

2024

# Lower Platte North NRD Basin Coalition IMP Report



Annual Report

Lower Platte North Natural Resources District

1/1/2024

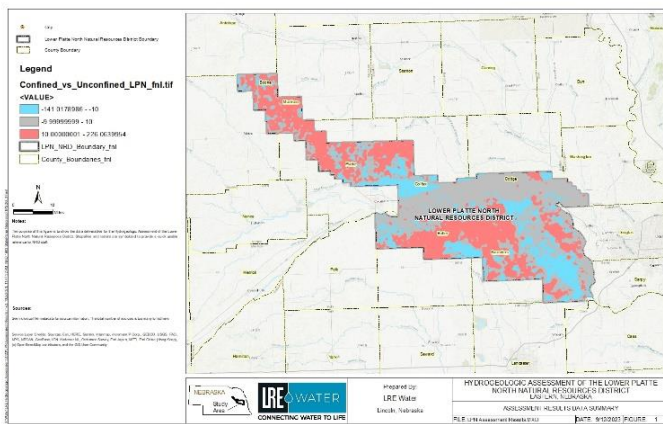
# 2024 Lower Platte North Natural Resources District Lower Platte Basin River Plan Report

## Introduction

Report period is from January 1, 2023 to December 31, 2023.

## Water Quantity Activities

The Lower Platte North completed a hydrological assessment of the district,

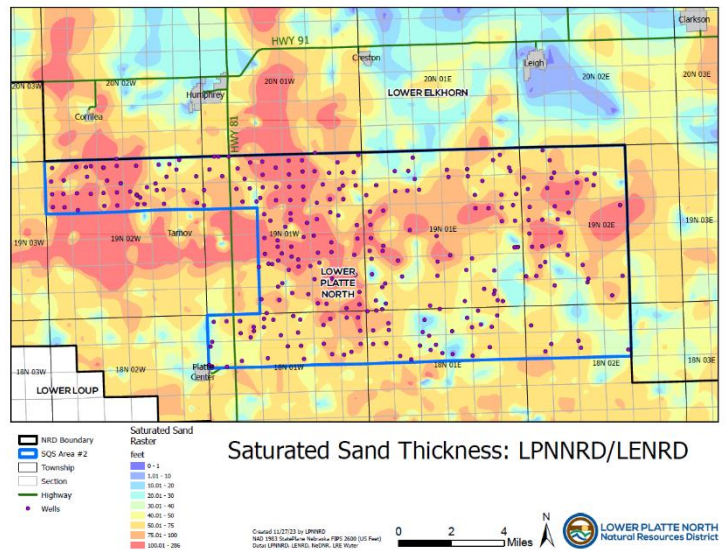


with the map on the left showing one example of confining and unconfining aquifers. This information has been beneficial in understanding why managing water quantities is challenging. Staff from Lower Elkhorn, UNL-CSD and Lower Platte North met to discuss hydrological differences in an area of Platte County. The map shown below

was a joint project between both NRDs to look at similar geological characteristics.

The LPNNRD Board in December voted to increase the allocation from 27 to 30 inches over 3 years in the LPN SQS #2 north of Columbus. The Water Committee also discussed boundary considerations and rule changes.

The three Lower Platte Basin NRDs along with NeDNR started a basin wide groundwater modeling project. This project is planned to be completed in 2025 before the next allotment determination.



## **Well Permits Issued Approved, Cancelled or Denied**

The Lower Platte North issued 41 wells permits in 2023. There were 40 irrigation wells, of which 21 were replacements and 1 other/wildlife/wetlands.

## **Water Use Information for Irrigation Wells**

Total Number of Flow Meters – 1312 which 1155 are on irrigation systems.

Water Use from the Special Quantity Subareas (Allocated areas)

Overall Average: (Inches per acre)

SQS#1 – 4.65" in/ac

SQS#2 – 4.59" in/ac.

Rest of the District: 5.56

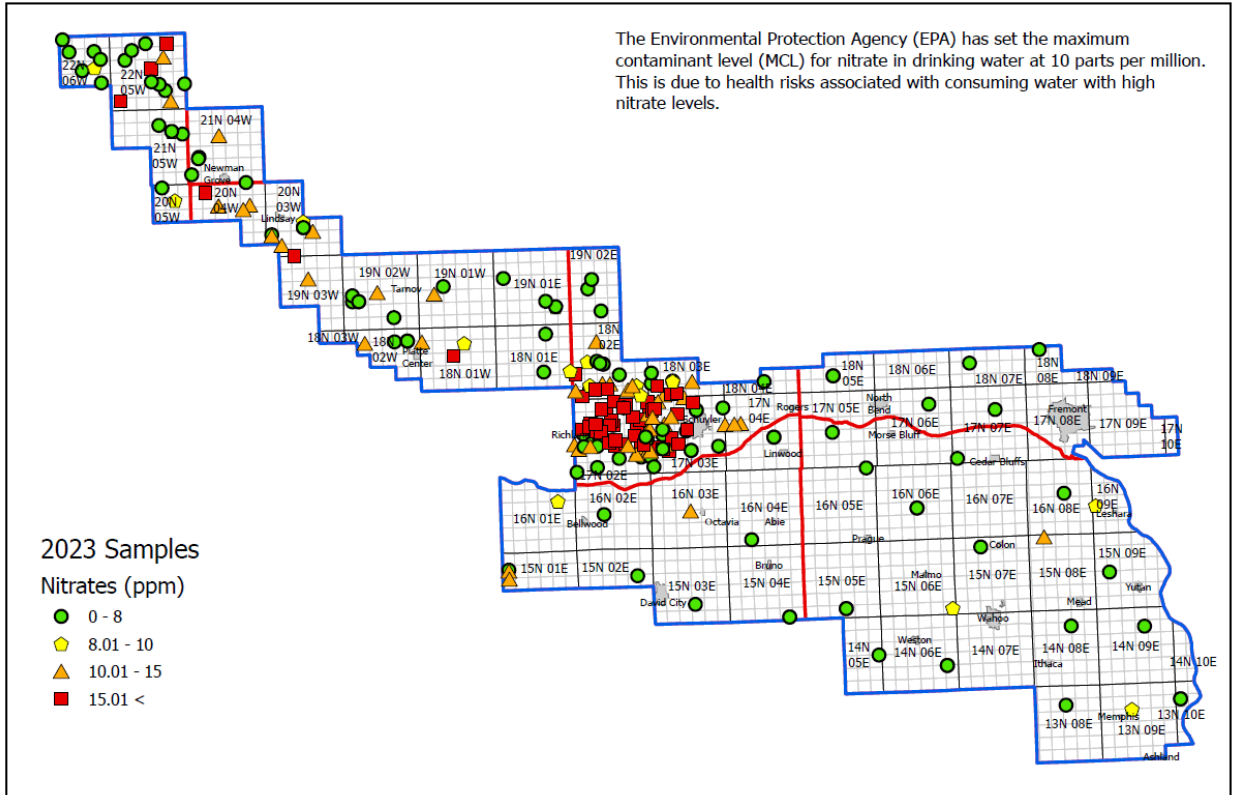
## **Public Outreach**

The District conducted 10 nitrogen/irrigation certification meetings for producers with 200-300 in attendance. The NRD also conducted an open house in the Schuyler-Richland Nitrogen Management Area to discuss the nitrate concerns. The NRD has been involved with numerous school events with one event with NeDNR involvement. The District publishes a newsletter that goes into the local newspapers with topics this last year pertaining to RO Units, Groundwater Management Plan and nitrates. The NRD conducted 1 field day with the Sentinel Company and UNL on variable rate nitrogen application. Numerous Cover Crop field days with UNL.

## **Water Quality Activities**

The District continues to see nitrates rising throughout the district. Staff continue to meet individually with producers and offer a mandatory irrigation/nitrogen certification class for all producers within the district.

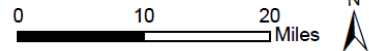
The District has received a WSF grant to conduct some cost-share practices in the Schuyler-Richland Management Area. Some of the practices include gravity to pivot/SDI conversions, water flow meters and cover crops. Some cost-share programs work jointly with NRCS cost-share practices. Lower Loup NRD and Lower Platte North are doing an age-dating project with USGS in the same vicinity of the management area.



## 2023 LPNDRD Nitrate Sampling



Created 11/20/23 by LPNDRD  
 NAD 1983 StatePlane Nebraska FIPS 2600 (US Feet)  
 Date: LPNDRD



The map above shows the nitrate results from 2023 with emphasis in the management areas and Shell Creek.

### **Water Demand Inventory**

The District is in the seventh year for obtaining required water use reports for municipalities. Industrial and other high-capacity wells report voluntarily, unless drilled after 2012. The NRD is still collecting 2023 data for Municipal, Industrial, Livestock and Dewatering wells. The 2022 data for municipality is shown in this report.

## Municipal Water Uses

City-Village-Town	Total Gallons (2021)	Total Gallons (2022)	Population	Consumptive Consumptive Range in Acre Feet- (Non- drought Vs. Drought)
Ashland	157,879,000	183,301,000	3,200	450-575
Bellwood	17,879,000	19,807,000	400	40-60
Newman Grove	36,634,547 (not accurate) Most likely was 136,634,547	172,364,900 (COOP is on city water)	660	400-500
Lindsay	72,164,700	88,379,600	285	200-225
Platte Center	16,089,370	20,817,596	340	40-60
David City	198,080,911	147,367,497 (lost Henningsen foods but gaining new industries)	2,900-3,050	450-650
Wahoo (Colon included)	232,551,090	251,984,510	4,550-4,750	700-800
Yutan	47,582,000	54,948,000	1500	150-200
Mead	19,098,187 (Filled new water tower)	17,980,562	625	50-65
Fremont	3,927,356,000 (within LPN)	4,784,226,000 (added Costco facility)	27,375	13,500- 14,750
North Bend	93,723,000	65,320,000	1,200	200-300
Schuyler	396,327,340	390,160,000	6,550	1,100-1,250
Cedar Bluffs	21,445,017	29,104,767	615	75-95
Prague	11,367,000	12,236,000	300	30-40
Weston	16,270,960	22,800,800	230	45-75
Malmo	3,889,950	4,500,000	100	7-12
Ithaca	4,480,000	5,500,000	165	13-18
Abie	3,325,550	3,045,800	60	7-12
Memphis	9,242,000	9,524,000 (Memphis State Lake is on town water)	110	25-30
Bruno (Population included in David City)	David City total	3,000,000-5,000,000	100	7-12
Colon (Population included in Wahoo)	Wahoo total	3,000,000-5,000,000	110	7-12
Lincoln	4,380,468,900 (within LPN)	4,945,551,030	295,000	12,250- 15,250
MUD West	9,629,850,000 (within LPN)	9,401,698,000	595,000	24,000- 30,000
Morse Bluffs	3,797,000	4,082,000	130	7-12

Lower Platte North Rural Water Systems supplies water to Bruno and Colon with David City and Wahoo supplying the water. The total water use is already shown under the respective communities for 2022.

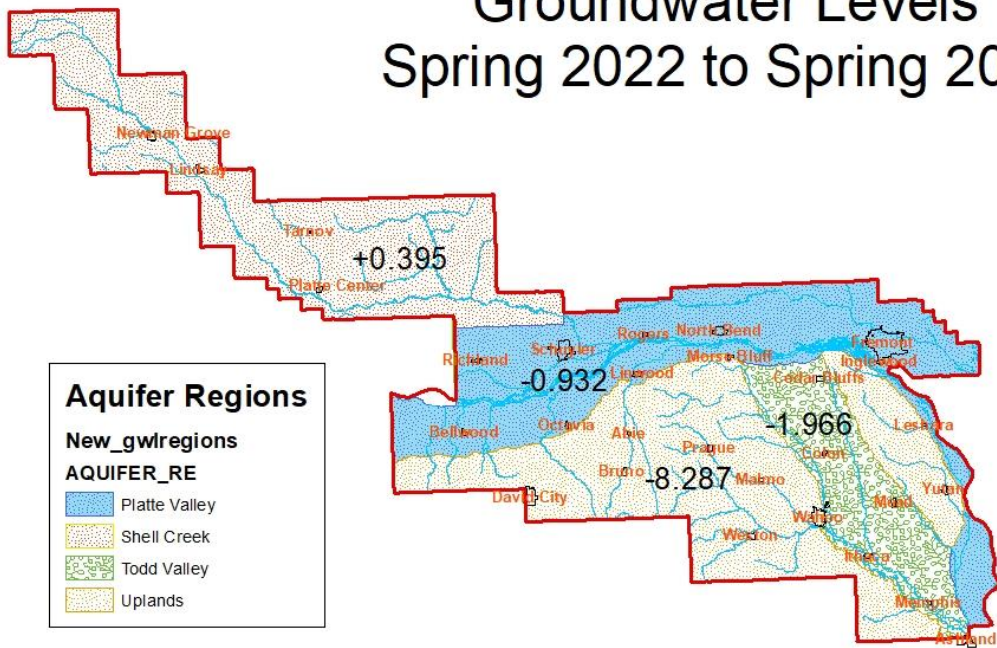
## Water Supply Inventory and Groundwater Elevation Data

### Ground Water Level Summary Comparison of Spring 2022 to Spring 2023

Aquifer Subarea	Number of Wells Measured	Median Change (Feet)	Mean Change (Feet)	Number of Wells		
				Increased	Unchanged (+ or - 0.3 Feet)	Number of Wells Decreased
<b>Platte Valley</b>	<b>57</b>	<b>-1.72</b>	<b>-1.58</b>	<b>6</b>	<b>6</b>	<b>45</b>
Bellwood	5	-3.81	-2.71	0	0	5
Fremont	7	-1.36	-1.68	0	1	6
Fremont East	3	-2.05	-1.99	0	0	3
Leshara Platte Valley	1	-0.16	-0.16	0	1	0
North Bend	8	-2.88	-2.96	0	0	8
Octavia	5	-3.34	-2.30	1	0	4
Platte River Uplands	4	-2.02	-2.07	0	0	4
Schuyler	6	-1.77	-1.55	1	0	5
Wann	18	-0.54	-0.34	4	4	10
<b>Shell Creek</b>	<b>44</b>	<b>-2.79</b>	<b>-3.67</b>	<b>0</b>	<b>0</b>	<b>44</b>
Lower Newman Grove	2					
Lower Shell Creek	6	-4.00	-4.32	0	0	6
Middle Shell Creek	17	-4.64	-4.59	0	0	17
Newman Grove	3	-1.89	-1.95	0	0	3
Platte Center	6	-2.36	-2.36	0	0	6
Shell Creek Uplands	2	[-6.58, -1.77]	-4.18	0	0	2
Upper Newman Grove	9	-2.23	-3.07	0	0	9
Upper Shell Creek	1	-1.50	-1.50	0	0	1
<b>Todd Valley</b>	<b>20</b>	<b>-1.76</b>	<b>-2.68</b>	<b>0</b>	<b>0</b>	<b>20</b>
(north of Hwy 92)	8	-3.34	-3.44	0	0	8
(south of Hwy 92)	12	-1.58	-2.18	0	0	12
<b>Uplands</b>	<b>56</b>	<b>-3.24</b>	<b>-4.55</b>	<b>1</b>	<b>2</b>	<b>53</b>
David City	19	-7.90	-7.29	0	0	19
Leshara Uplands	4	-3.23	-2.54	0	0	4
Morse Bluff	3	-3.32	-6.40	0	0	3
Prague	5	-2.30	-3.77	0	1	4
Swedeberg	9	-2.21	-2.33	0	0	9
Weston	7	-2.85	-2.83	0	1	6
Yutan	5	-2.65	-3.12	1	0	4
Yutan South	4	-2.58	-2.95	0	0	4
				3.955%	4.520%	91.525%
Spring 2021 to Spring 2022				22%	19%	59%

Lower Platte North static water measurements showed a concerning trend like most of Eastern Nebraska. It showed that 92% of the water levels declined in the spring of 2023 compared to spring 2022. The line below shows the previous year. Fall level measurements taken in 2023 showed some areas stabilizing but the trend is still downward. An area along the Platte and Elkhorn Rivers has shown wells that have met a Level II trigger for management. The 2024 spring water levels measurements could put some areas in higher level of management.

## Lower Platte North NRD Groundwater Levels Spring 2022 to Spring 2023



Groundwater Levels 2022-2023 - As shown by the map, levels have declined from spring 2022, Fall levels in 2023 did show a slight decline from Fall 2022.

## Certified Acres

ALL IRR	All Irrigation Ground	All Irrigation Surface	All Irrigation Commingled
<b>County</b>			
Boone	28551.41	0.00	0.00
Butler	56819.53	674.85	373.27
Colfax	53452.54	238.65	1003.34
Dodge	51222.37	84.53	599.10
Madison	5848.86	0.00	0.00
Platte	92239.69	691.63	1090.89
Saunders	104350.06	2617.14	2050.97
<b>Total</b>	<b>392484.47</b>	<b>4306.80</b>	<b>5117.57</b>
<b>HCA IRR</b>			
<b>HCA Ground</b>			
<b>HCA Surface</b>			
<b>HCA Commingled</b>			
<b>County</b>			
Boone	28551.41	0.00	0.00
Butler	45009.58	605.15	84.45
Colfax	46588.96	202.35	1003.34
Dodge	51222.37	84.53	599.10
Madison	5848.86	0.00	0.00
Platte	78623.36	691.63	1090.89
Saunders	79876.41	2545.25	1819.39
<b>Total</b>	<b>335720.95</b>	<b>4128.85</b>	<b>4597.17</b>
<b>NON HCA IRR</b>			
<b>Non_HCA Ground</b>			
<b>Non_HCA Surface</b>			
<b>Non_HCA Commingled</b>			
<b>County</b>			
Boone	0.00	0.00	0.00
Butler	11809.95	69.70	288.82
Colfax	6863.59	36.30	0.00
Dodge	0.00	0.00	0.00
Madison	0.00	0.00	0.00
Platte	13616.33	0.00	0.00
Saunders	24473.65	71.89	231.58
<b>Total</b>	<b>56763.52</b>	<b>177.92</b>	<b>520.40</b>



## New Depletions and Groundwater Consumptive Uses 2023 Granted:

NRD Transaction ID	County	Township	Range	Range Direction	Section	Change Type	Change Date	Area (acres)	Use of Irrigated Acres	SDF	Acre Feet Depletion	
LPN-V-023-0593	Saunders	16	7	E	34	expansion	10/15/2023	42.16	Crop Production	0.66798	6.34	
LPN-V-023-0594	Saunders	16	7	E	27	expansion	10/15/2023	56	Crop Production	0.66798	8.42	
LPN-V-023-0597	Platte	19	3	W	26	expansion	10/15/2023	10	Crop Production	0.88899	2	
LPN-V-023-0598	Dodge	18	5	E	22	new	10/15/2023	50	Crop Production	0.61941	6.97	
LPN-V-023-0599	Saunders	15	7	E	14	expansion	10/15/2023	10	Crop Production	0.73746	1.66	
LPN-V-023-0600	Saunders	16	7	E	2	expansion	10/15/2023	18	Crop Production	0.56193	2.28	
LPN-V-023-0601	Platte	19	3	W	9	expansion	10/15/2023	10	Crop Production	0.78307	1.76	
LPN-V-023-0602	Dodge	18	5	E	22	expansion	10/15/2023	15	Crop Production	0.61941	2.09	
LPN-V-023-0605	Platte	19	2	W	36	expansion	10/15/2023	67.1	Crop Production	0.55389	8.36	
LPN-V-023-0609	Saunders	16	7	E	35	new	10/15/2023	66	Crop Production	0.76025	11.29	
LPN-V-023-0610	Saunders	16	7	E	7	expansion	10/15/2023	50	Crop Production	0.54728	6.16	
LPN-V-023-0615	Saunders	16	7	E	9	expansion	10/15/2023	33.88	Crop Production	0.5206	3.97	
LPN-V-023-0616	Saunders	16	6	E	14	expansion	10/15/2023	20	Crop Production	0.96	4.32	
LPN-V-023-0617	Saunders	16	8	E	29	new	10/15/2023	70	Crop Production	0.78684	12.39	
LPN-V-023-0620	Saunders	16	7	E	28	expansion	10/15/2023	40	Crop Production	0.76435	6.88	
LPN-V-023-0622	Saunders	14	8	E	8	new	10/15/2023	70	Crop Production	0.89293	14.06	
LPN-V-023-0623	Saunders	16	6	E	4	new	10/15/2023	98	Crop Production	0.91471	20.17	
LPN-V-023-0625	Platte	19	3	W	11	expansion	10/15/2023	5	Crop Production	0.7323	0.8	
LPN-V-023-0626	Saunders	17	6	E	36	new	10/15/2023	98	Crop Production	0.7093	15.64	
LPN-V-023-0627	Butler	15	1	E	6	new	10/15/2023	68	Crop Production	0.65789	10.07	
LPN-V-023-0628	Saunders	14	8	E	14	expansion	10/15/2023	55	Crop Production	0.55562	6.88	
LPN-V-023-0629	Saunders	14	8	E	2	new	10/15/2023	60	Crop Production	0.5745	7.76	
LPN-V-023-0631	Saunders	17	7	E	28	new	10/15/2023	80	Crop Production	0.78933	14.21	
LPN-V-023-0633	Saunders	14	8	E	14	expansion	10/15/2023	130	Crop Production	0.55562	16.25	
LPN-V-023-1023 exp	Saunders	15	9	E	23	expansion	6/1/2023	30	Crop Production	0.81	5.47	
Surface Water Conversion?	Saunders	15	7	E	34	new	8/1/2023	35	Crop Production	0.96	7.56	
Total Acres								<b>1287.14</b>	Total Acre Feet Depletion	<b>203.76</b>		

The Lower Platte North did include a Surface Water Conversion in which a surface water permit was on this tract of land but never was certified with the LPNNRD as certified irrigated acres. The tract of land was officially certified with irrigated acres in 2023 with a groundwater use.

### Water Transfer Permits 2023 Granted:

The Lower Platte North had two (2) transfers approved in 2023.

NRD Transaction ID	County	Township	Range	Range Direction	Section	Subsection	Change Type	Change Date	Area (acres)	Use of Irrigated Acres	SDF	NIR Feet	Acre Feet Depletion
LPN-T-023-003	Saunders	14	7	E	25	N NE	Transfer to	6/1/2023	67	Crop Production	0.92	0.75	13.87
LPN-T-023-003	Saunders	14	9	E	11	SENE NESE	Transfer from	6/2/2023	67	Crop Production	0.81	0.75	12.21
LPN-T-023-004	Saunders	17	5	E	24	Pt NW NW	Transfer from	6/3/2023	3.5	Crop Production	0.86	0.75	0.67
LPN-T-023-004	Saunders	17	6	E	33	SE SE	Transfer to	6/4/2023	7	Crop Production	0.82	0.75	1.29
LPN-T-023-004	Saunders	17	6	E	19	NNW	Transfer from	6/5/2023	3.5	Crop Production	0.85	0.75	0.67
Total Depletion Difference											<b>1.61</b>		

**Depletions and Groundwater Consumptive Uses Voided in 2022:**

No sites were voided in 2023.

**Stream gage measurements on District Maintained Gages:**

Lower Platte North gages are joint projects with USGS or NeDNR. LPN has 5 installed cameras on the lower part of Platte River with assistance from the USGS.

**Water Banking Activities:** None for 2023.

**Streamflow Accretion Activities (new projects, conjunctive management projects, etc.):** None for 2023