

ANNUAL INTEGRATED MANAGEMENT PLAN REPORT

2022



JOINTLY PREPARED BY
THE LOWER PLATTE
SOUTH NATURAL
RESOURCES DISTRICT
AND THE NEBRASKA
DEPARTMENT OF
NATURAL RESOURCES

Submitted at the Lower Platte South Board Meeting/IMP Annual Review
August 16, 2023



LOWER PLATTE SOUTH
natural resources district

NEBRASKA

Good Life. Great Water.

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2022 ANNUAL REPORT FOR LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT and NEBRASKA DEPARTMENT OF NATURAL RESOURCES INTEGRATED MANAGEMENT PLAN

Jointly prepared by the Lower Platte South NRD and the Nebraska Department of Natural Resources
Submitted on August 16, 2023

Introduction

The Lower Platte South Natural Resources District (LPSNRD) and the Nebraska Department of Natural Resources (NeDNR) jointly adopted a voluntary Integrated Management Plan (IMP), which became effective on May 15, 2014. The over-arching purpose of the IMP is to jointly manage groundwater and surface waters within the LPSNRD in order to sustain a balance between water uses and supplies for the near and long term. An in-depth public involvement plan, which included focus groups, a 13-month stakeholder process, a virtual town hall, and outside agency outreach, was an integral part in developing goals and objectives for the IMP.

The 2022 Annual Report covers the progress made towards IMP implementation for both the LPSNRD and NeDNR in 2022. It is consistent with Chapter 9 of the IMP, that outlines the procedures for review and potential modification of the IMP. LPSNRD and NeDNR report on data collected, report on new groundwater or surface water permits and uses, and review progress made toward achieving the goals and objectives of the IMP.

As a part of the process, the LPSNRD and NeDNR staff met to discuss progress made in 2022 towards the goals and objectives of the plan, action steps for the next two years (see the “Jointly Identified Actions” section), and whether modifications to the IMP were needed. The LPSNRD and NeDNR jointly decided that no modifications to the IMP were needed at the time of the 2022 annual review. The LPSNRD and NeDNR will continue to discuss the need for modifications to achieve consistency between the IMP and the Lower Platte Basin Water Management Plan, which was finalized in October 2017.

The LPSNRD and NeDNR worked collaboratively to write the report. Highlights from the report were presented to the LPSNRD Board and the public on August 16, 2023, at LPSNRD’s regularly scheduled Board meeting. Notice of the Board meeting was published in the *Lincoln Journal Star* on August 3, 2023, and a public announcement of the IMP review was posted on both the LPSNRD and NeDNR websites at least one week prior to the Board meeting.

Because the LPSNRD regulates groundwater and the NeDNR regulates surface water, some sections were individually written. Wherever possible, sections were written jointly to reflect our partnership for integrated groundwater and surface water management. The 2022 annual report provides transparency to the public and ourselves about the progress made by LPSNRD and NeDNR in implementing the IMP as a means to protect interconnected groundwater

and surface water resources for the near and long term.

Monitoring and Data Collection

Surface Water Monitoring

Streamgaging

The U.S. Geological Survey (USGS) owns and operates 21 streamgages in LPSNRD (Table 1: USGS Streamgages, LPSNRD locations). All but one (Weeping Water Creek at Union, NE) are located in the IMP surface water management area (Figure 1: USGS Streamgages map). Streamflow data on these gages is available on the USGS's National Water Information System (NWIS) at <http://waterdata.usgs.gov/>. NeDNR regularly assesses the need for modifications to the network in the IMP area.

Table 1: USGS Streamgages, LPSNRD locations.

Gage Name	Gage Number	Begin Date	LPSNRD funding assistance
Salt Creek at Roca, Nebr.	06803000	5/14/1951	yes
Salt Creek at Pioneers Boulevard at Lincoln, Nebr.	06803080	6/20/1994	yes
Haines Branch at SW 56th St at Lincoln, Nebr.	06803093	6/20/1994	yes
Middle Creek at SW 63rd St at Lincoln, Nebr.	06803170	6/20/1994	yes
Oak Creek at Air Park Road at Lincoln, Nebr.	06803486	5/21/1987	yes
Salt Creek at Fairgrounds at Lincoln, Nebr.	06803495	6/20/1994	no
Salt Creek at 27 th ST, Lincoln, Nebr.	06803500	5/11/1942	yes
Little Salt Creek near Lincoln, Nebr.	06803510	5/11/1942	yes
Salt Creek at 70th Street at Lincoln, Nebr.	06803513	5/31/1994	yes
Stevens Creek near Lincoln, Nebr.	06803520	10/14/1968	yes
Rock Creek near Ceresco, Nebr.	06803530	4/1/1970	yes
Salt Creek at Greenwood, Nebr.	06803555	1/16/1952	no
Wahoo Creek at Ashland, Nebr.	06804700	2/22/1990	yes
Weeping Water Creek at Union, Nebr.	06806500	1/11/1950	yes
Antelope Creek at 27th St at Lincoln, Nebr.	06803300	3/14/2012	yes
Deadman's Run at 38th Street at Lincoln, Nebr.	06803502	08/27/2014	no
Salt Creek near Ashland, Nebr.	06805000	10/01/2007	yes
North Oak Creek at Valparaiso, Nebr.	06803430	8/12/2016	yes
North Oak Creek near Touhy, Nebr.	06803420	8/12/2016	yes
Platte River near Ashland, Nebr.	06801000	8/20/1928	no
Platte River at Louisville, Nebr.	06805500	5/15/1953	no

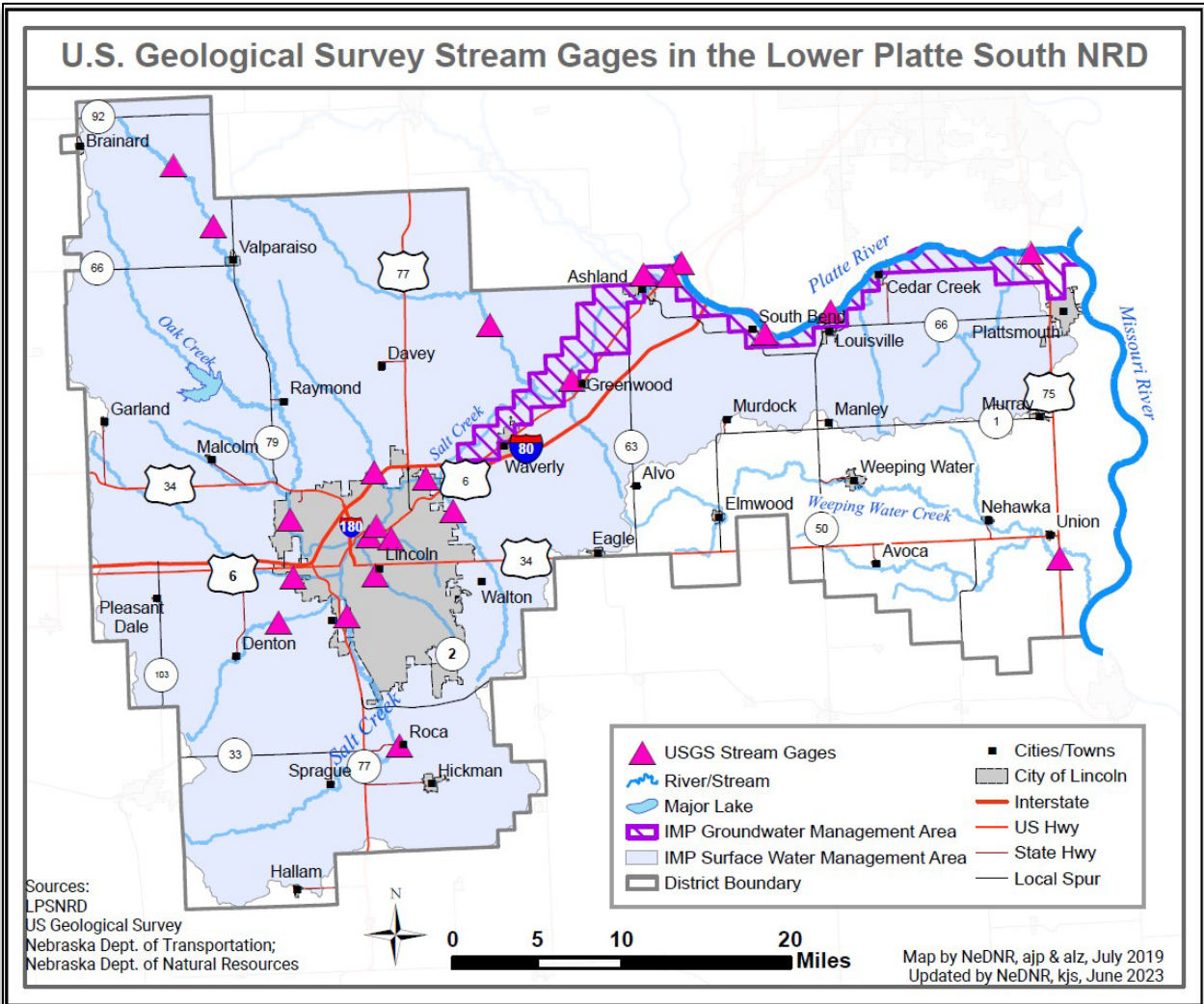


Figure 1: USGS Streamgages map, LPSNRD locations.

Streamgage data for select gages is included below. One gage is located on Salt Creek near Roca, one is on Salt Creek near 27th St. in Lincoln, and one is on the Platte River (Platte River at Louisville). These locations have long periods of record (near or over 50 years) and provide general insight into water supply trends over time.

The mean annual daily discharge over the period of record for the select streamgages is shown in Figures 2, 3, and 4.

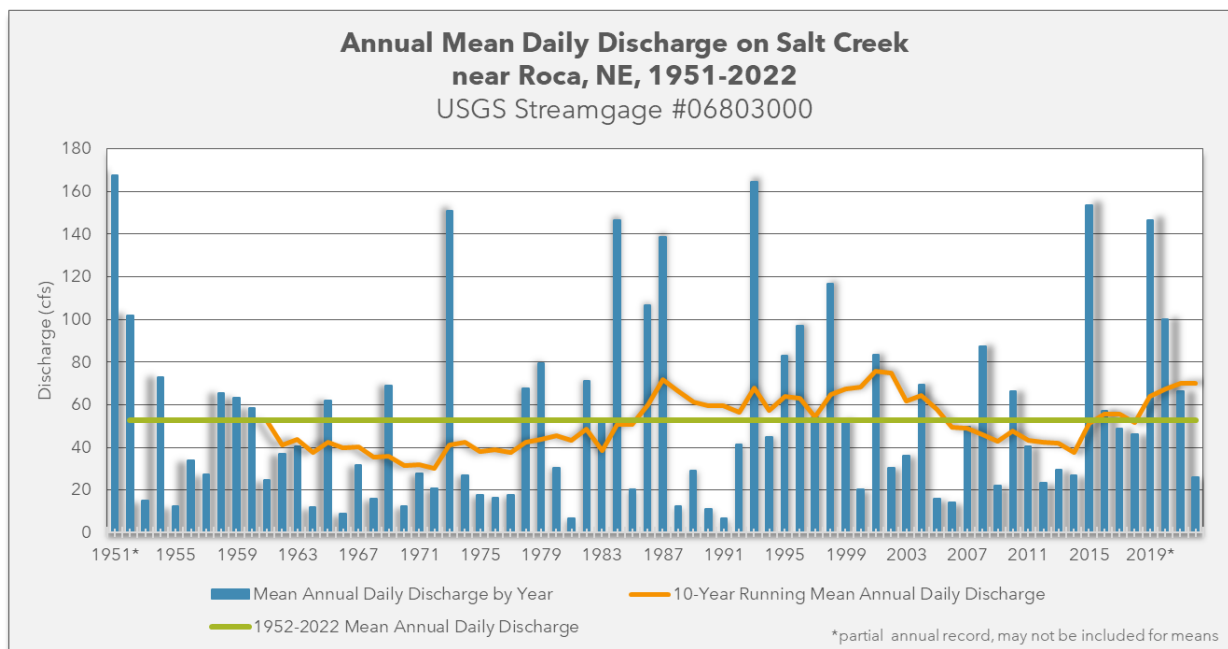


Figure 2: Historical annual discharge for Salt Creek at Roca, NE (USGS-NWIS).

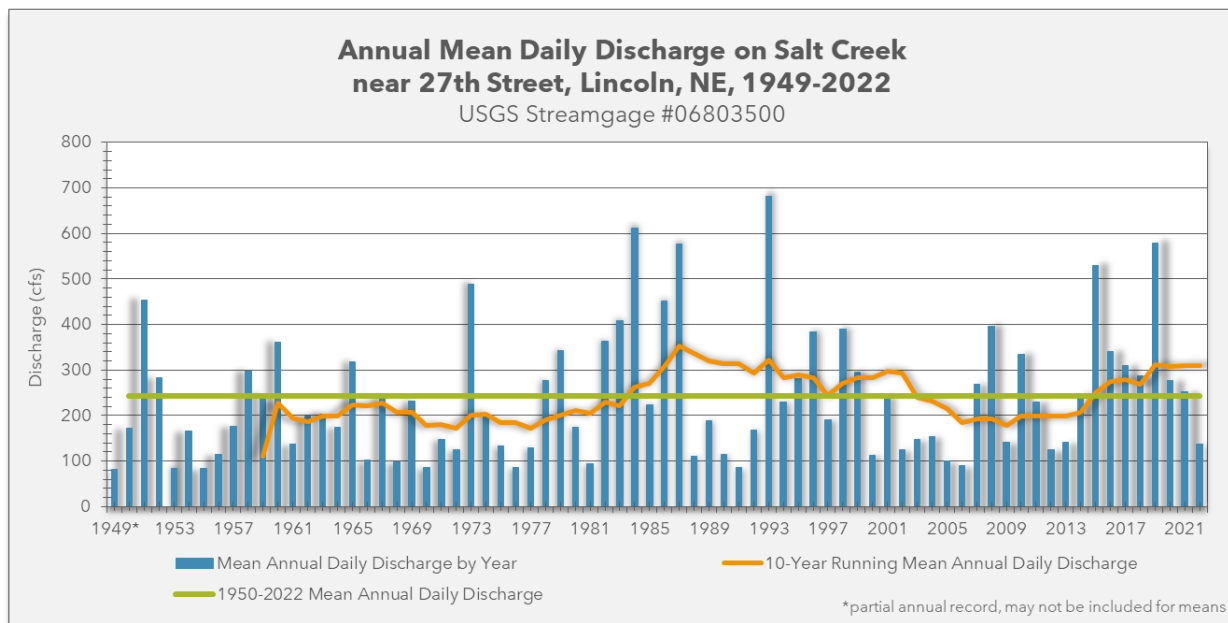


Figure 3: Historical annual discharge for Salt Creek near 27th St, Lincoln, NE (USGS-NWIS).

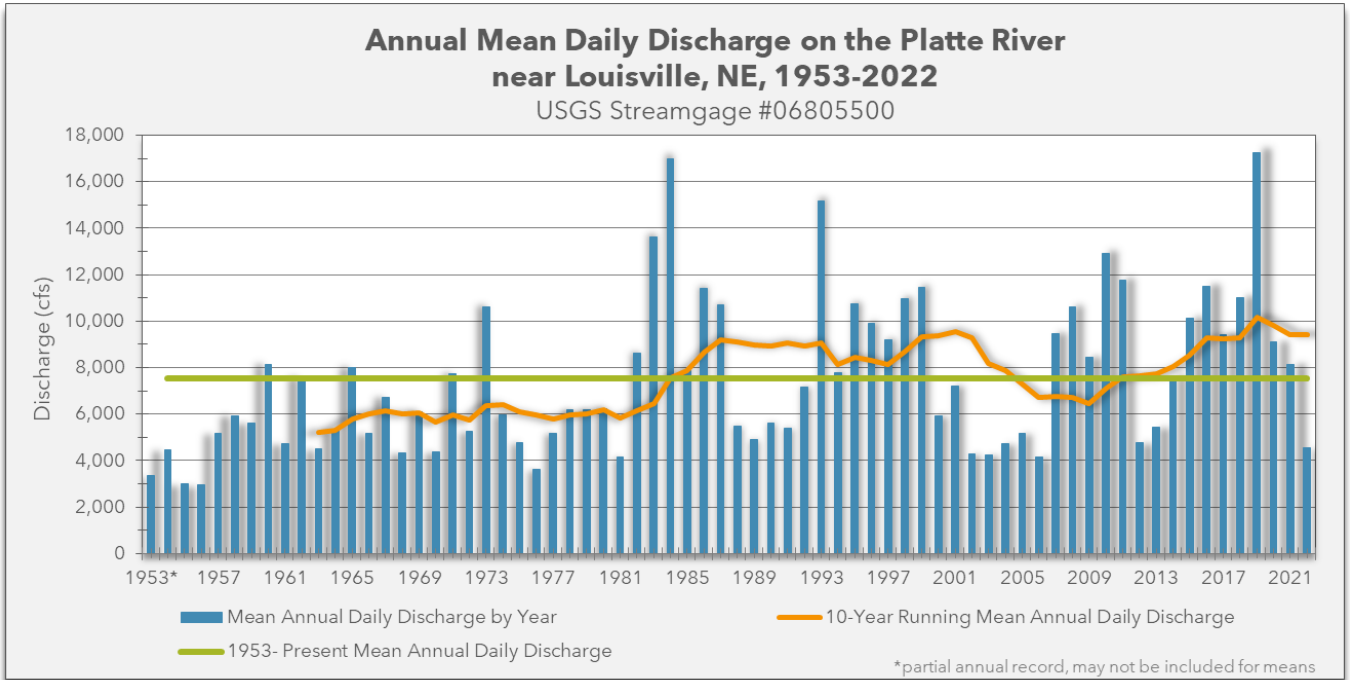


Figure 4: Historical annual discharge for the Platte River at Louisville, NE (USGS-NWIS).

Surface Water Permitting Actions

NeDNR continued to monitor and administer surface water appropriations and maintain records for new, cancelled, or transferred surface water permits. Figure 5 shows the general location of the new surface water permitting actions that resulted in no change in surface water irrigated acres. Table 2: 2022 Irrigated acres changes associated with surface water permitting actions. provides a summary of the 2022 irrigated acres change from all surface water permitting actions.

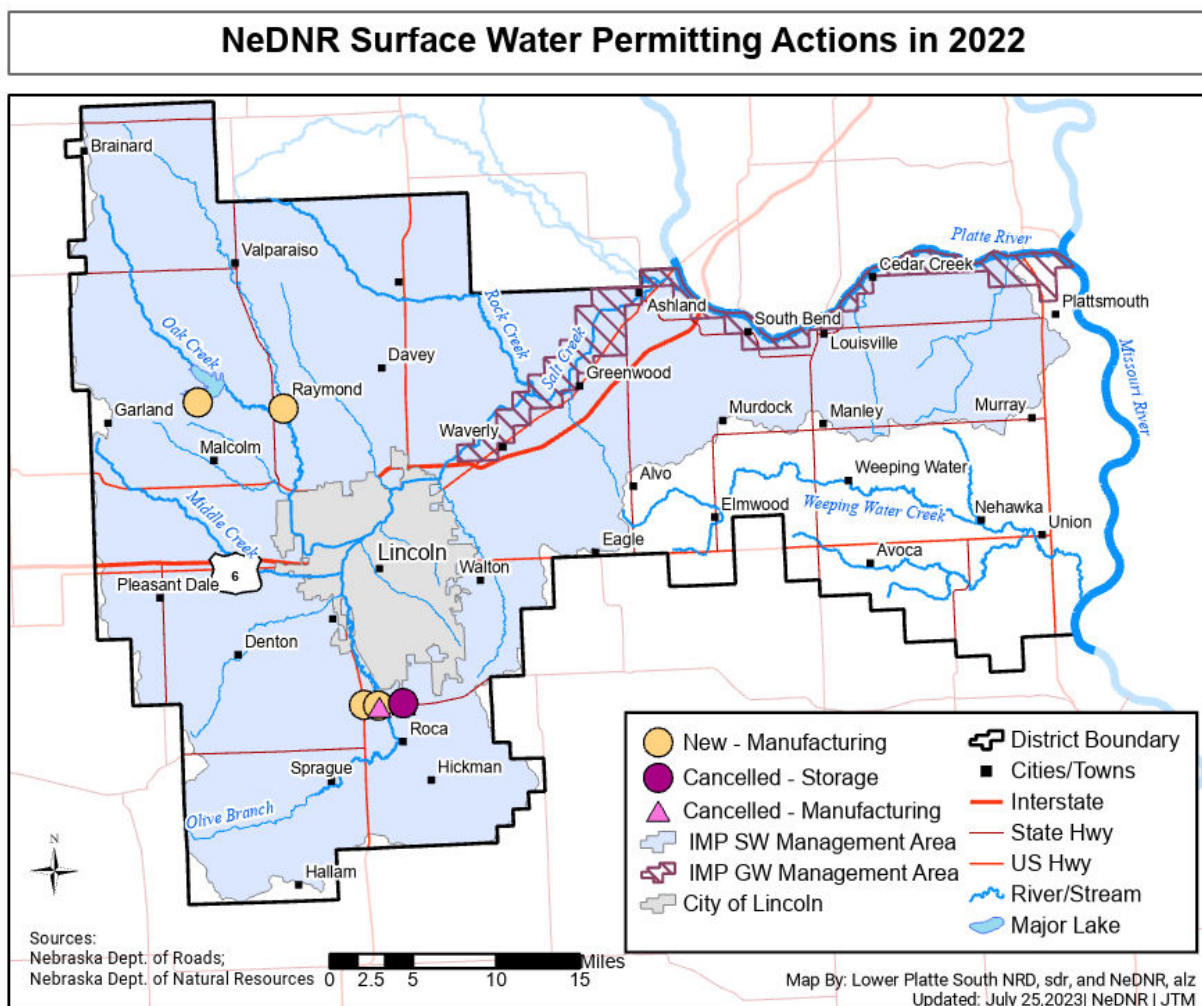


Figure 5: NeDNR surface water permitting actions occurring in 2022 within LPSNRD.

Surface water controls only apply to the area of the District within the Surface Water IMP area shown on Figure 5. Five new surface water permits were issued in the Platte basin IMP area in 2022. None of them had any effect on the total number of permitted surface water irrigated acres in the district because they were for manufacturing purposes. Outside of the Platte basin, two surface water permits were approved in the Missouri Tributaries basin. Three surface water permits were cancelled, as they expired one year from the approval date.

Table 2: 2022 Irrigated acres changes associated with surface water permitting actions.

2022 Irrigated Acres Changes Associated with Surface Water Permitting Actions		
Geographic Area	Newly Permitted Acres	Cancelled Acres
Lower Platte River Basin	0	0
Missouri River Tributaries Basin	193.6	0
Total (Whole NRD)	193.6	0

Table 3: 2022 Cancelled surface water permits.

Surface Water Appropriations Expired, Cancelled-in-Part or Cancelled-in-Full in 2022 Within the IMP Area											
Appropriation Number	Cancel Date	Source	NeDNR Action	Location of Diversion or Reservoir	Use	Begin Acres	Cancelled			Estimated Date of Last Use	Basis for NeDNR Action
							Acres	Grant in cfs	Grant in af		
A-19760	4/28/2022	Butch Cassidy Pond	Expired	S05-T08N-R07E	MF	NA	NA	NA	10	2021	TEMP
A-19765	4/28/2022	Trib. To Salt Cr.	Expired	S05-T08N-R07E	ST	NA	NA	NA	10	2021	TEMP
A-19779	6/14/2022	Salt Creek	Expired	S01-T08N-R06E	MF	NA	NA	4.9	NA	2021	TEMP

Five new surface water applications were approved from January 1, 2022, to December 31, 2022, within the IMP area. All are shown in Figure 5 and are summarized in Table 4. All new permits were for Manufacturing (MF), which are permits to divert water for manufacturing, construction, or industrial uses.

Table 4 summarizes new surface water applications that were approved within the Lower Platte South NRD in calendar year 2022. No surface water rights were transferred in 2022.

Table 4: NeDNR 2022 Approved surface water applications in LPSNRD IMP area

Surface Water Appropriations Approved in 2022 Within the IMP Area								
Appropriation Number	Date Approved	Source	Diversion or Reservoir Location	Sub-basin	Use	Grant (cfs)	Grant (af)	Acres
A-19828*	3/23/2022	Trib. to Salt Cr.	S01-T08N-R06E	Missouri River	MF	NA	10	NA
A-19829*	3/28/2022	Salt Creek	S01-T08N-R06E	Missouri River	MF	NA	10	NA
A-19841*	4/21/2022	Branched Oak Lake	S32-T12N-R05E	Missouri River	MF	NA	10	NA
A-19832*	4/24/2022	Oak Creek	S06-T11N-R06E	Missouri River	MF	NA	906	NA
A-19848*	5/13/2022	Oak Creek	S06-T11N-R06E	Missouri River	MF	NA	906	118.4

Voluntary Surface Water Use Reporting

NeDNR invites surface water irrigation permit holders within LPSNRD to participate in the voluntary reporting program. Participants could submit information via an online form or by directly calling NeDNR. Fifty-two reports from a possible 209 water rights were received in 2022 for a response rate of 25%. Sixty-eight reports from a possible 208 water rights were received in 2021. The data collected through the voluntary water use reporting program includes information about whether a surface water permit holder irrigated that year, if they used groundwater or surface water, how many acres they irrigated, what types of crops were grown, and reasons for not irrigating (if applicable).

Surface Water Pump-Site Visits

The NeDNR Field Office staff has been conducting surface water pump-site inspections across Nebraska for the past seven years. Pump-site inspections complement the voluntary water use reporting program and provide further information about surface water use. The field office staff's goal is to inspect each pump-site at least once every two years as time and conditions allow. In 2022, NeDNR Field Office staff inspected 181 of a possible 210 irrigation permit pump-sites (86%). 32 sites had been set up for surface water irrigation and 16 were noted to be groundwater irrigated.

Groundwater Monitoring

IMP Groundwater Management Area

The IMP Groundwater Management Area is limited to the Hydrologically Connected Area (HCA). There are a total of 393 wells in the HCA. Flow measurement meters and water use reports are required for any well with the capacity to pump 50 gallons per minute or greater. Of these, there are 26 irrigation wells, 5 commercial wells, and 6 other wells which, when combined, account for nearly 766 million gallons of groundwater pumped. Also in the HCA area, there are 195 registered domestic wells, and 75 registered public water supply wells. Municipal water wells in the HCA include wells for Waverly, Ashland, Louisville, Lincoln, Metropolitan Utilities District, Omaha Fish & Wildlife Club, Cass SID #5, and Cass Rural Water District #1.

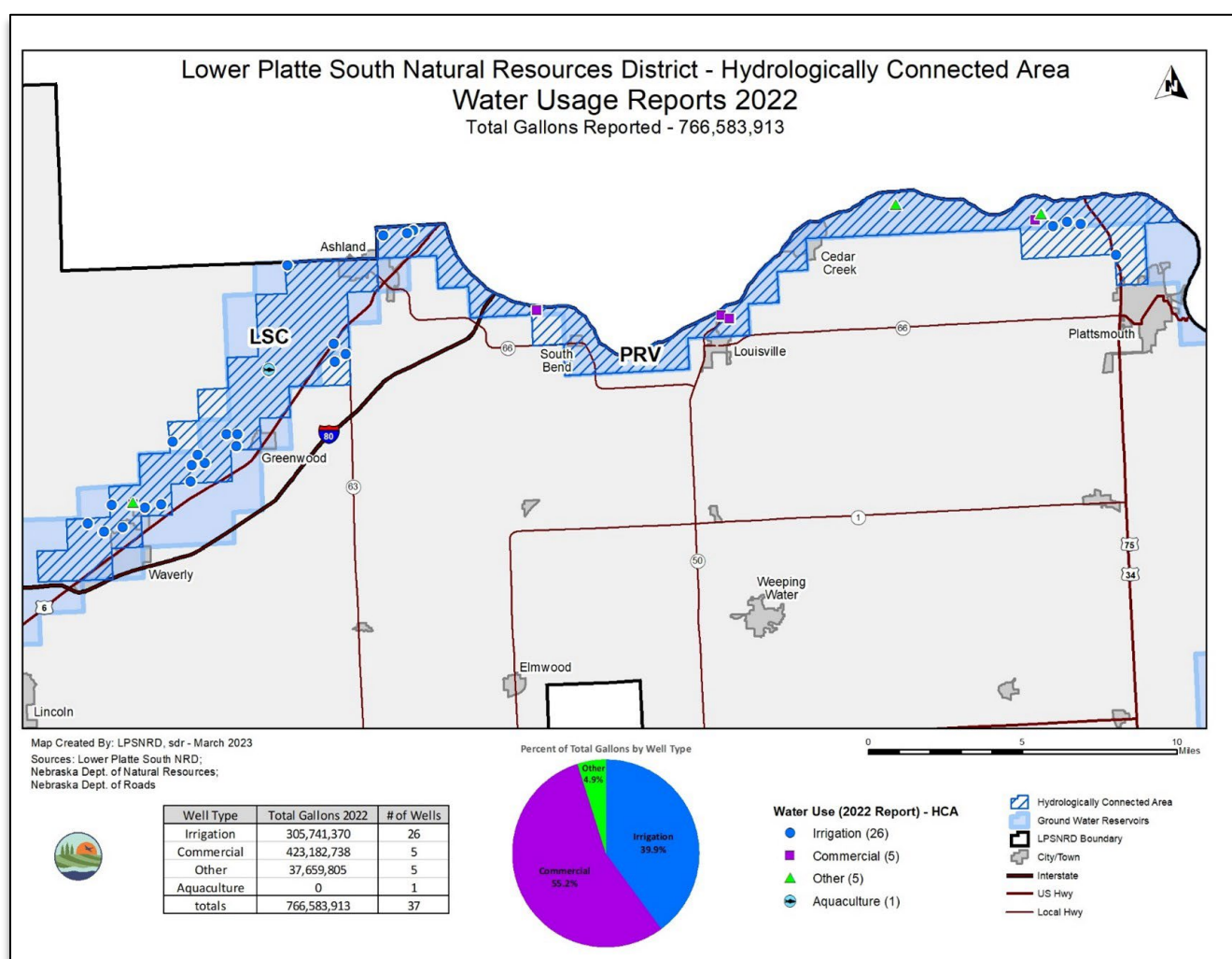


Figure 6: LPSNRD 2022 Groundwater use in the hydrologically connected area (HCA).

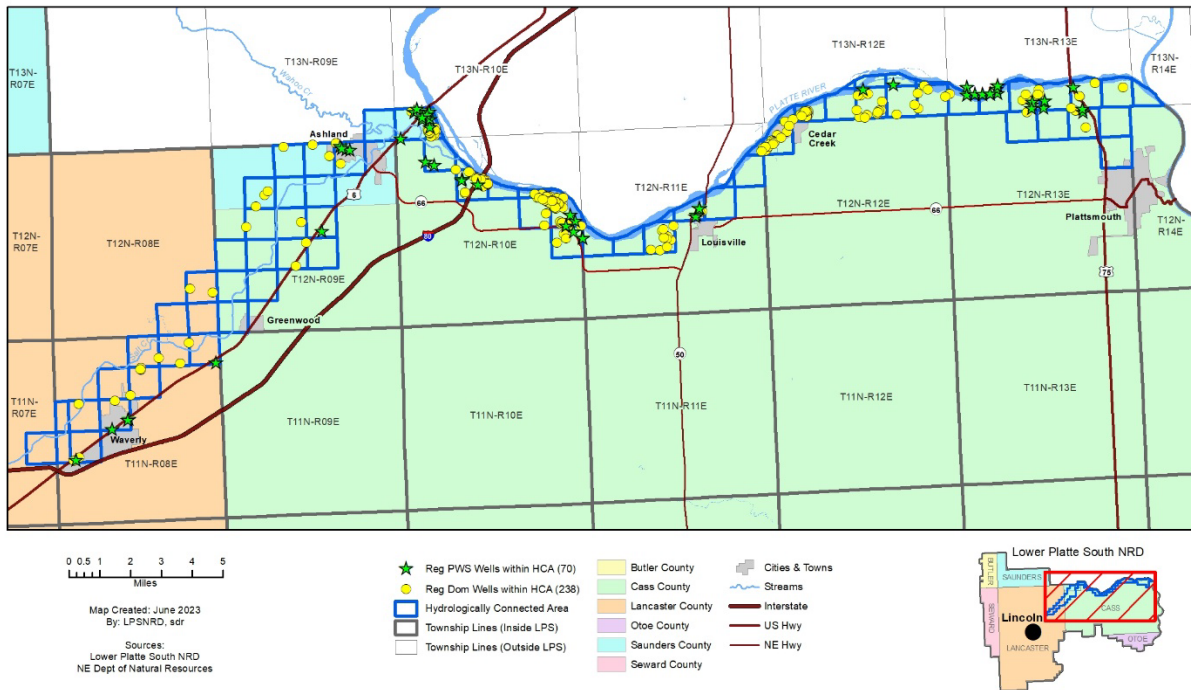


Figure 7: LPSNRD 2022 Registered domestic and public supply wells (HCA).

Metering and Groundwater Level Monitoring

All wells with capacity to pump over 50 gallons per minute (gpm) are metered. There were 348 such wells in LPSNRD at the close of 2022. LPSNRD collected records of usage from these wells and several public supply wells (PWS). The calculated total pumping for 2022 from these metered wells was 5.5 billion gallons, with 275 irrigation wells accounting for 67% of the total measured pumping. This total pumping did not include all the PWS, as the District is still establishing uniform procedures for PWS well reporting. In addition, LPSNRD inspected and read 146 groundwater well meters during 2022.

LPSNRD also collected groundwater level data from 148 wells in the spring and fall of 2022 and all of those wells are part of LPSNRD's official water level network. Of those, 25 wells showed an increase and 123 wells showed a decline from spring 2021 to spring 2022; the maximum decline was 5.76 feet while the maximum increase was 3.65 feet, with an average static water level decrease of 1.33 feet. Figure 8 shows a spatial representation of groundwater level changes. The average change by groundwater reservoir is shown in Table 5.

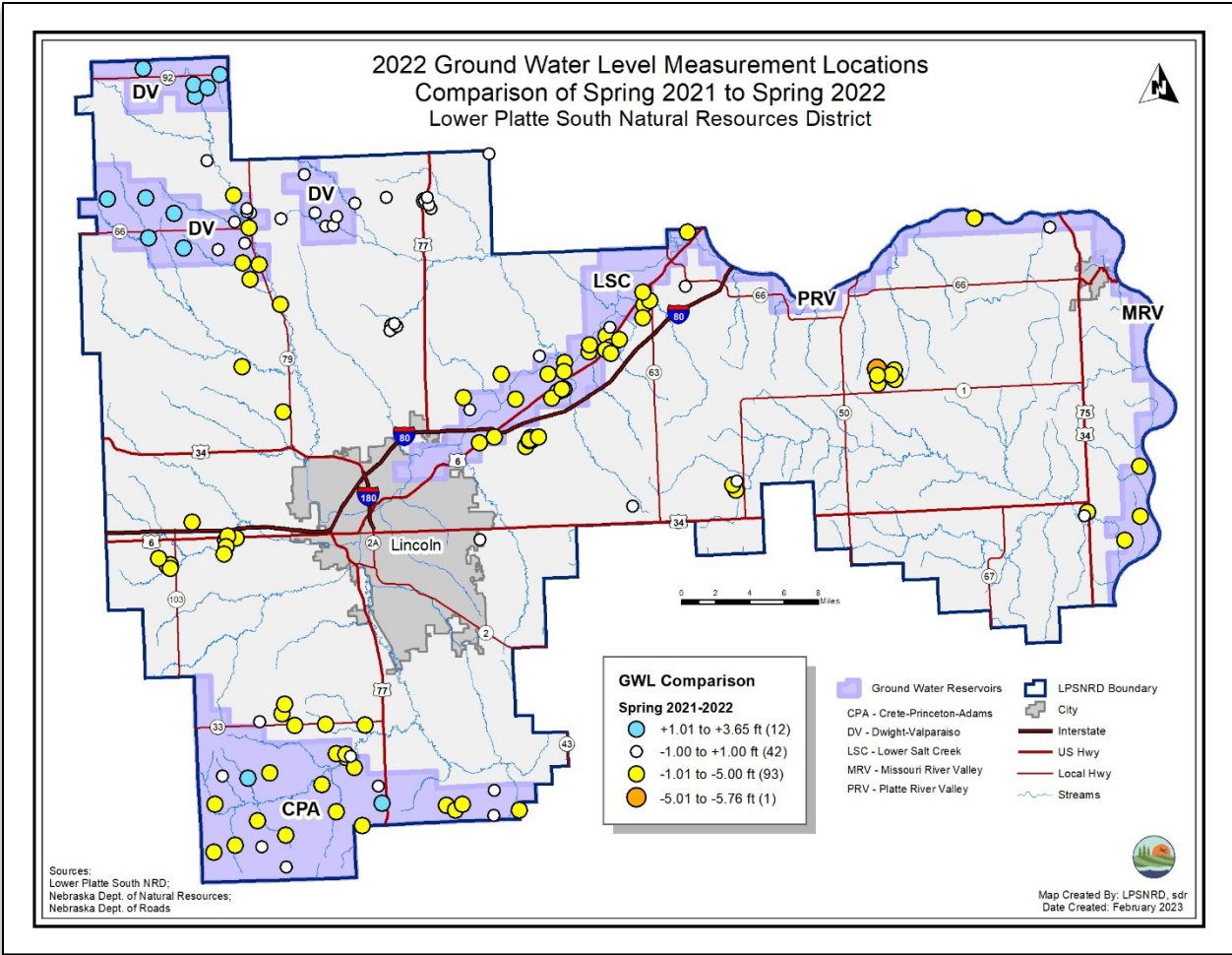


Figure 8: 2022 Groundwater level measurement comparison, spring 2021 and spring 2022.

Table 5: Groundwater reservoir average well level change, spring 2021 to spring 2022.

Average Well Level Change by Groundwater Reservoir	
GW Reservoir	Spring 2021 to Spring 2022 (ft)
Crete-Princeton-Adams	-1.06
Dwight-Valparaiso	0.57
Lower Salt Creek	-1.99
Missouri River Valley	-3.53
Platte River Valley	-1.09
Remaining Area	-1.80

Groundwater Permitting Activities

LPSNRD issued 5 well permits throughout the District in 2022 for varied uses, as reported in Table 6. In 2022, the one well completed was not located in the hydrologically connected area. All statutory well-spacing minimum requirements were followed for all new and replacement wells.

Table 6: LPSNRD 2022 Approved or completed groundwater wells.

Well Type	Approved Well Permits, 2022	Completed Wells, 2022¹
Irrigation	3	0
Commercial	0	0
Domestic	0	0
Geothermal	0	0
Livestock	0	0
Other	2	1
Totals	5	1

¹ Wells completed in 2022 may have been approved in a prior year

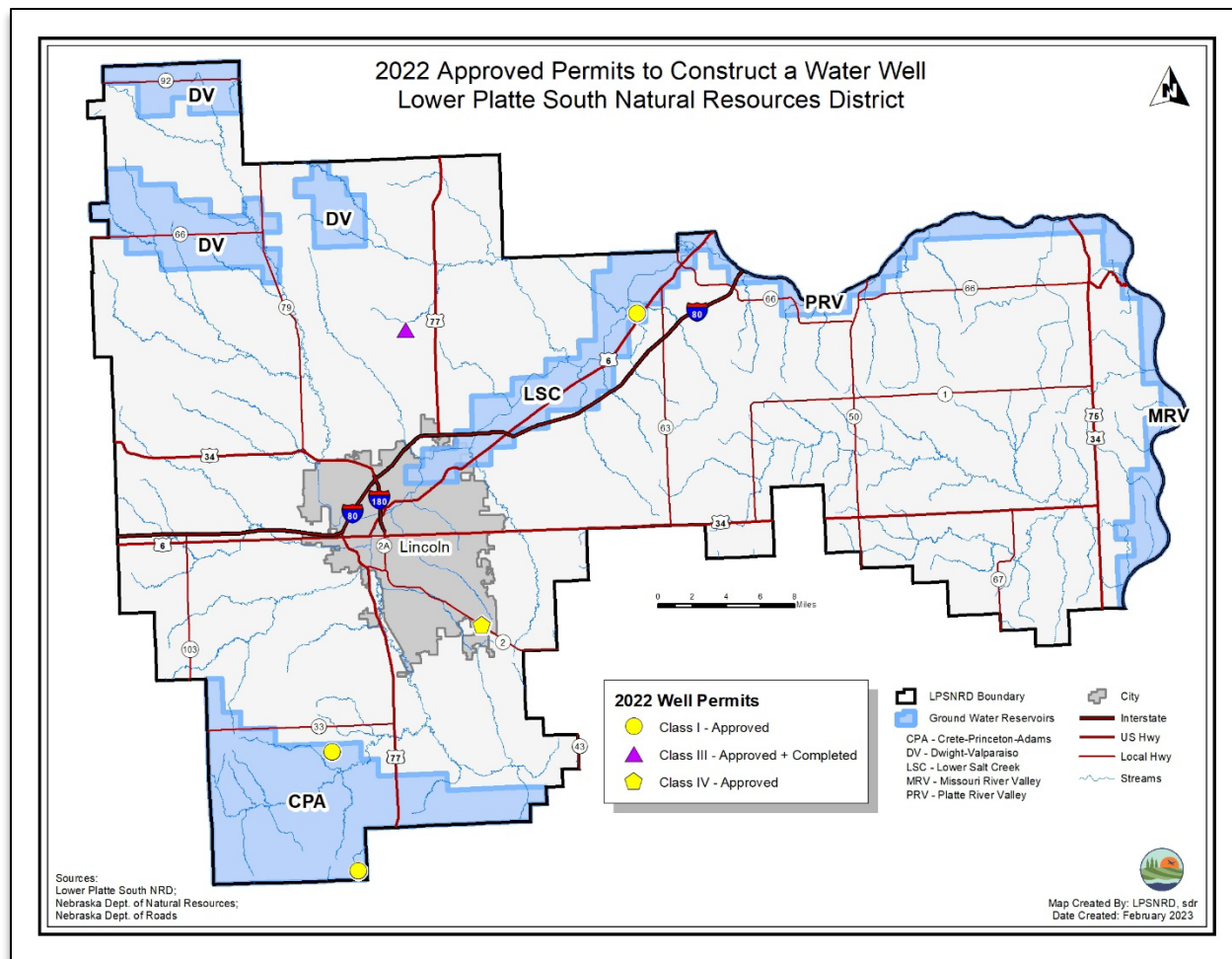


Figure 9: LPSNRD 2022 Groundwater well permits approved or completed.

Land Use and Land Cover (LULC) Monitoring and Actions

In 2022, LPSNRD did not certify any additional groundwater irrigated acres within the HCA. As specified in the IMP, newly certified groundwater irrigated acres within the HCA did not exceed the amount agreed to under the terms of the Platte River Basin Coalition agreement. The total number of certified acres in the HCA is 3,268 and the extent of these acres is shown in Figure 10. The district-wide extent of certified acres is shown in 11. There was one variance granted in 2022 (Monolith aquifer testing requirement).

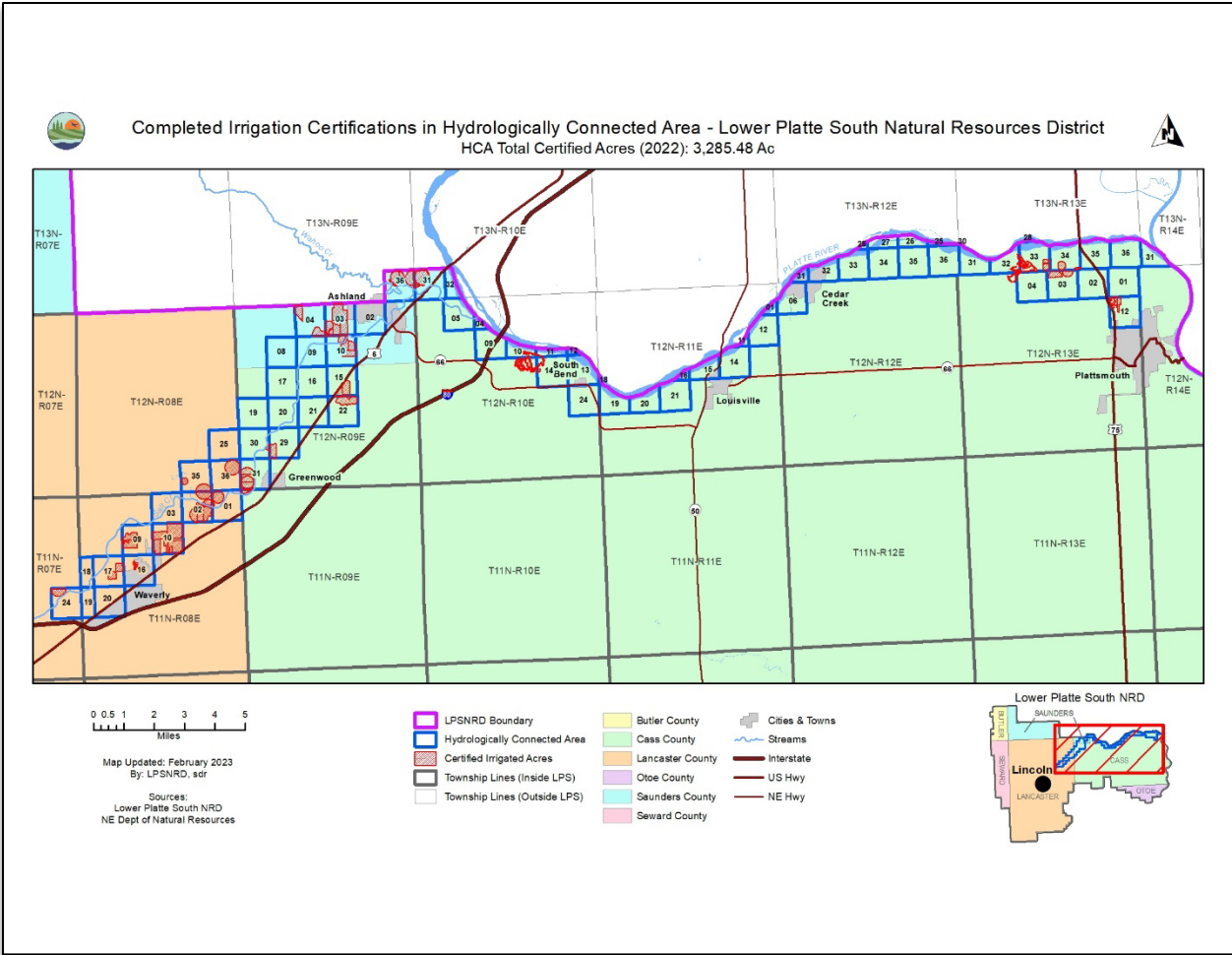


Figure 10: 2022 HCA Certified groundwater irrigated acres, LPSNRD.

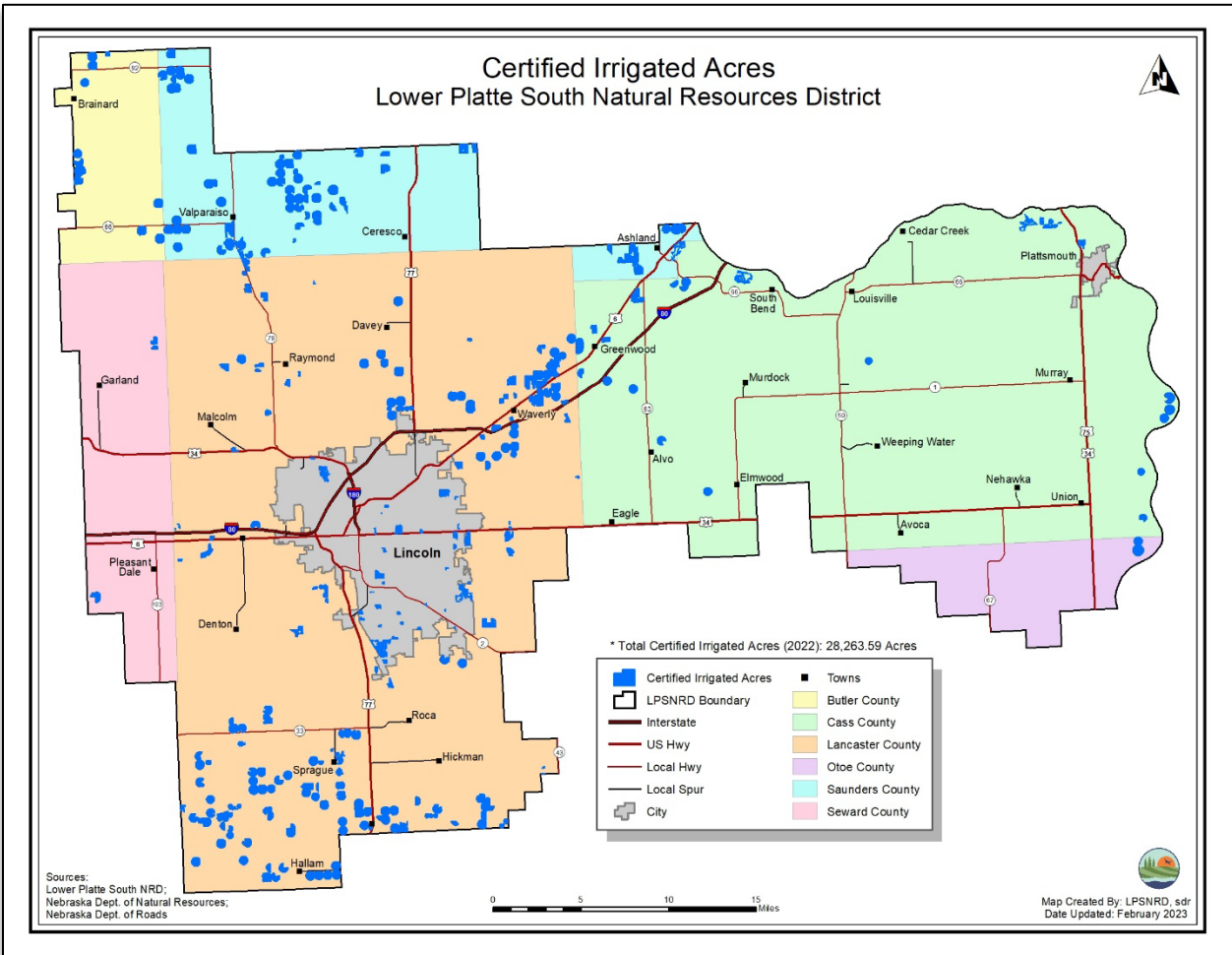


Figure 11: 2022 LPSNRD certified groundwater irrigated acres.

2022 IMP Regulatory Actions

LPSNRD Groundwater Acres Limitations

The expansion of irrigated acres in the HCA continues to be allowed as agreed by the conditions of the Lower Platte River Basin Coalition. A temporary moratorium on the Dwight-Valparaiso area was lifted in 2014 following designation of the Dwight-Valparaiso-Brainard Special Management Area. A rule to not allow an increase in irrigated acres and pumping allocations for irrigated land continues to be in effect for the western portion of the Special Management Area.

NeDNR Surface Water Acres Limitations

Pursuant to the IMP, as of January 1st for each year NeDNR sets its surface water limitations to 1/3 the number of acres that the LPSNRD allows for groundwater irrigated acres. A limit of 198 surface water acres has been and continues to be in place for the LPSNRD's surface water management area. The surface water limit has remained consistent since the IMP was adopted, since LPSNRD's groundwater acres limit (593 acres) has stayed consistent throughout this time.

Future limits on water use

The LPSNRD and NeDNR have been and will continue to hold discussions about the method of limiting water development, relative to the adoption of the Lower Platte Basin Water Management Plan (Basin Plan). The Basin Plan has established limits on new basin wide water development and by individual NRDs for a five-year increment that ended in 2021. These limits are based on stream depletions rather than irrigated acres limitations. In 2022, LPSNRD continued to cooperate with the other Basin NRDs and agreed to implement the second five-year increment based on remaining new uses from the first increment. The LPSNRD and NeDNR will continue to work together to ensure compliance with the Basin Plan, as well as assess the need to incorporate new consistent language in the IMP with the Basin Plan.

Studies and Planning

The following studies were continued or recently completed by the LPSNRD and NeDNR to gather and evaluate data, information, and methodologies that could be used to increase understanding of surface water and groundwater supplies and uses within, and, as appropriate, outside LPSNRD. These studies help to meet the goals and objectives that were developed through the IMP stakeholder process.

Lower Platte Missouri Tributaries Model Development

NeDNR has completed the development of a regional numerical groundwater model for the Lower Platte and northern Missouri River Tributaries basins, the LPMT Model (Figure 15). The model may be used for future updates to NeDNR's Annual Evaluation of Availability of Hydrologically Connected Water Supplies. A future refinement to the model is being considered as the Lower Platte Basin NRDs discuss how airborne electromagnetic (AEM) data will be incorporated into this model. Data is collected via in-flight instrumentation.

The first AEM data step evaluation occurred via a study with the Lower Elkhorn NRD. The first phase concluded in FY 2019, the second phase was initiated in early FY 2020, and continued through FY 2022. Subsequently, the Papio-Missouri River and Lower Platte North NRDs conducted a similar scope project through a Water Sustainability Fund (WSF) award (#5303) with NeDNR in FY 2021 and FY 2022. Following FY 2022, Lower Platte South NRD was awarded WSF grant #5311: LPSNRD 3-D Hydrogeologic Framework. They will build a three-dimensional geologic model delivered in a user-friendly platform that will be useable between NRD boundaries to support collaborative NRD and NeDNR efforts. LRE Water was contracted to complete the work required in 2022 and the project is on schedule to be finished in 2023.

NeDNR's Lower Platte Missouri Tributaries Models

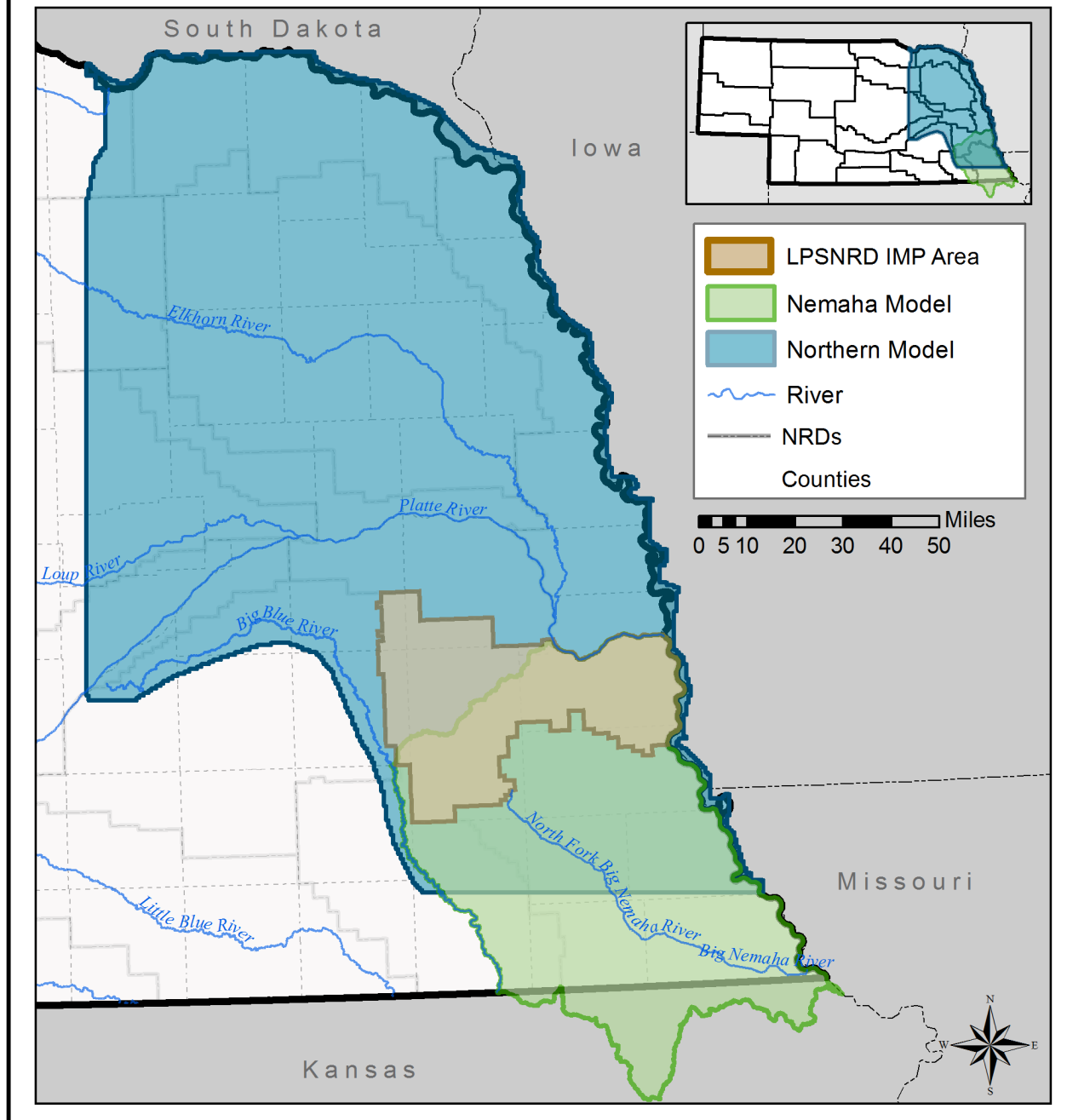


Figure 12: Lower Platte and Missouri tributaries models' geographic locations.

Water Inventory and Water Use/Supply Management

LPSNRD Accomplishments

LPSNRD continues to collect and share data and works to improve the database that houses the information, reviewed groundwater well permits relative to aquifer capacity and sustainability, and continues an open dialogue with public water suppliers on current and future water supplies and supported storm water capture and reuse projects in the district. Additionally, LPSNRD participates with the Lower Platte River Weed Authority and the Lancaster County Weed Authority on invasive species control relative to water supply.

NeDNR's INSIGHT Web Portal

The Integrated Network of Scientific Information and Geohydrologic Tools (INSIGHT) web portal (<https://nednr.nebraska.gov/INSIGHT/>) is a water use, supply, and balance tool developed by NeDNR and released in 2014. INSIGHT aids water managers and other interested parties in better understanding current and future water demands, effectiveness of water management strategies, and critical areas of water shortage. A user can access information pertaining to water supplies and demands (precipitation, irrigation, hydropower, etc.), as well as view maps with associated charts that show overall water balance (current, near-term, or long-term) at a subbasin scale. A valuable INSIGHT feature is that all the datasets used to compile the water balance analyses are also stored within the web portal and are available for download.

NeDNR continues to update the current INSIGHT analysis, adding other basins to the web portal as new data become available. At this time, NeDNR has compiled data for the Lower Platte River, from North Bend, NE, to Louisville, NE, covering a large portion of the LPSNRD IMP area. The last major update for INSIGHT was the addition of data for the Upper Platte River Basin in 2019. Data for the Lower Platte River Basin are expected to be added during calendar year 2023.

Education/Outreach

NeDNR Activities

Events

NeDNR's statewide public outreach activities are broadly focused and intended to provide all interested citizens with a better understanding of how integrated water management affects them in their daily lives. In 2022, NeDNR participated in Husker Harvest Days and the Nebraska State Fair.

LPSNRD Activities

Each February, LPSNRD compiles a Ground Water Management Plan Review; a report of all groundwater activities completed in the previous calendar year. The report includes results of well sampling and measuring, progress made in ongoing groundwater programs, the status of each groundwater management area, and more. The review is presented as a summary to the LPSNRD Board of Directors, and the complete review is posted on LPSNRD's website, <http://www.lpsnrd.org>. The posted review is promoted on the LPSNRD website home page and in LPSNRD's newsletter.

As noted on the following page under Collaboration with Other Entities, LPSNRD continues hydrogeologic assessment activities with the Eastern Nebraska Water Resources Assessment (ENWRA).

The NRD continues to host "Test Your Well Nights" events for specific areas and plans one or two each year. Private well owners can bring water samples for nitrates testing. LPSNRD collaborated with local FFA chapters and science students to test the water. Due to scheduling conflicts, there was not a "Test Your Well Night" held in calendar year 2022.

LPSNRD promotes its groundwater activities through social media platforms Instagram and Facebook. Information is shared about groundwater levels, samples, data loggers, and monitoring wells.

LPSNRD continually seeks to maintain public awareness of information about groundwater levels, available cost-sharing, and conservation best management practices through its publications, website, and LPSNRD media.

LPSNRD, in conjunction with NeDNR, held quarterly coordination meetings to discuss IMP and related action items. In 2022, meetings were held on February 1, June 22, August 8, and November 9.

Collaboration with Other Entities

Eastern Nebraska Water Resources Assessment

Both LPSNRD and NeDNR participated in the Eastern Nebraska Water Resources Assessment (ENWRA) program in 2022, a cooperative endeavor for hydrogeologic data research and modeling. LPSNRD continued financial and administrative handling in FY 2022 of ENWRA, which is organized through an interlocal cooperative agreement with the six NRDs in eastern Nebraska. As part of the ENWRA study efforts, ENWRA continued the Water Sustainability Fund (WSF) contract #5312: ENWRA Groundwater Recharge Mapping and Focus Area Assessments. It is a three-phase collaborative effort with the Conservation and Survey Division, School of Natural Resources, University of Nebraska-Lincoln (UNL CSD) and the U.S. Geological Survey (USGS) in order to better understand and map aquifer recharge in Eastern Nebraska. Additionally, LPSNRD continues to collaborate with UNL CSD on the test hole drilling program (four locations in LPSNRD in 2022) and with the 10 NRDs in the Interlocal for the Nebraska GeoCloud Project through cooperation with ENWRA.

Lower Platte River Basin Coalition

LPSNRD and NeDNR are active participants in the Lower Platte River Basin Coalition (LPRBC), a group comprised of the seven Lower Platte River Basin NRDs and NeDNR. The group's purpose is to develop, and now implement, a voluntary water management plan for the Lower Platte River Basin. Plan components will be subsequently incorporated into individual IMPs to provide consistency in water management actions across NRD boundaries. Both NeDNR and LPSNRD have representatives that serve on the Coalition's managers and technical committees and Board. The second 5-year increment of the voluntary water management plan will end in December 2026. For more information about the Coalition, please see <https://lprbc.nebraska.gov/>.

Lower Platte River Consortium

LPSNRD and NeDNR are committed and participating members of the Lower Platte River Drought Consortium (LPDC). The LPDC was formed through an interlocal agreement in 2016 and also includes Lower Platte North NRD, Papio-Missouri River NRD, Omaha's Metropolitan Utilities District (M.U.D.), and Lincoln Water System (LWS) as members. The Consortium is working together to develop regional solutions for the Lower Platte River to improve water supply reliability and drought resiliency.

The Lower Platte River Drought Contingency Plan (LPRDCP) is a collaborative project among these six water management agencies along with the Bureau of Reclamation. The LPRDCP was submitted to the Bureau of Reclamation for review and was finalized in October 2019. The Coalition is currently preparing for the upcoming five-year Plan Review and update in 2024.

Lower Platte River Corridor Alliance

The Lower Platte River Corridor Alliance (LPRCA) is a group comprised of the eight agencies, including the Lower Platte South NRD, Lower Platte North NRD, Papio-Missouri River NRD, NeDNR, Nebraska Department of Environment and Energy, Nebraska Game and Parks

Commission, Nebraska State Military Department, and the University of Nebraska Institute of Agriculture and Natural Resources. Both LPSNRD and NeDNR are active participants. The LPRCA is dedicated to working with people to protect the long-term vitality of the Lower Platte River Corridor. The mission of the LPRCA is to foster the development and implementation of locally drawn strategies, actions, and practices to protect, enhance, and restore the vitality of the Lower Platte River's resources. Created in 1996 through an interlocal agreement, the Alliance uses a variety of tools to assist counties, communities, governments, resource management organizations, and the public to meet Lower Platte River Corridor management challenges. These tools include public awareness events, educational workshops, recreation studies, water quality studies, floodplain studies, land-use planning assistance, and a variety of other projects. For more information about the LPRCA, please see www.lowerplatte.org.

Other Collaborations

The LPSNRD and USGS cooperated to collect surface water/streamflow data. In 2015, LPSNRD staff contacted USGS personnel to begin identification of new streamgage locations in the Oak Creek drainage of the Dwight-Valparaiso-Brainard Special Management Area. Two new gages were installed in 2016; one near the village of Valparaiso and the other northwest of the unincorporated community of Touhy. The effort utilized 2013 AEM data and will ultimately be aimed at further defining the relationship between groundwater and surface water in the area. The LPSNRD has cooperatively shared groundwater data with UNL, USGS, adjoining NRDs, and NeDNR.

In mid-2021, LPSNRD applied for and received in late 2021 a Water Sustainability Fund (WSF) grant in the amount of \$247,500 for a Three-Dimensional Hydrogeologic Framework Project. LPSNRD will provide \$169,000 matching funds for a total project cost of \$416,500. A contractor was selected in early 2022, and the project is slated to be completed by December 2023. The project builds on work completed and/or underway by the Lower Elkhorn, Papio-Missouri River, and Lower Platte North NRDs.

Jointly Identified Actions for Succeeding Two Years

As the IMP states, LPSNRD and NeDNR will jointly identify action steps for the succeeding two years as a part of its annual reviews process. The following actions were identified by the LPSNRD and NeDNR as priorities for the next two years. These actions will help ensure that progress continues towards meeting the goals and objectives of the IMP.

LPSNRD and NeDNR

1. Continue to participate in basin-wide or regional groups such as ENWRA, the Lower Platte River Consortium, Lower Platte River Basin Coalition, and the Lower Platte River Corridor Alliance.
2. Continue to assess the need to amend the IMP to achieve consistency with the Lower Platte Basin Water Management Plan, specifically with stream depletion-based limits on new groundwater and surface water uses.
3. Continue respective public outreach activities and seek additional opportunities for joint public outreach events and publications.
4. Continue to evaluate the need for modifications to the LPSNRD streamgauge network.
5. Continue to conduct quarterly coordination meetings with LPSNRD and NeDNR staff to discuss IMP and related action items. Include the LPSNRD Integrated Management Subcommittee members on coordination meetings twice per year.
6. Development, testing, and incorporation of AEM data for the LPMT model.
7. Ongoing Annual reporting and tracking requirements for IMP and Basin Plan.

LPSNRD

8. Continue to monitor groundwater level changes through its network of groundwater monitoring wells.
9. Continue to meter and require annual pumping reports for groundwater wells that have capacity to pump over 50 gpm, as well as public supply wells, and assimilate the data into a comprehensive dataset.
10. Continue to collect information on municipal, rural water, and non-municipal industrial water use, land use and population changes, and changes in climate.
11. Develop recommendations for the development and management of geographic areas with limited aquifers.
12. Conduct discussions with municipalities and rural water districts on coordinating services with regional systems and on water shortage action plans.

NeDNR

13. Continue surface water monitoring activities including tracking surface water permit changes, pump site inspections and the voluntary surface water use reporting program.
14. Continue technical analyses and development of tools (INSIGHT) for water management, expanding the network to eastern Nebraska as data become available.

15. Continue development of the Lower Platte Missouri Tributaries models and convey progress and outcomes to LPSNRD.