

Upper Loup Natural Resources District

Basin Water Management Plan Annual Report

Report Year: January 1, 2024 – December 31, 2024

Produced February 2025



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INTRODUCTION

The Upper Loup NRD Board of Directors adopted the original Lower Platte River Basin Water Management Plan (LPBWMP), December 2017 and adopted the revised plan April 2022. The revised plan includes the second increment depletions for the next five years (2022-2026) in addition to a new objective to address drought effects in the basin.

This report is intended to satisfy the Lower Platte River Basin Coalition annual data collection and reporting requirements as described in section 5.0 Plan Review and Monitoring. The information in this report covers those activities required to be tracked for the period January 1, 2024 to December 31, 2024.

The below table lists the allowable depletions for each Natural Resources District.

SECOND INCREMENT ALLOWABLE NEW DEVELOPMENT (ACRE-FEET DEPLETIONS) BY NRD			
NRD	New 2nd Increment	Carry over from 1st Increment	Total
Upper LoupNRD	3,369	2,065	5,435
Lower Loup NRD	7,160	4,750	11,910
Upper Elkhorn NRD	1,831	1,134	2,965
Lower Elkhorn NRD	5,493	2,853	8,346
Papio-Missouri River NRD	1,058	768	1,826
Lower Platte South NRD	1,209	890	2,098
Lower Platte North NRD	2,770	966	3,736
Total	22,889	13,427	36,316

CERTIFIED IRRIGATED ACRES

The Upper Loup Natural Resources District (ULNRD) completed certifying ground water irrigated acres in 2008. We have not certified any surface water acres and do not have any co-mingled certified acres. The ULNRD has two types of certified acres; active and inactive. Inactive acres are any certified acres associated with wells that do not contain a pump and therefore are not watering any land with ground water. Active acres are all certified acres that are being irrigated or watering land and have a flow meter installed.

Total number of certified agricultural irrigated acres for 2024 was 83,671 and of that total 72,755 were considered active.

County	Certified Acres	Active Acres
Blaine	15,797	13,312
Brown	7,033	3,810
Cherry	8,523	6,842
Grant	1,964	1,528
Hooker	4,221	3,520
Logan	35,579	33,901
McPherson	6,838	6,380
Thomas	3,716	3,462
Total	83,671	72,755

AGRICULTURAL USES

Since 2009 the ULNRD has had agricultural ground water users submit annual ground water use amounts under the District's Groundwater Management Area Rules and Regulations. Meters have been installed on all high-capacity wells in the entire District since May 2021. ** 29 meters across district had stopped working in the 2024 growing season.

County	# of wells used	Acres watered in 2024	Average inches pumped	Mode inches pumped	# of non-working meters	Primary crop
Blaine	97	11,943	15	13	5	Grass
Brown	26	3,201	15	12	1	Grass
Cherry	53	6,648	14	13	1	Grass
Grant	8	1,487	13	13	0	Grass
Hooker	21	2,784	13	13	1	Grass
Logan	246	29,940	13	12	18	Corn
McPherson	49	6,226	14	15	1	Grass
Thomas	22	2,663	12	9	2	Grass
TOTALS	522	64,892	14	12.5	29	Grass

MUNICIPAL, COMMERCIAL / INDUSTRIAL USES

All high-capacity wells associated with municipal and commercial / industrial ground water uses have flowmeters installed. Use includes residential, businesses and schools.

Municipal Well Summary:

Municipality	2024 gallons	2024 AFD	2024 Population
Dunning	25,581,103	79	94
Hyannis	68,157,700	209	165
Mullen	84,121,600	258	449
Stapleton	34,752,000	107	267
Theford	52,209,000	160	211
TOTALS	264,821,403	813	1,186

Commercial/Industrial Well Summary:

County	Well Reg #	Use	2024 gallons	2024 AFD	2023 AFD
Grant	G-170722	Community Golf Course Irrigation	16,655,800	51	47
Hooker	G-078662	Golf Course Irrigation	32,451,700	100	113
Hooker	G-076336	Golf Course Irrigation	17,508,100	54	56
Hooker	G-111905	Community Golf Course Irrigation	15,515,700	48	40
Hooker	G-141320	Golf Course – lawn / domestic / fire supp	60,590,000	186	126
Hooker	NR-9352	Golf Course – portable water	12,420,000	38	35
Hooker	G-162940	Golf Course Irrigation – Doak	93,161,700	286	251
Hooker	G-135198	Golf Course Irrigation - Nickalus	66,990,100	206	215
Hooker	G-137707	Driving Range Irrigation	18,469,300	57	24
Hooker	G-141035	Turf Nursery	400	0	.01
Hooker	G-140590	Golf Course Air Strip	7,893,100	24	17
Logan	G-127099	Community Golf Course Irrigation	Meter not working		56
Thomas	G-104962	Community Golf Course Irrigation	12,889,800	40	52
Thomas	G-014205	Tree, shrub & cover crop irrigation	3,185,500	10	14
Thomas	G-014206	Tree, shrub & cover crop irrigation	13,310,400	41	24
Thomas	G-014204	Tree, shrub & cover crop irrigation	1,659,200	8	10
Thomas	G-059745	Tree, shrub & cover crop irrigation	14,743,800	45	40
Thomas	G-021694	Tree, shrub & cover crop irrigation	9,063,300	28	29
TOTALS			374,816,255	1,222	1,149

NEW GROUNDWATER CONSUMPTIVE USES & NEW DEPLETIONS

For the 2024 expansion of irrigated acres the ULNRD received 7 applications with 7 being approved and of those approved 1 choose not to expand acres due to the cost. 744 acres were permitted and 679 acres were certified with an estimated groundwater depletion of 101-acre feet.

Use	County	Sec	Twn	Rng	Well Reg #	New Well	Acres Appr.	SDF	NIR	AF Depletions
Crop	Logan	3	17	26	G-201016	Yes	125	.44	1.025	17
Crop	Logan	16	17	26	G-200268	Yes	230	.37	1.025	26
Crop	Logan	11	17	26	G-200113	Yes	95	.54	1.025	16
Crop	Logan	9	17	26	G-200108	Yes	73	.38	1.025	9
Crop	Hooker	14	23	31	G-200825	Yes	96	.60	1.075	19
Crop	Hooker	9	22	32	G-200443	Yes	60	.70	1.075	14
					TOTALS		679			101

TRANSFERS

No water transfer permits were granted, cancelled or denied in 2024.

WELL CONSTRUCTION PERMITS

NRD Permit No.	County	Use	Status	Replacement	DNR Reg. No.
UL 204– 24	Logan	Irrigation - 2024	Approved	No	G-201016
UL 205 – 24	Hooker	Irrigation - 2024	Approved	No	G-200443
UL 206 – 24	Logan	Irrigation - 2024	Approved	No	G-200268
UL 207 – 24	Hooker	Irrigation - 2024	Approved	No	G-200825
UL 208 – 24	Hooker	Irrigation	Approved	Yes	G-002258
UL 209 – 24	Logan	Irrigation - 2025	Approved	No	G-201962
UL 210 – 24	Cherry	Irrigation	Approved	No	For '25 - Not drilled yet
UL 211 – 24	Blaine	Irrigation	Approved	No	For '25 - Not drilled yet
UL 212 – 24	Brown	Irrigation	Approved	No	For '25 - Not drilled yet
UL 213 – 24	McPherson	Irrigation	Approved	No	For '25 - Not drilled yet

RETIREMENT OF GROUND WATER CONSUMPTIVE USES

Use	County	Sec	Twn	Rng	Well Reg #	Acres	SDF	NIR	AF Depletions (credit)
Crop	Grant	10	22	40	G-110610	25	.06	1.0	.45
Crop	Grant	11	22	36	G-151195	56	.20	1.0	3.36
Crop	Thomas	21	24	30	G-147061	28	.90	1.025	7.75
Crop	Thomas	22	24	30	G-147062	25	.90	1.025	6.92
Crop	Thomas	23	24	30	G-147060	41	.88	1.025	11.09
Crop	Thomas	25	24	30	G-146479	37	.85	1.025	9.67
Crop	Thomas	25	24	30	G-146480	40	.85	1.025	10.46
					TOTALS	252			49.70

WATER BANKING ACTIVITIES

To date the ULNRD does not have an established water banking system.

STREAM FLOW ACCRETIONS ACTIVITIES

At the time of this report there are no new projects or conjunctive management projects in any stages of development.

STREAM GAGE MEASUREMENTS

The ULNRD, along with USGS, operates 4 stream gauges within the District.

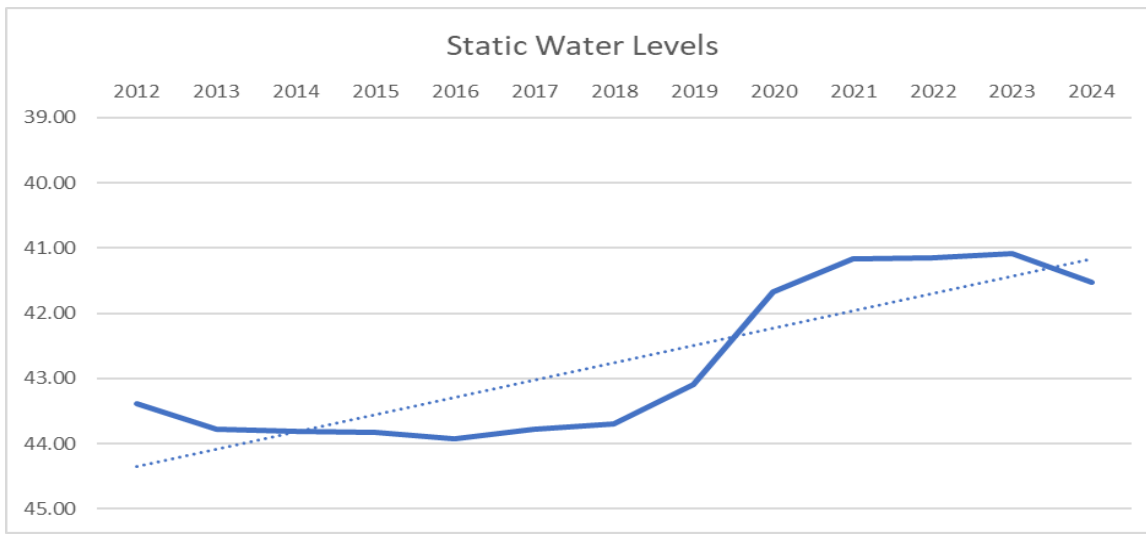
Station 06775500 Middle Loup at Dunning
Station 06781600 South Loup at Arnold

Station 06775900 Dismal near Thedford
Station 06785500 North Loup at Brewster

Streamflow data can be acquired from USGS's National Water Information System at <http://waterdata.usgs.gov/>

GROUND WATER ELEVATION DATA

The ULNRD collected spring static water levels from 137 wells. 105 of those have information going back 12 + years and were the wells used in the trending graph below. The most notable decreases occurred in Brown County. Trend decrease of less than 1 foot.



County	Change from 2023 to 2024	12-year change
Cherry	Down .27 of a foot	Up 5.3 feet
Grant Up	Down .26 of a foot	Up 1.23 feet
Hooker	No measurable change	Up 4.4 feet
Thomas	Down .31 of a foot	Up 4.66 feet
Blaine	Down .33 of a foot	Down .76 of a foot
Brown	Down .65 of a foot	Down 1.38 feet
Logan	Down .07 of a foot	Up 1.79 feet
McPherson	Up .11 of a foot	Up 5.92 feet

GROUNDWATER QUALITY DATA

A ground water analysis for nitrate-nitrogen content in all registered active domestic, 10% of active irrigation, all active industrial and any requested non-registered domestic wells are performed once within a 5-year cycle, with the exception of those wells listed on DEQs Current Statewide Ground Water Monitoring Network which are tested annually.

A minimum of 10% of all wells sampled annually are sent to a reputable lab for analysis as a quality control measure. If a sample is found to contain 100% of the Maximum Contaminant Level 10 ppm or 10 mg/l of nitrate-nitrogen, a second sample is sent to a reputable lab for verification and quantification prior to any quality phase area designation.

ULNRD groundwater quality phase area criteria is as follows:

Phase I Area – areas that are not designated as either Phase 2 or Phase 3. 0 to 5.9 mg/L

Phase 2 Area – areas where 45% percent or greater of the nitrate nitrogen samples have tested between 6 to 8.5 mg/L for 4 consecutive years beginning in 2008.

Phase 3 Area – areas where 45% percent or greater of the nitrate nitrogen samples have tested between 8.6 to 10 mg/L for 4 consecutive years beginning in 2008.

Sub-District 4, which includes the southern portion of Brown County, all of Blaine County and Thomas County east of Hwy 83, was tested in 2024.

Sub-District	Year	Well Type 10% of Irrig.	Sample Count Registered wells	Sample Count Non Registered	Average Nitrate 0-10 ppm	Sample Count Manganese Min 10%	Average Manganese 0-0.5 ppm .3 mg/L EPA
1	2024	Domestic Irrigation	4 0	3	0.47 w/o outlier 4.84 w/ outlier	0	0
2	2024	Domestic Irrigation	0 0	2	0.85 0	0	0
3	2024	Domestic Irrigation	2 0	3	1.48	0	0
*4	2024	Domestic Irrigation	96 13	34	1.33 1.32	33	.041
5	2024	domestic Irrigation	1 0		2.9		0

NRD REGULATIONS / MANAGEMENT ACTIVITIES

The entire ULNRD is in the same Ground Water Management Area and thus abide by the same Rules and Regulations district wide.

Management activities in the District include:

- Any user who irrigates with ground water is required to have obtained certification
- Applications for the construction of a high capacity commercial / industrial wells shall provide a hydrological evaluation as well as the permit fee to the District
- No new high-capacity wells (> 50 gpm) shall be drilled within 300 feet from any active domestic well or within 1,320 feet of any other high capacity well
- All active high-capacity wells, irrigation/commercial shall be equipped with a flowmeter
- Annually approving not more than 2,500 acres across the entire District
- Annually collect, track, evaluate and report of: ground water level measurements; municipal, commercial, and agricultural water use; certified irrigated acres and any changes to certifications; well water construction permits approved, cancelled or denied; variances granted, cancelled or denied; and water transfer permits granted, cancelled, or denied

NEW DATA COLLECTED OR MODEL / STUDY RESULTS

The District is not currently involved in any new studies. ULNRD, with help of a grant with DNR is adding 9 new dedicated monitoring wells with telemetry capabilities.