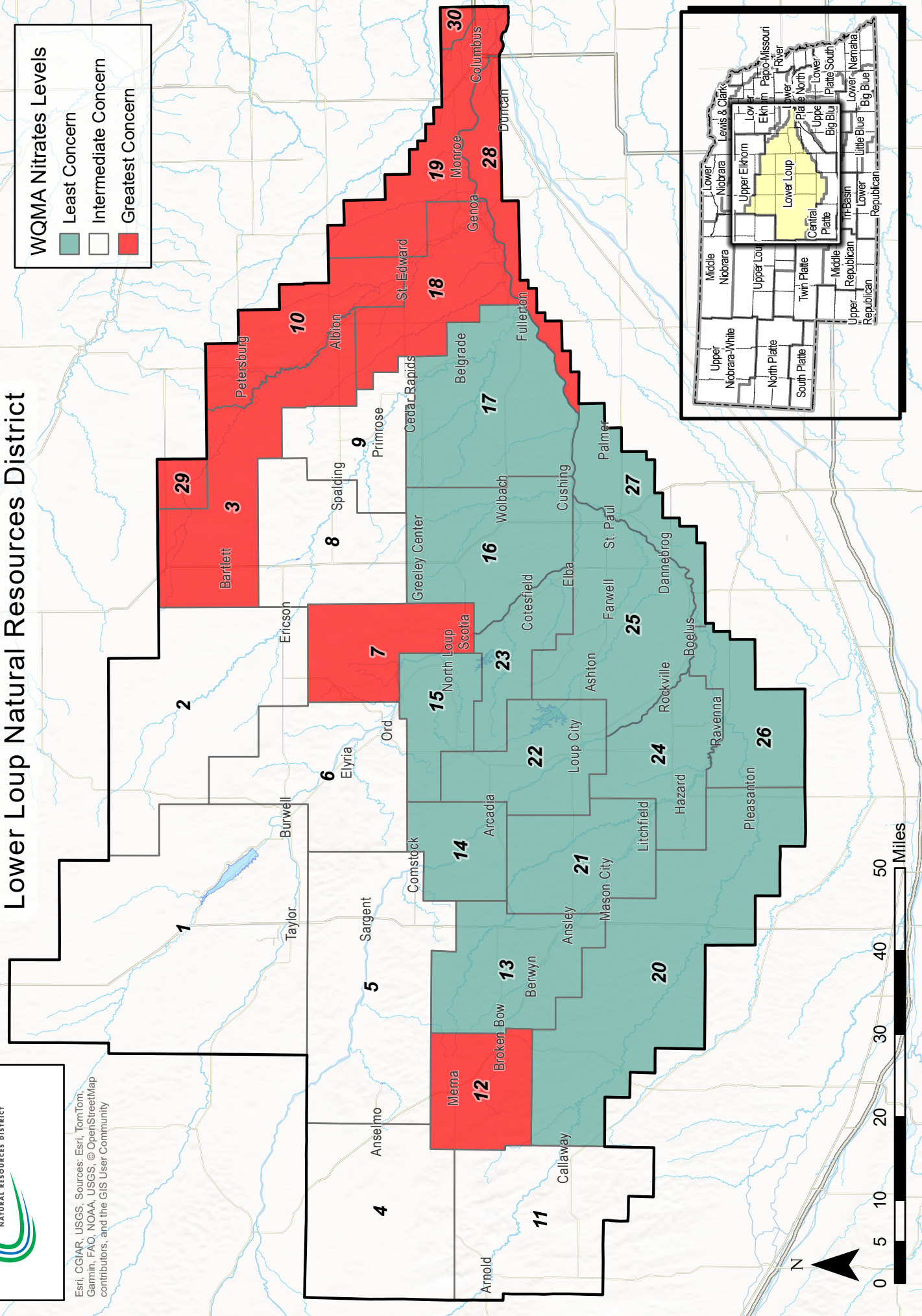
Top image: Individual Wheeler County Townships and number of times triggered (over 6.5ppm)  
 Bottom Image: 10-year history of median Nitrate concentration (used to generate top image)

LLNRD water technicians collect water samples throughout the year and the samples are processed at Ward Laboratories in Kearney, NE. The results are collected, analyzed, and an entire record of sampling history since 1977 is available Districtwide for each specific individual well. The historical trend graphs in this report are from the 54,235 water samples that have been collected since 1977 in the Lower Loup Natural Resources District.

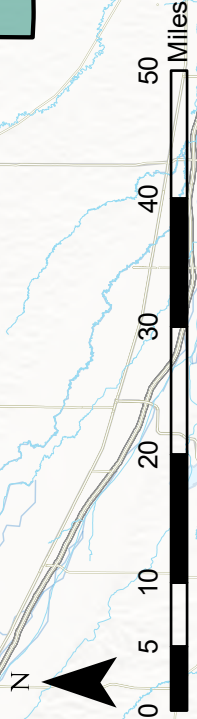
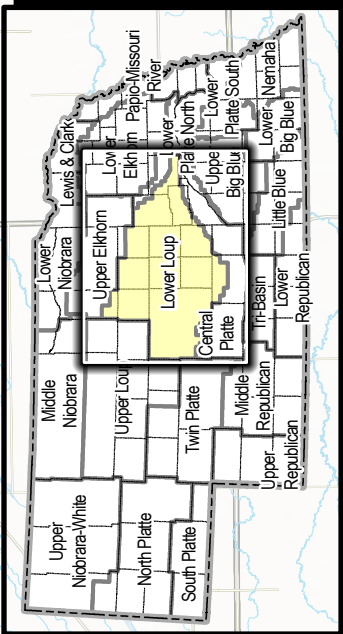


# 2024 Areas of Greatest Nitrate Concern Water Quality Management Areas

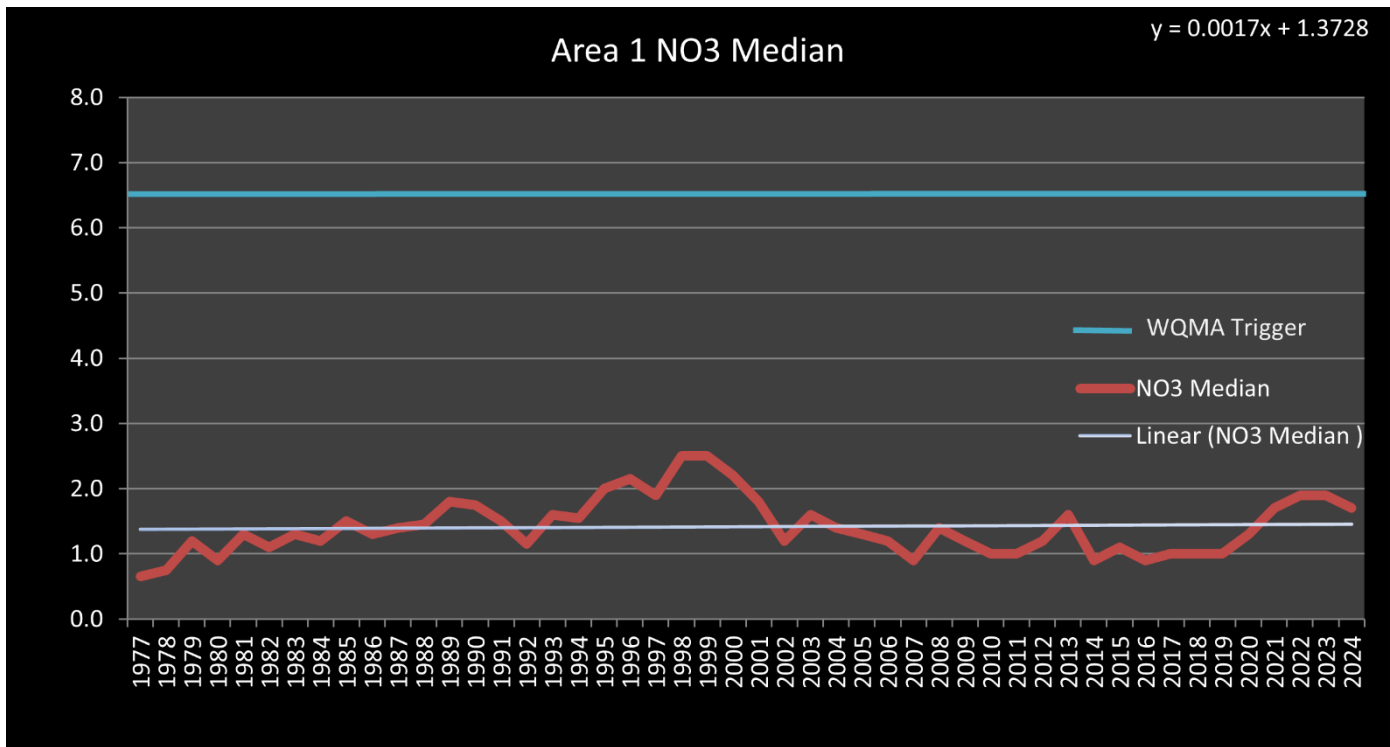
## Lower Loup Natural Resources District



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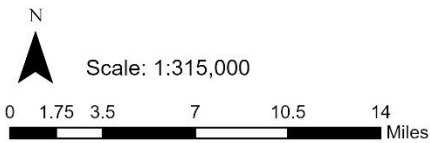
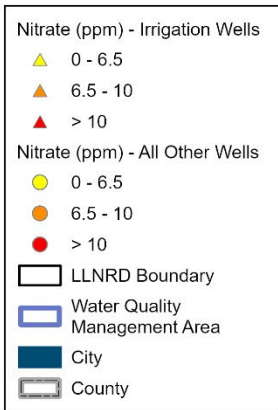


## 2024 Nitrate Sampling Results

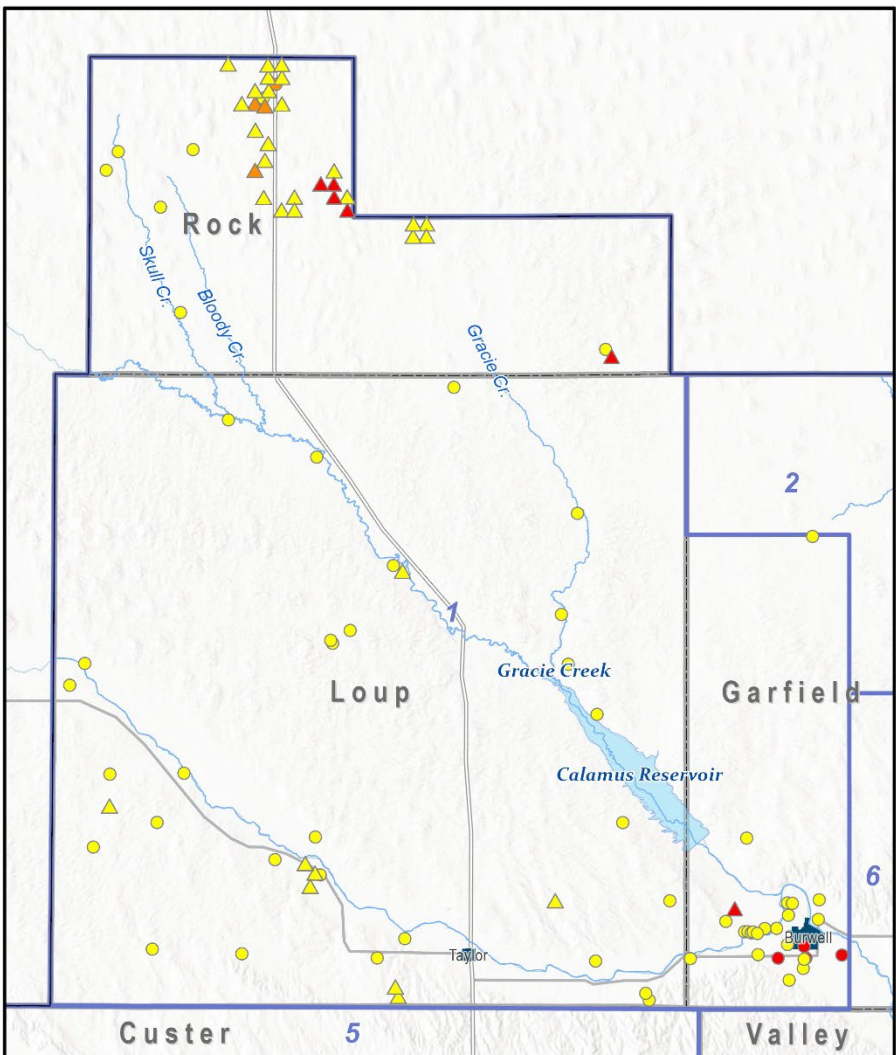
Lower Loup Natural Resources District  
Water Quality Management Area 1

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

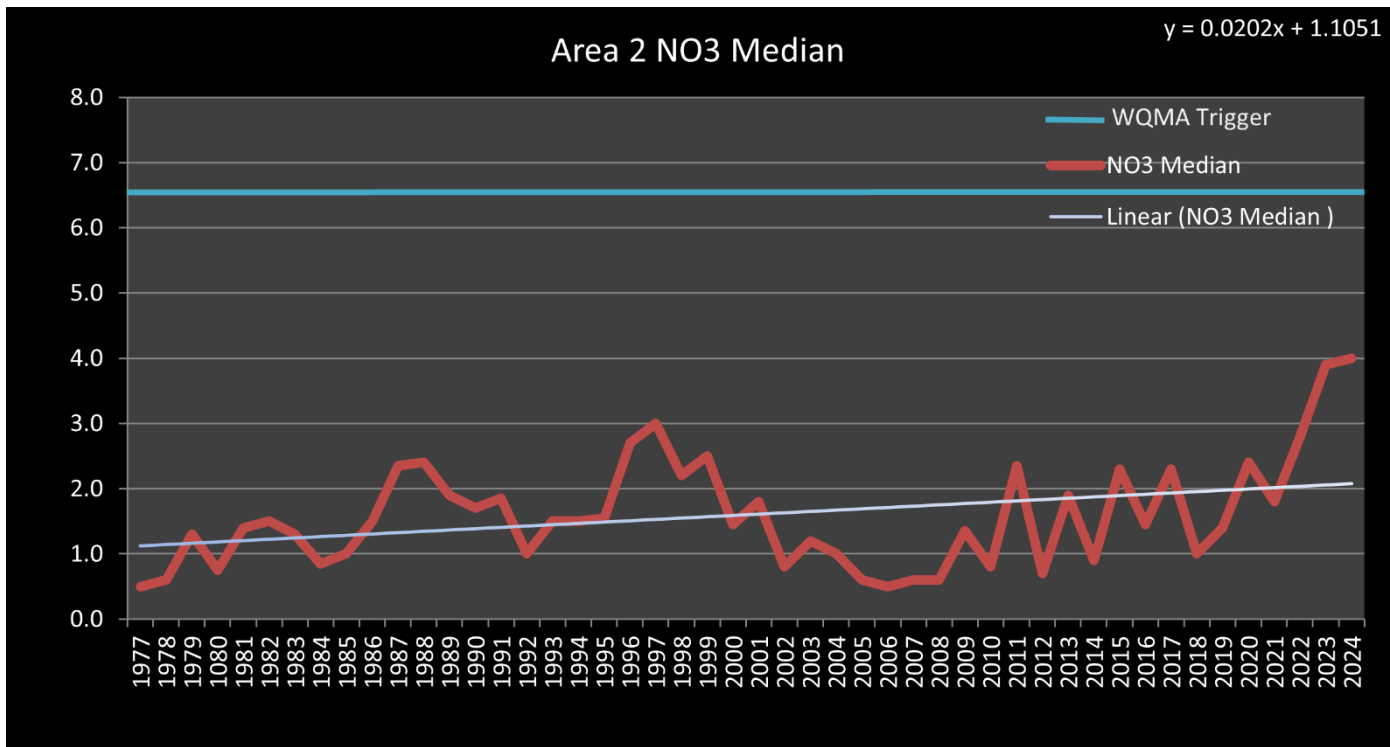
Other well types: Commercial, Domestic,  
Livestock, Monitoring



Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**Median: 1.7 Average: 3.9 Count: 104**

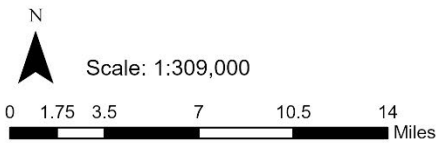
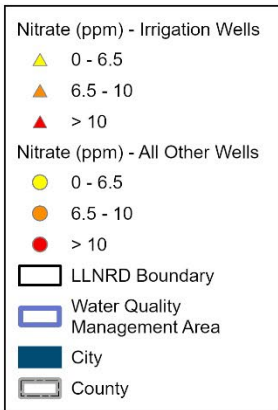


## 2024 Nitrate Sampling Results

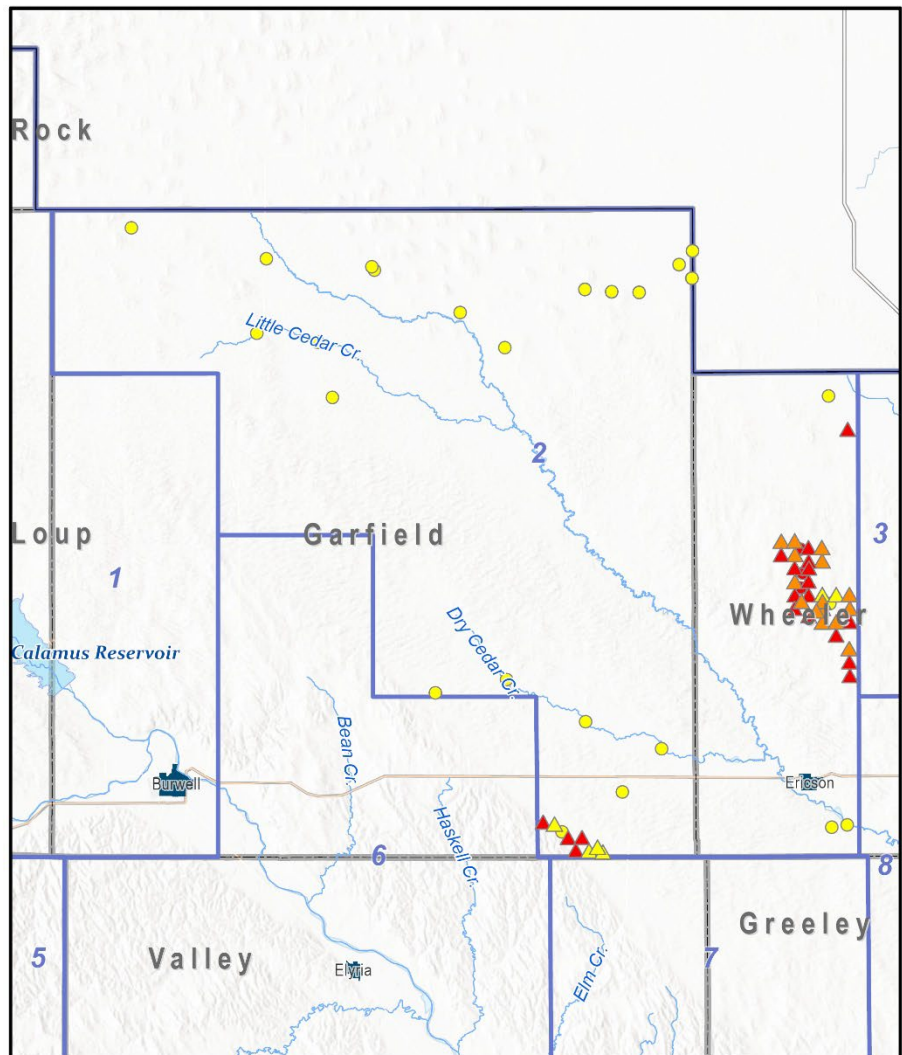
Lower Loup Natural Resources District  
Water Quality Management Area 2

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic,  
Livestock, Monitoring



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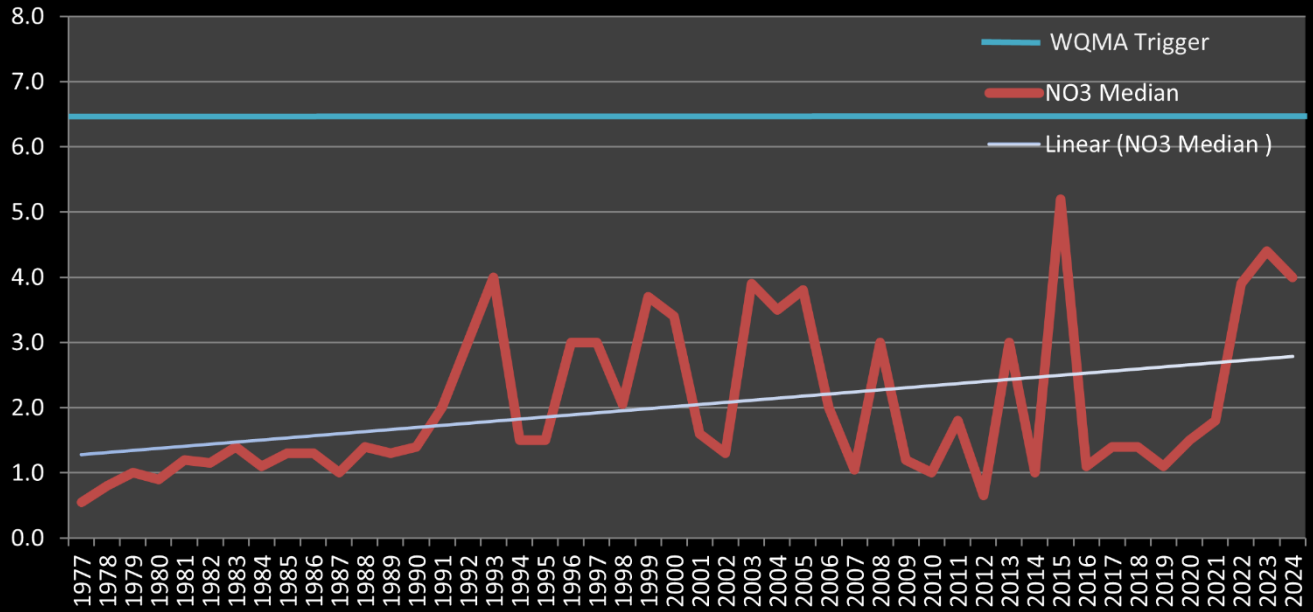


**Median: 4.0 Average: 5.9 Count: 86**



# Area 3 NO3 Median

$$y = 0.0321x + 1.2453$$

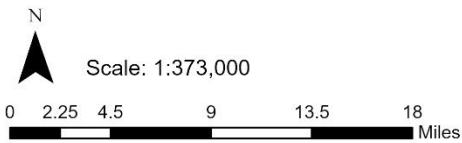
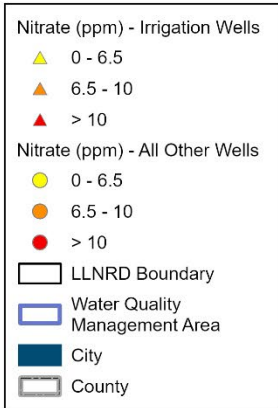


## 2024 Nitrate Sampling Results

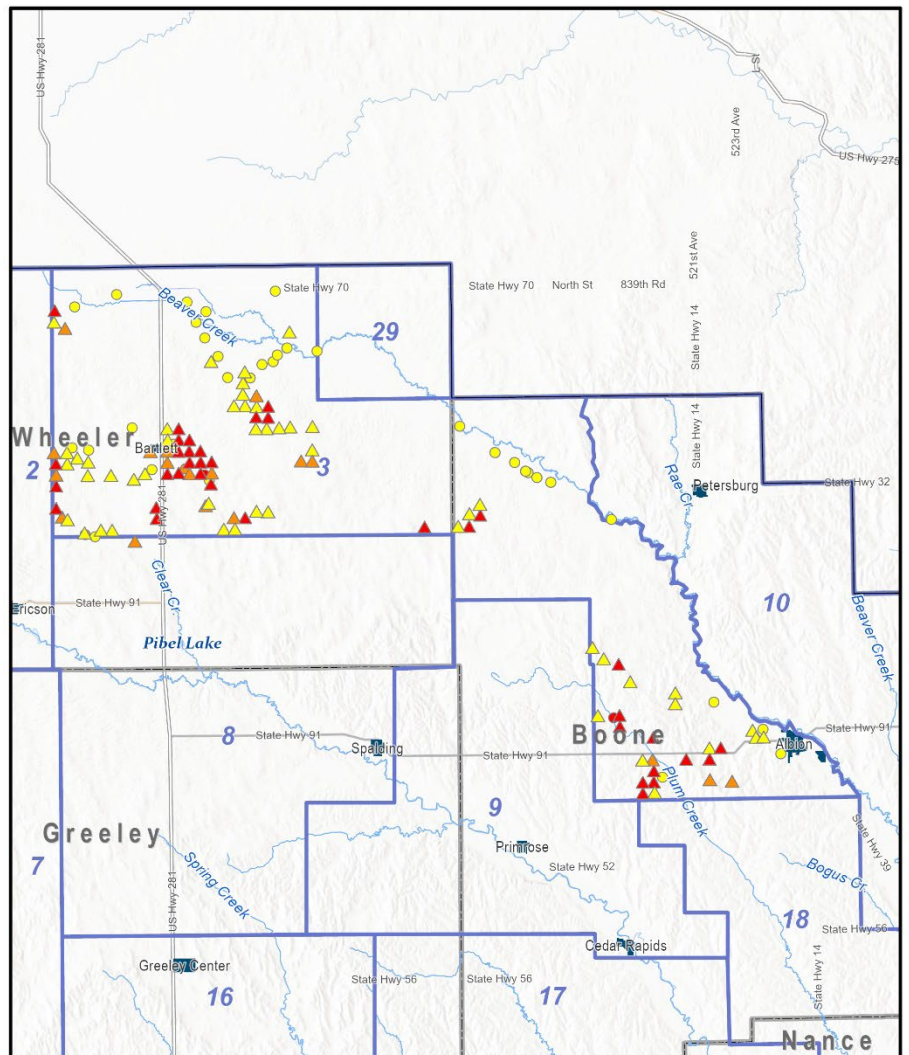
Lower Loup Natural Resources District  
Water Quality Management Area 3

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic,  
Livestock, Monitoring



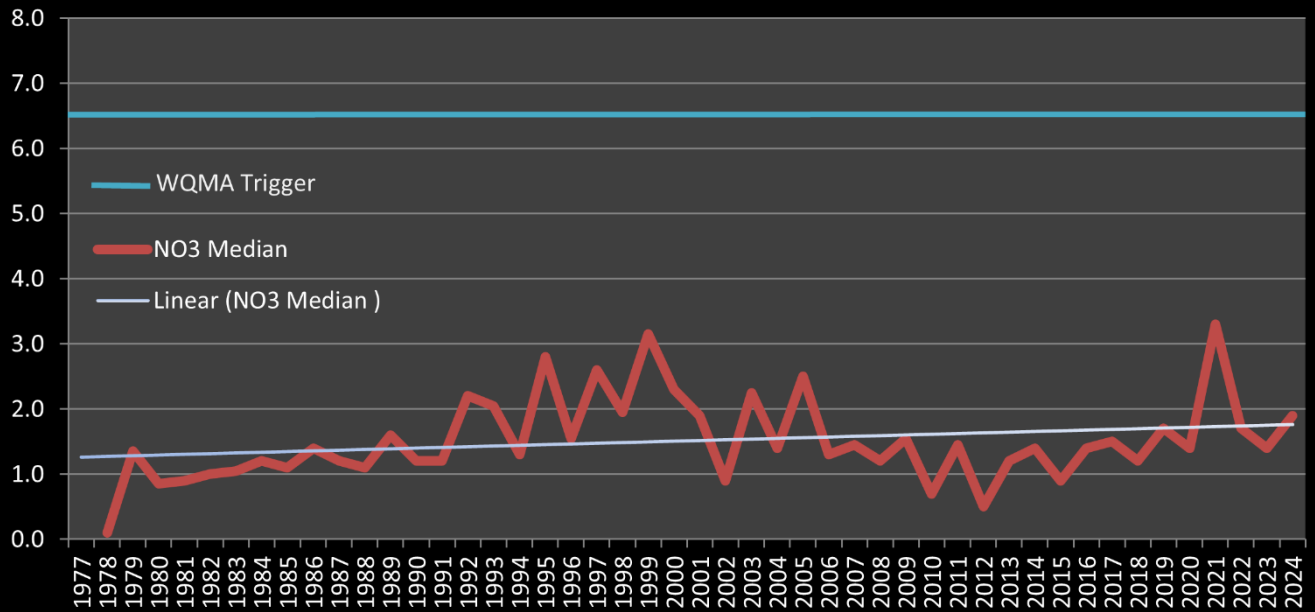
Esri, NASA, NGA, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**Median: 4.0 Average: 6.5 Count: 178**

$$y = 0.0105x + 1.253$$

### Area 4 NO3 Median

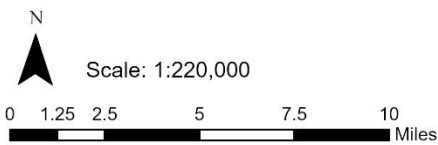
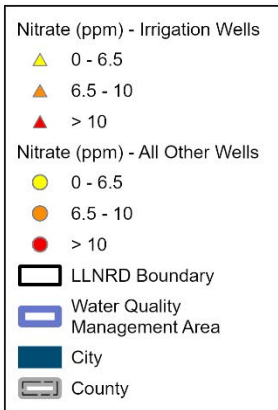


### 2024 Nitrate Sampling Results

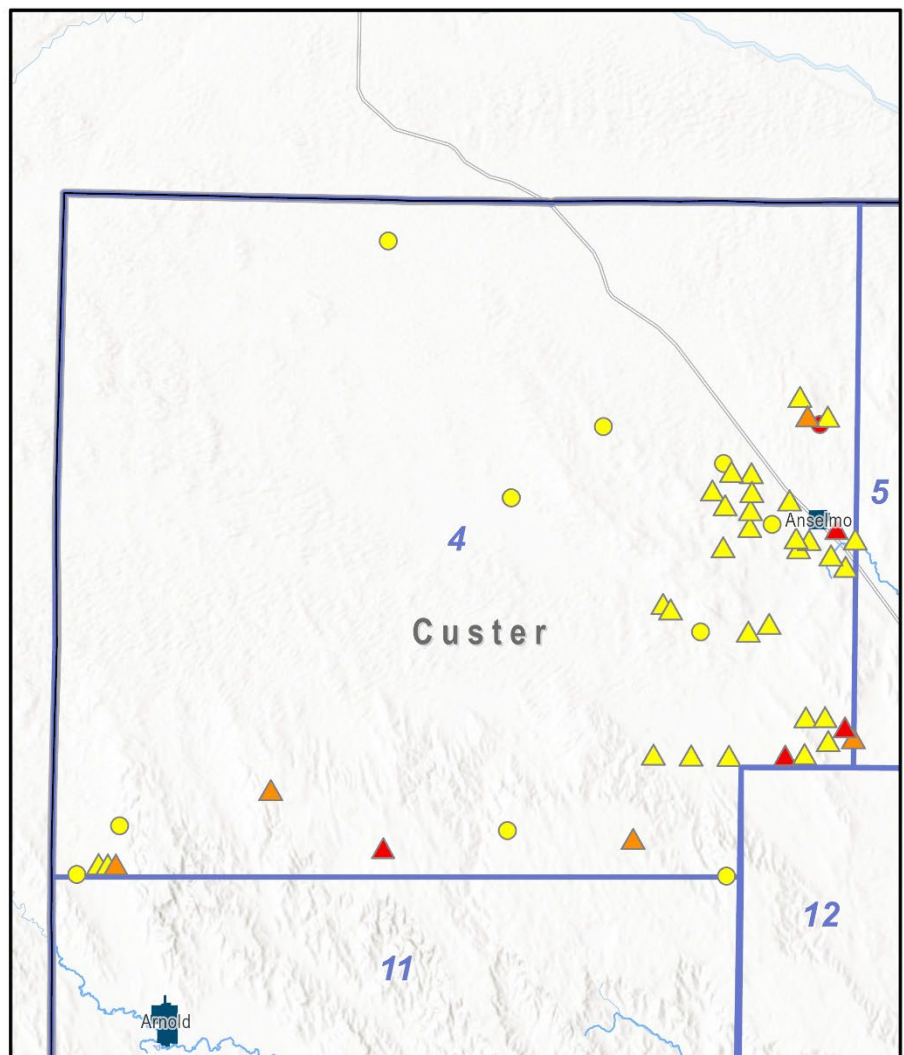
Lower Loup Natural Resources District  
Water Quality Management Area 4

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic, Livestock, Monitoring



Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

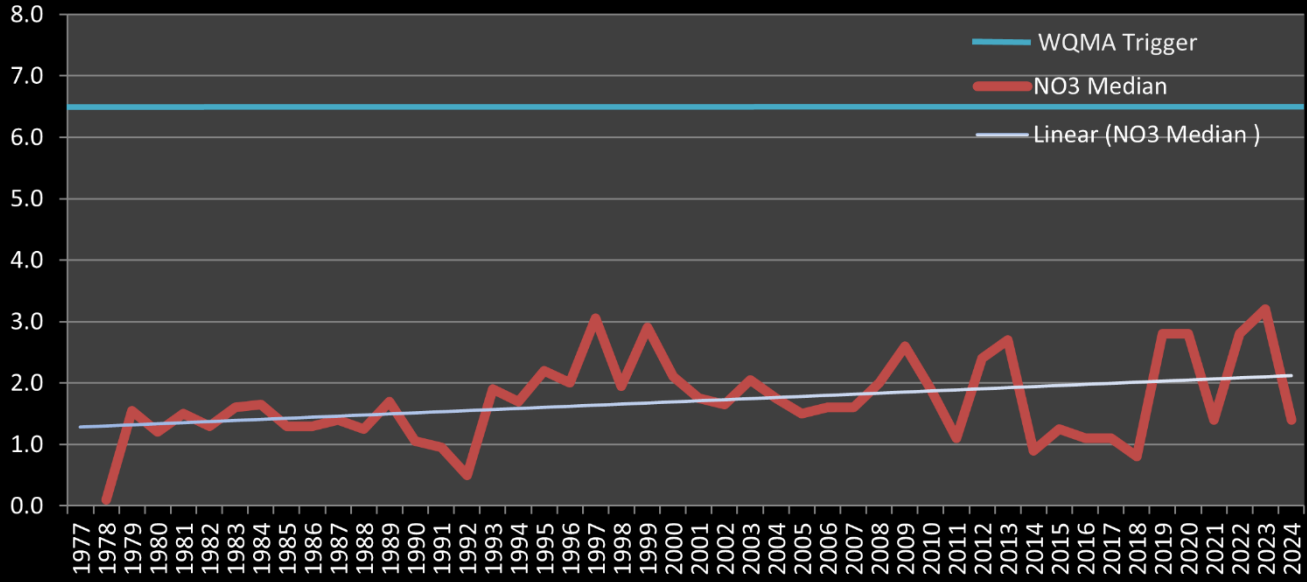


**Median: 1.9 Average: 4.5 Count: 51**



$$y = 0.0179x + 1.2613$$

### Area 5 NO3 Median

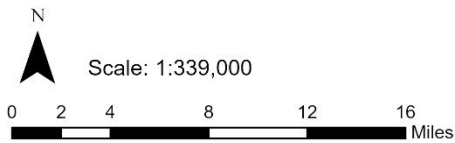
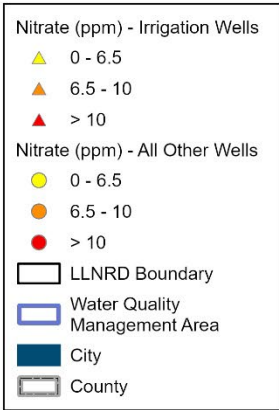


### 2024 Nitrate Sampling Results

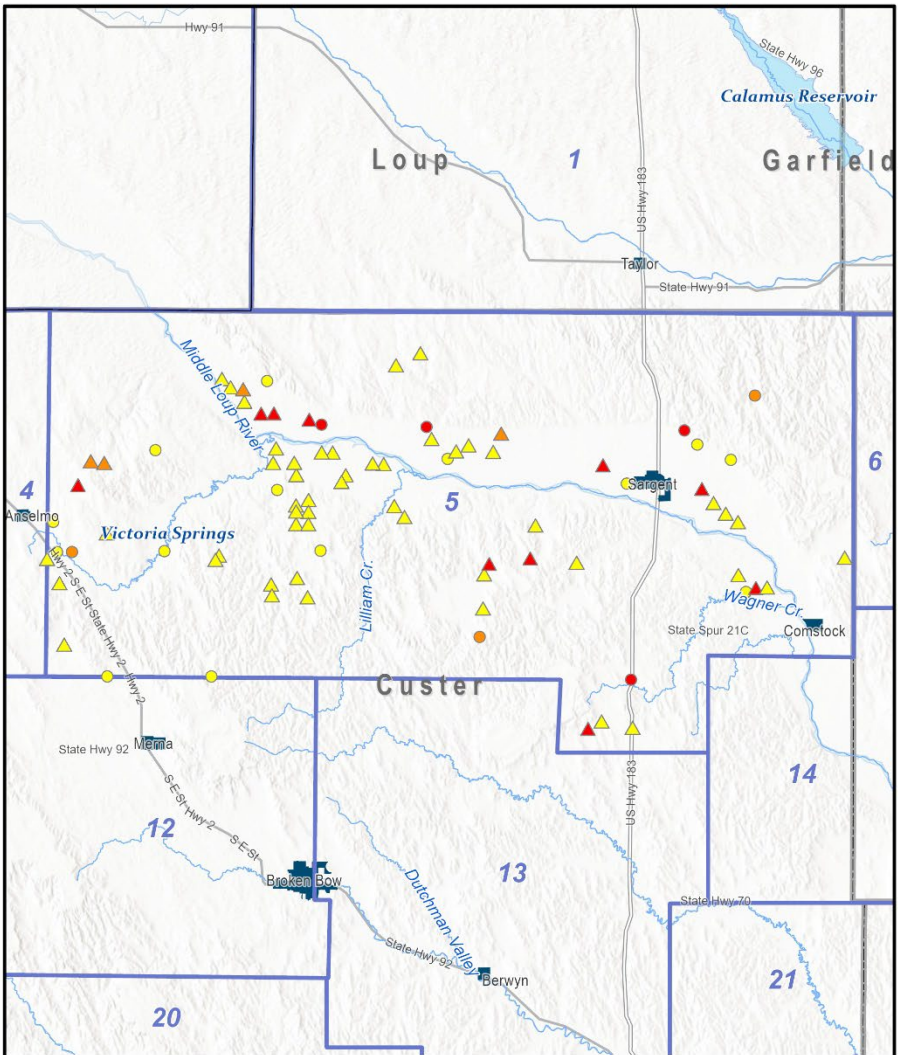
Lower Loup Natural Resources District  
Water Quality Management Area 5

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

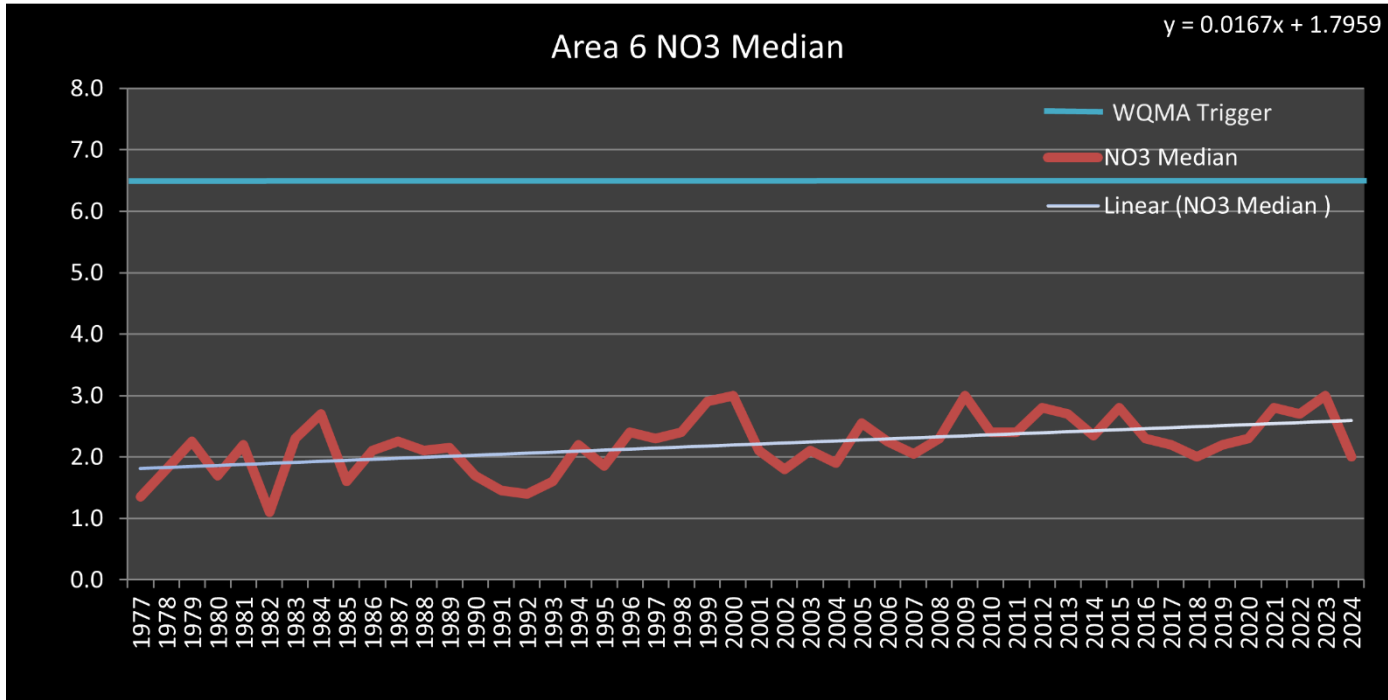
Other well types: Commercial, Domestic,  
Livestock, Monitoring



Esri, CGIAR, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**Median: 1.4 Average: 4.6 Count: 84**

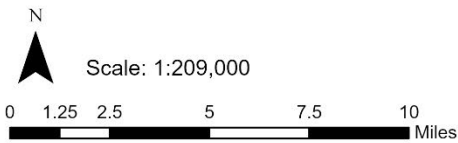
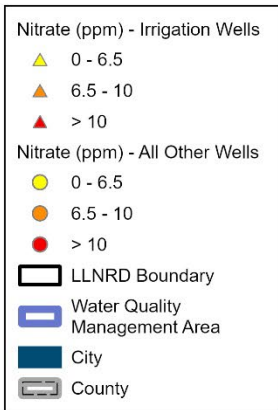


## 2024 Nitrate Sampling Results

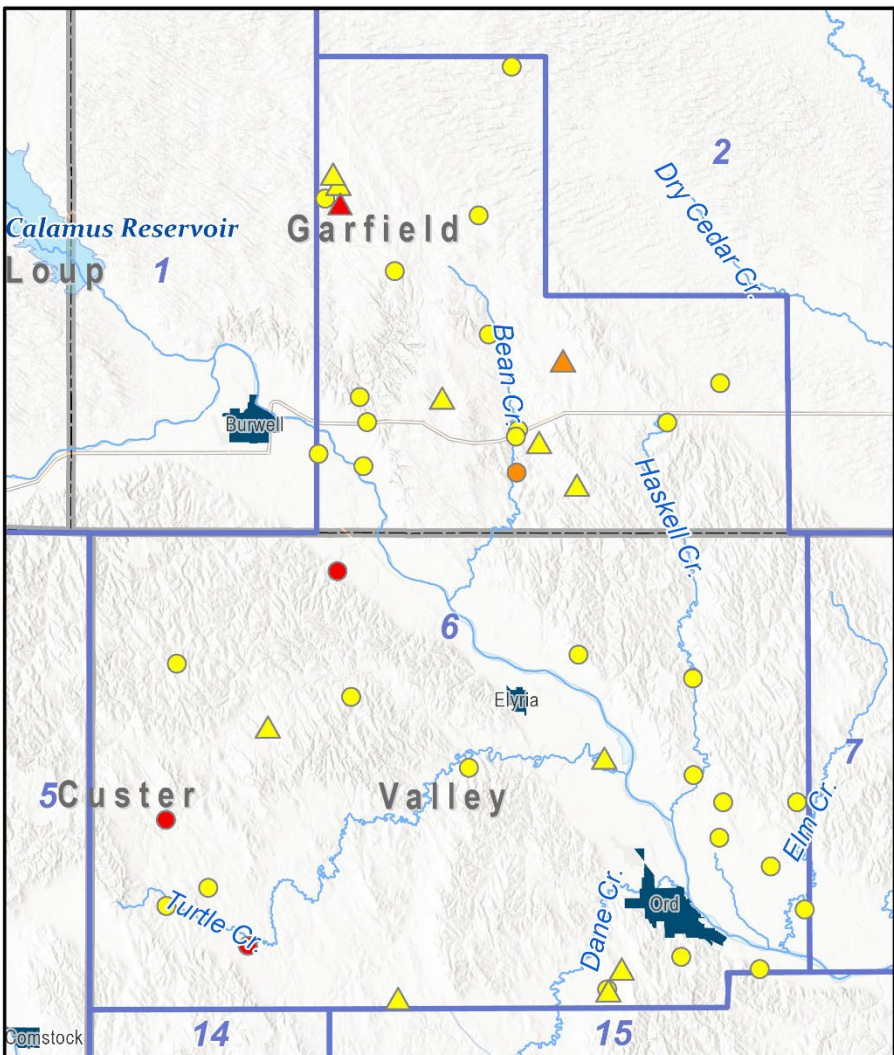
Lower Loup Natural Resources District  
Water Quality Management Area 6

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic,  
Livestock, Monitoring



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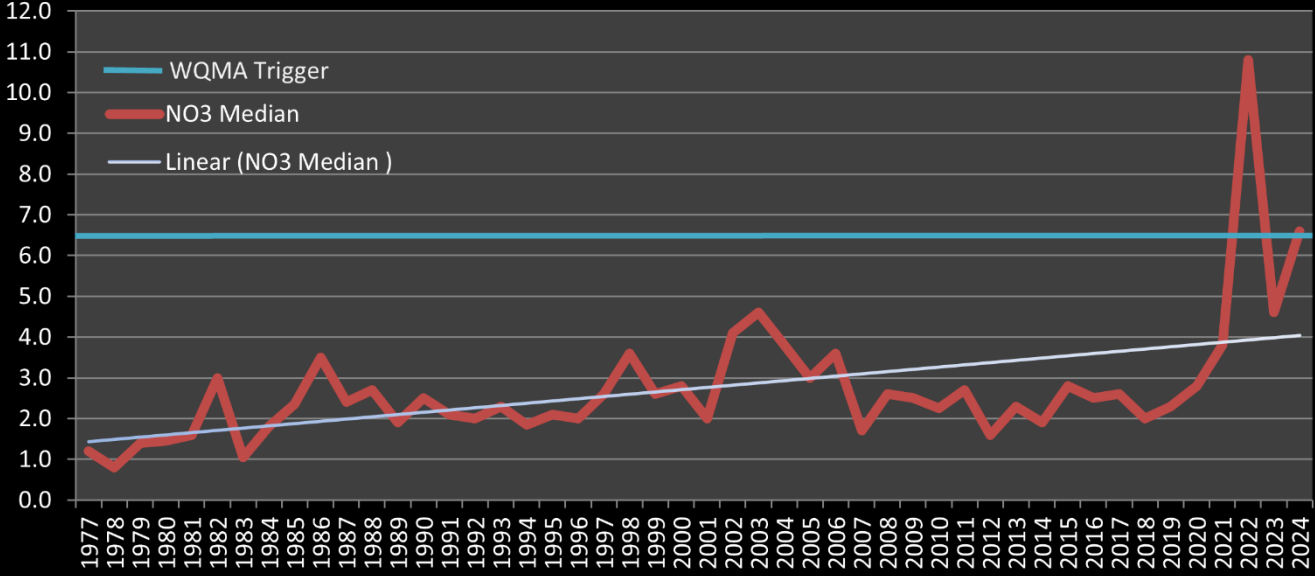


**Median: 2.0 Average: 3.6 Count: 49**



$$y = 0.0554x + 1.3731$$

### Area 7 NO3 Median

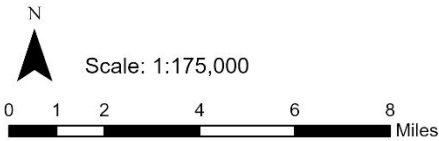
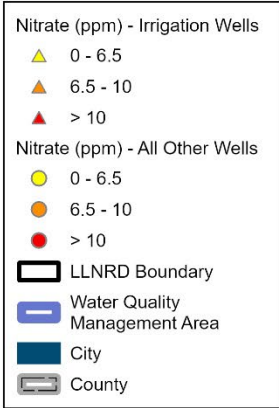


### 2024 Nitrate Sampling Results

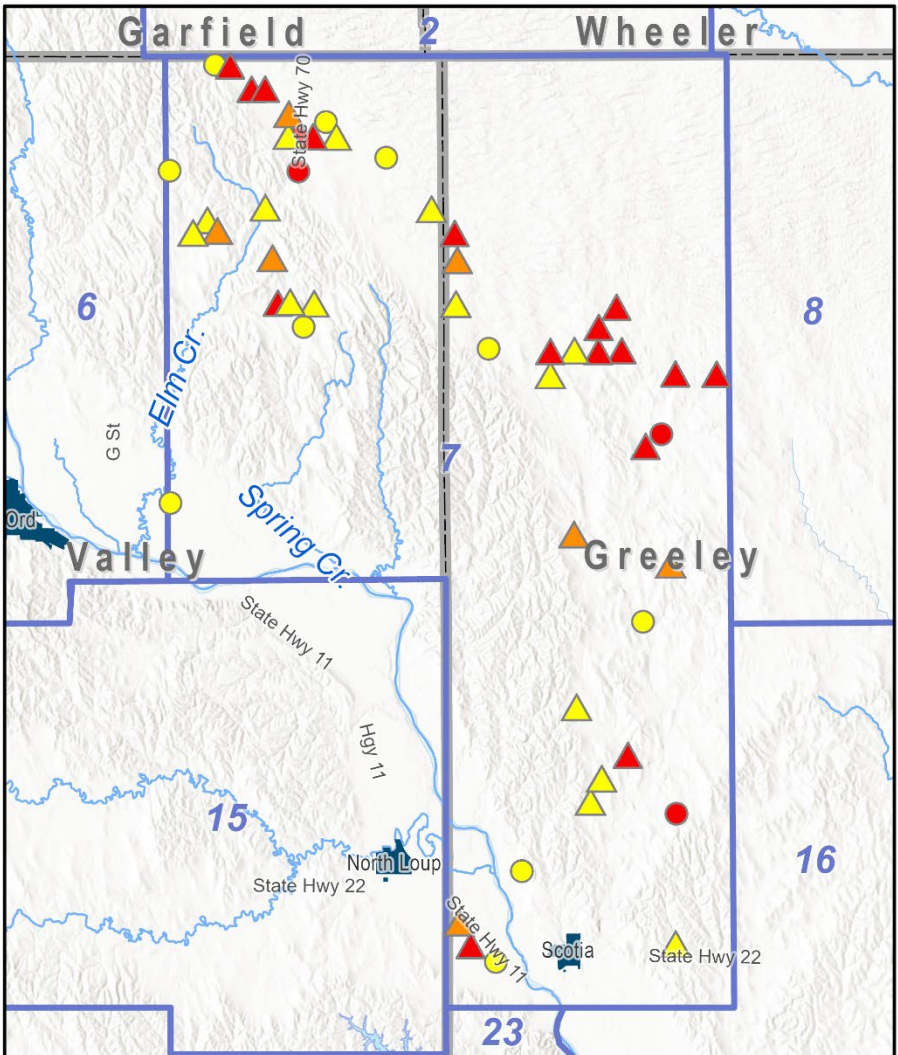
Lower Loup Natural Resources District  
Water Quality Management Area 7

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic,  
Livestock, Monitoring



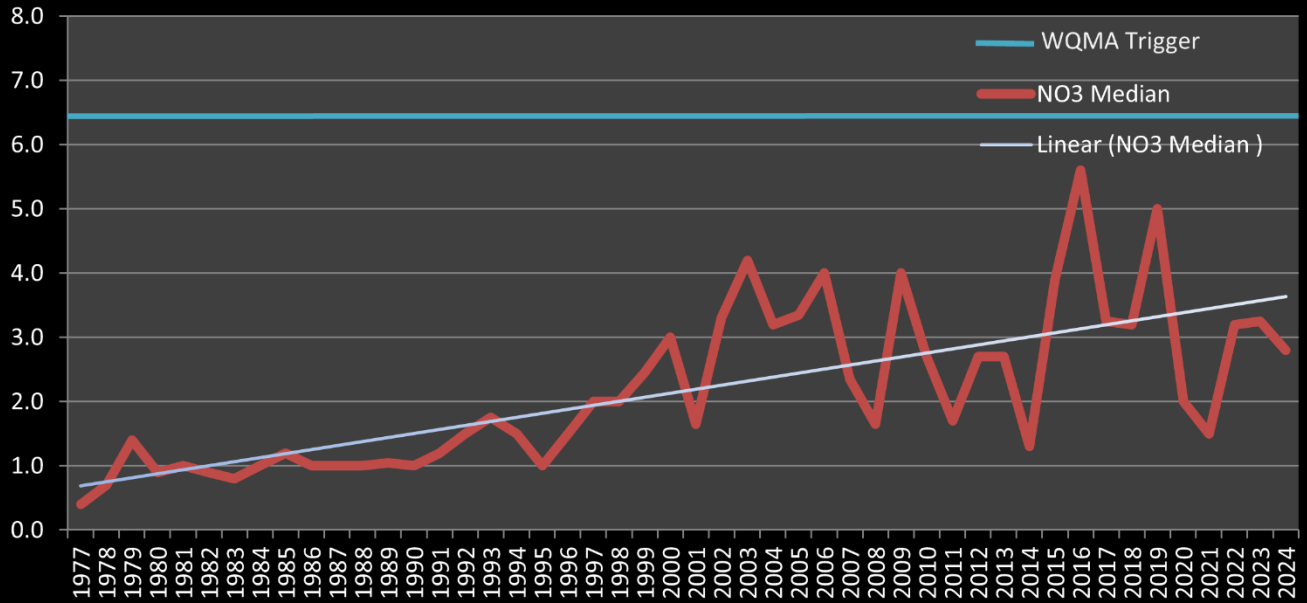
Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**Median: 6.6 Average: 11.0 Count: 53**

$$y = 0.0626x + 0.6281$$

### Area 8 NO3 Median

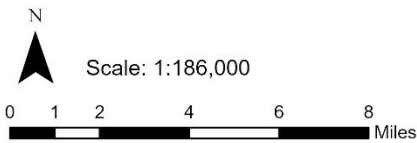
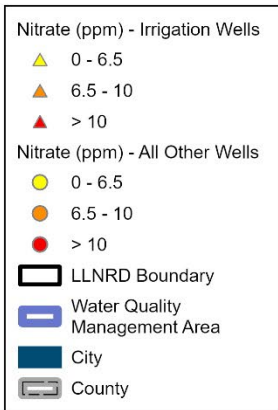


### 2024 Nitrate Sampling Results

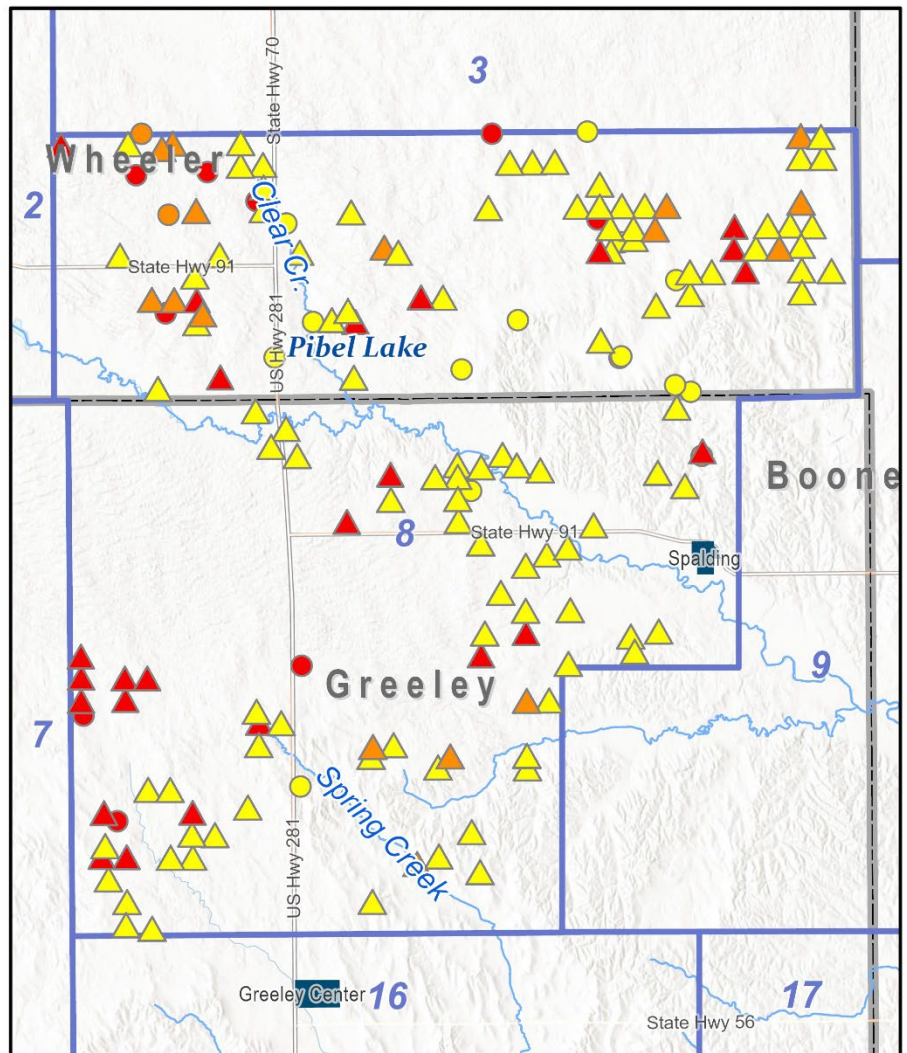
Lower Loup Natural Resources District  
Water Quality Management Area 8

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic, Livestock, Monitoring



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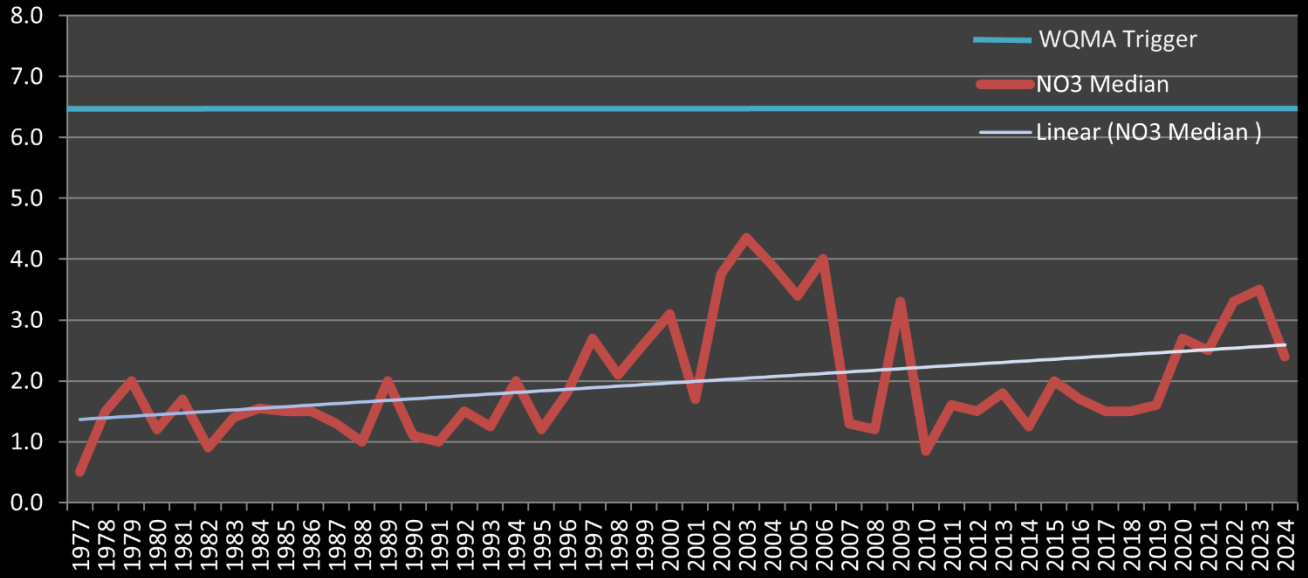


**Median: 2.8 Average: 7.0 Count: 174**



$$y = 0.026x + 1.343$$

### Area 9 NO3 Median

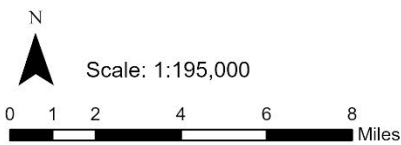
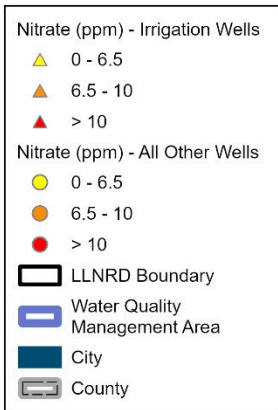


### 2024 Nitrate Sampling Results

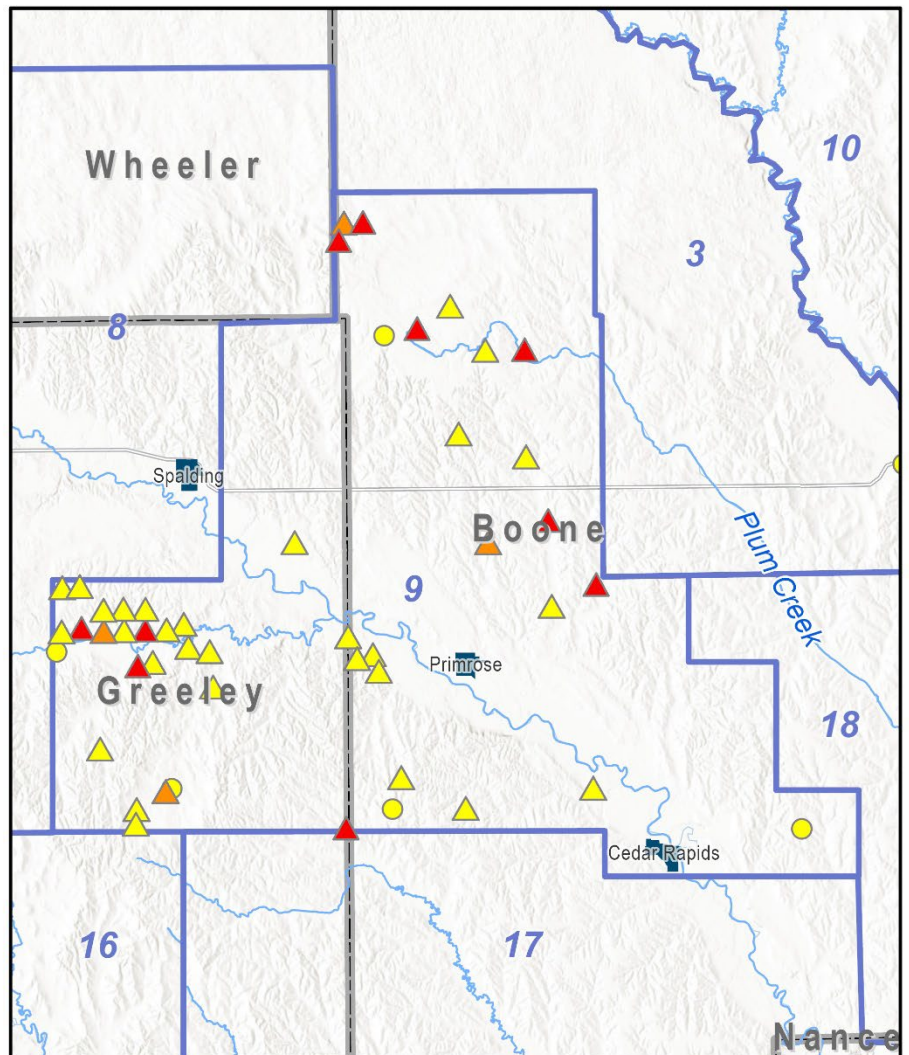
Lower Loup Natural Resources District  
Water Quality Management Area 9

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

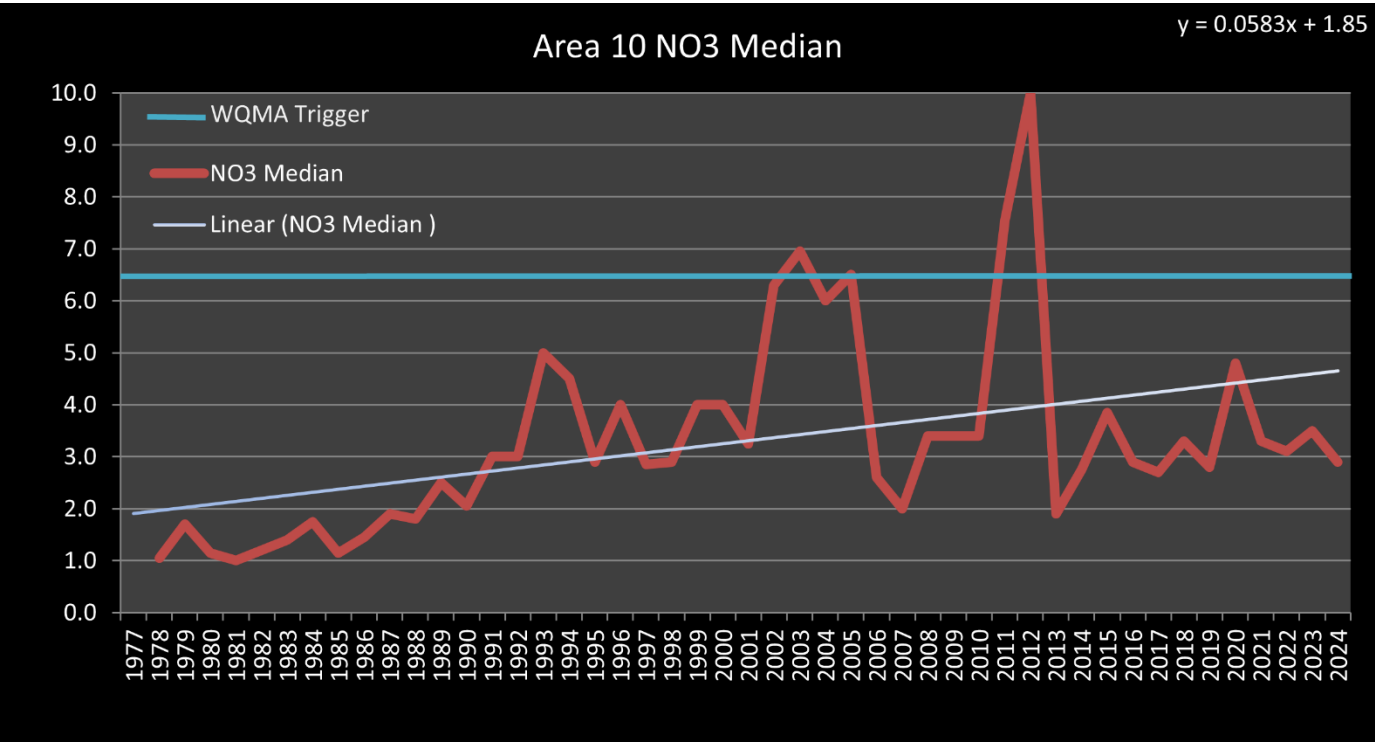
Other well types: Commercial, Domestic,  
Livestock, Monitoring



Esri, CGIAR, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**Median: 2.4 Average: 6.6 Count: 49**

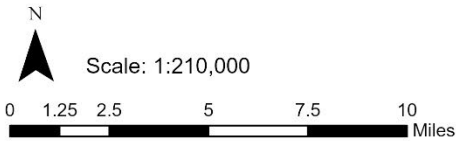
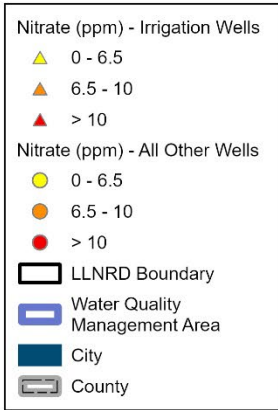


## 2024 Nitrate Sampling Results

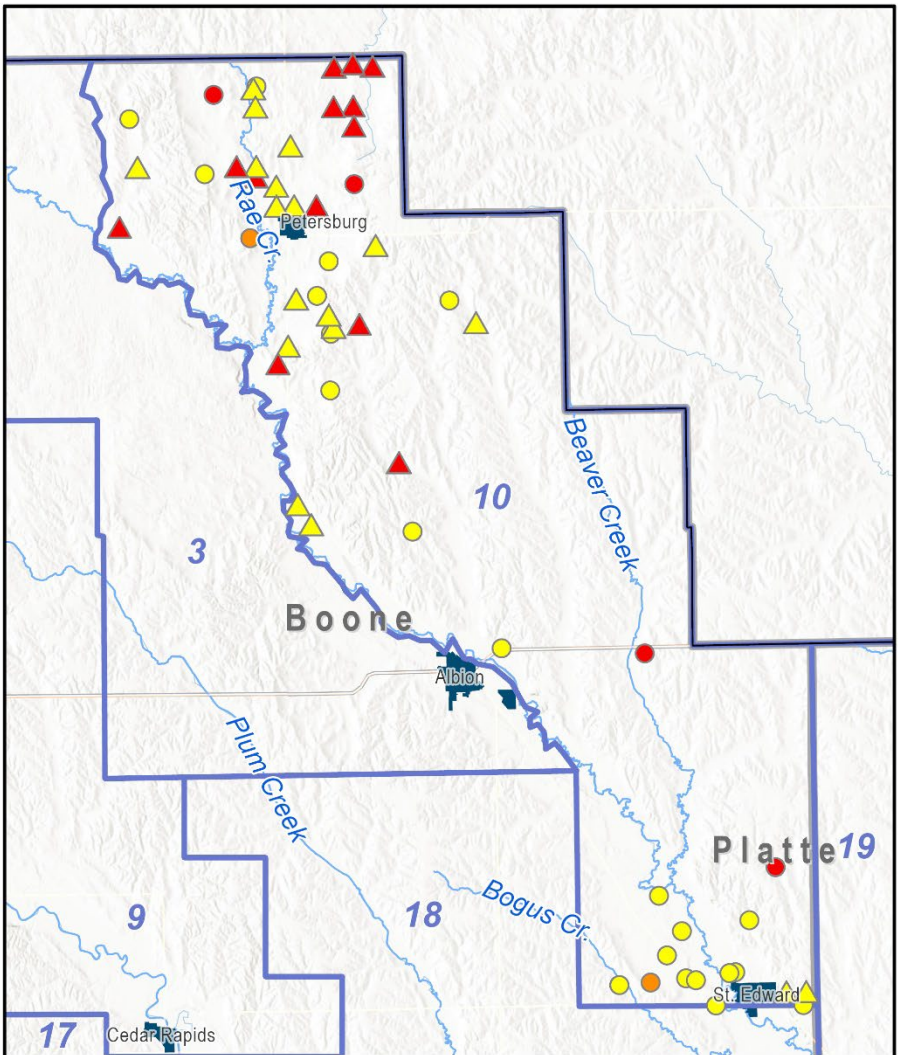
Lower Loup Natural Resources District  
Water Quality Management Area 10

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic,  
Livestock, Monitoring



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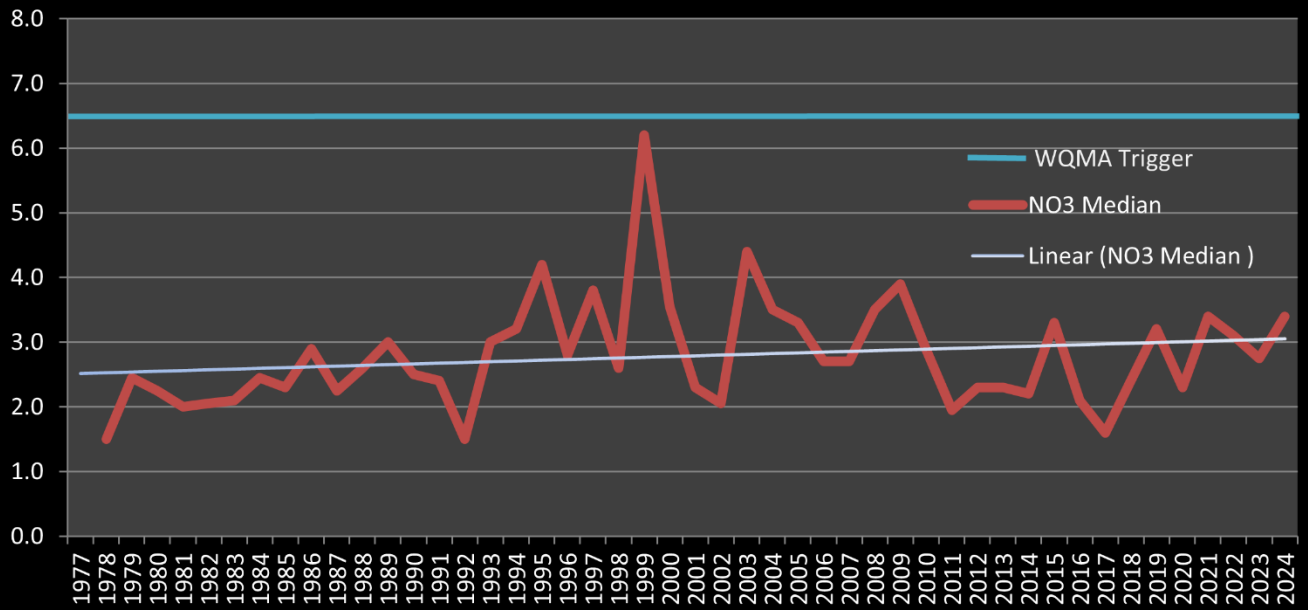


**Median: 2.9 Average: 7.4 Count: 64**



$$y = 0.0115x + 2.5041$$

### Area 11 NO3 Median

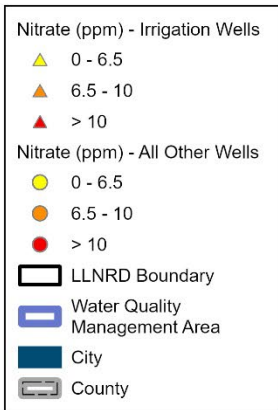


### 2024 Nitrate Sampling Results

Lower Loup Natural Resources District  
Water Quality Management Area 11

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

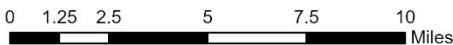
Other well types: Commercial, Domestic, Livestock, Monitoring



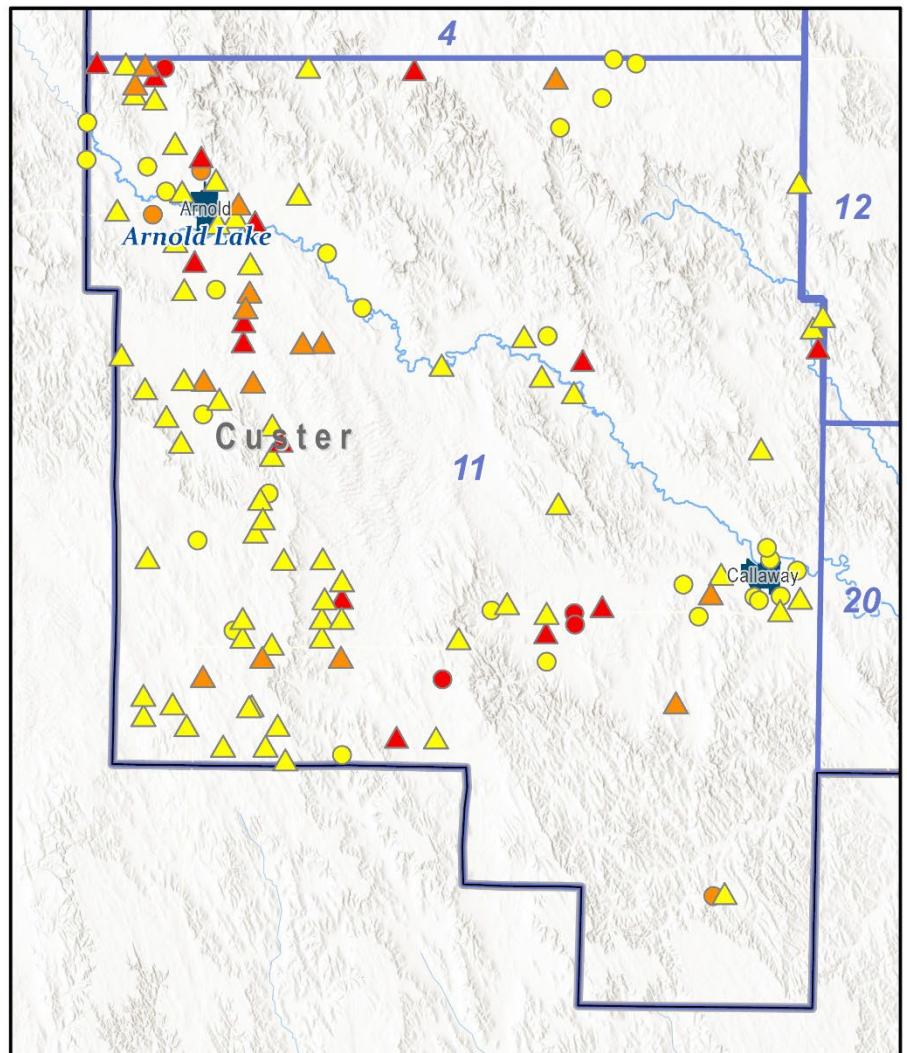
N



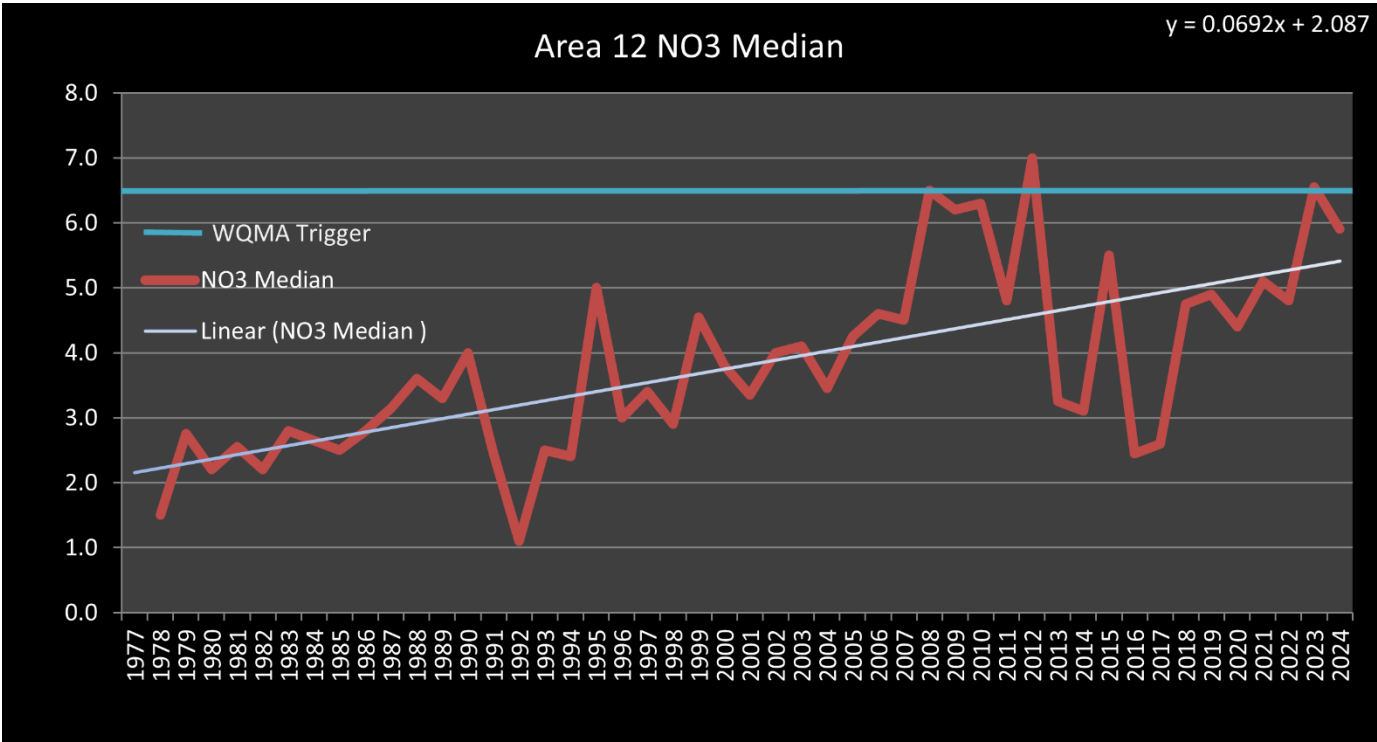
Scale: 1:211,000



Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**Median: 3.4 Average: 5.1 Count: 129**

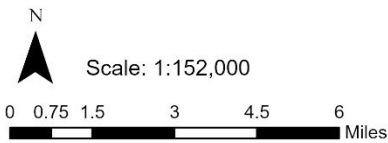
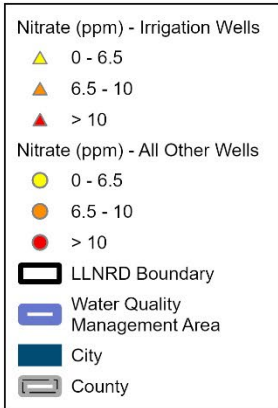


## 2024 Nitrate Sampling Results

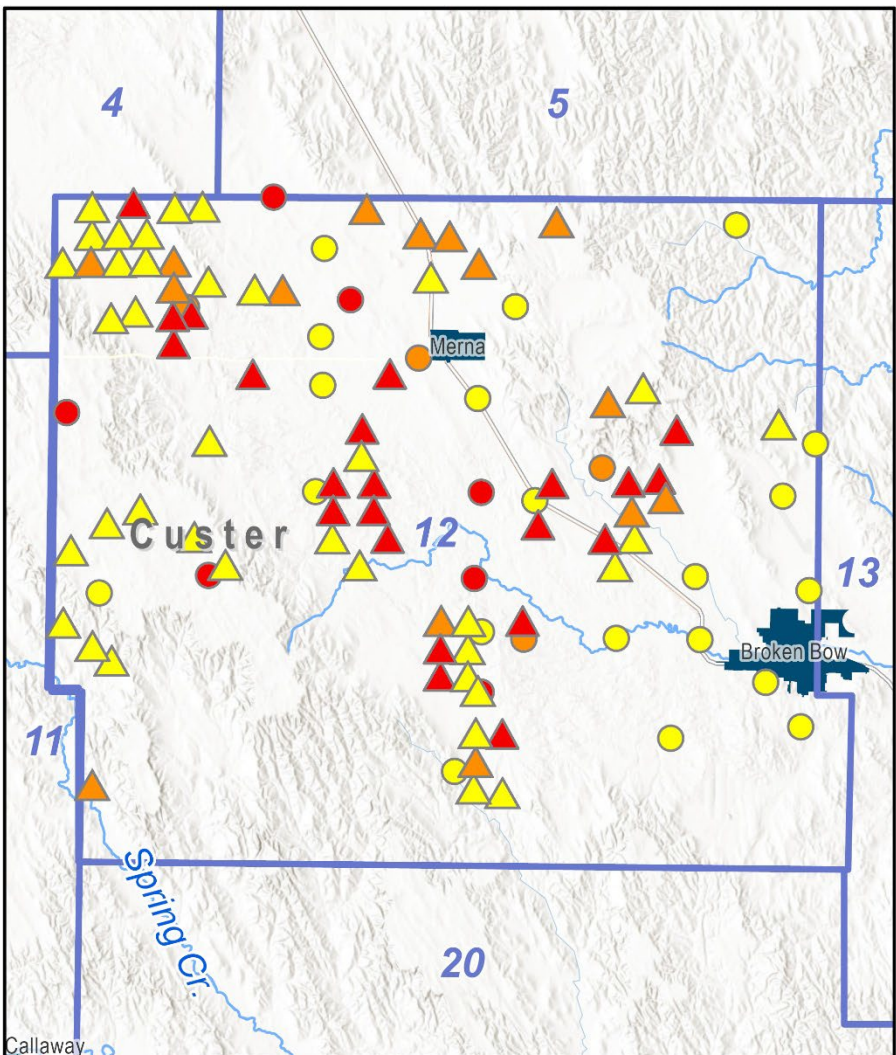
Lower Loup Natural Resources District  
Water Quality Management Area 12

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic,  
Livestock, Monitoring



Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

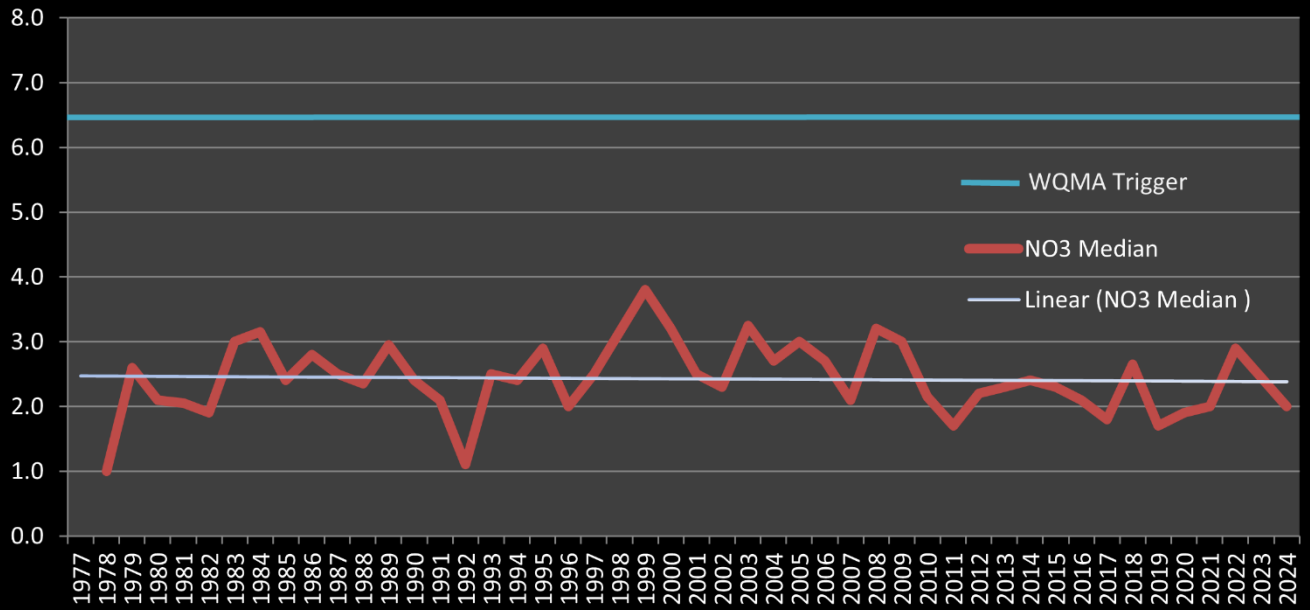


**Median: 5.9 Average: 9.1 Count: 108**



$$y = -0.0019x + 2.4757$$

### Area 13 NO3 Median

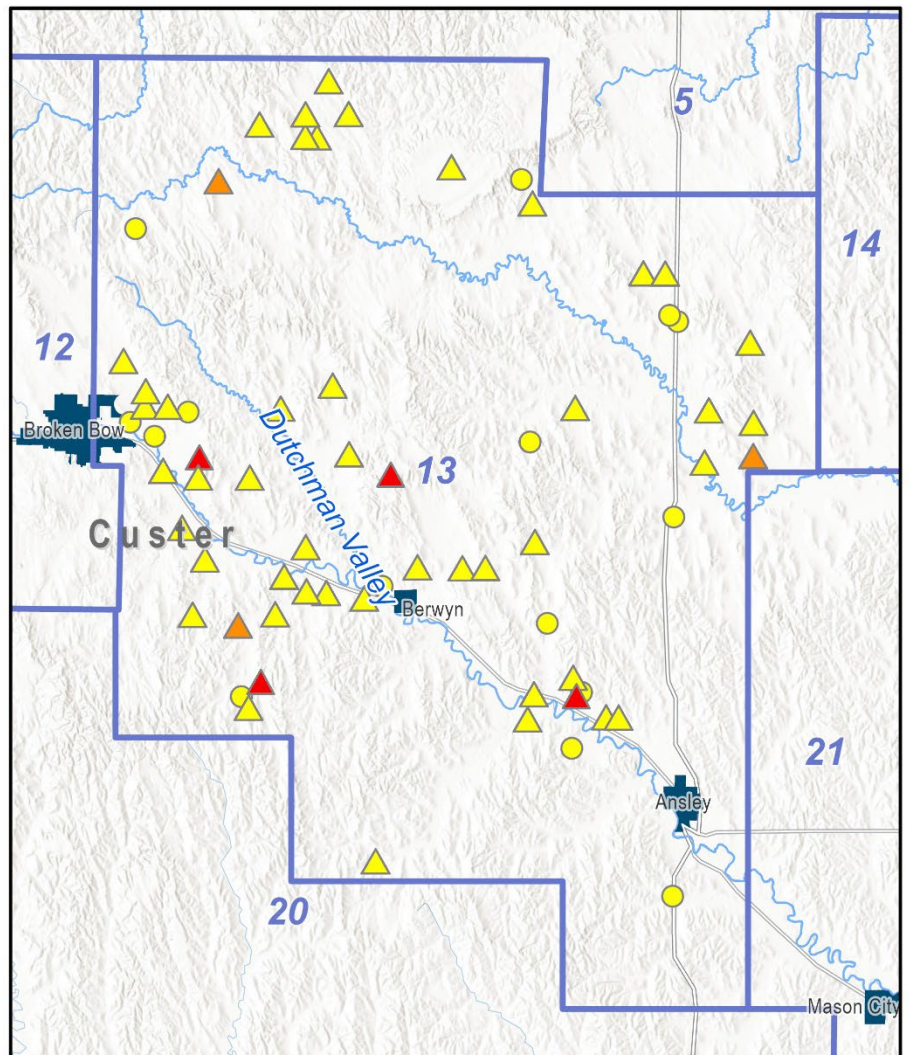
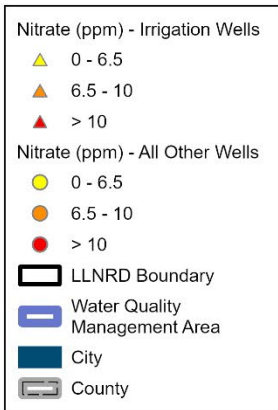


### 2024 Nitrate Sampling Results

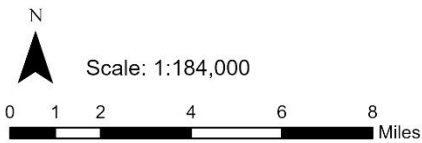
Lower Loup Natural Resources District  
Water Quality Management Area 13

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

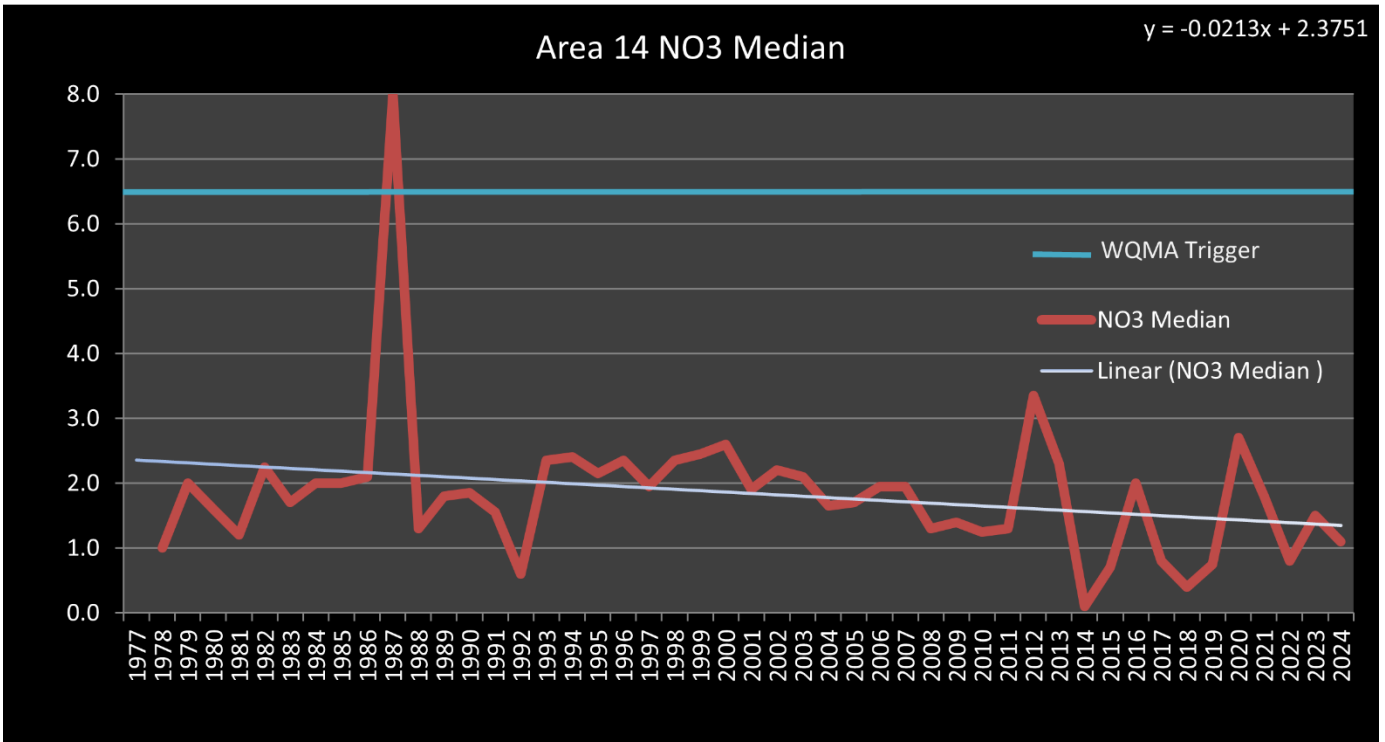
Other well types: Commercial, Domestic,  
Livestock, Monitoring



**Median: 2.0 Average: 3.2 Count: 69**



Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

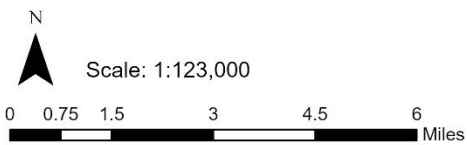
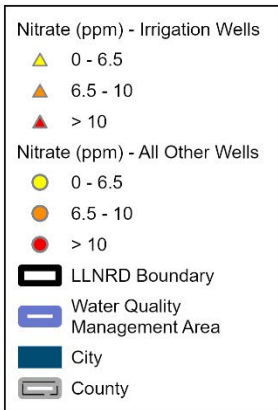


## 2024 Nitrate Sampling Results

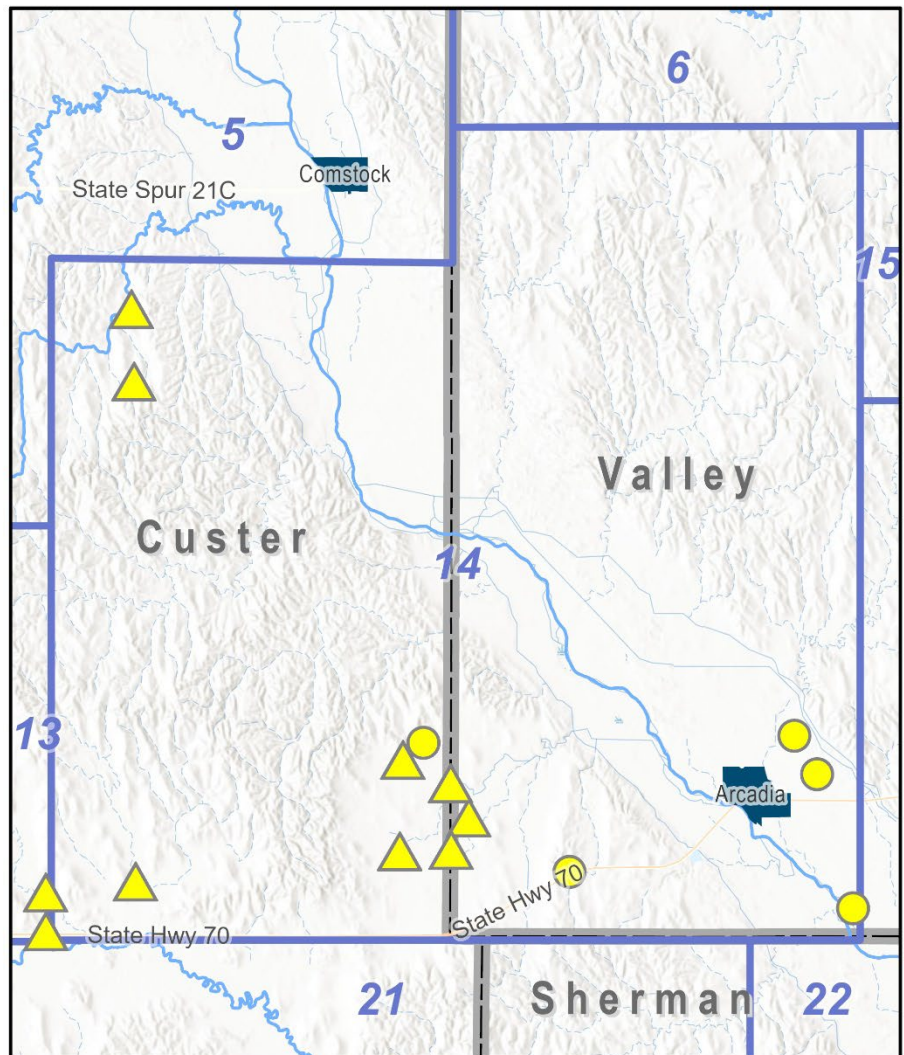
Lower Loup Natural Resources District  
Water Quality Management Area 14

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic,  
Livestock, Monitoring

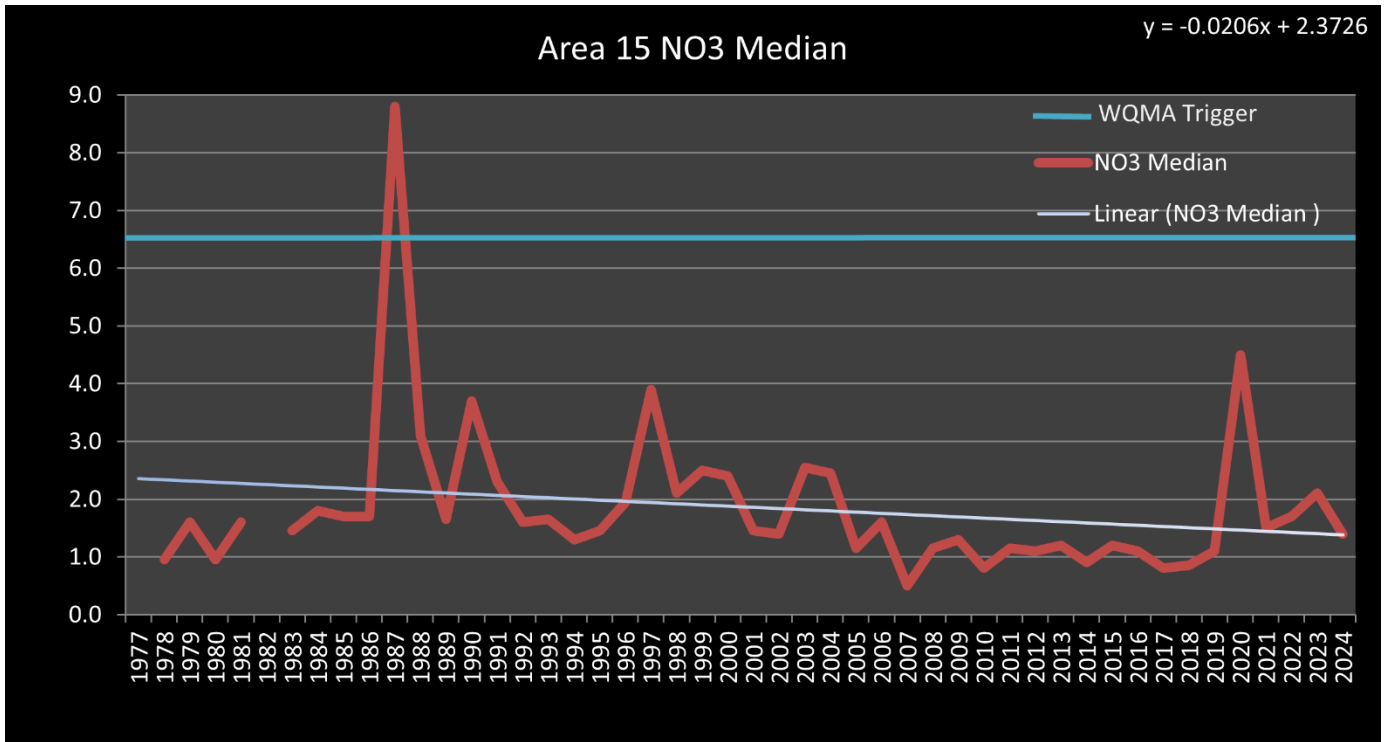


Esri, NASA, NGA, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**Median: 1.1 Average: 1.9 Count: 15**



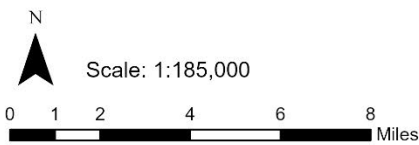
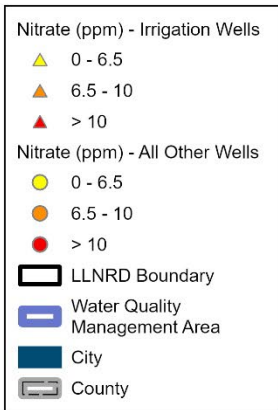


## 2024 Nitrate Sampling Results

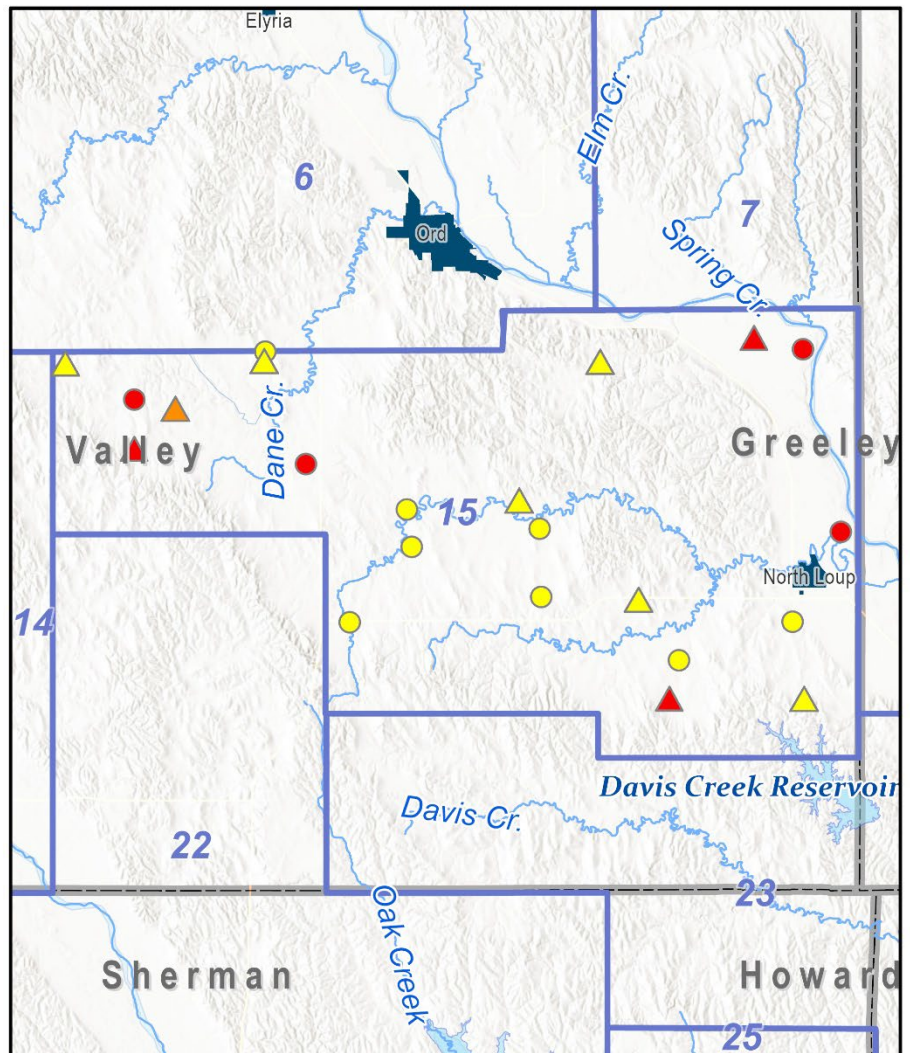
Lower Loup Natural Resources District  
Water Quality Management Area 15

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

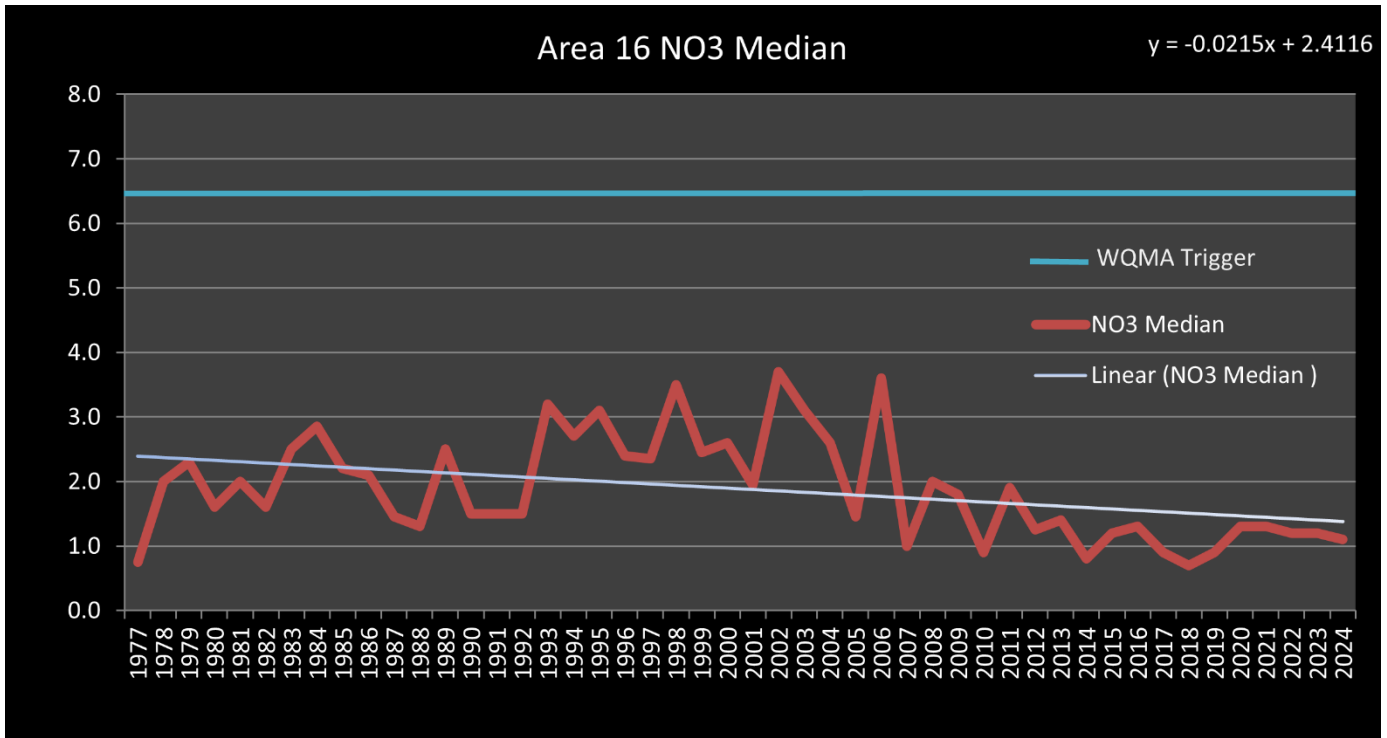
Other well types: Commercial, Domestic,  
Livestock, Monitoring



Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**Median: 1.4 Average: 8.2 Count: 22**

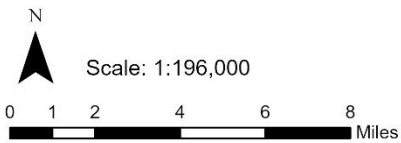
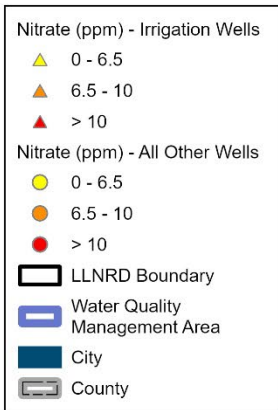


## 2024 Nitrate Sampling Results

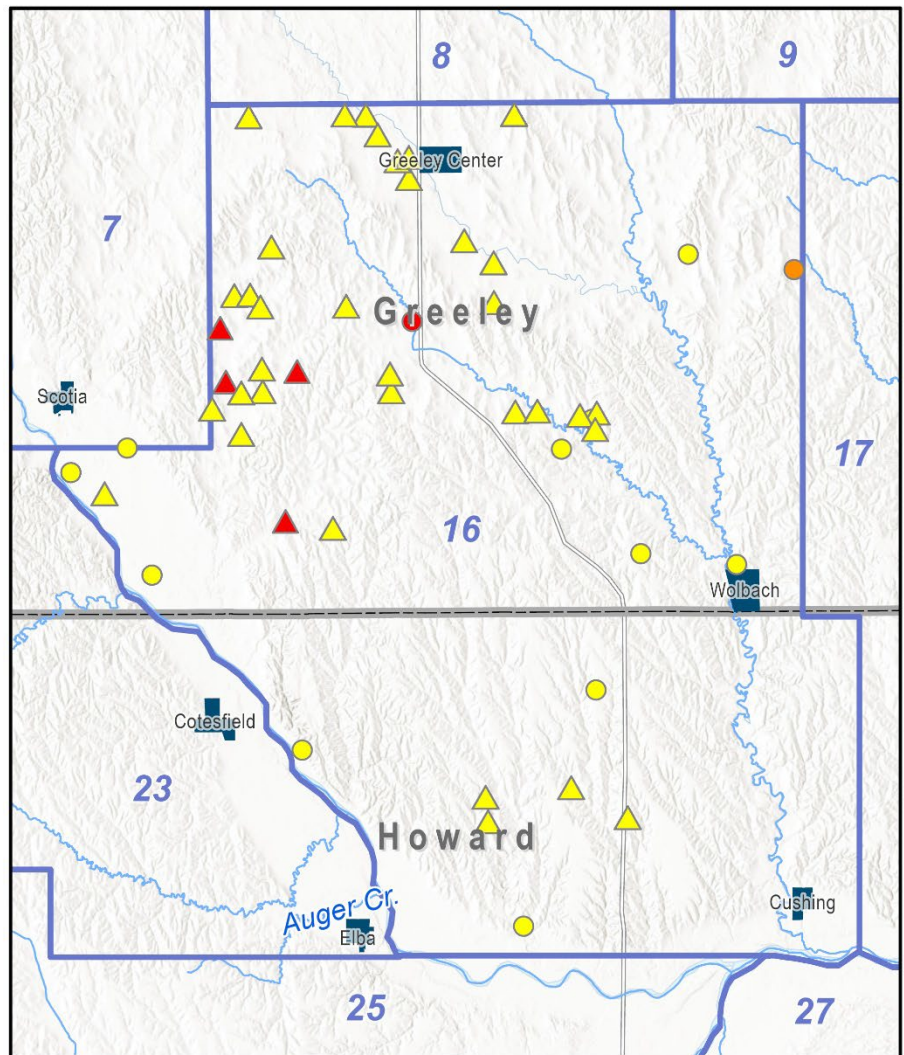
Lower Loup Natural Resources District  
Water Quality Management Area 16

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic,  
Livestock, Monitoring

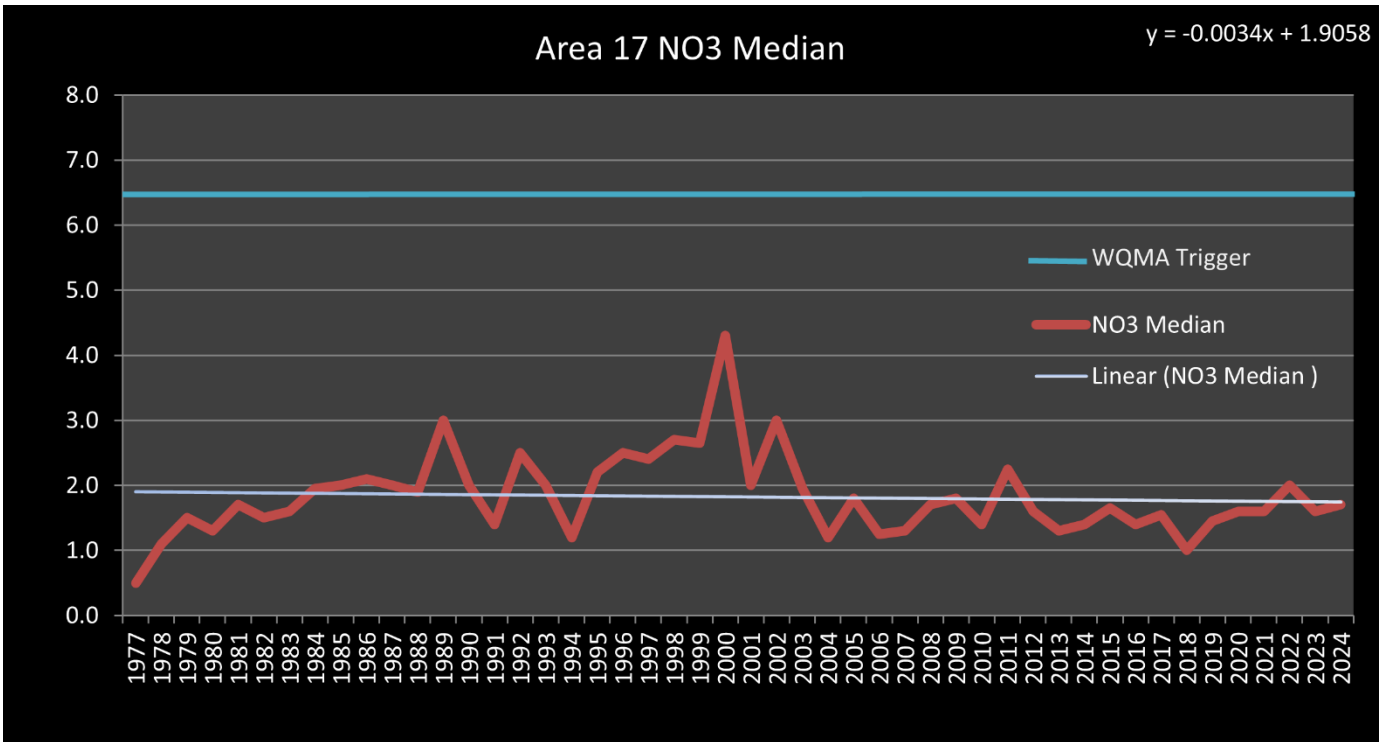


Esri, CGIAR, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**Median: 1.1 Average: 2.7 Count: 51**



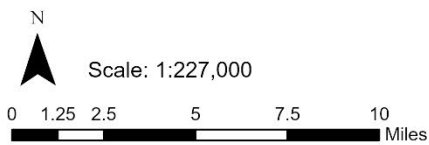
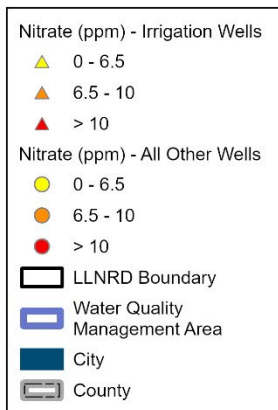


## 2024 Nitrate Sampling Results

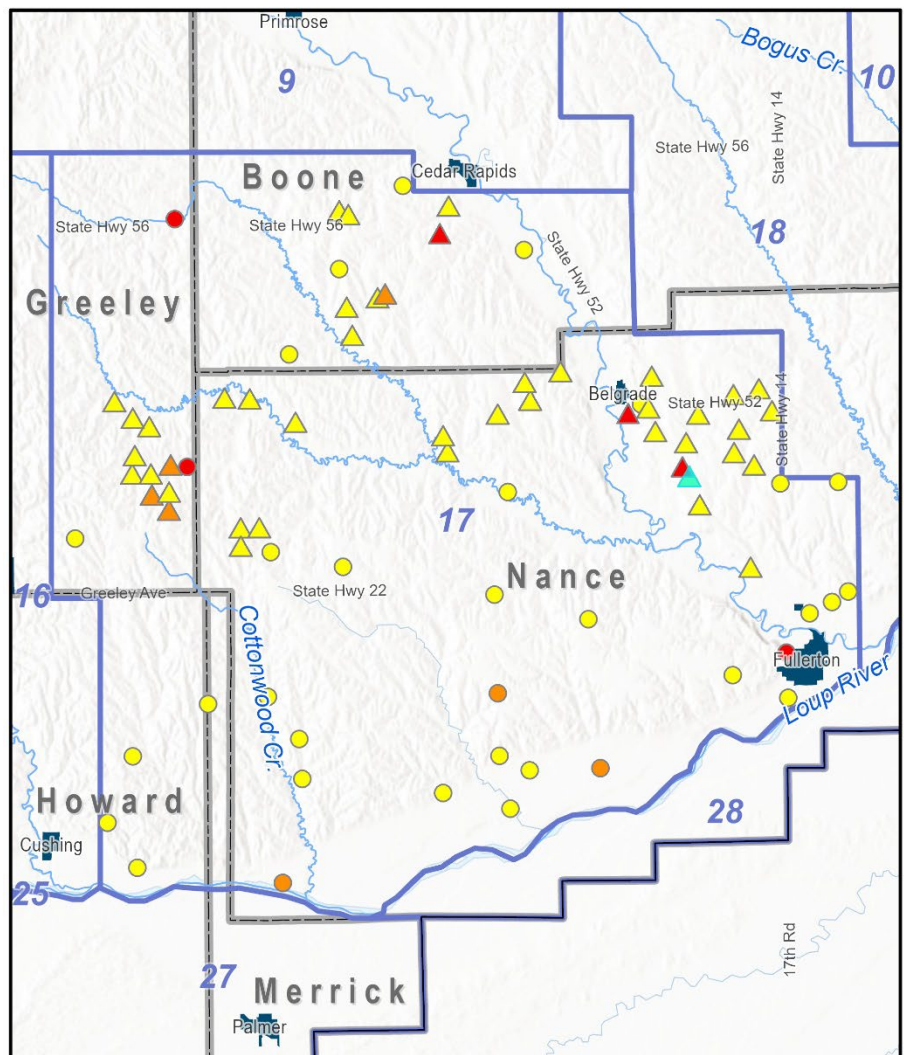
Lower Loup Natural Resources District  
Water Quality Management Area 17

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic,  
Livestock, Monitoring



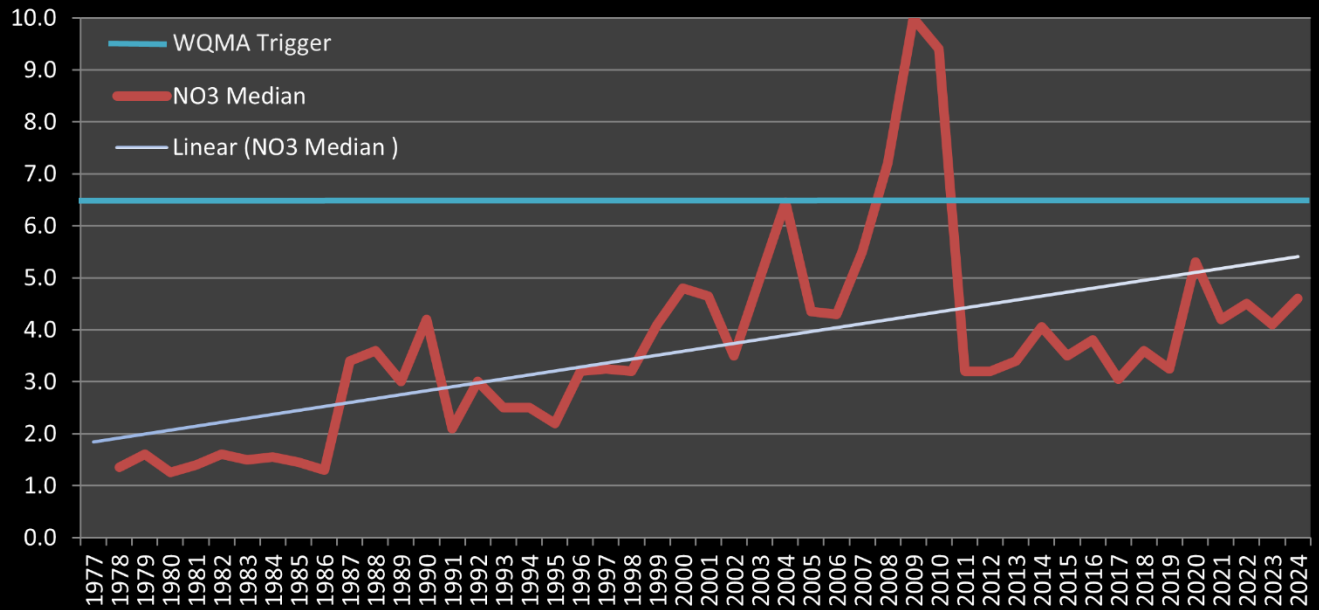
Esri, CGIAR, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**Median: 1.7 Average: 3.9 Count: 81**

$$y = 0.0759x + 1.7657$$

### Area 18 NO3 Median

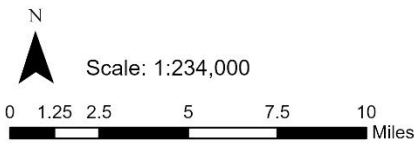
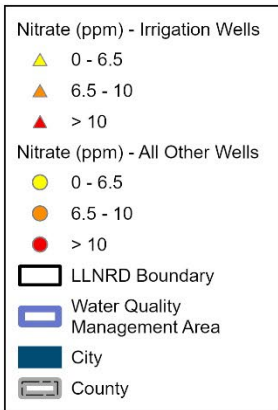


### 2024 Nitrate Sampling Results

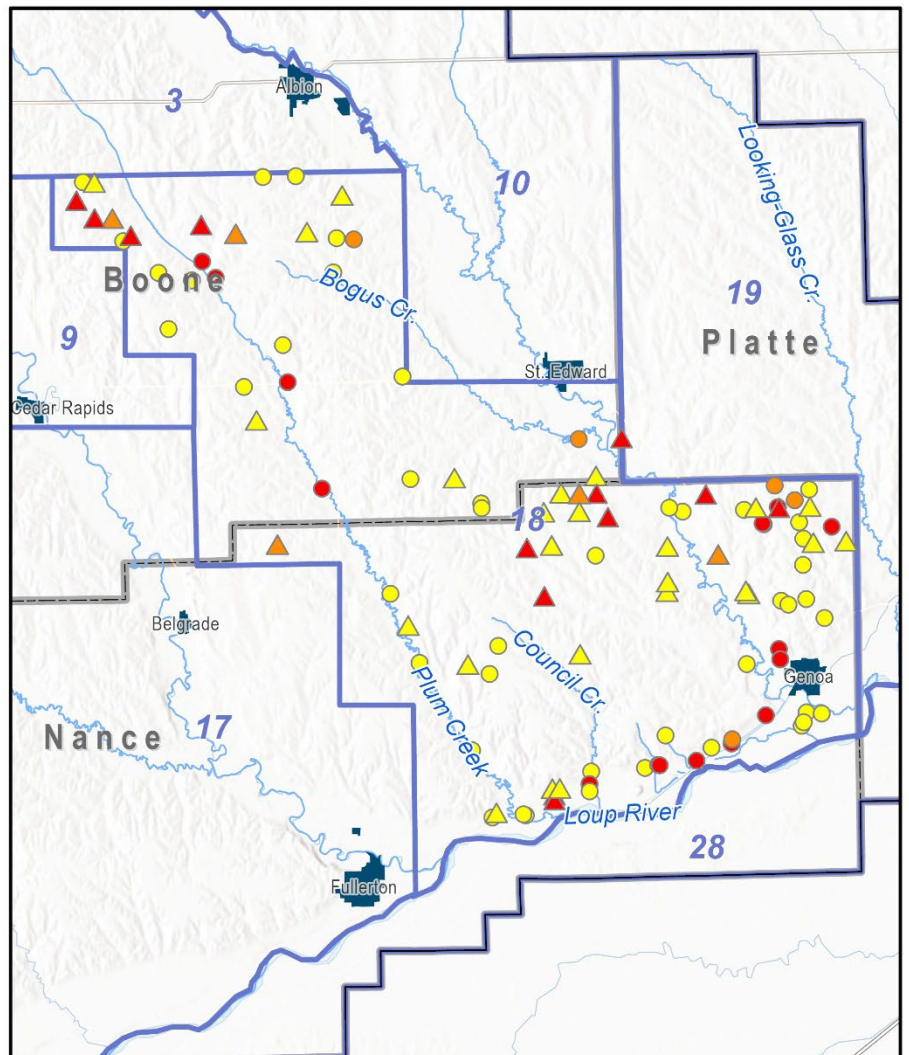
Lower Loup Natural Resources District  
Water Quality Management Area 18

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic, Livestock, Monitoring

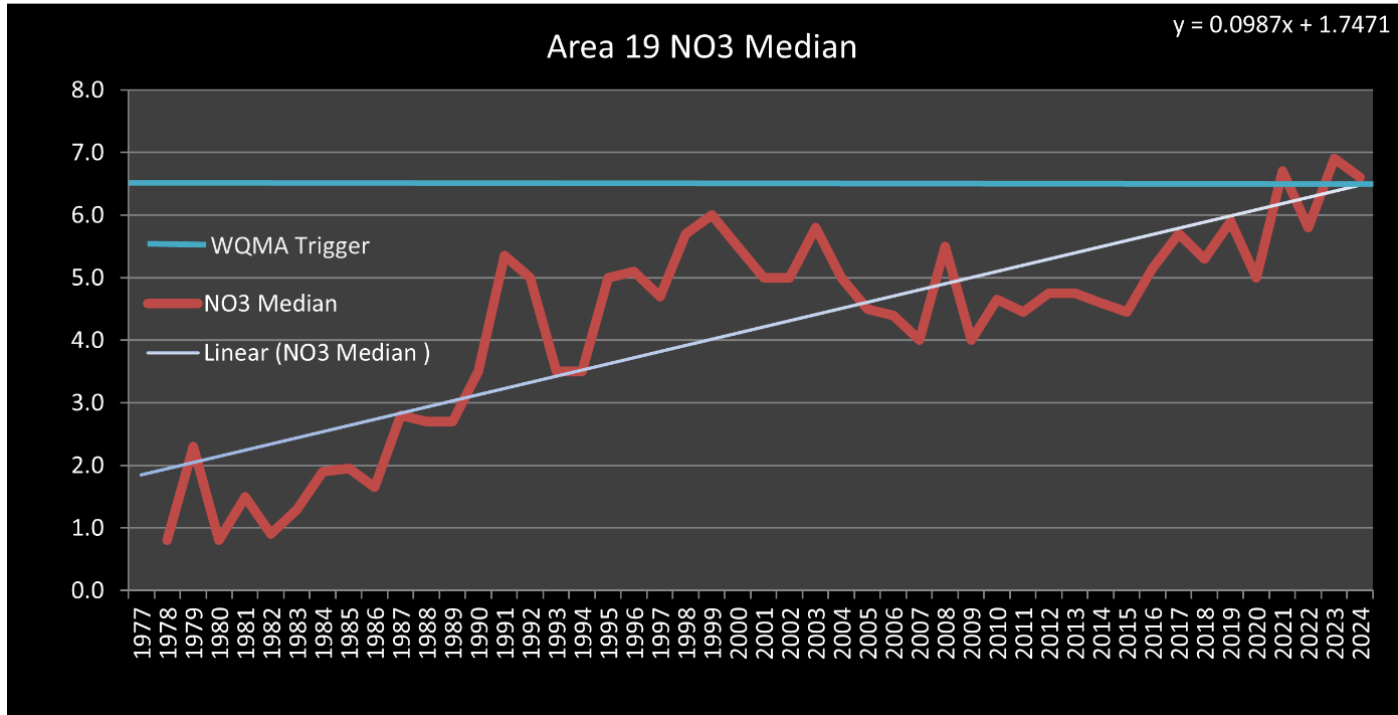


Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**Median: 4.6 Average: 6.8 Count: 109**



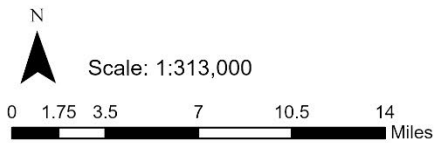
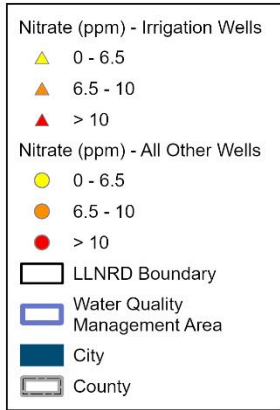


## 2024 Nitrate Sampling Results

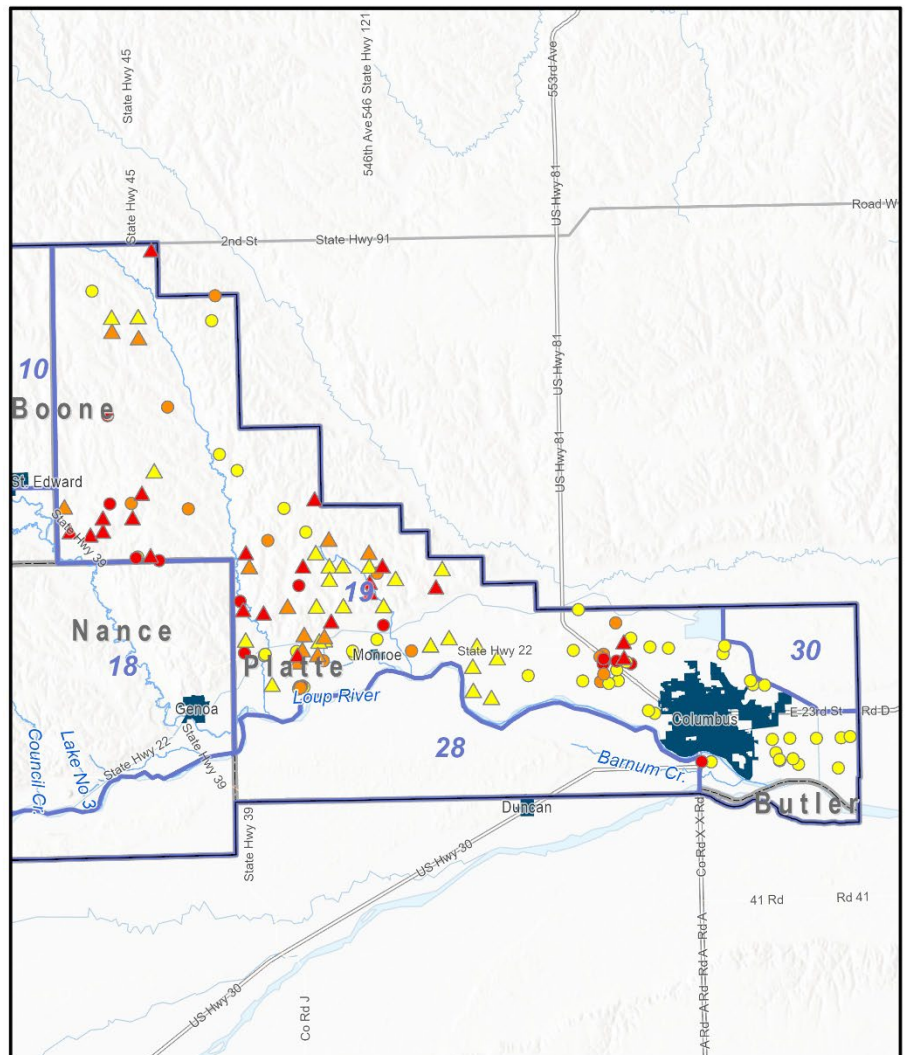
Lower Loup Natural Resources District  
Water Quality Management Area 19

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic,  
Livestock, Monitoring



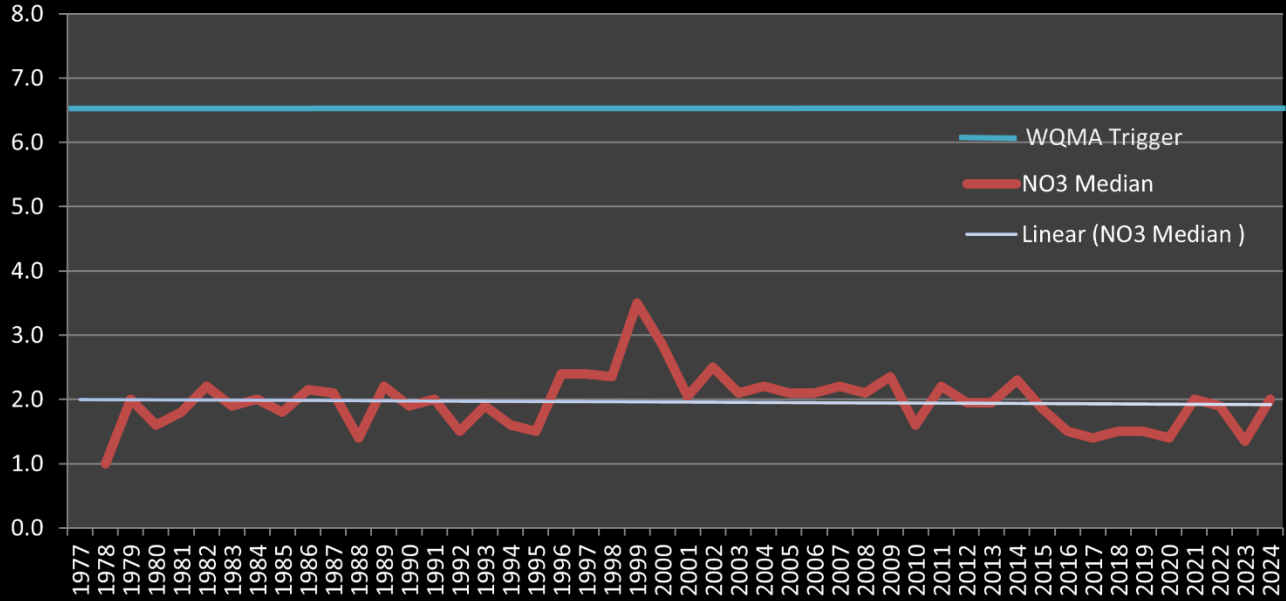
Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**Median: 6.6 Average: 7.8 Count: 139**

# Area 20 NO3 Median

$$y = -0.0017x + 2.0023$$

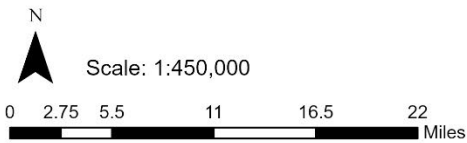
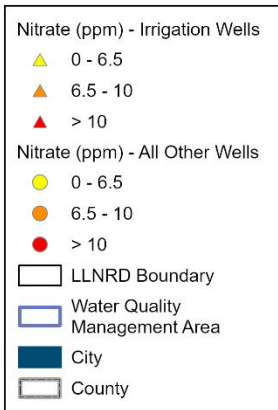


## 2024 Nitrate Sampling Results

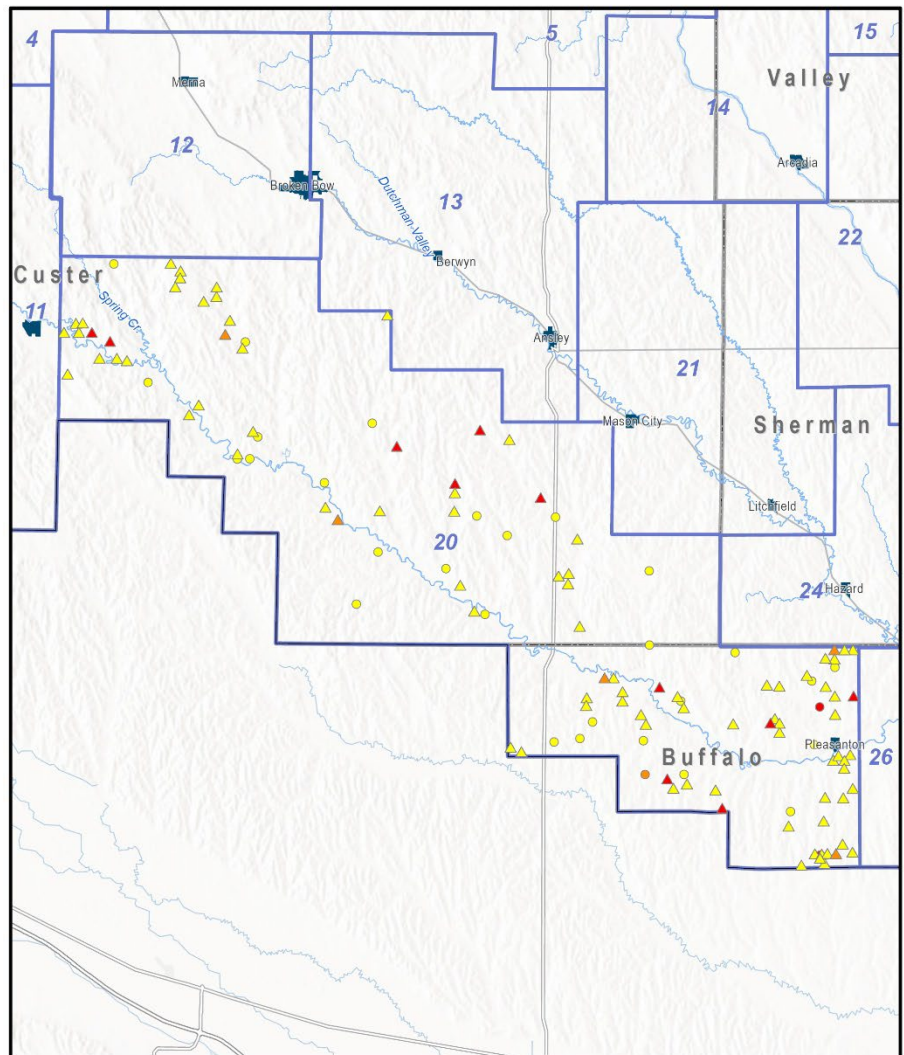
Lower Loup Natural Resources District  
Water Quality Management Area 20

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic, Livestock, Monitoring

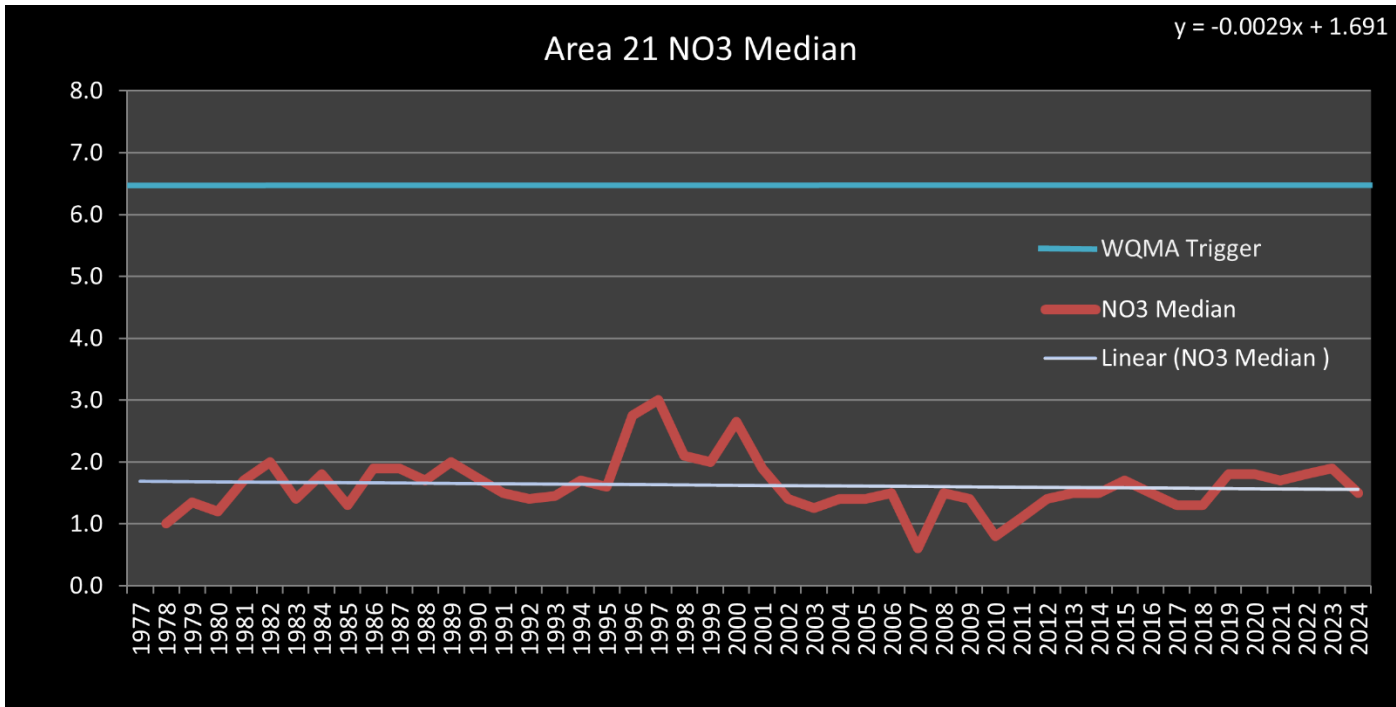


Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**Median: 2.0 Average: 4.2 Count: 129**



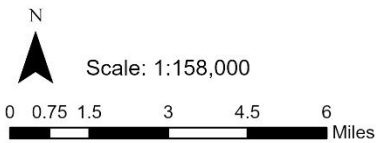
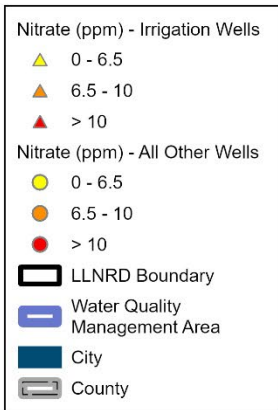


## 2024 Nitrate Sampling Results

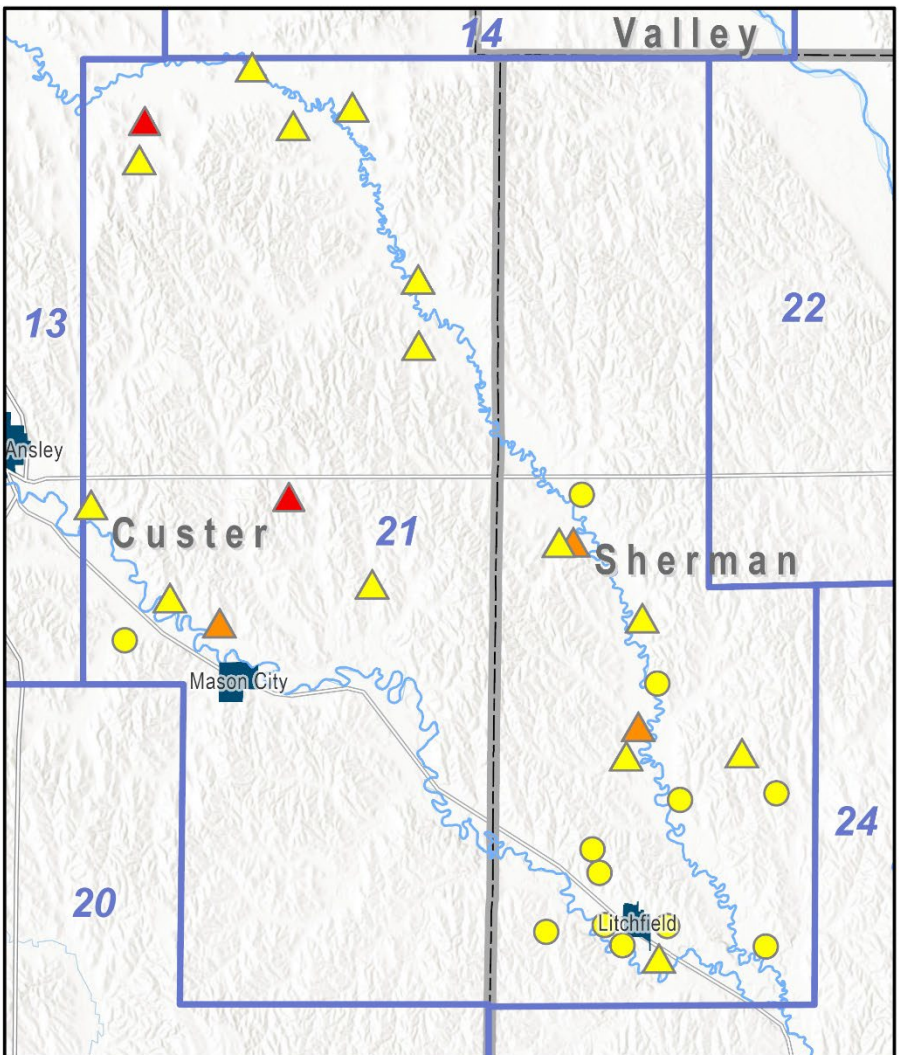
Lower Loup Natural Resources District  
Water Quality Management Area 21

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

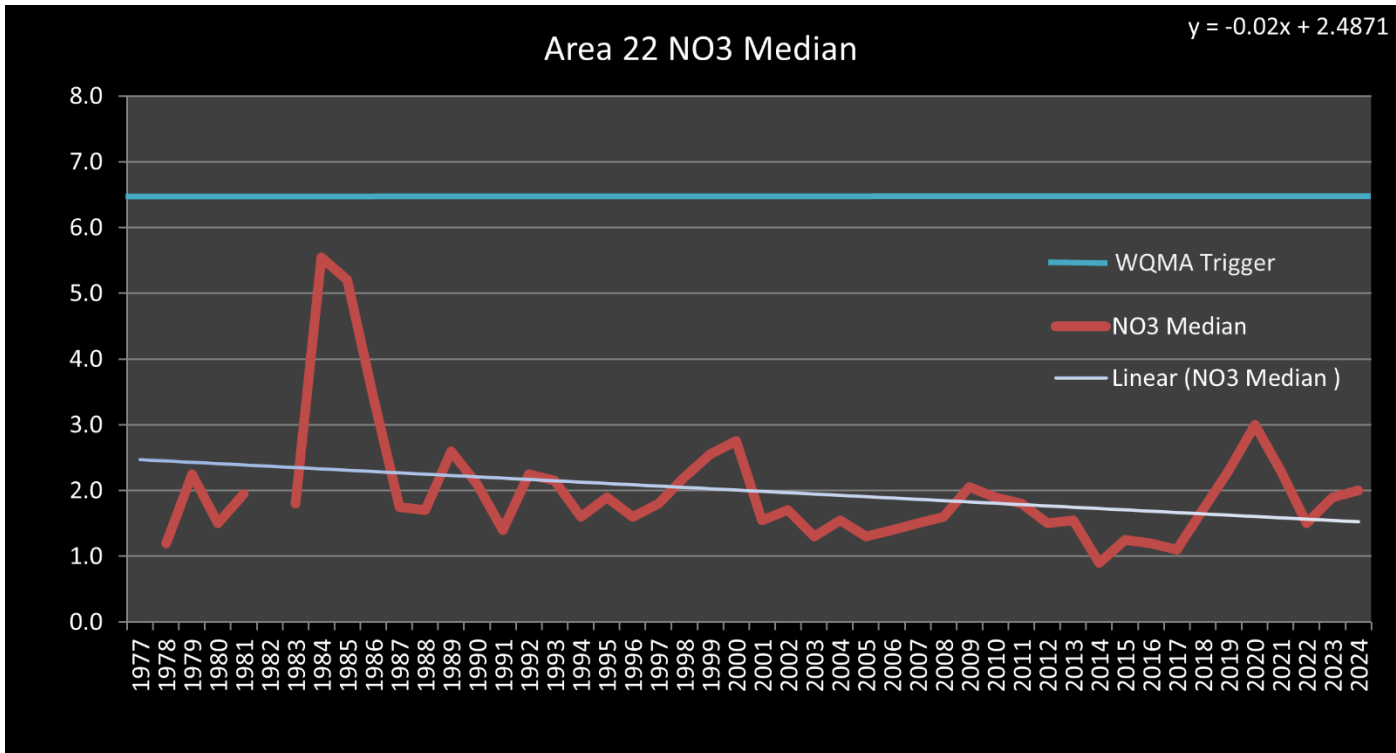
Other well types: Commercial, Domestic,  
Livestock, Monitoring



Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**Median: 1.5 Average: 3.0 Count: 31**

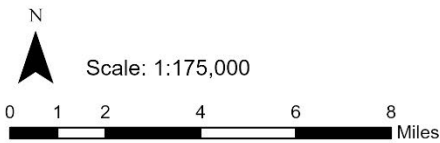
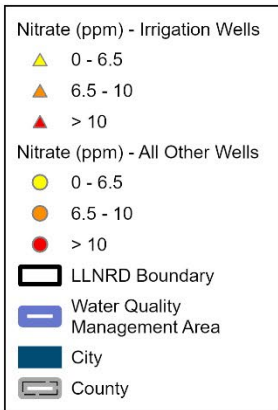


## 2024 Nitrate Sampling Results

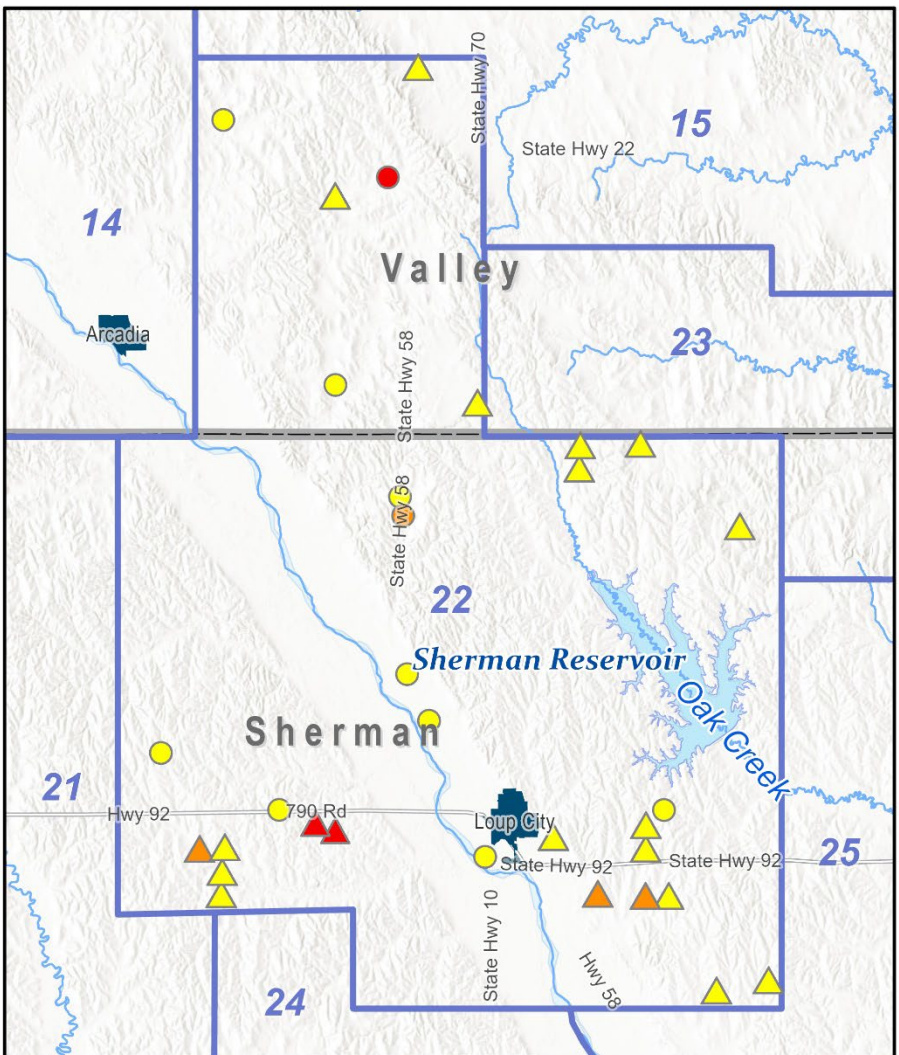
Lower Loup Natural Resources District  
Water Quality Management Area 22

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic,  
Livestock, Monitoring

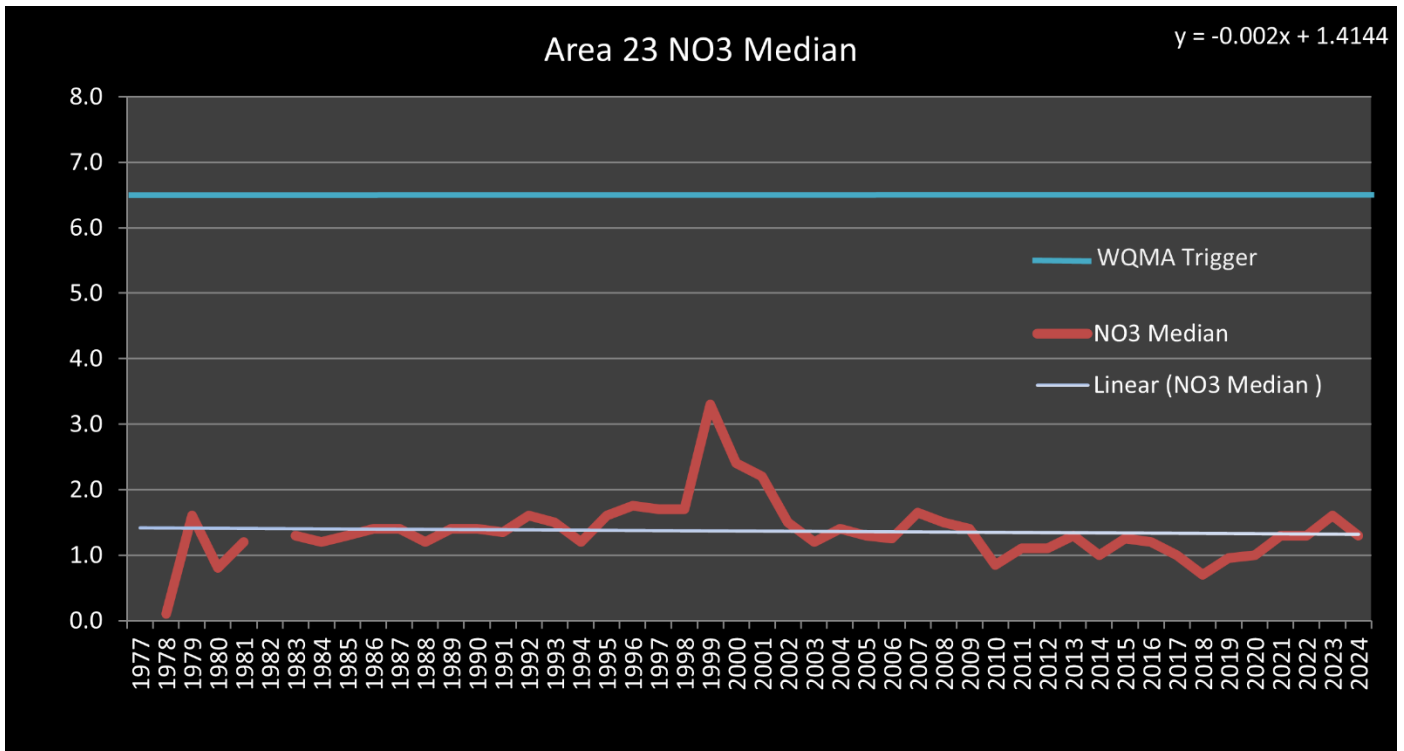


Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**Median: 2.0 Average: 4.0 Count: 32**



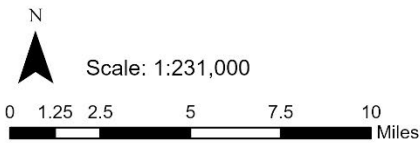
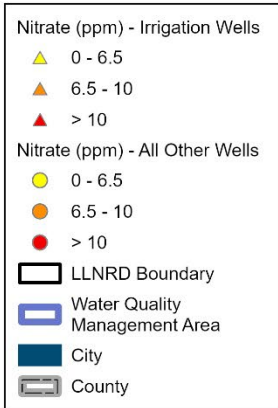


## 2024 Nitrate Sampling Results

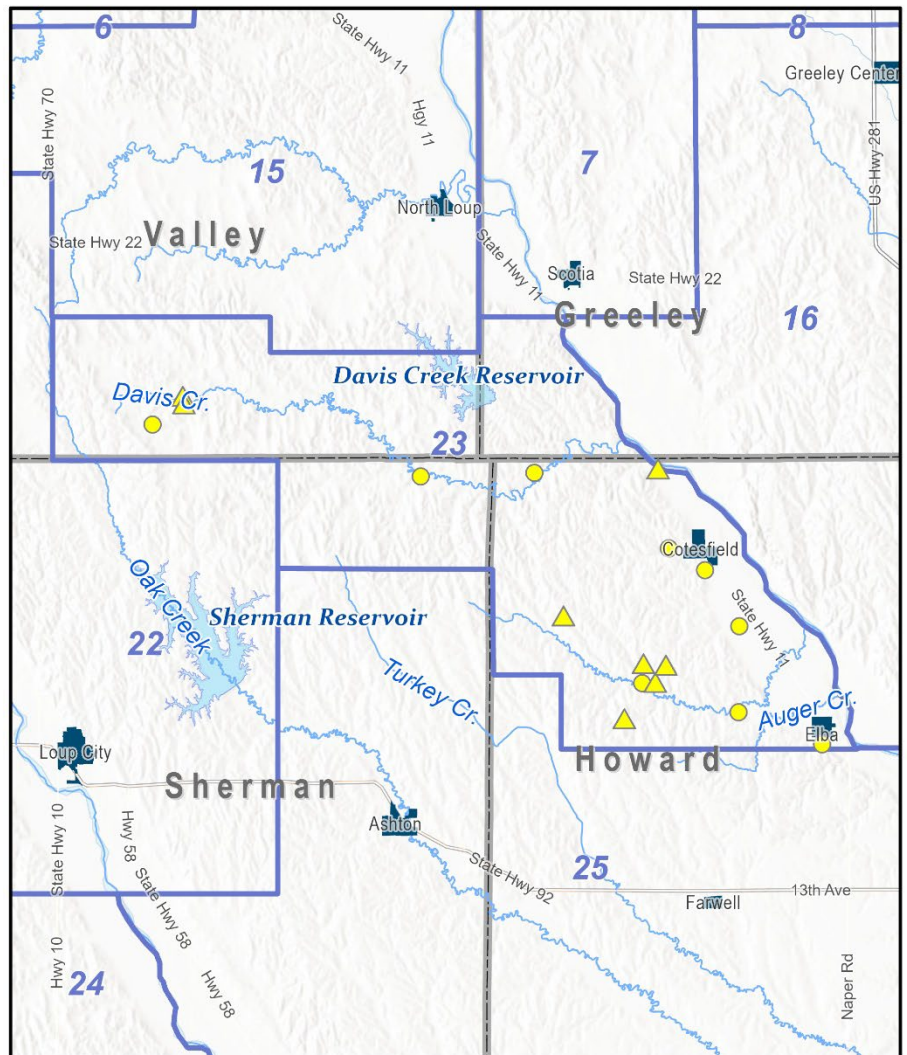
Lower Loup Natural Resources District  
Water Quality Management Area 23

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic,  
Livestock, Monitoring



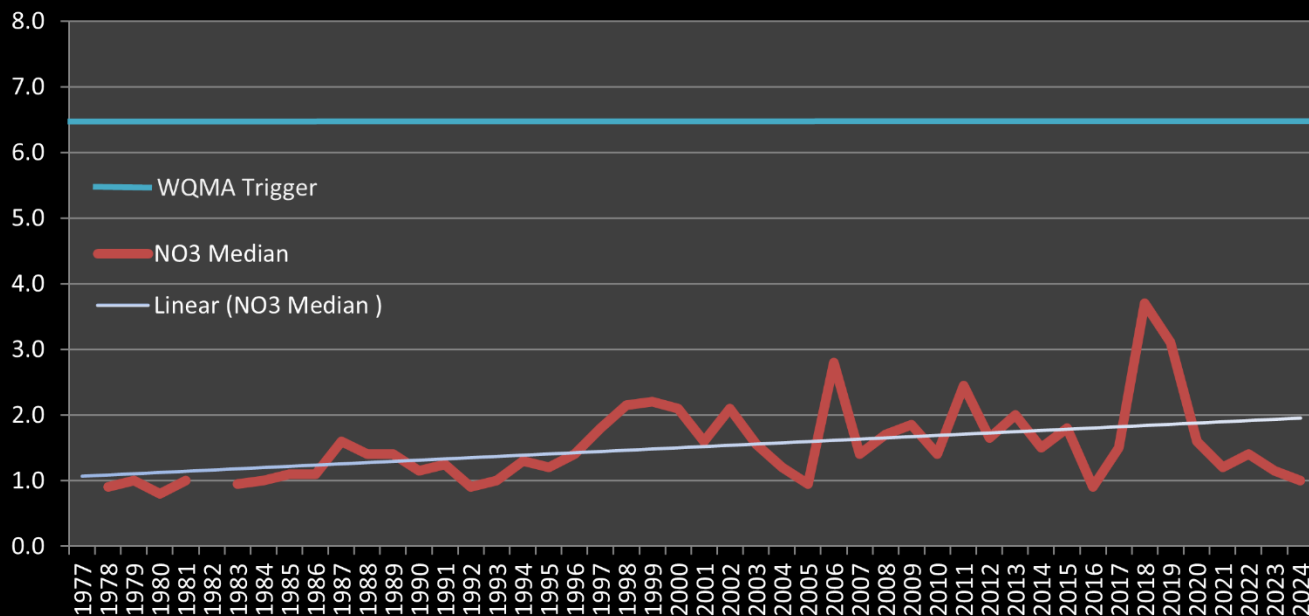
Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**Median: 1.3 Average: 1.4 Count: 17**

# Area 24 NO3 Median

$$y = 0.0187x + 1.0498$$

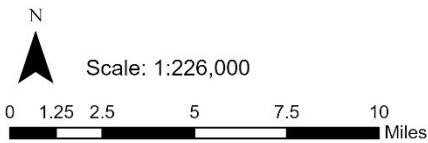
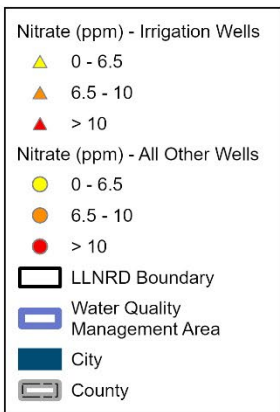


## 2024 Nitrate Sampling Results

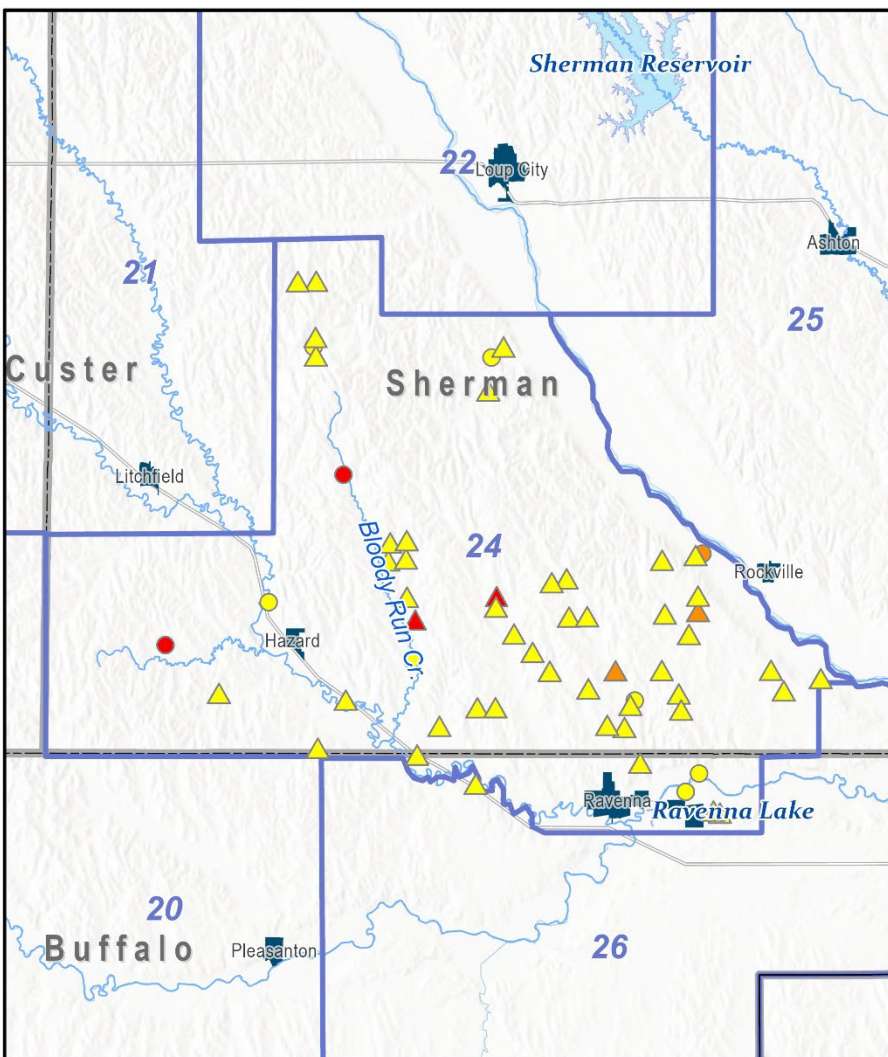
Lower Loup Natural Resources District  
Water Quality Management Area 24

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic,  
Livestock, Monitoring



Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

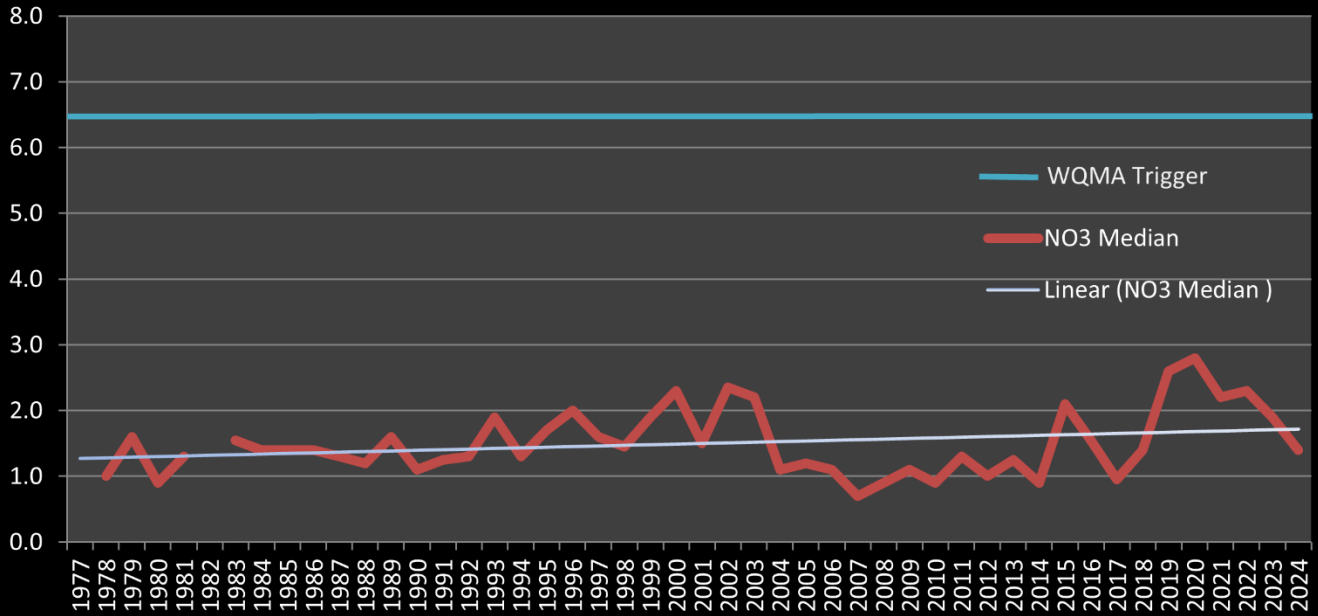


**Median: 1.0 Average: 2.8 Count: 60**



# Area 25 NO3 Median

$$y = 0.0095x + 1.2608$$

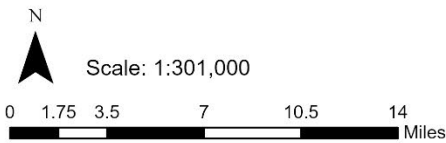
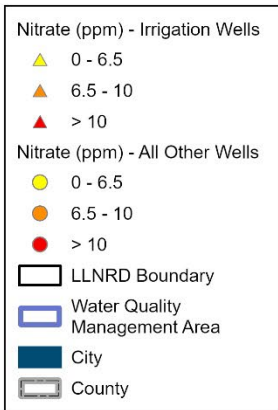


## 2024 Nitrate Sampling Results

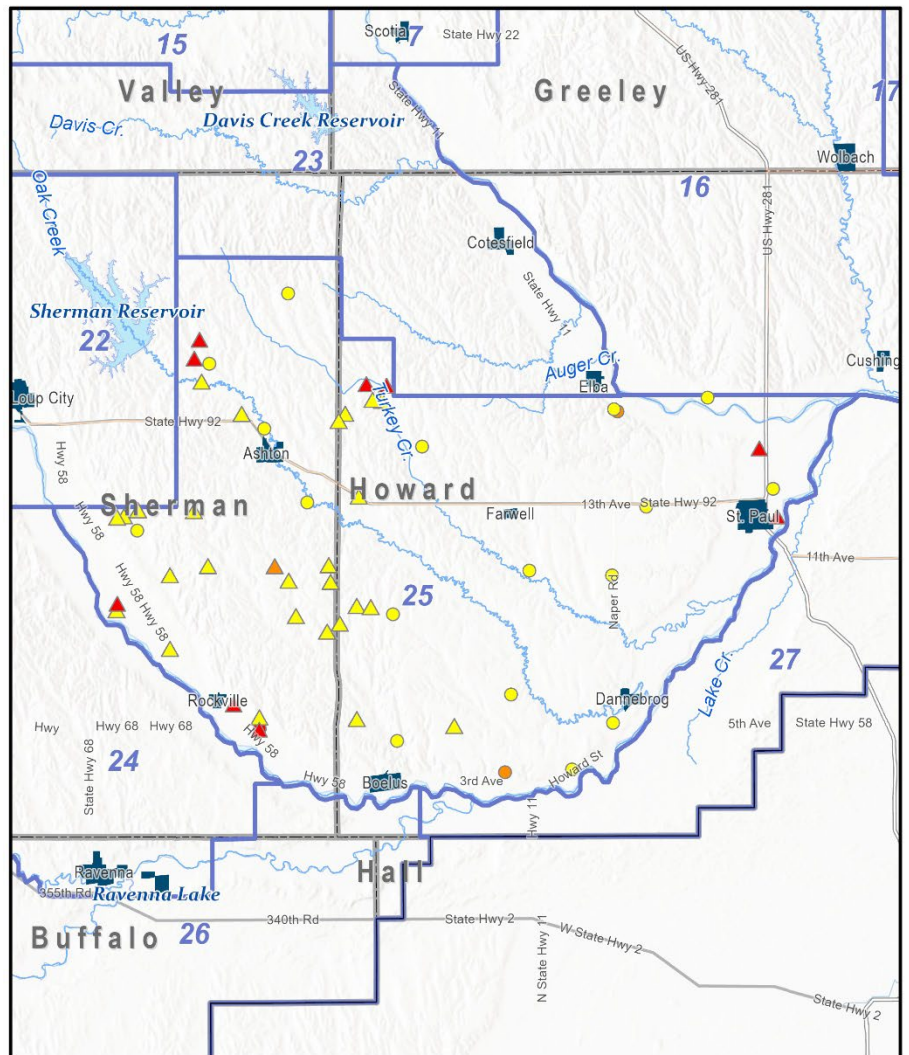
Lower Loup Natural Resources District  
Water Quality Management Area 25

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic, Livestock, Monitoring



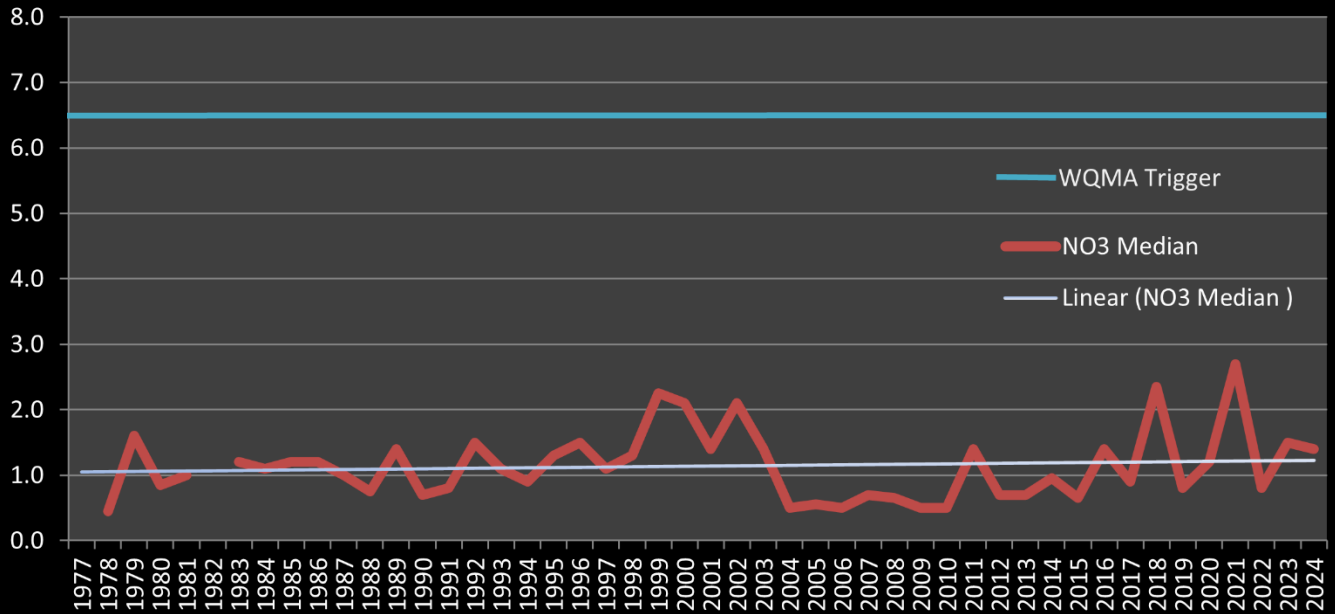
Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



**Median: 1.4 Average: 4.6 Count: 58**

# Area 26 NO3 Median

$$y = 0.0037x + 1.0479$$

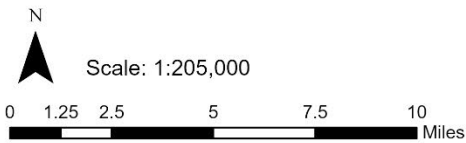
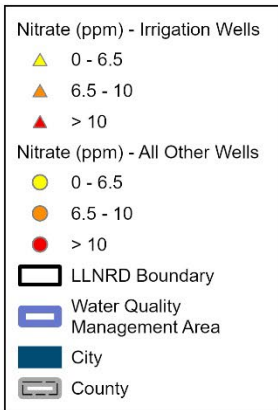


## 2024 Nitrate Sampling Results

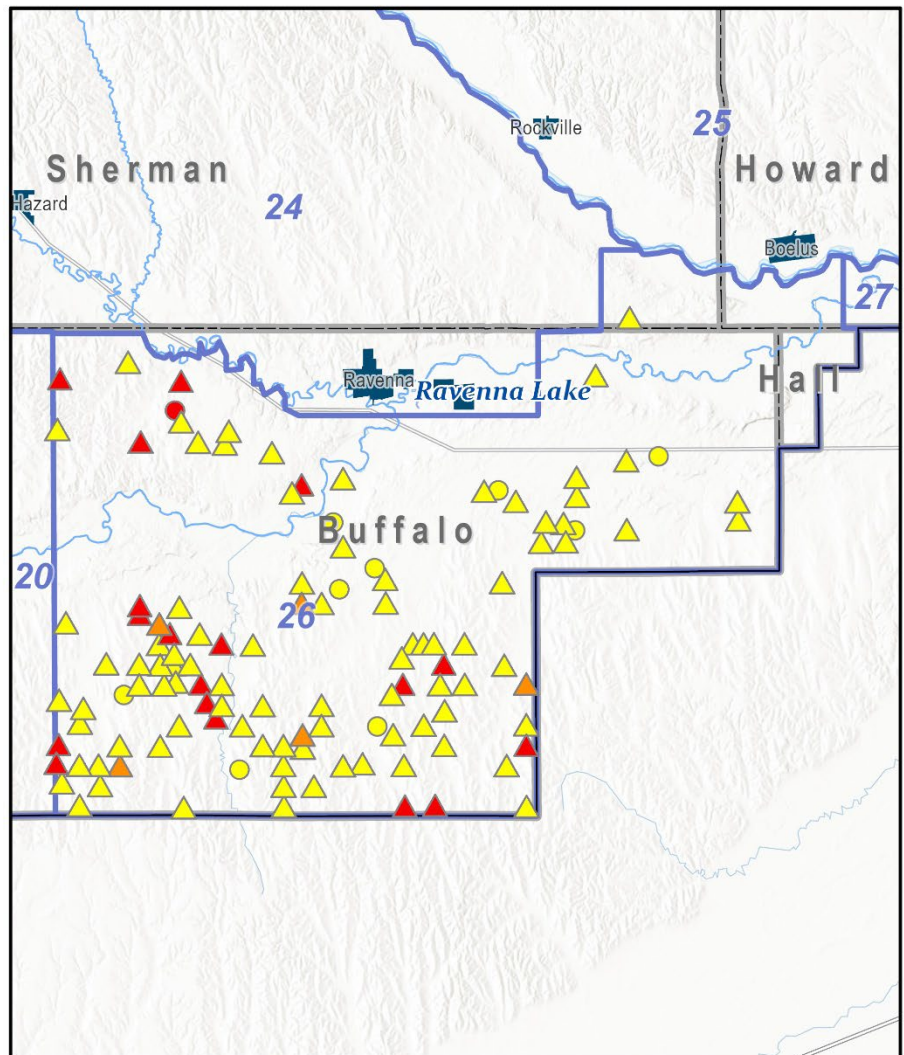
Lower Loup Natural Resources District  
Water Quality Management Area 26

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic, Livestock, Monitoring



Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

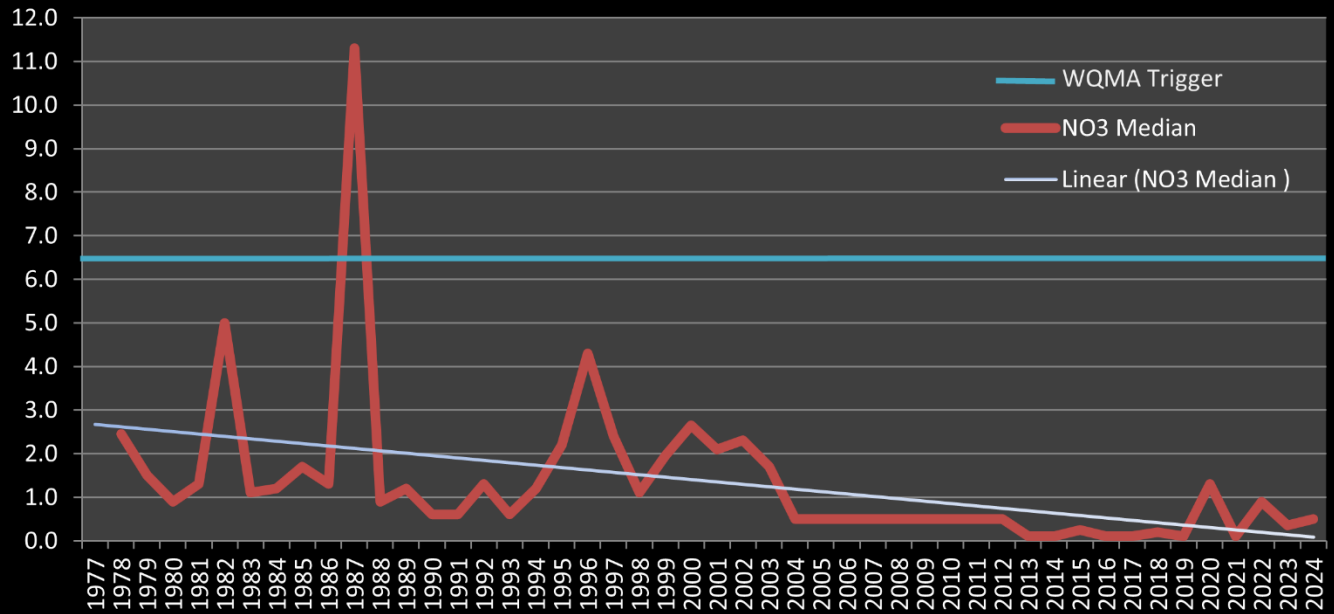


**Median: 1.4 Average: 5.0 Count: 122**



# Area 27 NO3 Median

$$y = -0.055x + 2.7255$$

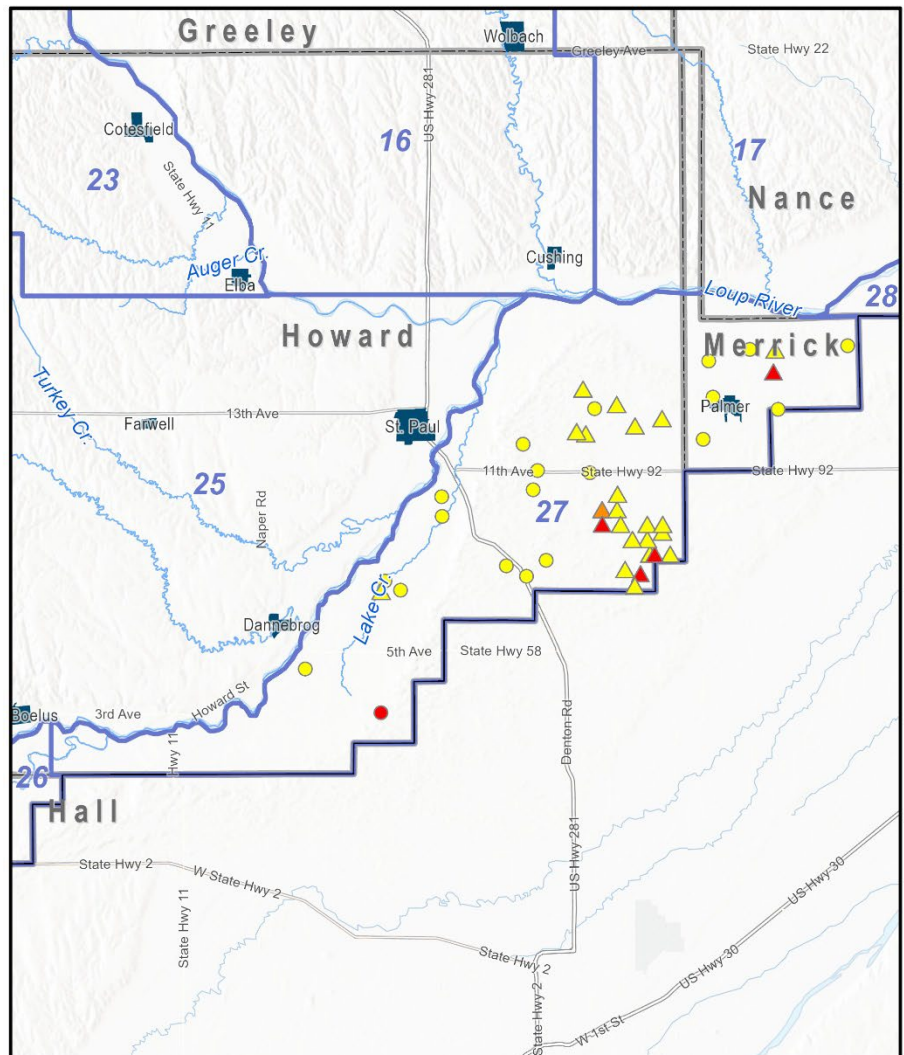
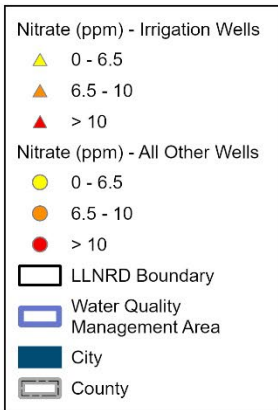


## 2024 Nitrate Sampling Results

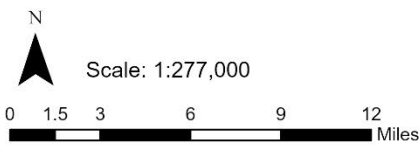
Lower Loup Natural Resources District  
Water Quality Management Area 27

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic, Livestock, Monitoring



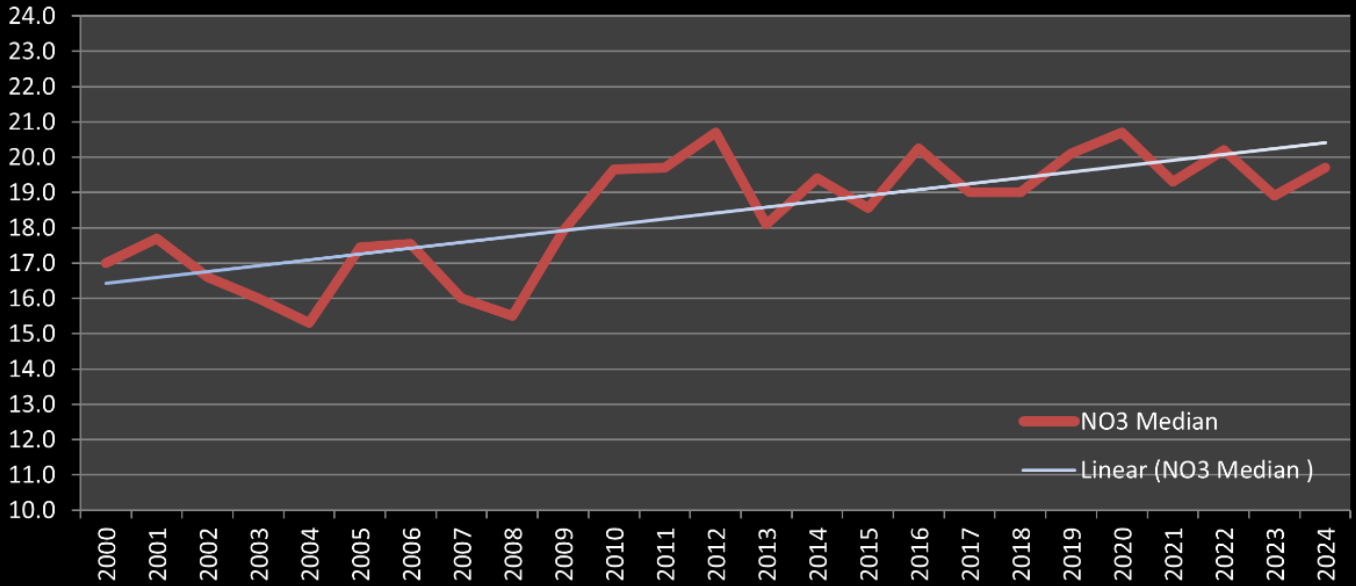
**Median: 0.5 Average: 2.8 Count: 45**



Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

# WQMA Area 28 NO3 Median

$$y = 0.1658x + 16.254$$

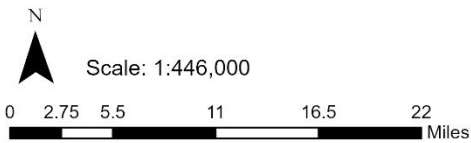
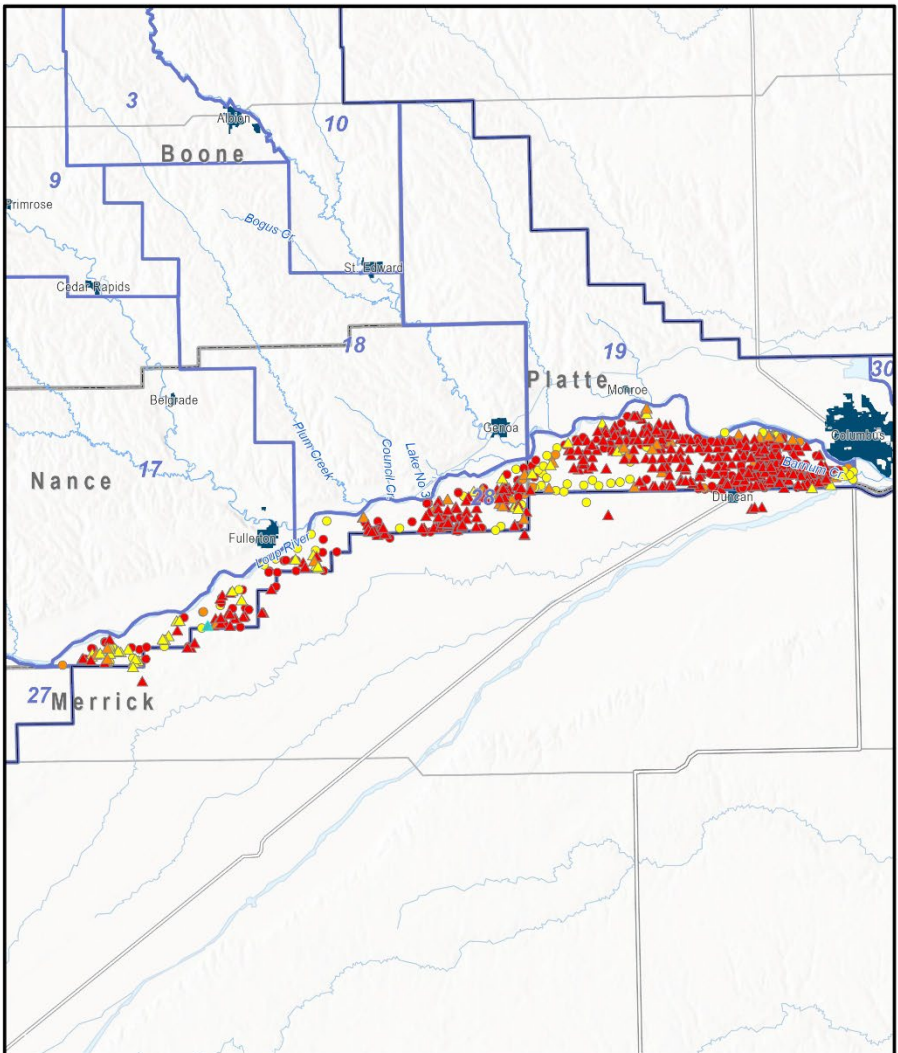
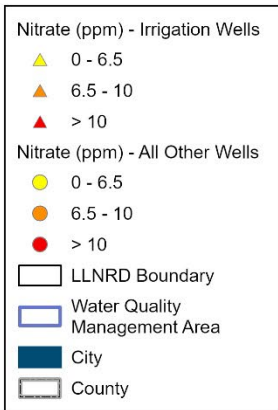


## 2024 Nitrate Sampling Results

Lower Loup Natural Resources District  
Water Quality Management Area 28

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic,  
Livestock, Monitoring



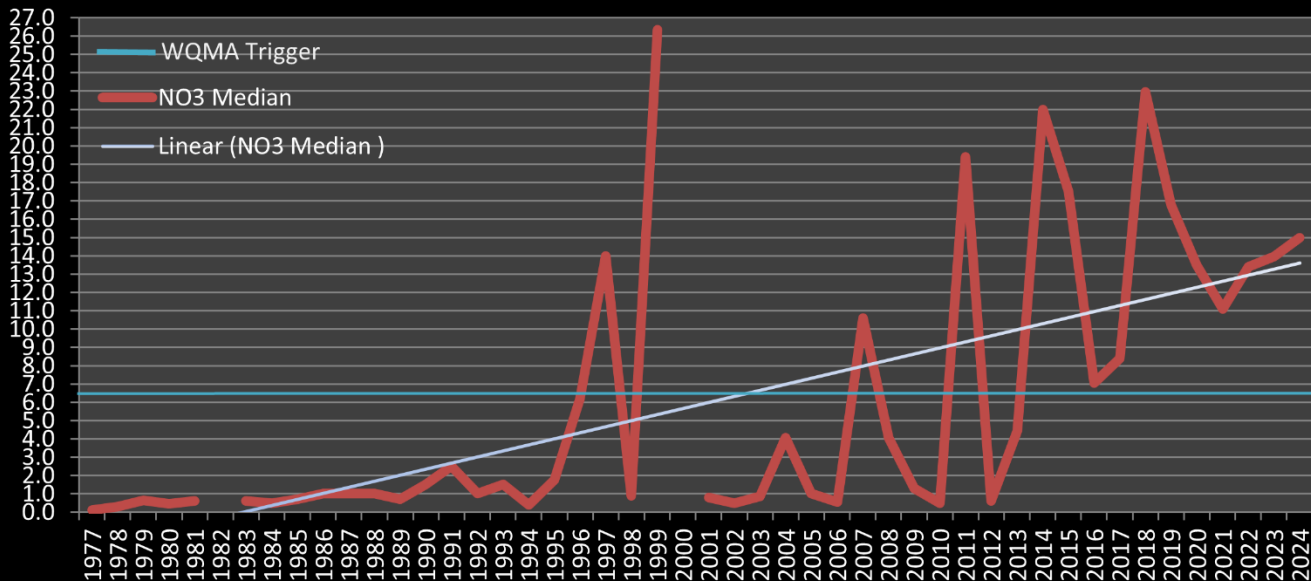
Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

**Median: 19.7 Average: 19.4 Count: 754**



$$y = 0.3314x - 2.3007$$

### WQMA Area 29 NO3 Median

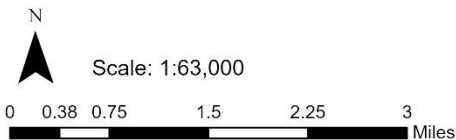
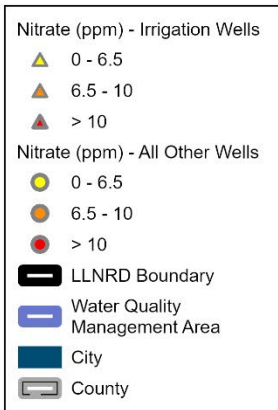


### 2024 Nitrate Sampling Results

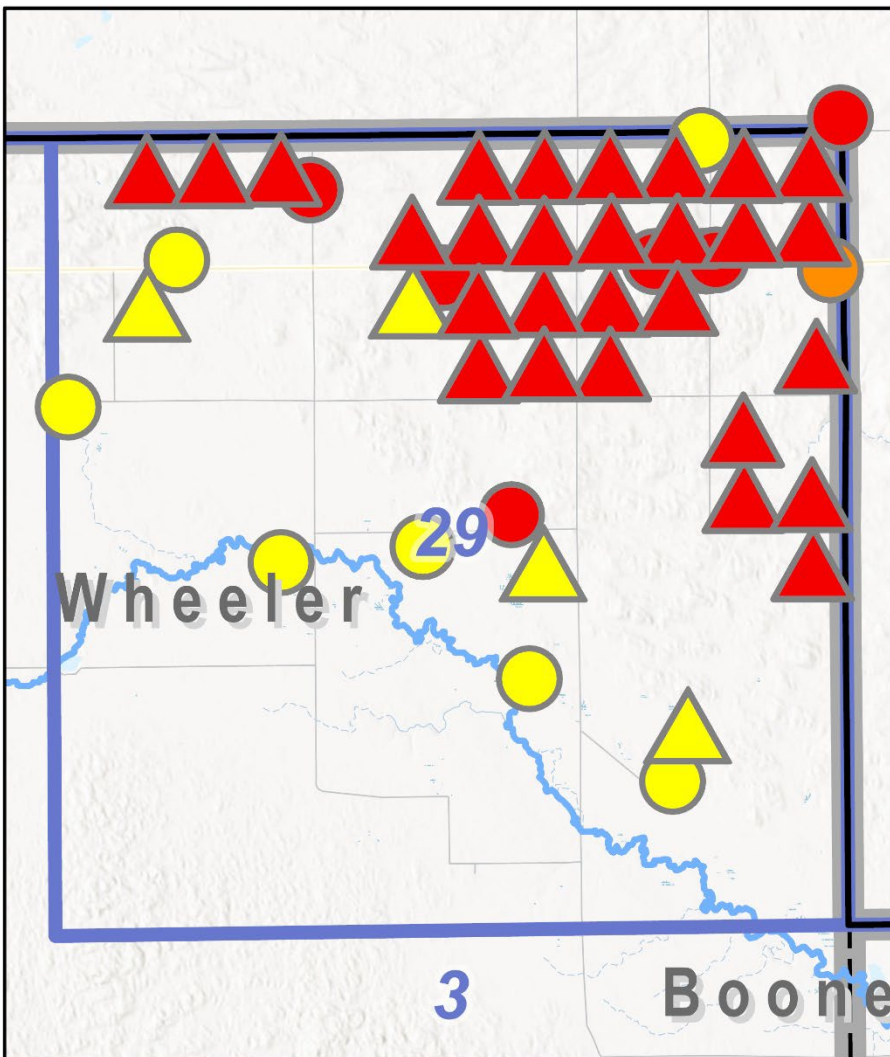
Lower Loup Natural Resources District  
Water Quality Management Area 29

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

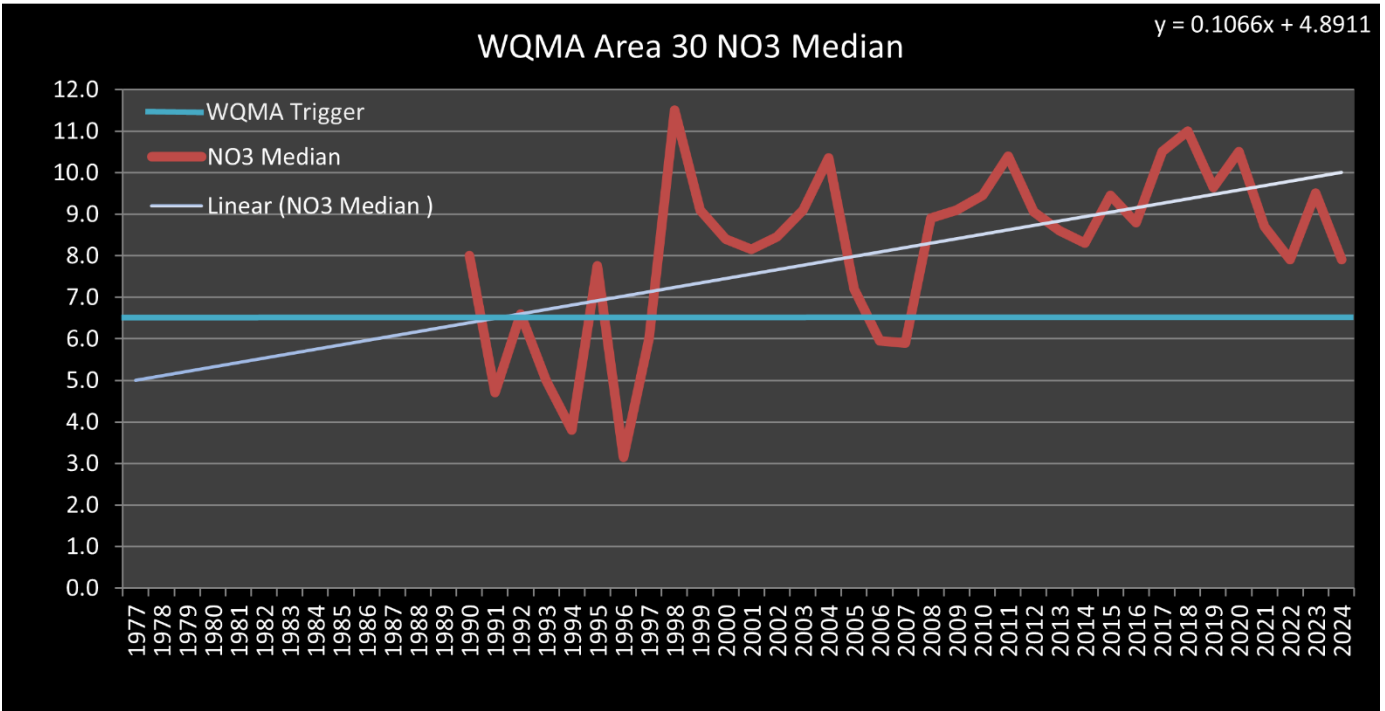
Other well types: Commercial, Domestic, Livestock, Monitoring



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**Median: 15.0 Average: 14.9 Count: 57**

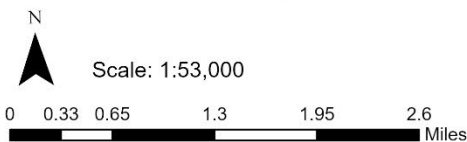
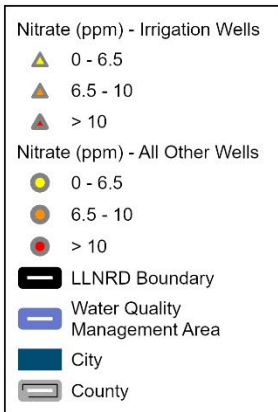


## 2024 Nitrate Sampling Results

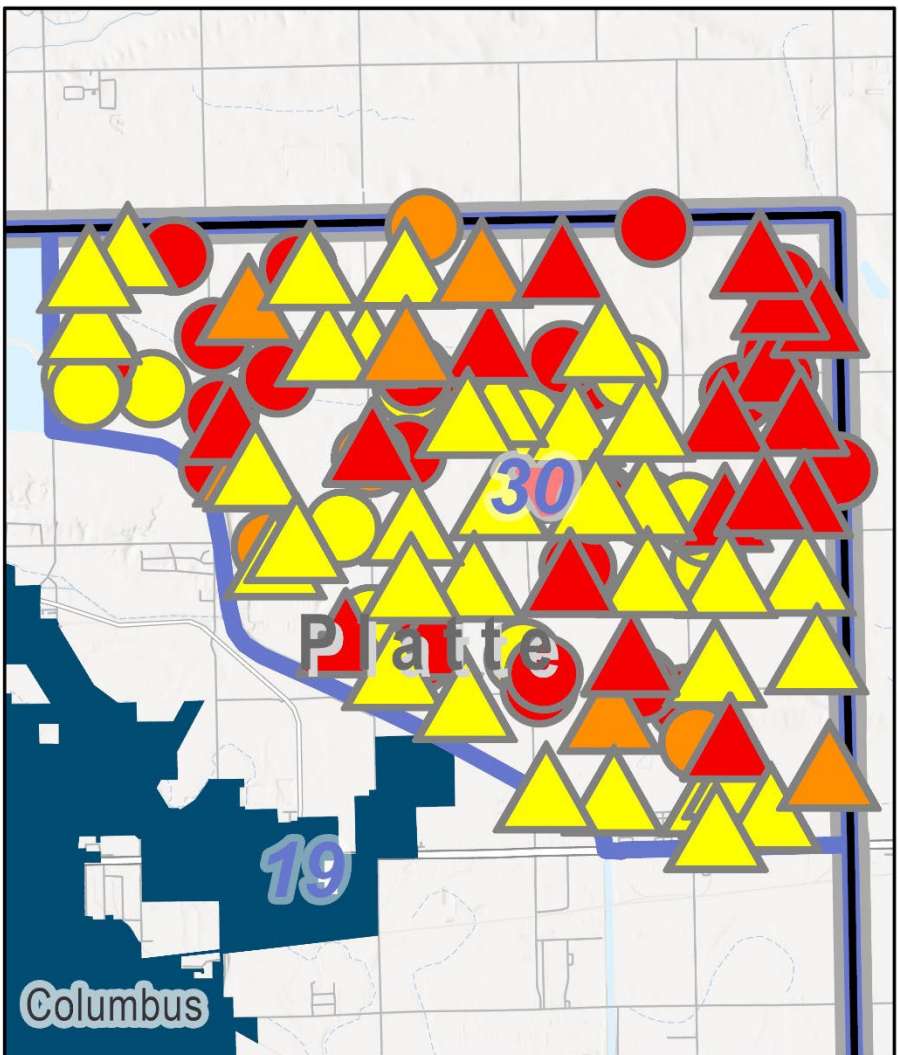
Lower Loup Natural Resources District  
Water Quality Management Area 30

Total 2024 LLNRD Well Readings: 3,053  
Irrigation Wells: 1,936  
All Other Wells: 1,117

Other well types: Commercial, Domestic,  
Livestock, Monitoring

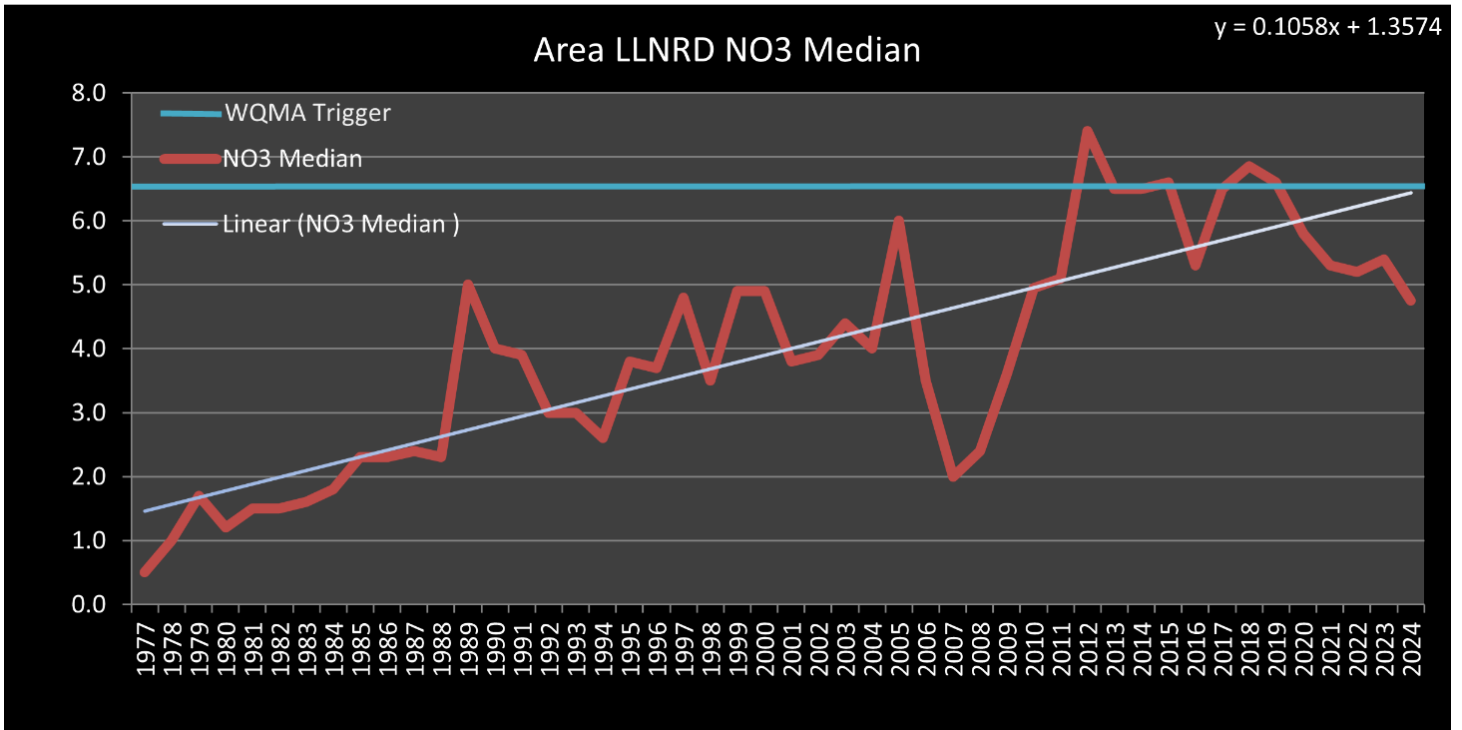


Esri, NASA, NGA, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

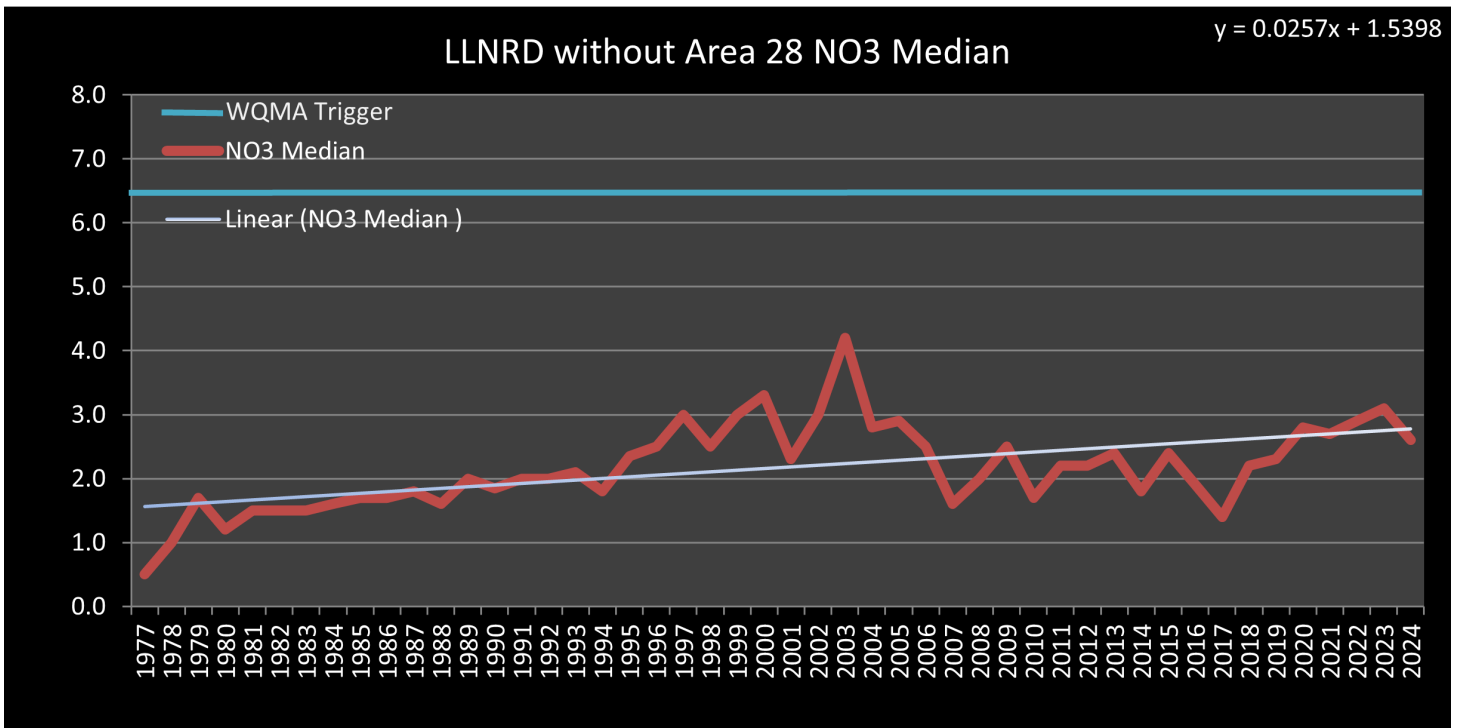


**Median: 7.9 Average: 11.4 Count: 116**





**Median: 4.8 Average: 9.4 Count: 3036**



**Median: 2.6 Average: 6.1 Count: 2282**

**All LLNRD Without 3 WQMA's (28, 29, 30)**

**Median: 2.4 Average: 5.6 Count: 2109**

County	Well Type	Sample Count	Average Nitrate ppm
Total 3036 All Samples	Commercial	4	<b>19.29</b>
	Domestic	923	<b>9.15</b>
	Irrigation	1926	<b>9.77</b>
	Livestock	54	<b>13.59</b>
	Monitoring	129	3.64
Boone Total 195 @ <b>6.78</b>	Commercial	-	-
	Domestic	62	5.63
	Irrigation	106	<b>8.81</b>
	Livestock	-	-
	Monitoring	27	1.43
Buffalo Total 199 @ 4.68	Commercial	-	-
	Domestic	23	5.27
	Irrigation	169	4.76
	Livestock	-	-
	Monitoring	7	0.86
Custer Total 521 @ 5.31	Commercial	-	-
	Domestic	116	5.31
	Irrigation	384	5.49
	Livestock	-	-
	Monitoring	20	2.27
Garfield Total 95 @ 3.66	Commercial	-	-
	Domestic	55	3.27
	Irrigation	16	<b>7.93</b>
	Livestock	-	-
	Monitoring	24	1.70
Greeley Total 192 @ <b>7.16</b>	Commercial	-	-
	Domestic	26	6.35
	Irrigation	165	<b>7.11</b>
	Livestock	-	-
	Monitoring	1	<b>35.35</b>
Howard Total 37 @ 1.83	Commercial	-	-
	Domestic	28	2.01
	Irrigation	8	1.29
	Livestock	-	-
	Monitoring	1	1.10



County	Well Type	Sample Count	Average Nitrate ppm
Loup	Commercial	-	-
Total 55 @ 2.77	Domestic	28	2.38
	Irrigation	25	2.4
	Livestock	-	-
	Monitoring	2	<b>12.95</b>
Merrick	Commercial	-	-
Total 13 @ <b>6.89</b>	Domestic	7	0.74
	Irrigation	6	<b>14.07</b>
	Livestock	-	-
	Monitoring	-	-
Nance	Commercial	1	5.20
Total 427 @ <b>13.41</b>	Domestic	143	<b>12.24</b>
	Irrigation	253	<b>14.22</b>
	Livestock	26	<b>12.58</b>
	Monitoring	4	<b>11.98</b>
Platte	Commercial	3	<b>23.98</b>
Total 706 @ <b>16.87</b>	Domestic	274	<b>15.60</b>
	Irrigation	392	<b>18.10</b>
	Livestock	21	<b>17.13</b>
	Monitoring	16	<b>6.80</b>
Rock	Commercial	-	-
Total 40 @ 4.98	Domestic	8	2.15
	Irrigation	32	5.69
	Livestock	-	-
	Monitoring	-	-
Sherman	Commercial	-	-
Total 128 @ 3.79	Domestic	34	3.90
	Irrigation	93	3.78
	Livestock	1	1.20
	Monitoring	-	-
Valley	Commercial	-	-
Total 88 @ 5.41	Domestic	46	4.84
	Irrigation	39	5.75
	Livestock	-	-
	Monitoring	3	9.68
Wheeler	Commercial	-	-
Total 306 @ <b>8.53</b>	Domestic	60	<b>8.06</b>
	Irrigation	217	<b>9.07</b>
	Livestock	4	<b>10.9</b>
	Monitoring	25	4.60