LOWER PLATTE SOUTH
natural resources district

2022 Report

Lower Platte River Basin Coalition

LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT

2022 REPORT AS REQUIRED BY THE DISTRICT'S VOLUNTARY INTEGRATED MANAGEMENT PLAN

I. INTRODUCTION

In 2009, the Lower Platte South Natural Resources District (LPSNRD or District) adopted rules and regulations for the management of ground and surface water in what is known as the hydrologically connected area (HCA). The HCA was delineated by the Nebraska Department of Natural Resources (NDNR) based upon the likelihood of hydrologic connection between surface water and shallow ground water. For LPSNRD, this area consists of all or parts of about 70 sections along both sides of Salt Creek roughly between Waverly and Ashland, and then along the south side of the Platte River from Ashland to Plattsmouth. The location of the HCA can be seen in all of the figures attached to this report.

As a natural extension of the above activities, the District developed its voluntary Integrated Management Plan (IMP) in conjunction with NDNR. Following approval by both LPSNRD and NDNR, the IMP became effective on May 15, 2014. For more detail regarding the development of the IMP, see LPSNRD-NDNR, 2014.

As part of the effort toward a more comprehensive management strategy, LPSNRD joined six other NRDs and NDNR to form the Lower Platte River Basin Coalition (LPRBC) to jointly develop a water management plan for the entire Lower Platte River basin. As of early 2018, all seven participating NRD Boards and NDNR had approved the Interlocal Agreement that continues the Coalition and adopts the first five-year plan. For more information on the LPRBC, refer to its website at https://lprbc.nebraska.gov/.

II. ACTIVITIES TO BE REPORTED

The activities reported in this document cover the period from January 1, 2022 through December 31, 2022.

A. CERTIFICATION OF GROUND WATER USES AND CHANGES TO THOSE CERTIFICATIONS

LPSNRD began certification of irrigated acres within its jurisdiction in 2009 and required that all such irrigated acres be certified with the District by January 31, 2011 in its updated Ground Water Rules and Regulations. Going forward, current regulations require that any new irrigated acres be certified with the District prior to being irrigated.

For the HCA, the process of certifying irrigated acres documented "historically irrigated acres," which were defined as acres irrigated with ground water prior to December 16, 2008; these acres within the HCA were required to be certified by March 31, 2010. In its initial documentation of historically irrigated acres, the District issued 34 separate certifications from 27 landowners in the HCA for a total of 2,964.48 acres. State law current at the time allowed for an annual expansion in the HCA of 20% of the documented historically irrigated acres, meaning that

LPSNRD could allow up to 592.9 acres of newly irrigated land in the HCA each year. District regulations have maintained that annual limit of expansion since that time, but LPSNRD has never received applications for expansion which have approached that annual limit.

For the 2022 reporting period, there were two applications for a total of 18.28 expanded irrigated acres in the HCA. As a result, as of December 31, 2022, LPSNRD had a total of 3,285.48 certified irrigated acres in the entire HCA ; the locations of those certified acres are shown in Figure 1. As noted below, LPSNRD issued one new well permit in 2022 in the HCA for pond fill.

The following table shows estimated depletions for the expanded irrigated acres and the pond fill well. The estimates for irrigation use are approximated using the agreed-upon methodology of area in acres multiplied by the stream depletion factor (SDF) multiplied by the normal irrigation requirement in feet (NIR), all multiplied by 0.30 for peak depletion during June, July, and August:

Peak Depletion (acre-feet) = A x SDF x NIR x 0.3

For the pond fill well, the surface area of the pond is multiplied by an annual evaporation estimate of 28 inches (A. Dutcher, UNL—personal communication) or 2.33 feet, then multiplied by the SDF and 0.3.

County	Legal	Use	Acres	SDF	NIR, Feet	Peak Depletion, Acre-Feet
Lancaster	T11N R8E S9 B	Irrigation	0.03	0.83	0.56	0.004
Cass	T12N R9E S31 C	Irrigation	18.25	0.99	0.53	2.87
Cass	T12N R9E S21 B	Pond Fill	0.64	0.89	0.59	0.40
TOTALS			18.95			3.274

In addition to the above amounts of groundwater depletion, the NeDNR has estimated net stream peak depletions in LPSNRD at 29.2 acre-feet for 2022.

At the end of the first five-year increment in 2021, LPSNRD had a remaining allowable depletion of 890 acre-feet (from the initial allowable depletion of 993 acre-feet). Allowable new development for the second Plan increment was developed using the same methodology as for the first increment. This analysis yielded an allowable new depletion of 1,209 acre-feet for the Lower Platte South NRD. Therefore for the beginning of the second five-year increment, LPSNRD had a total allowable new depletion amount of 890 + 1,209 = 2,098 acre-feet. So, for the first year of the second five-year increment in 2022, LPSNRD's remaining allowable depletion is calculated as follows:

2nd Five-Year Increment Allowable Depletion, Acre-Feet:	2,098.000
Estimated Peak Groundwater Depletion for 2022, Acre-Feet	-3.274
Estimated Peak Surface Water Depletion for 2022, Acre-Feet:	-29.200
Remaining Allowable Depletion for 2nd Five-Year Increment, Acre-Feet:	**2,065.526**

B. APPROVED TRANSFERS

There were no approved transfers in the HCA for this reporting period.

C. FLOW METER DATA

Beginning in 2011, the District included in its Ground Water Rules and Regulations the requirements that all wells pumping more than 50 gallons per minute (gpm) be fitted with a flow meter capable of totalizing the volume of water pumped. Owners of such wells are required to report their water usage on an annual basis by December 31 of each year.

Figure 2 shows the locations of wells within the HCA and their reported usage, broken up by well type (irrigation, commercial, aquaculture and other (the "other" classification includes any other recognized well category such as livestock, wetland restoration, etc.)). Note that irrigation wells are most numerous, but that the total usage of commercial wells is generally the largest volume for a given year.

D. WELL CONSTRUCTION PERMITS

Like all other NRDs, LPSNRD permits wells which pump more than 50 gpm in its jurisdiction. For the 2022 reporting period, there was one permit completed within the HCA, and this well is for pond fill purposes.

E. OTHER PERMITS

There were no other permits issued in the HCA for this reporting period.

F. MUNICIPAL INFORMATION

LPSNRD is continuing to work with municipalities within its jurisdiction to document the amount of water pumped. Public water suppliers have a variety of means of recording their use which often predates the District's requirement of reporting of flow meter data, and so LPSNRD utilized the first five-year increment to establish baseline data from this historical record for all public water supplies, and that information will be reported in the future. As of this report, LPSNRD has again accelerated its program of contacting public suppliers for water use information; as of this report the majority of them have responded with complete or partial information. LPSNRD will continue to reach out to all public suppliers in the District and report the data as it becomes available early in the second five-year increment.

G. VARIANCES ISSUED

There were no variances issued in the HCA for this reporting period.

H. RETIREMENTS OF IRRIGATED ACRES OR OTHER WATER USES

There were no retirements of any water uses in the HCA for this reporting period.

I. WATER BANKING TRANSACTIONS

No water banking transactions have occurred in the HCA.

J. OFFSETS PROVIDED FOR DEPLETIONS RESULTING FROM INCREASED CONSUMPTIVE USES

LPSNRD has no data indicating any increased consumptive uses in the HCA.

K. REFERENCES

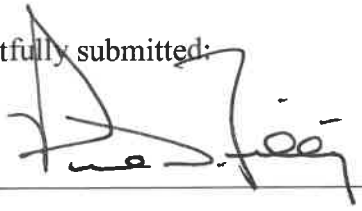
Lower Platte River Basin Coalition. 2017. Basin Water Management Plan. LPRBC/HDR/Flatwater Group/JEO Consulting. 57 p. plus attachments.

Lower Platte River Basin Coalition. 2022. Basin Water Management Plan—Second Increment (2022-2026) of Plan Implementation. 8 p. plus attachments.

Lower Platte South Natural Resources District. 2021. 2020 Report as Required by the District's Voluntary Integrated Management Plan. 7 p.

Lower Platte South Natural Resources District & Nebraska Department of Natural Resources. 2014. Integrated Management Plan. 37 p.

Respectfully submitted:



Paul D. Zillig, General Manager

MARCH 13, 2023

Date

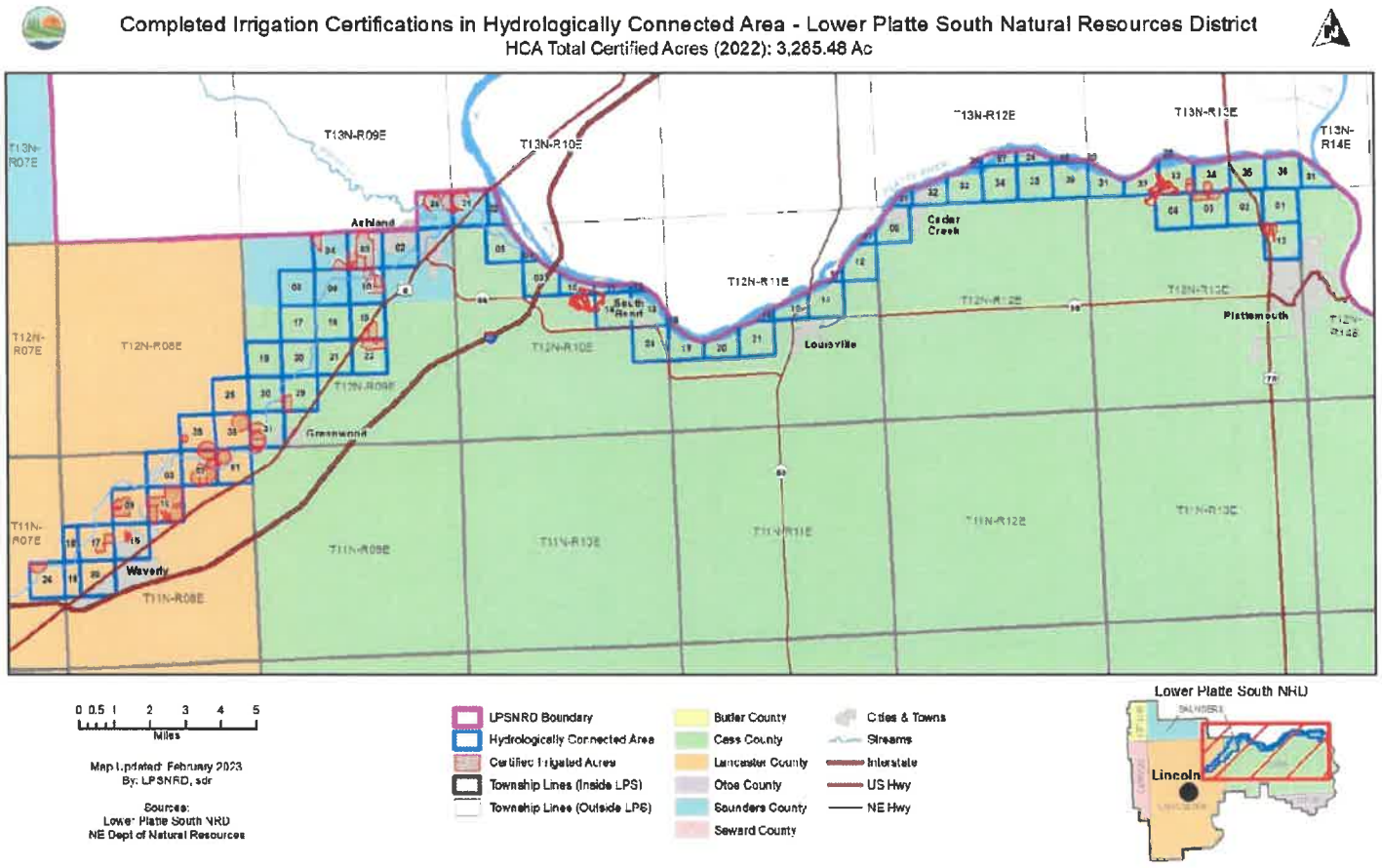


Figure 1. All certified irrigated acres within the HCA as of December 31, 2022

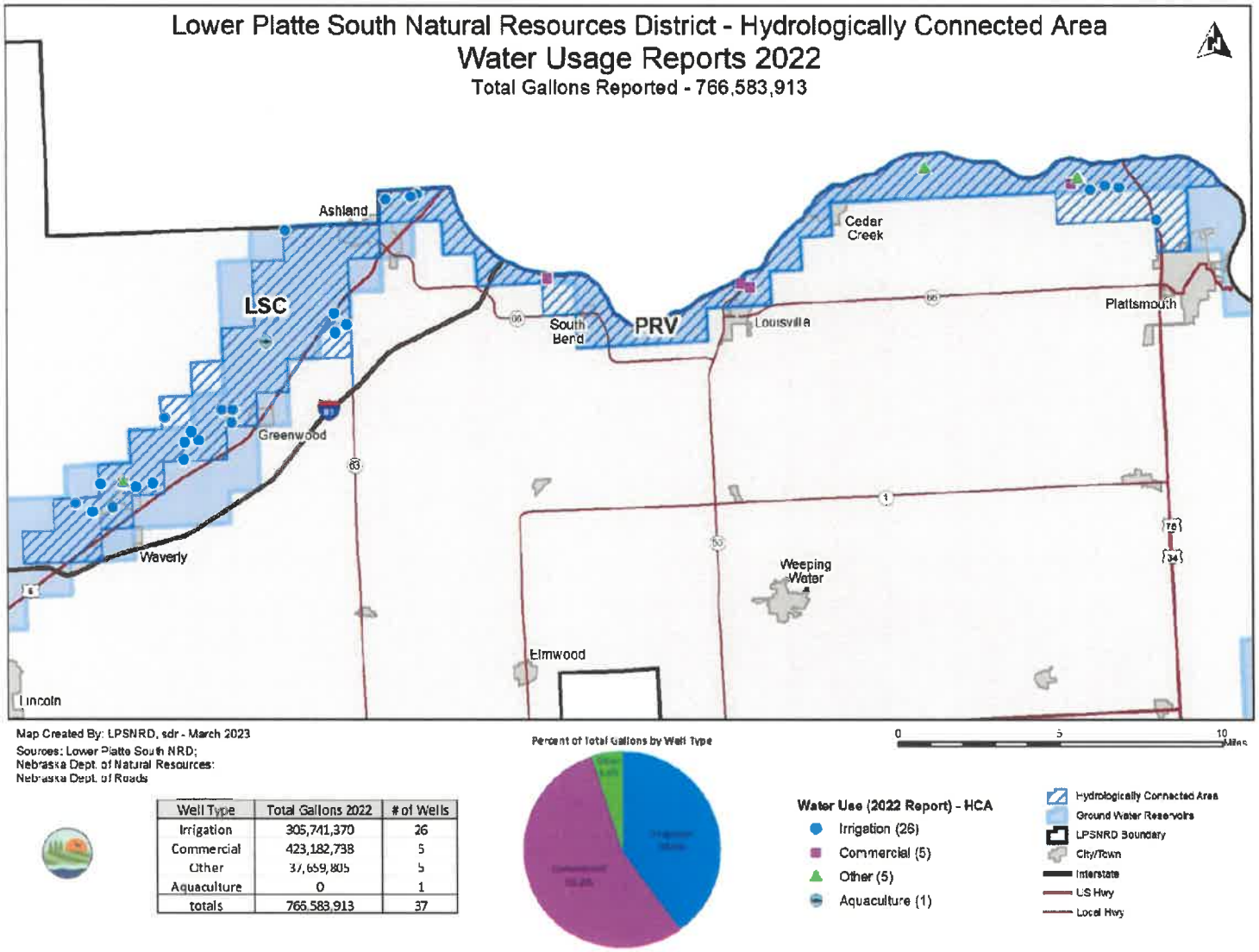


Figure 2. 2022 Water Usage Reports