

Upper Loup Natural Resources District

Basin Water Management Plan Annual Report

Report Year: January 1, 2022 – December 31, 2022

Produced February 2023



TABLE OF CONTENTS

1. Introduction
2. Certified Irrigated Acres
3. Water Uses – Agricultural, Municipal, Commercial/Industrial
4. New Groundwater Consumptive Uses and Depletions
5. Transfers
6. Well Construction Permits
7. Retirement of Groundwater Consumptive Uses
8. Water Banking Activities
9. Streamflow Accretion Activities
10. Stream Gage Measurements
11. Groundwater Elevation Data
12. NRD Regulations / Management Activities
13. New Data Collected or Model / Study Results

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, 2022 to December 31, 2022.

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.

The Upper Loup changed data companies from Beehive to Longitude 103 in 2022. Along with that change came new mapping and additional on-site visits. With these changes the number of active vs inactive certified acres were tightened up. Total number of certified agricultural irrigated acres for 2022 was 82,348 and of that total 72,244 are considered active.

County	Certified Acres	Active Acres
Blaine	15,712	13,486
Brown	6,987	3,764
Cherry	8,168	6,860
Grant	1,964	1,553
Hooker	4,081	3,593
Logan	34,903	33,102
McPherson	6,838	6,428
Thomas	3,695	3,458
Total	82,348	72,244

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.

For year 2022 annual report I have not provided a "pumping totals" table for several reasons. One, our District has been transitioning from Beehive to Longitude and a good percentage of our meter readings didn't get pulled over or there were some bugs in the system that didn't provide accurate acre inches information. Second, 18 meters across district had stopped working in the 2022 growing season. Third, due to the long winter conditions across the district at the time of this report our technicians were unable to access 81 of the active irrigation wells.

MUNICIPAL, COMMERCIAL / INDUSTRIAL USES

All high-capacity wells associated with municipal and commercial / industrial ground water uses have flowmeters installed. Stapleton's usage was down considerably in 2022 school, the football field and park did not get watered all summer due to repairs being done on sprinkler systems.

Municipal Well Summary:

Municipality	2022 gallons	2022 AFD	2022 Population
Dunning	No Report	No Report	99
Hyannis	55,650,900,	171	168
Mullen	85,734,800	263	502
Stapleton	39,376,900	121	305
Theford	60,961,000	187	211
TOTALS	186,072,700	742	1,285

Commercial/Industrial Well Summary:

County	Well Reg #	Use	2022 gallons	2022 AFD
Grant	G-170722	Community Golf Course Irrigation	20,108,900	62
Hooker	G-078662	Golf Course Irrigation	77,316,162	237
Hooker	G-076336	Golf Course Irrigation	37,654,421	116
Hooker	G-111905	Community Golf Course Irrigation	17,680,900	54
Hooker	G-141320	Golf Course – lawn / domestic / fire supp	85,177,700	262
Hooker	NR-9352	Golf Course – portable water	1,693,500	5
Hooker	G-162940	Golf Course Irrigation – Doak	77,381,000	238
Hooker	G-135198	Golf Course Irrigation - Nickalus	19,124,800	59
Hooker	G-137707	Driving Range Irrigation	10,438,100	32
Hooker	G-141035	Turf Nursery	10,160,900	31
Hooker	G-140590	Golf Course Air Strip	9,225,800	28
Hooker	G-158004	Drinking Water Bottling – Domestic	48,000	.15
Logan	G-127099	Community Golf Course Irrigation	16,645,577	51
Thomas	G-104962	Community Golf Course Irrigation	18,985,200	58
Thomas	G-014205	Tree, shrub & cover crop irrigation	5,044,000	15
Thomas	G-014206	Tree, shrub & cover crop irrigation	18,891,400	58
Thomas	G-014204	Tree, shrub & cover crop irrigation	4,179,300	12.83
Thomas	G-059745	Tree, shrub & cover crop irrigation	20,014,300	61
Thomas	G-021694	Tree, shrub & cover crop irrigation	12,51,000	37
TOTALS			394,583,078	1,417

Water Use Summary * indicates missing report from an entity

Year	Ag AFD	Municipal AFD	Commercial AFD
2018	307	535	1,399
2019	179 *	615	831 *
2020	451	850 *	813 *
2021	546	886 *	1,216
2022		742 *	1,417

NEW GROUNDWATER CONSUMPTIVE USES & NEW DEPLETIONS

For the 2022 expansion of irrigated acres the ULNRD received 17 applications with 15 being approved. 912 acres were permitted with an estimated groundwater depletion of 74-acre feet.

Use	County	Section	Township	Range	DNR Well Reg. #	New well	Acres Approved	AF Depletion
Crop Use	Brown	2	28	22	G-176934	No	72	4.22
Crop Use	Brown	1	28	22	G-040661	No	68	3.98
Crop Use	Cherry	33	27	33	G-193860	Yes	122	4.19
Crop Use	Logan	31	17	27	G-194505	yes	120	3.32
Crop Use	Logan	30	18	26	G-057285	No	15	1.66
Crop Use	Logan	35	17	28	G-183958	No	13	0.28
Crop Use	Logan	12	17	26	Not drilled to date	Yes	7	1.44
Crop Use	Logan	31	17	27	G-032294	No	75	2.08
Crop Use	Logan	18	17	28	G-186495	No	7	0.09
Crop Use	Logan	33	18	28	G-195409	Yes	85	1.05
Crop Use	Logan	21	17	26	G-019634	No	10	1.07
Crop Use	Logan	14	17	26	G-195459	Yes	80	12.30
Crop Use	Logan	12	18	28	G-191820	No	53	1.79
Crop Use	Thomas	2	24	28	G-196360	Yes	115	18.74
Crop Use	Thomas	26	21	26	G-036920	No	70	17.51
Total							912	73.72

TRANSFERS

No water transfer permits were granted, cancelled or denied in 2022.

WELL CONSTRUCTION PERMITS

NRD Permit No.	County	Use	Status	Replacement	DNR Reg. No.
UL 195– 22	Thomas	Irrigation	Approved	No	G-196360
UL 196 – 22	Logan	Irrigation	Approved	No	For '23 - Not drilled yet
UL 197 – 22	Logan	Irrigation	Approved	No	For '23 - Not drilled yet
UL 198 - 22	Logan	Irrigation	Approved	No	For '23 - Not drilled yet

RETIREMENT OF GROUND WATER CONSUMPTIVE USES

County	Well Reg #	Use	Legal S-T-R	Acres Retiring	AF Depletion (credit)
Blaine	G-041872	Crop Production	14-22-22	130	31.78

WATER BANKING ACTIVITIES

To date the ULNRD doesn't 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.

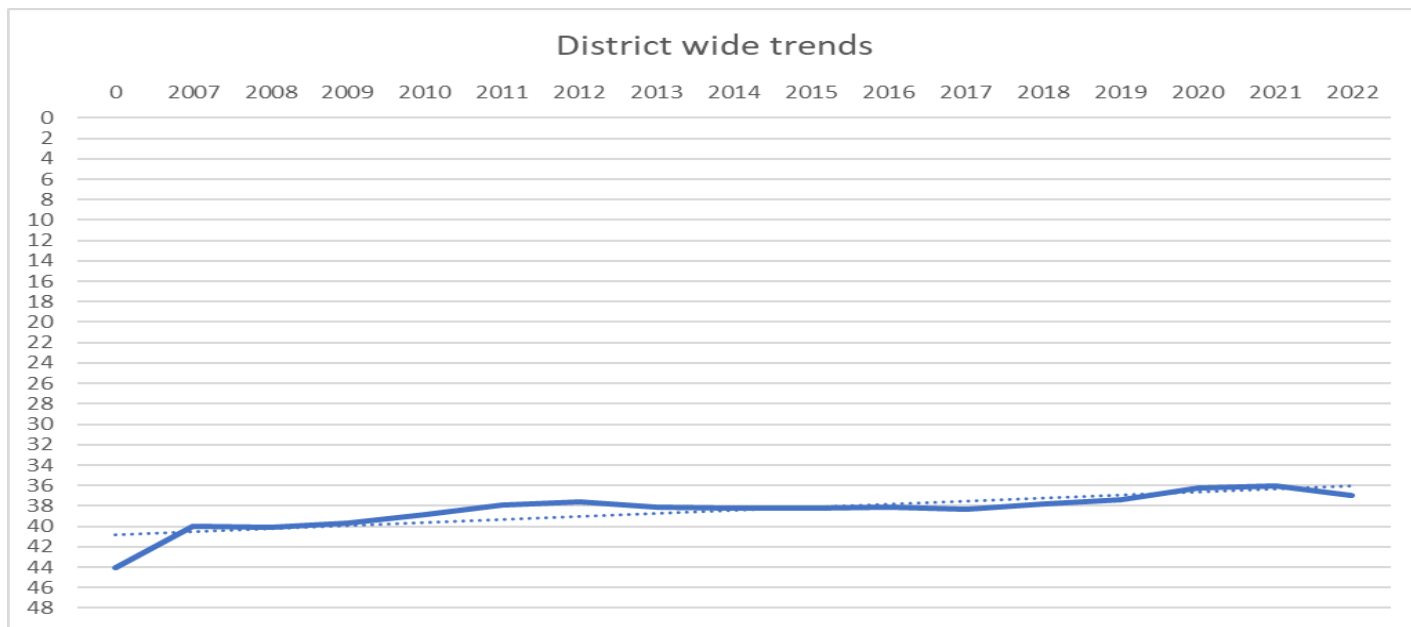
Station 06775500 Middle Loup at Dunning
Station 06781600 South Loup at Arnold

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 118 wells across the District. The number of wells data collected from was down due to challenging entry into well locations. Water levels maintained pretty much across the District with a slight decrease of a foot in Sub-District 4 which consists of all of southern third of Brown County, all of Blaine County and the east half of Thomas County.



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 ground water 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 / industrial wells shall be equipped with a flowmeter
- Annually approving not more than 2,500 acres across the entire District
- Annually collecting, tracking, evaluating, and reporting of: ground water level measurements; municipal, commercial, industrial, 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

In December of 2022 the Upper Loup approved a Drought Mitigation Plan. The plan will: refine a collective understanding of drought risk and vulnerabilities, identify and prioritize mitigation efforts, and define drought response measures that will be utilized during future drought events.