



LOWER PLATTE SOUTH
natural resources district

2019 Report
Lower Platte River Basin Coalition

LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT

2019 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, 2019 through December 31, 2019.

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 2019 reporting period, there were no applications for expanded irrigated acres in the HCA. As a result, as of December 31, 2019, LPSNRD has a total of 3,267.20 certified irrigated acres in the entire HCA which is the same as it was for the previous report; the locations of those certified acres are shown in Figure 2.

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.

Figures 3 and 4 show 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. This was especially true for 2019, when wet weather during the growing season meant that many irrigation wells applied very little if any irrigation water. The abnormally wet weather also contributed to major flooding along the Missouri River and parts of the Platte River in LPSNRD, which resulted in much less water use for irrigation as well as rendering some municipal systems such as Plattsmouth unusable for a substantial portion of the year.

D. WELL CONSTRUCTION PERMITS

Like all other NRDs, LPSNRD permits wells which pump more than 50 gpm in its jurisdiction. For the 2109 reporting period, there was one permit applied for in the HCA which was later withdrawn. As a result, in 2019 LPSNRD did not issue any well permits within the HCA.

E. OTHER PERMITS

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

F. MUNICIPAL INFORMATION

As of this writing, LPSNRD is continuing to work with municipalities within its jurisdiction to document the amount of water pumped. Public water suppliers have been required to issue various reports to state and federal authorities predating the District’s requirement of reporting of flow meter data, and so LPSNRD is utilizing 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.

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. ADDENDUM

In its initial 2016-17 LPRBC report, LPSNRD did not report on estimated new consumptive uses for the two new wells and 63.88 expanded irrigated acres recorded during that reporting period (LPSNRD, 2018). This was because, at that time, LPSNRD did not have stream depletion factors for the locations of those irrigated acres or estimates for consumptive use of the one new municipal well for the City of Ashland or evaporative losses for the wetland pond. In the following table, the first three entries for irrigation use are estimated using the agreed-upon methodology of area in acres X stream depletion factor (SDF) X normal irrigation requirement in feet (NIR) X 0.30 for peak depletion during June, July, and August:

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

For the other two entries, LPSNRD has documented that the new City of Ashland well pumps about 32 million gallons annually, so that amount is multiplied by a factor of 0.5 (estimate of the amount of return flow through the municipal waste water treatment plant—J. Engel, HDR, personal communication) and then multiplied by the SDF and 0.3. For the final entry, the surface area of the ponds 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 (ft.)	Peak Depletion AF
Lancaster	T11N R8E S16 B	Irrigation	4.88	0.69	0.56	0.566
Cass	T12N R13E S12 B	Irrigation	41.2	0.54	0.52	3.471
Cass	T12N R13E S12 B	Irrigation	17.8	0.54	0.52	1.499
Saunders	T12N R9E S2 B	Public Supply	N/A	0.93	N/A	14.728
Saunders	T12N R9E S4 B	Wetland Fill	6.14	0.77	N/A	3.305
TOTALS			70.02			23.569

As a result, LPSNRD estimates that 23.569 acre-feet of new depletions have been developed in the HCA since the beginning of the reporting period on July 1, 2016. The current LPRBC Basinwide Water Management Plan (LPRBC, 2017) shows LPSNRD to have an allowable depletion of 993 acre-feet for the first five-year increment of the Plan, therefore the remaining allowable depletion for LPSNRD can be calculated as follows since there are no new depletions for 2019:

1 st Five-Year Increment Allowable Depletion, Acre-Feet:	993.000
Estimated Depletion to Date, Acre-Feet:	<u>-23.569</u>
Remaining Allowable Depletion for 1 st Five-Year Increment, Acre-Feet:	969.431

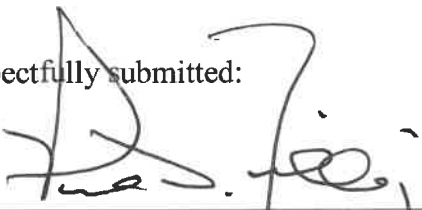
K. REFERENCES

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

Lower Platte South Natural Resources District. 2018. 2016-2017 Report as Required by the District's Voluntary Integrated Management Plan. 9 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 10, 2020

Date

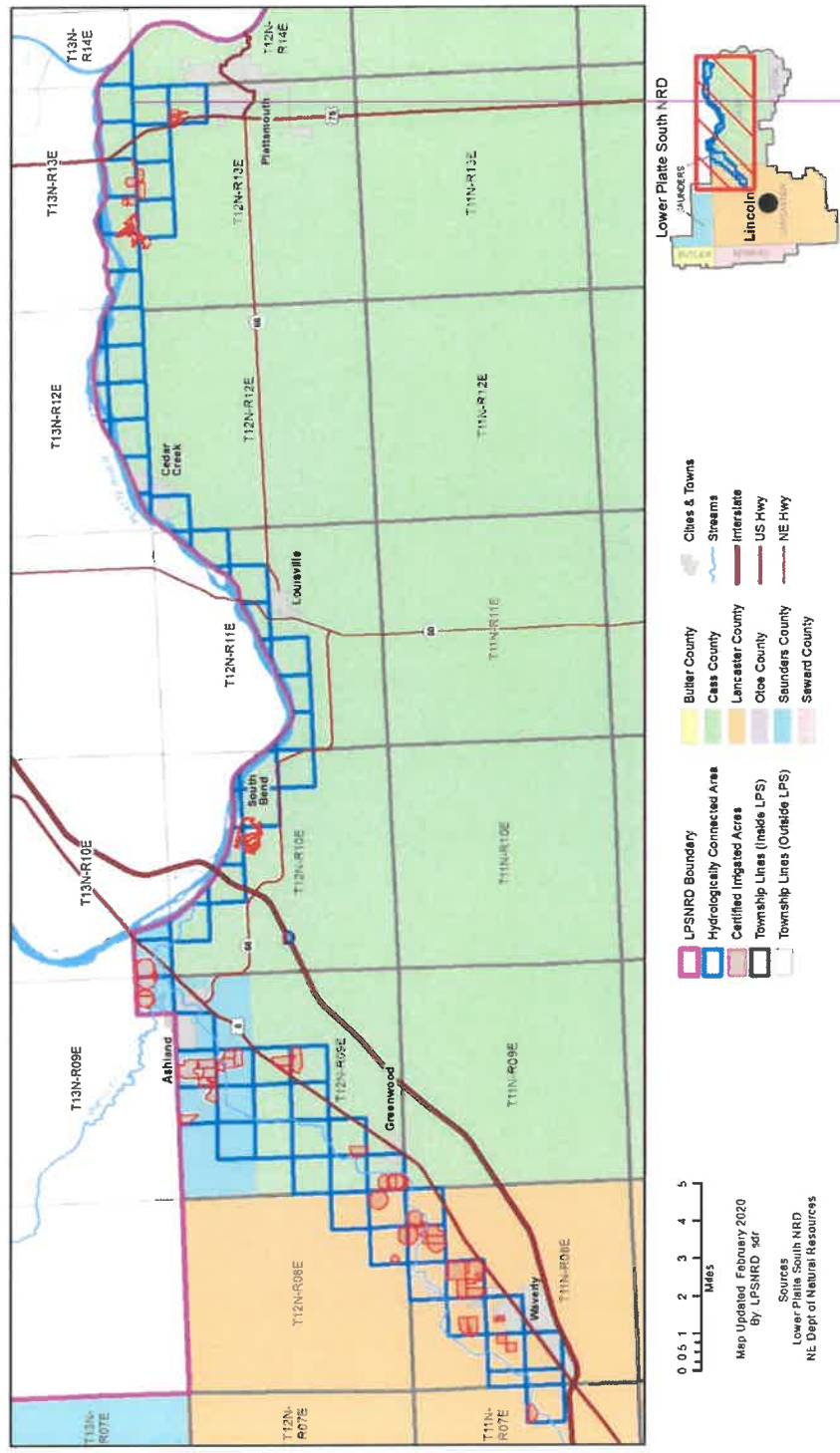


Figure 1. All certified irrigated acres within the HCA as of December 31, 2019

Lower Platte South Natural Resources District - Hydrologically Connected Area

Water Usage Reports 2019

Total Gallons Reported - 574,806,061

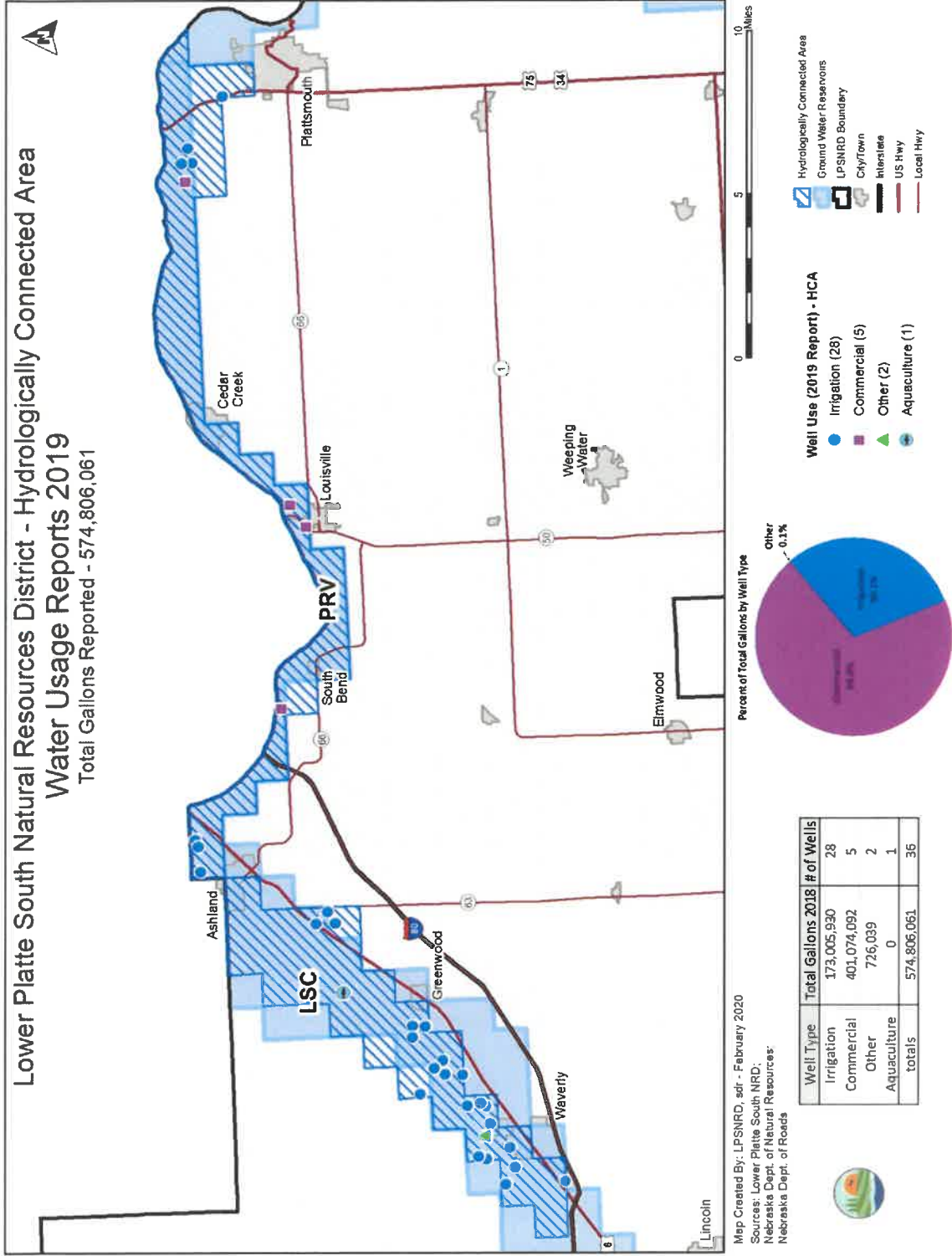


Figure 2. 2019 Water Usage Reports