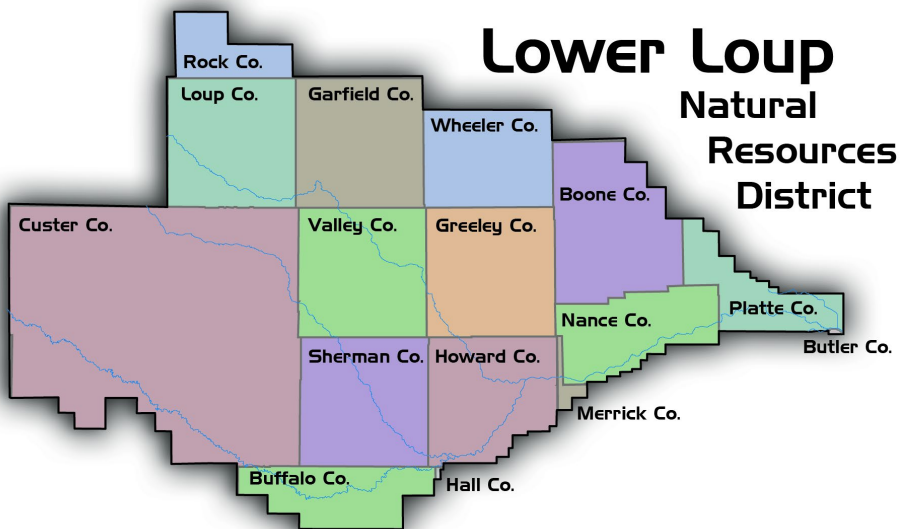




Master Plan 2022-2032



Lower Loup Natural Resources District

Lower Loup Natural Resources District
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Contents

Purposes	3
Authorities	3
The Natural Resources Declaration of Intent	4
Lower Loup Natural Resources District Board of Directors	6
Lower Loup Natural Resources District Staff	7
District Description	8
LLNRD MAP	9
Population	10
Agriculture (NRCS)	10
Forestry	10
Wildlife	11
Instream Flow Water Rights	11
Endangered species	12
<i>Nebraska's Endangered Species</i>	12
Outdoor Recreation	12
Irrigation Districts	12
Industry	14
Electrical Power	14
Transportation	14
Flood Prevention and Control	15
HAZARD MITIGATION PLAN	15
Climate	15
Cooperating Agencies	16
Introduction	17
Goals and Objectives	17
1.0 Resource awareness.	17
2.0 Prevent Damage from flood waters.	18

<i>3.0 Development and management of groundwater and surface water for beneficial uses</i>	<i>18</i>
<i>4.0 Forestry management.....</i>	<i>19</i>
<i>5.0 Water quality and pollution control.....</i>	<i>19</i>
<i>6.0 Erosion prevention, control, and sediment reduction.....</i>	<i>20</i>
<i>7.0 Range management.....</i>	<i>21</i>
<i>8.0 Drainage improvement and channel rectification.....</i>	<i>21</i>
<i>9.0 Development and management of fish and wildlife habitat.....</i>	<i>21</i>
<i>10.0 Development and management of recreational and park facilities.....</i>	<i>22</i>
<i>11.0 Solid waste recycling and disposal.....</i>	<i>22</i>

Purposes

This Lower Loup Natural Resources District’s Master Plan provides a blueprint for the management, utilization, and development of natural resources within the district boundaries. Nebraska’s Natural Resources Districts are required to file a Comprehensive Resources Plan, or Master Plan, at least every ten years in accordance with Nebraska Revised Statutes 2-3276. In addition, Neb. Rev. Stat 2-3280 states that “No state funds shall be allocated or disbursed to a district unless that district has submitted its master plan in accordance with sections 2-3229 and 2-3276 to 2-3280.

Authorities

Nebraska’s Natural Resources Districts were created by the Nebraska Legislature in 1969 with the passage of LB 1357. The districts were formed to provide a locally elected entity that could implement portions of the state water plan. The current 23 NRDs were established to replace 154 special purpose districts.

The predecessors to the NRD system were Soil and Water Conservation Districts. These Districts were set up in Nebraska in 1937 to provide sponsorship for the Soil Conservation Service, part of a federal plan for soil conservation. The first state Soil and Water Conservation Commission helped form the new Districts and by the end of 1949, Nebraska became the first state west of the Mississippi to have all its ninety-three counties organized into conservation districts.

Nebraska’s system of local natural resources management is unique in the United States. Unlike the county-wide districts found in most states, Nebraska’s Natural Resources Districts are based on river basin boundaries, enables them to approach natural resources management on a watershed basis.

The Lower Loup Natural Resources District is a political subdivision of the State of Nebraska. The districts’ authority to function is contained in State Statute-Chapter 2, Article 32, Sections 2-3201 to 2-32101, RRS, Nebraska, 1943. Additional authorities are found in the Erosion and Sediment Control Act,

Chapter 2, Article 46; instream Flow Statutes, Sections 46-2,107 to 46-2,119; Ground Water Management and Protection Act, Sections 46-701 to 46-754; and the Nebraska Chemigation Act, Chapter 46, Article 11.

The LLNRD governing body consists of 21-member board of directors, elected from ten sub-districts and one at large. The most current census data is used by the NRD to develop each of the sub-districts to ensure representation is maintained.

The Lower Loup Natural Resources District has multiple funding sources available including a taxing authority of 4.5 cents granted when NRDs were formed starting in 1969; the 1 cent levy granted for water programs in 2004; the occupation tax granted in 2007, the ability to assess fees through improvement project areas; the ability to charge fees for certain services, and matching funds received through grant funding. This allows the Lower Loup Natural Resources District to obtain financing by sources other than just tax dollars. The NRD's budget, property tax request, and resulting levies are set and approved by the Board of Directors on an annual basis.

The general purposes of Natural Resources Districts are found in the Declaration of Intent in Section 2-3201:

The Natural Resources Declaration of Intent

The Legislature hereby recognizes and declares that it is essential to the health and welfare of the people of the State of Nebraska to conserve, protect, develop, and manage the natural resources of this state. The Legislature further recognizes the significant achievements that have been made in the conservation, protection, development, and management of our natural resources, and declares that the most efficient and economical method of accelerating these achievements is by creating natural resources districts encompassing all the area of the state, as provided by this act.

More specifically, the Legislature provided the twelve purposes in Section 2-3229.

The purposes of natural resources districts shall be to develop and execute through the exercise of power and authorities contained in this act, plans, facilities, works, and programs relating to:

- 1. Erosion prevention and control**
- 2. Prevention of damages from flood water and sediment**
- 3. Flood prevention and control**
- 4. Soil conservation**
- 5. Water supply for any beneficial uses**
- 6. Development, management, utilizations, and conservation of ground water and surface water**
- 7. Pollution control**

- 8. Solid waste disposal and sanitary drainage**
- 9. Drainage improvement and channel rectification**
- 10. Development and management of fish and wildlife habitat**
- 11. Development and management of recreational and park facilities**
- 12. Forestry and Range Management**

As to development and management of fish and wildlife habitat and development and management of recreational and park facilities, such plans, facilities, works, and programs shall be in conformance with any outdoor recreation plan for Nebraska and any fish and wildlife plan for Nebraska as developed by the Game and Parks Commission.

Furthermore, in 2022, the Nebraska's Natural Resources Districts reached a milestone of 50 years of service which was venerated by the one hundred seventh State of Nebraska's legislature, during its second session. Through Resolution 286, the legislature congratulated the twenty-three natural resources districts for 50 years of protecting lives, property, and the future of Nebraska and recognized all past and current natural resources district board members and staff for their dedicated service to the state in protecting our natural resources. A list of achievements by the state's NRDs was listed with the resolution.

Lower Loup Natural Resources District Board of Directors

The Lower Loup Natural Resources District Board of Directors is made up of twenty-one members. The Directors are elected for four-year terms on a non-partisan basis. The Lower Loup NRD Board of Directors meets on the fourth Thursday of the month, rescheduling on certain holidays in November and December. Meetings are conducted at the NRD Headquarters, 2620 Airport Drive, in Ord, Nebraska. The meetings are open to the public and are subject to the Open Meetings Act in accordance with Nebraska Revised Statutes 84-1407 through 84-1415.

<p><u>Subdistrict 1</u> Tim Bartak – Merna</p> <p>Jim Adams – Anselmo</p>	<p><u>Subdistrict 2</u> Alan Petersen – Burwell Henry Thoene – Burwell (Secretary)</p>	<p><u>Subdistrict 3</u> Todd Nitsch – Boelus Rollie Amsberry – Mason City (Treasurer)</p>	<p><u>Subdistrict 4</u> Randy Kauk – Farwell</p> <p>Rick Vlach – Scotia</p>
<p><u>Subdistrict 5</u> Dean Thede – St. Paul</p> <p>Matt Lukasiewicz – St. Paul</p>	<p><u>Subdistrict 6</u> Jerry Smith – Spalding Jim Eschliman – Ericson (Vice-Chairman & NARD Representative)</p>	<p><u>Subdistrict 7</u> Larry Mohrman – Columbus</p> <p>Gary Kruse – Columbus</p>	<p><u>Subdistrict 8</u> Chad Podolak – Columbus</p> <p>Vacant</p>
<p><u>Subdistrict 9</u> Bob Bauer – Columbus</p> <p>Beth Boesch – Columbus</p>	<p><u>Subdistrict 10</u> Darwin Anderson – Columbus</p> <p>John Coffey – Columbus</p>	<p><u>At-Large</u> N. Richard Hadenfeldt (Natural Resources Commission – Loup Basin Representative)</p>	

Lower Loup Natural Resources District Staff

The Lower Loup NRD has a staff of nineteen full-time employees at the District Headquarters in Ord. The staff also includes District Secretaries deployed at the Natural Resources Conservation Service offices in Albion, Broken Bow, Burwell, Columbus, Fullerton, Spalding, Ord, and St. Paul. There are NRD Conservation Technicians in Broken Bow, Burwell, Columbus, Greeley, and Ord. An agronomy technician works in Fullerton to operate the Groundwater Quality Management Areas. Part-time and seasonal staff are employed for tree planting, drip irrigation installation and maintenance of the NRD Arboretum, Agaard Demonstration Farm as well as Davis Creek and Pibel Lake Recreation Areas.

Russell Callan General Manager	Tylr Naprstek Assistant General Manager	Irene Kreifels Administrative Assistant
Dell Harris Water Resources Specialist	Cheryl Hornickel Programs Assistant	Jane Klanecky Secretary/Receptionist
Kimberly Lyons Financial Secretary	Kevin Gustaphson District Engineer	Cam Conrad Water Modeling Coordinator
Larry Schultz Information & Education Coordinator	Lee Ann Smith Water Programs Assistant	Richard Woollen North Central District Forester - Nebraska Forest Service
Alan Bartels Information Specialist	Ann Freeman Program Secretary	LeeAnn Smith Water Programs Assistant

District Secretaries

Kandi Bremer Albion Field Office	Jeri Rosno Columbus Field Office	Peggy Griffin St. Paul Field Office
Alyssa Dubas Fullerton Field Office	Ginny John Broken Bow Field Office	Julie McBride Burwell Field Office
Vacant Spalding Field Office	Bev Smedra Ord Field Office	

NRD Field Staff

Jon Westerby Conservation Technician Broken Bow	Ken Dawson Water Resources Technician Ord	Ed Drozd Conservation Technician Columbus
Harold Benton Water Programs Specialist Ord	Mike Lorenz Agronomy Technician Fullerton	Jason Moudry Water Programs Specialist Ord
Jordyn Duffek Conservation Technician Spalding	Phillip Hill Recreation Area/Shop Manager	Dan Ruterbories Rangeland Management Specialist Ord
Vacancy Conservation Operator Columbus		

District Description

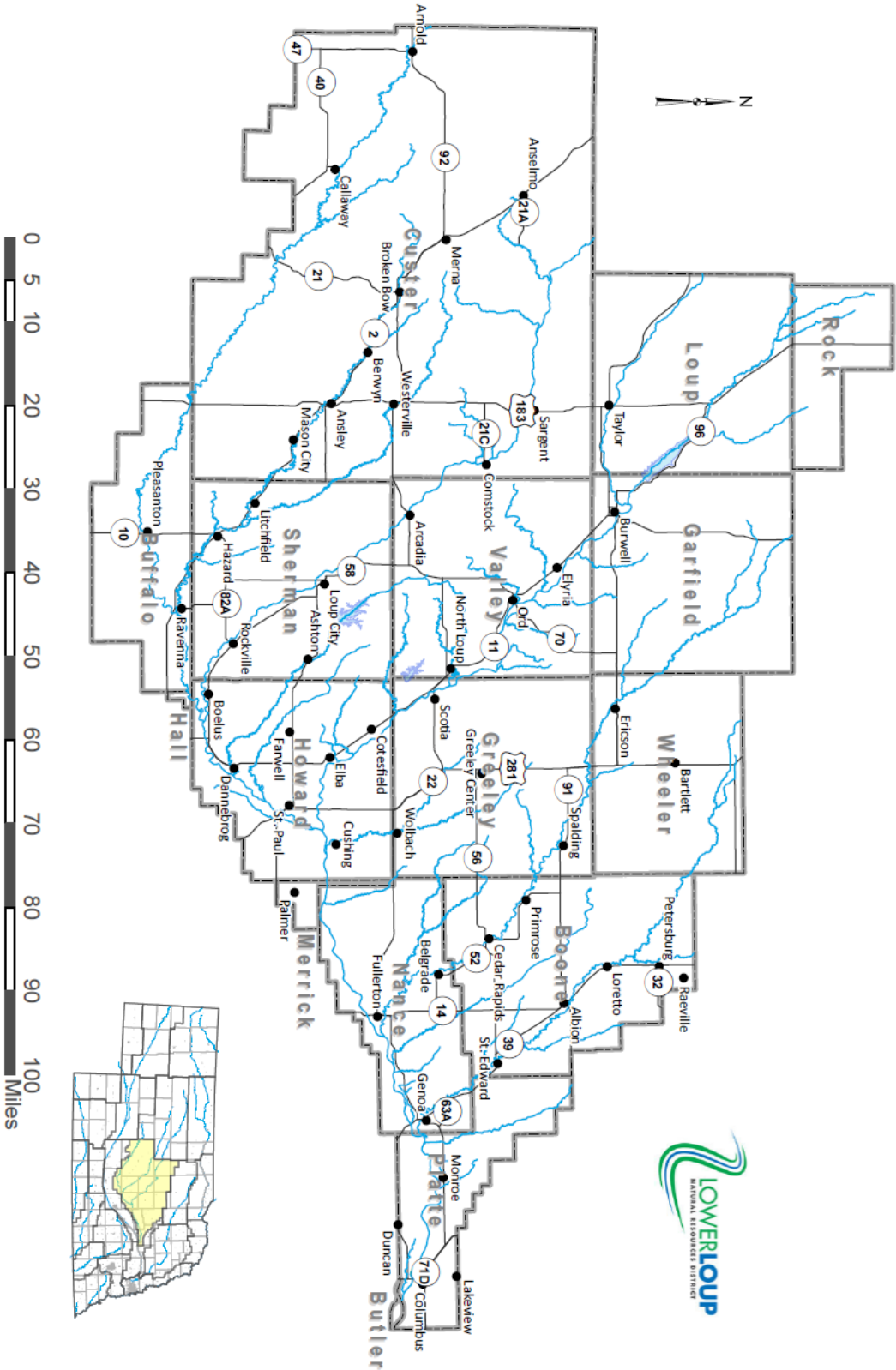
The Lower Loup Natural Resources District is the state's largest NRD by land area, comprising about 7,923 square miles. It encompasses an area larger than the land areas of the states of New Jersey, Connecticut, Delaware, Rhode Island, and Hawaii, individually. The Lower Loup NRD comprises 10.3 percent of the state of Nebraska. At its maximum, the Lower Loup NRD's measures approximately 156 miles from east to west. North to south, the district's maximum width is ninety-six miles.

The Lower Loup NRD boundary is irregular, thanks in part to encompassing the lower reaches of each drainage systems including the North, Middle, and South Loup River systems along with the Cedar and Calamus Rivers. Other major tributaries that have their headwaters within the district boundary are Beaver Creek and Mud Creek. In total, the Lower Loup NRD encompasses 514 miles of rivers and streams.

All or parts of sixteen counties are located within the NRD boundaries, including all of Loup, Garfield, Greeley, Sherman, and Valley. It includes 91% of Howard, 89 percent of Custer and Nance, 87 percent of Boone, 75 percent of Wheeler, 41 percent of Platte, 36 percent of Buffalo, 16 percent of Rock, 6 percent of Merrick, and 1 percent of Hall and Butler.

LLNRD MAP

LOWER LOUP NATURAL RESOURCES DISTRICT



Population

The 2020 U.S. Census reports a district population of 69,960 with half concentrated in the eastern one third of the NRD. This is almost a 2% increase from the 2010 U.S. Census which reported a population of 68,746. The easternmost community is Columbus, the Platte County seat, the largest and only city of the first-class designation within the NRD with a 2020 census reported population of 23,291.

Other county seat towns include Albion, Fullerton, Bartlett, Greeley, St. Paul, Burwell, Ord, Loup City, Broken Bow, and Taylor.

Agriculture (NRCS)

The NRD's economy is based entirely on agriculture. Agricultural land use within the district is divided with 30 percent being utilized for crop production, 66 percent for range and pastureland and 4 percent for other uses.

Land use in acres includes 1,226,619 acres of certified irrigated cropland, 298,467 acres of dry land cropland; 3,341,998 acres of range, pasture, and grasslands; 97,897 acres of riparian forest and woodlands; 23,528 acres of urban lands; 4,501 acres of roads; and 26,960 acres of open waters. About 91% of the cultivated lands are utilized for corn or soybean production.

Livestock production is an important part of the district's agricultural economy. As of 2020, there were 210 licensed, confined animal feeding operations located on the three million acres of hard and sandy land in the district, providing an ideal environment for both tall and short grass production and supporting approximately 945,350 head of cattle annually.

A 446,480 head swine herd provides a sizable market for the corn crop. Large corporate confinement feeding operations are found across the district.

Forestry

The district's abundant natural resources are enriched further by forests and woodlands. The most recent inventory indicates the Lower Loup area has approximately 173,262 acres of forestland with 159,745 acres classified as timberland, excluding the multitude of small, but important shelterbelts on farms and ranches. This shows a slight increase in forested numbers from the 2012 version of the Master Plan. Riparian forests (forests adjacent to lakes, rivers, and streams) serve as an interface between aquatic and terrestrial ecosystems. These forests are vital because they provide critical habitat and travel corridors for wildlife, protect water by filtering sediment and agricultural runoff, moderate water temperatures, stabilize stream banks, slow flooding, and contribute to recreational opportunities.

Forested bluffs adjacent to rivers and woody draws function in the landscape to provide some of the same benefits as riparian forests. As extensions of the riparian forests, woody draws provide shade and shelter for livestock, improve plant diversity in the landscape, provide wildlife habitat, fuel wood, and improve overall esthetics. Plant species diversity is influenced by slope, aspect, topography, area distribution, soil disturbance, and the amount and seasonal distribution of precipitation.

Tree planting is an important conservation practice provided by the NRD. The Lower Loup NRD primarily encompasses Nebraska vegetative zones II and III and is amicable to a wide array of conservation trees. NRD tree crews planted a ten-year average of 68,937 seedlings per year, which is a significant reduction from the last 10-year average (2012-2022). In the years to come, it is hoped that the district's tree planting program will help offset the effects of forest/woodland removals in the NRD. The NRD stresses management of existing timber stands and shelterbelts, promoting and encouraging sound management of the forest resource through various silvicultural practices, such as forest health monitoring, timber stand improvement (thinning), or harvesting mature trees.

To increase the survivability of the NRD plantings, landowners are encouraged to take steps to prepare their planting sites prior to the trees being placed in the ground as well as proper maintenance, which includes weed control, proper watering and extensive replacements of those planted trees that did not survive.

With the increased prevalence of species-specific diseases and infestations, like Pine Wilt Disease or Emerald Ash Borer, the promotion of disease-tolerant, native species becomes more important for the NRD to provide as wide-array and diverse tree and shrub species as possible. A portion of the inventory is dedicated to handplant trees. The value of trees in conservation continues to be encouraged and emphasized through the development of social media outreach.

Wildlife

The Lower Loup NRD is situated on the eastern end of the Sandhills region and encompasses most of the dissected plains in the middle portion of the state. The riparian habitat and sub irrigated meadows create opportunities for the formation of wetlands. This is the ideal habitat for most forms of wild species found in Nebraska. Animals that are of interest to wildlife viewers, photographers, and hunters include, but are not limited to: waterfowl, sandhill cranes, turkey, quail, grouse, pheasant, deer, and doves. A diverse assemblage of songbirds makes significant use of riparian forests and grasslands across the district. While some of these species can be found across the NRD, others are found only in specific areas. The Lower Loup NRD has partnered with entities such as the Nebraska Game and Parks Commission, Ducks Unlimited, and Pheasants Forever to improve and increase access to these habitats as well as work on habitat improvements across the NRD.

Instream Flow Water Rights

The Lower Loup NRD was granted an Instream Flow Water Right on a portion of the Loup River from the State of Nebraska, Department of Natural Resources with a priority date of 2017. Instream flow water rights do not create flows or prevent a dry stream scenario, but the rights do provide protection for applied streams by requiring all water rights that are junior to be shut down if flow capacity thresholds are not being met. The LLNRD developed a hydrologic assessment of the frequency of flows as well as the unappropriated, available water for three stream gage locations within the district. The goal of the instream flow application is to preserve and protect the fish habitats along the lower reaches of the Loup River.

Endangered species

In some areas of the Lower Loup NRD, loss of habitat has contributed to a population decline in some susceptible wildlife species. The Lower Loup NRD works to protect endangered and threatened species and to provide for their recovery. The NRD works toward this goal through conservation, habitat development, and other programs.

Nebraska's Endangered Species

Birds

Eskimo Curlew
Whooping Crane
Interior Least Tern

Mammals

Black-footed Ferret
Swift Fox
Gray Wolf

Fish

Pallid Sturgeon
Topeka Shiner
Sturgeon Chub

Insects

American Burying Beetle
Salt Creek Tiger Beetle

Mussel

Scaleshell Mussel

Plants

Blowout Penstemon

Outdoor Recreation

The Lower Loup Natural Resources District provides recreational opportunities at two locations in the NRD. The NRD manages the recreation areas at Davis Creek Reservoir, leased from the Bureau of Reclamation through a 25-year lease. The recreation area is located south of North Loup in Valley County. The Lower Loup NRD owns Pibel Lake Recreation Area, located off Highway 281 in southeast Wheeler County, through an acquisition made in 2012 from the Nebraska Game and Parks Commission. The NRD expanded its recreation potential by purchasing the adjacent 22.9 acres to Pibel Lake in 2015.

The LLNRD is home to some of central Nebraska's finest outdoor recreation opportunities. The Calamus Reservoir Recreation Area and Sherman Reservoir are managed by the Nebraska Game and Parks Commission and are well renowned fisheries and boating destinations. The Calamus Fish Hatchery produces multiple fish species from this facility, used for stocking fisheries statewide.

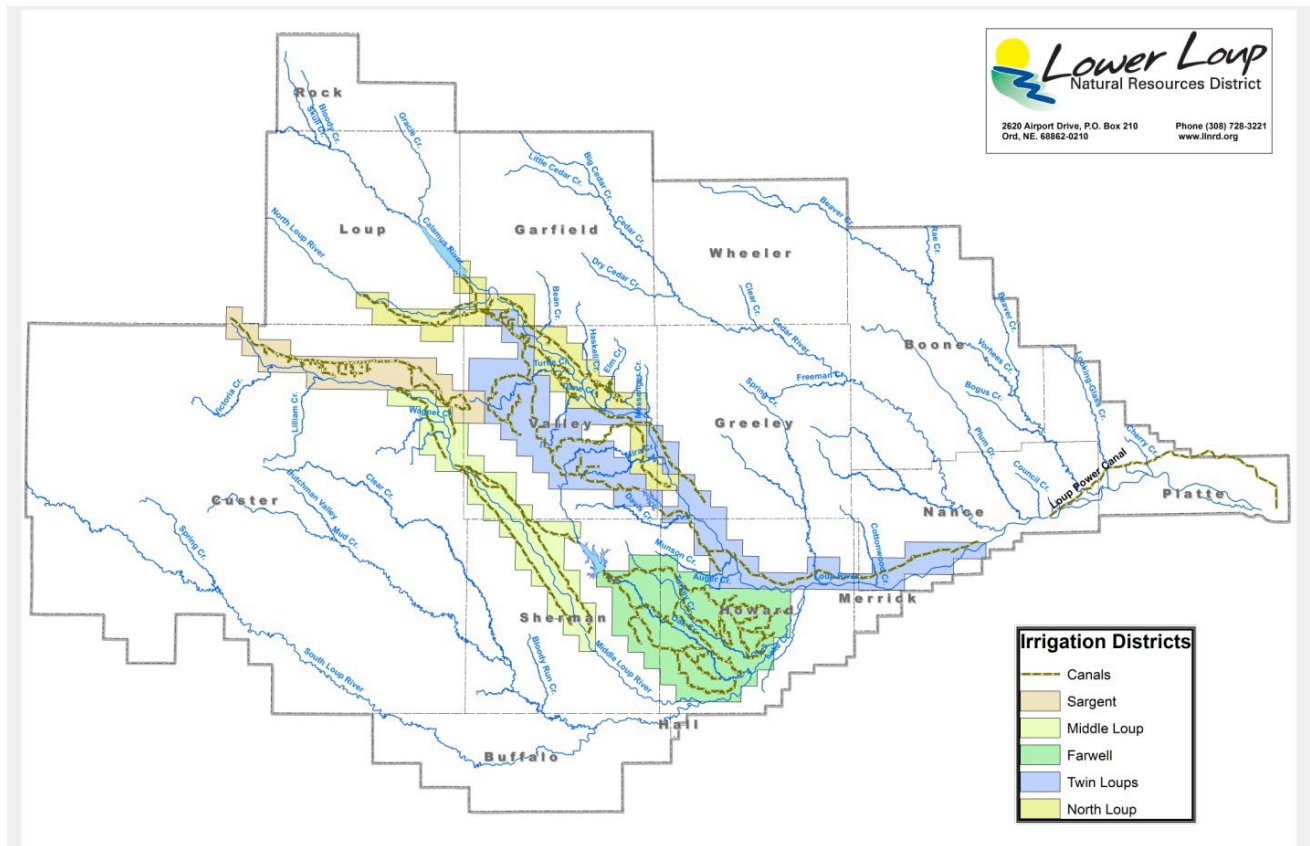
Other established recreation areas in the Lower Loup NRD are Arcadia Diversion Dam, Lake Ericson, Lake Babcock, Lake North, Milburn Dam, Myrtle Hall, Victoria Springs, Pressey Park, the Loup Power District's Headworks Park and other parks and recreation areas associated with the district's communities.

Irrigation Districts

Surface water irrigation systems operated by the North Loup River Public Power and irrigation district and the Middle Loup Public Power and irrigation district started delivering diverted surface water as early as 1938. Mid-century development saw the creation of the Sargent irrigation district and the Farwell Irrigation District. The Twin Loups Reclamation and Irrigation Districts operate the facilities at the Calamus Reservoir and Davis Creek Reservoir for the North Loup Division of the Pick-Sloan Missouri Basin Program.

The Lower Loup NRD has had a long-standing working relationship with each of the irrigation districts and has frequently assisted with repairing damaged infrastructure following severe flooding conditions.

District	Year Operation Began	Acres Irrigated in 2021	Diverted From	Acre Feet Diverted in 2021
North Loup River Public Power & Irrigation District	1938	20,817	North Loup River	65,660
Middle Loup Public Power & Irrigation District	1939	22,907	Middle Loup River	54,484
Sargent Irrigation District	1958	14,526	Middle Loup River	37,110
Farwell Irrigation District	1963	57,232	Middle Loup River	105,100
Twin Loups Irrigation District	1987	58,938	North Loup River & Calamus River	118,424
Loup Power District	1937	6,850 (Approximate)	Loup River	1,336 for irrigation



Industry

Manufacturing is an important and healthy component of the area's economy. The larger industries are located at Columbus. Some of the familiar firms include Becton, Dickinson, and Company; Archer Daniels Midland (ADM); Behlen Manufacturing; as well as many others. These industries provide employment for District residents and supplement the NRD's agricultural economy. Preferred Sands at Genoa and ethanol plants in Columbus, Albion, Ord, and Ravenna offer additional employment opportunities. Many smaller manufacturing plants are located at Albion, Broken Bow, Burwell, Loup City, Ord, St. Paul, and Ravenna.

Electrical Power

The Nebraska Public Power District, headquartered at Columbus, supplies much of the electrical generation within the NRD. Electricity is sold wholesale to the numerous, smaller rural power districts for local distribution. The Loup Power District maintains hydro-electric generating capabilities at their Monroe and Columbus plants.

Loup River water is diverted at Genoa and transported through a canal system for temporary storage in Lake Babcock and Lake North near Columbus. That diverted water is then used to generate power at the Columbus Powerhouse. Power produced at Monroe and Columbus is integrated into the Nebraska grid system for sale and distribution by NPPD.

The Village of Spalding also operates a small hydro plant on the Cedar River for local power needs.

Wind generation facilities are in operation in Custer, Boone, and Wheeler Counties. The 54-turbine Laredo Ridge Wind Farm near Petersburg began operation in 2011, the 27-turbine Petersburg Wind Farm began operation in 2011, and Broken Bow 1 and Broken Bow II wind farms consist of a combined 93-turbines, Broken Bow 1 started in 2012, Broken Bow II started in 2014.

Transportation

Railroad, highway, and airport facilities are available to all major population centers within the NRD.

Burlington Northern has mainline service at Broken Bow and branch line mobile dispatching service to many of the smaller communities. Nebraska Central Railroad operates line service to Ord and other communities. Large shipments of grain are shipped annually by rail. Columbus and Anselmo are served by mainline service from the Union Pacific Railroad.

An adequate system of federal and state highways provides for transportation of goods and machinery and provide for grain shipment to terminal markets. Practically all livestock in the area are shipped overland by truck. Three of the states nine scenic byways are located within the boundaries of the NRD, including portions of Lincoln Highway, Loup Rivers, and Sandhills Journey National Scenic Byway. Two of the north/south highways are nationwide principal roadways: US Highways 183 and 281, and both extend across the boundaries of the United States.

Airports with lighted facilities are located within short driving distances from all areas of the NRD. Commercial transportation is available at Columbus and Grand Island airports. Charter and private

aircraft are used extensively for business and pleasure. Most larger hospitals in the area feature a helipad for medical transportation.

The large expanses of open range make the use of aircraft economical for larger ranching operations. Crop spraying for insects and undesirable vegetation is an important industry within the district.

Flood Prevention and Control

The lower reaches of the Loup River Basin have been subject to frequent flooding problems, particularly because of poor drainage design and communities located near creeks and streams with minimal upstream structures to control the flooding. Flooding of some degree is seen throughout the district on a frequency of approximately every 10 years. The floods of 2010 and especially 2019 showcased the need for further development of flood risk reduction projects. Many of the communities witnessed some form of damage to structures and restriction or reduced capabilities of their infrastructure. Particularly impacted communities include Ansley, Belgrade, Broken Bow, Columbus, North Loup, Sargent, and St. Edward. Flood damage reduction and mitigation measures reduce or prevent floodwater damages by reducing runoff, erosion, and sediment. Programs such as the Natural Resources Conservation Service – Watershed and Flooding Prevention Operations should be fully utilized by the NRD to not only protect existing communities but also develop additional flood risk reduction structures to lessen the impacts going forward. Following a flood, the NRD can capitalize recovery using other programs, such as those offered by the Federal Emergency Management Agency, which can assist in restoring and augmenting flood risk reduction structures.

Hazard Mitigation Plan

The Lower Loup NRD Hazard Mitigation Plan (HMP) helps to minimize the impact of disasters by providing a framework to allow the NRD and the other plan participants to prepare. Potential, natural disaster risks and vulnerabilities that are common to the area are identified and then long-term strategies for protecting people and property from similar events are developed for each participant. Federal funding is then available to make participants ready for potential disasters. An update to the Lower Loup HMP was completed and approved in 2022.

Climate

Temperature changes within the district are like those within most of Nebraska, which is a typical Midwestern climate, meaning big extremes among the four seasons. The district experiences hot summers, cold winters, and moderate precipitation. As is the case with the rest of the state, the western region of the NRD is drier than the eastern side, which tends to be more humid. Rainfall varies on average from twenty-three inches in the east, to nineteen inches in the western parts of the district. Usually, more than 75% of the precipitation falls during the growing season, April through September.

Cooperating Agencies

1. FEDERAL

- a. **USDA Natural Resources Conservation Service**
- b. **USDA Farm Services Agency**
- c. **US Bureau of Reclamation**
- d. **US Army Corps of Engineers**
- e. **US Environmental Protection Agency**
- f. **US Fish and Wildlife Service**
- g. **US Forest Service**
- h. **US National Park Service**
- i. **US Geological Survey**
- j. **Federal Emergency Management Agency**
- k. **Federal Highway Administration**

2. STATE

- a. **Nebraska Department of Natural Resources**
- b. **Nebraska Department of Environment and Energy**
- c. **Nebraska Department of Agriculture**
- d. **Nebraska Forest Service**
- e. **Nebraska Game and Parks Commission**
- f. **Nebraska Department of Health and Human Services**
- g. **Nebraska Department of Roads**
- h. **Nebraska Emergency Management Agency**
- i. **Board of Educational Lands and Funds**
- j. **Nebraska Department of Economic Development**
- k. **University of Nebraska-Lincoln Cooperative Extension**

3. LOCAL

- a. **Cities and Villages Governing Bodies**
- b. **County Governing Bodies**
- c. **Metropolitan Area Planning Agency**
- d. **Metropolitan Utilities District**
- e. **Sanitary and Improvement Districts**

4. COOPERATING ASSOCIATIONS

- a. **Nebraska Association of Resources Districts**
- b. **Nebraska Water Resources Association**
- c. **Nebraska League of Municipalities**
- d. **Nebraska Association of County Officials**
- e. **Nebraska Rural Water Association**
- f. **Association of State Floodplain Managers**
- g. **Nebraska Storm water and Floodplain Managers Association**
- h. **Groundwater Foundation**
- i. **National Association of Conservation Districts**
- j. **Nebraska Society of Professional Engineers**
- k. **Nebraska Safety Council**

Introduction

In the 1981-1991 Master Plan, the Directors adopted the twelve basic purposes established by the Nebraska Legislature in Sections 2-3229. Those goals and forty-seven primary objectives served the needs of the district well through that ten-year period.

These goals and objectives continue to provide the district with a solid foundation for the coming ten years of operation period. This conclusion is based on the premise that the district has always responded to resource needs where the authority exists, regardless of specific content of present goals.

The accompanying goals and objectives are modified to reflect changes of the district operation yet remain mostly the same.

- 1. Resources awareness**
- 2. Prevent damage from flood water**
- 3. Development and management of groundwater and surface water for beneficial uses**
- 4. Forestry management**
- 5. Water quality and pollution control**
- 6. Erosion prevention, control, and sediment reduction**
- 7. Range management**
- 8. Drainage improvement and channel rectification**
- 9. Development and management of fish and wildlife habitat**
- 10. Development and management of recreational and park facilities**
- 11. Solid waste disposal**

Goals and Objectives

1.0 Resource awareness.

- 1.1. Maintain a state of awareness on conservation, pollution, development, and all subjects relative to the mission and function of Natural Resources Districts.
- 1.2. Continue to provide extensive public information and education programs about natural resources conservation and the conservation programs offered through the NRD.
- 1.3. Develop a close working relationship between NRD, news media, and the public.
- 1.4. Maintain an adequate system for in-house dissemination of information between directors and staff.
- 1.5. Develop a system for director and staff attendance at meetings pertaining to resource development.
- 1.6. Schedule tours for directors, staff, news media, and agency representatives within specific areas to develop awareness of problems within the district.
- 1.7. Maintain close coordination with federal, state, and local agencies on problems and new techniques for resources development.
- 1.8. Maintain and update the Hazard Mitigation Plan developed for communities, counties, and other governmental subdivisions in the district.

- 1.9. Continue to pursue outside funding sources such as the Environmental Trust, 319, Water Sustainability Fund, and other sources for natural resources conservation.
- 1.10. Develop and expand new forms of communication with the public through various social media outlets.
- 1.11. Provide adequate resources to fully implement the goals and objectives of this Master Plan.

2.0 Prevent Damage from flood waters.

- 2.1. Through watershed planning and management, aid with programs and projects to assist municipal and rural residences with flood control measures.
- 2.2. Provide local, state, and federal governments with information on flooding potential and respond to needs when flooding occurs.
- 2.3. Partner with various local, state, and federal government to bring additional resources to develop flood risk reduction programs.
- 2.4. Aid individuals, state, and federal entities on flood plain zoning programs.
- 2.5. Provide educational material on the threat of flooding and prevention of damage through zoning.
- 2.6. Develop a program to construct storage reservoirs, design floodwater storage structures, and establish management practices to lower flooding risk.

3.0 Development and management of groundwater and surface water for beneficial uses

- 3.1. Provide local administration of the water quantity sections of the Groundwater Management and Protection Act and Groundwater Management Plan rules and regulations adopted by the Lower Loup NRD.
- 3.2. Through basin-wide water management provide the framework necessary to protect and utilize the water supply for beneficial use by agriculture, municipalities, domestic and industrial users.
- 3.3. Improve and expand the present program for well monitoring
- 3.4. Track the interconnection of groundwater and surface water and manage the resource for conjunctive use in watershed planning
- 3.5. Encourage metering of irrigation withdrawals and provide leadership on programs to reduce over application of irrigation water.
- 3.6. Monitor annual basin DNR reviews for fully appropriated status under LB 962 and manage water resources to avoid such designation
- 3.7. Continue implementation of the NRD's voluntary integrated water management plan for the Loup River Basin
- 3.8. Work with the DNR to coalesce modeling efforts including the Elkhorn-Loup Model (ELM) and the Central Nebraska (CENEB) Model to develop the most scientifically accurate groundwater model.
- 3.9. Continue flow meter cost-share programs and utilize data to determine groundwater use in the basin

- 3.10. Encourage the efficient use of irrigation water through construction of reuse systems and use of water saving technologies including variable rate irrigation.
- 3.11. Promote utilization of crop water use information.
- 3.12. Provide local administration of the Ground Water Management and Protection Act found in State Statutes 46-701 through 46-754 RSS, Nebraska, 1943.
- 3.13. Provide local administration and leadership on programs and policies regarding the administration of in-stream appropriations found in sections 46-2,107 through 46-2,119 RRS, Nebraska 1943.
- 3.14. Cooperate with irrigation districts on protection and development of groundwater and surface water.
- 3.15. Function as local voice on trans basin diversion of surface waters to ensure that basin surface water needs are protected.
- 3.16. Cooperate with local, state, and federal agencies on water supply programs and problems.
- 3.17. Execute comprehensive educational programs on groundwater and surface water management.
- 3.18. Continue to research and develop groundwater recharge and retiming projects.
- 3.19. Work with local, state, and federal agencies to expand the stream gaging network where necessary.
- 3.20. Implement the recommendations from the Drought Management Plan to offset impacts during times of drought.

4.0 Forestry management.

- 4.1. Continue the District's program for establishment of farmstead, livestock, and field windbreaks.
- 4.2. Maintain ambitious standards for the district tree planting program to ensure survival including education of landowners on site preparation.
- 4.3. Continue to provide new and modern equipment to complement the established program.
- 4.4. Cooperate with federal and state agencies to develop forestry plantings for timber production.
- 4.5. Develop a comprehensive public information and educational program for forestry practices.
- 4.6. Continue the cooperative agreement with the Nebraska Forest Service (NFS) on the staff forester position.
- 4.7. Expand tree species inventory to avoid problematic tree diseases
- 4.8. Work with cities to replace lost or damaged trees and improve tree-planting efforts in communities with insufficient resources.

5.0 Water quality and pollution control.

- 5.1. Provide local administration of the water quality sections of the Groundwater Management and Protection Act and Groundwater Management Plan rules and regulations adopted by the Lower Loup NRD.

- 5.2. Provide local administration of the Nebraska Chemigation Act Sections 46-1101 through 46-1148 RRS, Nebraska 1943.
- 5.3. Maintain and expand the district's water quality monitoring program to enhance the water quality database.
- 5.4. Continue to work with Nebraska Department of Environment and Energy – surface water unit to monitor streams and recreational reservoirs for public health and safety.
- 5.5. Cooperate with cities and villages on public drinking water systems through the well head protection program utilizing watershed planning and promotion of wellhead protection zoning.
- 5.6. Provide technical and financial support to individuals and government entities on water quality concerns and pollution prevention.
- 5.7. Continue to support and assist private individuals on livestock pollution prevention and control systems.
- 5.8. Develop and maintain educational programs to assist agricultural producers and urban homeowners on the use of pesticides and other environmentally sensitive chemicals.
- 5.9. Work with the agriculture sector to inform and better educate application practices of fertilizers containing nitrogen to improve nitrogen use efficiency.
- 5.10. Coordinate with the Nebraska Department of Environment and Energy to improve the management and operations of confined feeding operations and licensing process.
- 5.11. Develop a working land use model the NRD can use to provide improvements and fertilizer recommendations to farming operations inside of water quality management areas
- 5.12. Facilitate discussions with fertilizer dealers and cropping consultants to provide better recommendations for nitrate applications.

6.0 Erosion prevention, control, and sediment reduction.

- 6.1. Develop a complete and comprehensive program for erosion control on crop land, stream banks, and rangeland from both water and wind, controlling sedimentation at the source being the most economical means for control and reduction.
- 6.2. Continue a program of technical and financial assistance to farmers and ranchers for the application of basic soil and water conservation practices to be implemented in the following manner:
 - 6.2.1. Continue the basic memorandum of understanding with the United States Department of Agriculture (DA).
 - 6.2.2. Continue the supplemental memorandum of understanding with the Natural Resources Conservation Service (NRC8051S) to control erosion and sedimentation on agricultural land.
 - 6.2.3. Work closely with the Farm Service Agency (FSA), Congress, and the State of Nebraska to maintain conservation cost-share assistance programs and strive to increase those funds both nationally and in Nebraska.
 - 6.2.4. Provide local tax funds when available and practical to supplement Federal and State funded cost-share programs.
- 6.3. Provide the local leadership to administer the Erosion and Sediment Control Act, as found in State Statutes 2-4601 through 2-4613, RRS, Nebraska 1943.

- 6.4. Continue the program of assistance to counties and other governmental agencies for construction of flood control road structures on public highways until such time that the NRD feels that it has demonstrated the economic benefit of such a program. The program to be implemented as follows:
 - 6.4.1. Assist in a manner prescribed by the Board
 - 6.4.2. Request survey and design by the Natural Resources Conservation Service
 - 6.4.3. Strive to implement other programs district-wide
 - 6.4.4. Provide engineering assistance from sources other than NRCS, when necessary
- 6.5. Aid cities and villages for urban subdivision development erosion problems
- 6.6. Continue to support the soil survey program.
 - 6.6.1. Seek assistance from the NRCS to maintain the most up-to-date scientific soil survey data.
 - 6.6.2. Make available and disseminate completed and published information.
- 6.7. Aid individuals and governmental entities on stream bank erosion.

7.0 Range management.

- 7.1. Continue to provide technical assistance on various range management practices.
 - 7.1.1. Provide, through special initiations and grant programs, additional range management field staff to collaborate with constituents.
- 7.2. Encourage the conversion of crop land to grass on those land classifications that are less suitable for farming.
- 7.3. Provide equipment for seeding when not available from private enterprise.
- 7.4. Continue to promote planned grazing systems in cooperation with federal and state agencies.
- 7.5. Continue to promote control of native and non-native invasive species through mechanical/chemical means, and/or controlled burns.
- 7.6. Employ range specialist on the district level as the need develops.
- 7.7. Supply native grass species to replant damaged areas.

8.0 Drainage improvement and channel rectification.

- 8.1. Utilize the special projects sections of the NRD Law to assist local communities on drainage and channel rectification problems.
- 8.2. Provide the necessary engineering and construction assistance to those communities with drainage and channel projects that will not have an adverse effect on the environment.

9.0 Development and management of fish and wildlife habitat.

- 9.1. Provide adequate habitat for wildlife, maximizing habitat diversity to benefit most of the native species to the area.
- 9.2. Create wildlife buffers between urban and rural landscapes.
- 9.3. Promote and help with the preservation, protection, and enhancement of wildlife habitat.
- 9.4. Develop the Davis Creek and Pibel Lake fisheries.
- 9.5. Provide for and protect threatened and endangered species in the district.

- 9.6. Provide fishery habitat, waterfowl habitat, and upland game bird habitat on District construction projects, whenever possible.
- 9.7. Execute a continuing educational program to emphasize the need to protect all types of habitats.
- 9.8. Improve partnerships with the Nebraska Game and Parks Commission using programs such as the Open Fields and Waters Program.

10.0 Development and management of recreational and park facilities.

- 10.1. Provide and develop recreational facilities on district projects whenever opportunities arise.
- 10.2. Participate in the development of recreational trails when presented.
- 10.3. Consider NRD sponsorship of outdoor recreation development in conjunction with federal, state, and local projects.
- 10.4. Provide for construction of multi-benefit projects, where recreation is combined with water storage, groundwater recharge, stream augmentation and other purposes.
- 10.5. Provide financial and technical assistance to city and county governments for park development and improvements.
- 10.6. Continue to offer and expand recreational opportunities at Davis Creek Reservoir, Pibel Lake Recreation Area, and Headquarters' Arboretum.

11.0 Solid waste recycling and disposal.

- 11.1. Assist those responsible governmental agencies on establishment and upkeep of sanitary landfills.
- 11.2. Provide technical assistance on soils, water tables, and site selection as requested.
- 11.3. Provide technical assistance and engineering for on-site evaluation of erosion, sediment, flood control, and water quality monitoring.
- 11.4. Improve information on solid waste issues and regulations to the public.
- 11.5. Promote and provide technical and financial assistance to communities for recycling programs.
- 11.6. Work with local communities to develop more alternative collection events that benefit the environment such as tire collection, electronic waste disposal, etc.