

# Nebraska Department of **NATURAL RESOURCES** 2024

**NEBRASKA**

Good Life. Great Water.

DEPT. OF NATURAL RESOURCES



[DNR.Nebraska.gov](http://DNR.Nebraska.gov)

Prepared for:

Nebraska State  
Legislature

Prepared By:

The Nebraska  
Department of  
Natural Resources

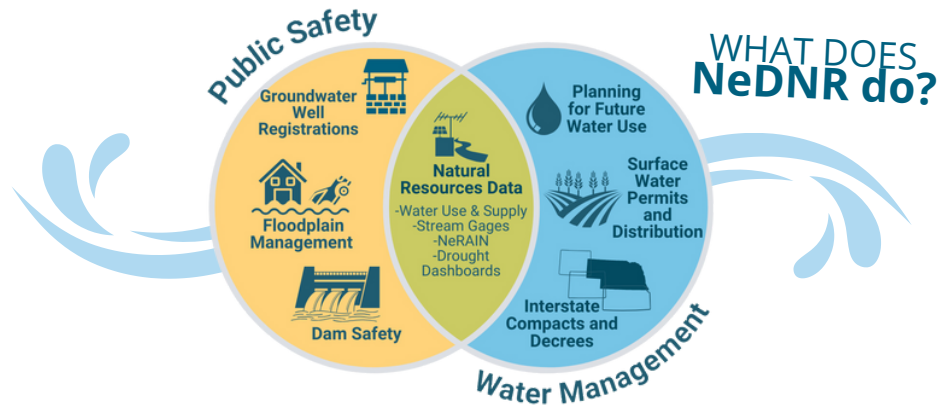
## **NeDNR's Annual Report**

Managing Nebraska's most precious natural resource through sound partnerships, cooperation, and science-based decision making.

Water Today. Water Tomorrow.

# WATER INITIATIVES & SAFETY

Our focus for this year’s Annual Report is to highlight our water initiatives and our role in public safety. By striking a balance between these two essential functions, we aim to safeguard Nebraska's water resources for today and for tomorrow.

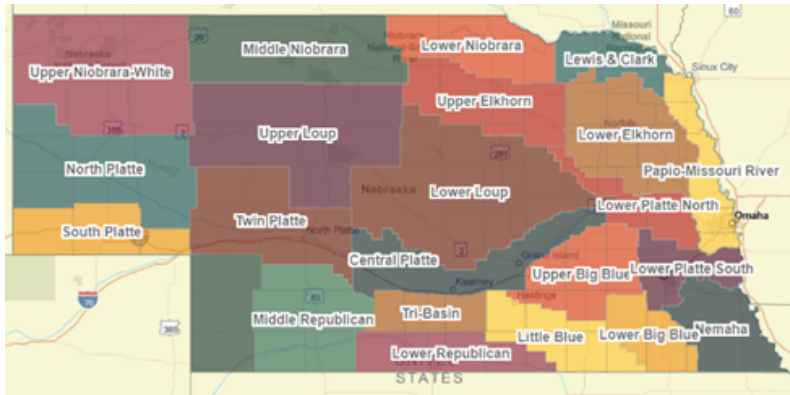


<b>Table of Contents</b> .....	02
<b>20th Anniversary of IMP’s</b> .....	03
<b>Color-Coded Objectives &amp; Goals</b> .....	04
<b>Water Management</b> .....	05
Water Management in Nebraska:	
• The Perkins County Canal .....	06
• The Resilient Soils and Water Quality Act.....	07
• Nitrogen Reduction Incentive Program.....	08
• American Rescue Plan Act.....	09
• The Water Sustainability Fund.....	10
• Surface Water Irrigation Infrastructure Fund.....	11
<b>Public Safety</b> .....	12
How does NeDNR Help Keep People Safe?	
• Nebraska Real-time Flood Forecasting.....	13
• Dam Inundation Maps.....	14
• Hydrologic Imagery Visualization & Information System.....	15
<b>Financials</b> .....	16
<b>Social Media</b> .....	17
<b>Contact Us</b> .....	18

WATER TODAY. WATER TOMORROW.

# 20TH ANNIVERSARY OF INTEGRATED MANAGEMENT PLANS

Nebraska's unique system of water management shares responsibility between the state-level NeDNR and local NRDs. The state has 23 NRDs which are locally controlled and based on watershed boundaries. The NRDs are responsible for the regulation of groundwater, while the State is responsible for surface water. This cooperative management recognizes the connection of our water resources and allows for tailored solutions to local challenges.



Map of Natural Resources Districts (NRDs) in Nebraska.

Local control and water user participation are keys to success. NRD board members, elected by their neighbors, represent the interests of their communities, ensuring that decisions reflect the needs of those directly affected. This grassroots approach not only fosters accountability but also ensures that resources are allocated efficiently, with state funds leveraged with local dollars to address local priorities. Nebraska producers who are affected by the policies of NRDs are able to participate in crafting and modifying them.

NeDNR works with each NRD to adopt local IMPs which showcase this hands-on, collaborative spirit. These IMPs were developed with a wide range of water users, including farmers, ranchers, canal operators, bankers, industries, and utilities. IMPs enable us to comply with interstate agreements like the Republican River Compact while preserving local guidance and avoiding litigation and conflict. The IMP development process ensures that local water users within Nebraska's river basins have input over how the state goes about complying with compacts, decrees, and agreements. This participatory process empowers Nebraska producers to manage water in the way that is best for them and plan for more certain water supplies.

Because many federal funding opportunities require applicants to provide match funding, the state and the NRDs are able to leverage funding for larger projects, such as reservoirs, irrigation canals, or groundwater recharge infrastructure, according to their specific needs. By adapting solutions to local conditions and harnessing the expertise of our communities, Nebraska has positioned itself as a leader in water management.

## Natural resources districts initiating voluntary Integrated Management Plans

Five Natural Resources Districts have initiated a voluntary water planning process with the Nebraska Department of Natural Resources. Most recently, the Lower Elkhorn NRD, joined the Lower Platte South NRD, the Lower Platte North NRD, the Papio-Missouri River NRD, and the Lower Niobrara NRD by initiating the integrated management planning process with the Department of Natural Resources. This planning process, which results in the joint adoption of Integrated Management Plans, is required in areas of the state that have been designated as fully or over-appropriated by the department. IMPs have been developed in those areas through joint efforts between the Department and the 10 NRDs that have such designations. Recent changes in state statutes provide a process for the development of IMPs before a designation of fully appropriated by the department. IMPs are the blueprint for a proactive approach to managing hydrologically connected surface and groundwater as a single resource. These joint plans between the department and the local NRDs will serve to bring together state and local water managers in collaboration with various stakeholders. This joint approach allows the department and NRDs to fully collaborate on efforts aimed at ensuring the short and long-term sustainability of our water resources. Department Director, Brian Dunnigan, said of the action, "We are very pleased that thus far, five NRDs have initiated this voluntary planning process. These types of proactive approaches have potential to provide greater future opportunities for water users and water managers."

Newspaper clipping showcasing IMP success.



Stakeholders coming together to learn about groundwater models.





# NEDNR GOALS & OBJECTIVES

The 2024 Annual Report employs a color-coded system to visually represent each strategic goal and objective with distinct subheader colors. The following pages seamlessly integrate these colors, with each subheader reflecting a goal description in alignment with the designated color scheme.



## Goal One

Establish strong state leadership, involvement, and support for science-based decision making that is necessary to sustain state and local water management outcomes.

## Goal Two

Provide high-quality products and services through the performance of our duties in the areas of floodplain management, flood mitigation planning, dam safety, and survey to promote the safety of all Nebraskans.



## Goal Three

Develop and implement customized and decentralized water management plans established through collaboration with local Natural Resources Districts and stakeholders that provide for long-term sustainability of the state's water resources.



## Goal Four

Encourage strong public engagement with multiple constituents and stakeholder groups in planning and implementation activities to ensure that local and state needs are addressed.

## Goal Five

Protect existing water uses through collaborative investments in water resource projects, planning, administration, and permitting of surface water rights, and the registration of groundwater wells.



## Goal Six

Provide agency-wide services and support in the areas of information technology and transparent data sharing, business improvement, public information, and administration of state-aid funds in conjunction with the Natural Resources Commission.



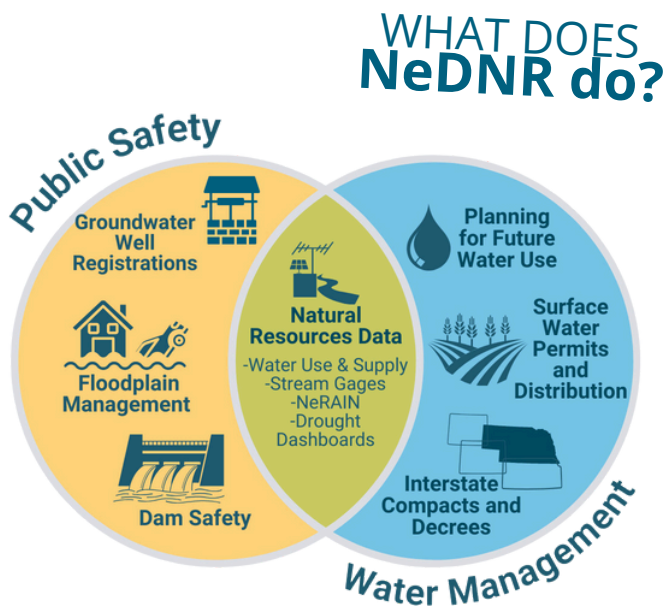


# WATER MANAGEMENT IN NEBRASKA

One function of NeDNR is water management across Nebraska. Our agency manages water by **administering interstate water compacts and decrees, planning for future water use, and by surface water permitting and administration.**

## Water Management & Initiatives

NeDNR has multiple new water initiatives to help with water management. Check out some more details of our initiatives on the following pages! Or, visit [DNR.Nebraska.gov/dnr-water-initiatives](http://DNR.Nebraska.gov/dnr-water-initiatives).



Ice melt running down a mountain road in Colorado.

WATER TODAY. WATER TOMORROW.





# THE PERKINS COUNTY CANAL

## SAFEGUARD WATER USES THROUGH COLLABORATION.

In 2022, the Nebraska Legislature passed the Perkins County Canal Project Act to protect Nebraska's water entitlements in the South Platte River Basin. Through the 1923 South Platte River Compact (Compact), Colorado agreed to provide 120 cubic feet per second (cfs) flows in the South Platte River during the irrigation season and 500 cfs in the non-irrigation season. However, the non-irrigation season provision is only enforceable if the Perkins County Canal (Canal) is completed.



The historic route of the Perkins County Canal.

### WHAT'S HAPPENING NOW

The State of Nebraska continues efforts on design, permitting, and land acquisition as it moves forward in the process of constructing the Canal and associated water storage reservoirs. Noting that an initial 90-acre parcel of land near Julesburg, CO has been acquired in furtherance of the project.

### PLANNING FOR THE FUTURE

Due to increased population and associated water demand in the Front Range region, coupled with a number of proposed water development projects in Colorado's South Platte River Basin, the need to protect Nebraska's Compact rights is paramount in ensuring the future water needs of our citizens and economy of the state.



Work began on the canal in the 1890s. (Photos courtesy of Perkins County Historical Society)



# THE RESILIENT SOILS & WATER QUALITY ACT (RSWQA)

## PROMOTE INCLUSIVE PUBLIC ENGAGEMENT.

Maintaining healthy soil and water resources is crucial to the future of Nebraska's citizens.

The Resilient Soils and Water Quality Act (RSWQA) was created through LB925, passed in 2022, by the Nebraska Legislature. The NeDNR, through RSWQA, was tasked with creating an advisory board to identify best management practices for producers in the state to protect and improve soil and water quality.



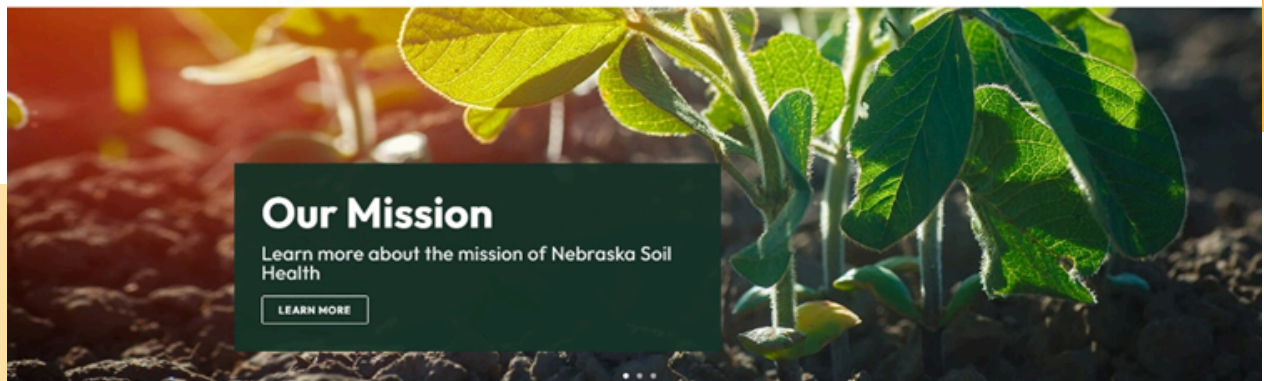
Through stakeholder input, a dedicated website has been developed to help Agri professionals share best practices, cost-share opportunities, and connect with experts in the field of soil and water quality initiatives (<https://nebraskastrategicagcoalition.org/>).

Two stakeholder meetings were held in May where agriculture partners all across the state to discuss how to better serve Nebraska producers. These meetings had representatives from nonprofit, local, state and federal agencies.



402.471.2363 CONTACT

A STATEWIDE COLLABORATION TECHNICAL SUPPORT EDUCATIONAL RESOURCES  
COST-SHARE OPPORTUNITIES EVENTS



Technical Support

Educational Resources

Upcoming Events

Get Involved

[nebraskastrategicagcoalition.org](https://nebraskastrategicagcoalition.org)





# NITROGEN REDUCTION INCENTIVE PROGRAM

**DEVELOP AND IMPLEMENT CUSTOMIZED WATER MANAGEMENT PLANS ESTABLISHED THROUGH COLLABORATION WITH NRDS THAT PROVIDE LONG-TERM SUSTAINABILITY OF THE STATE'S WATER RESOURCES.**

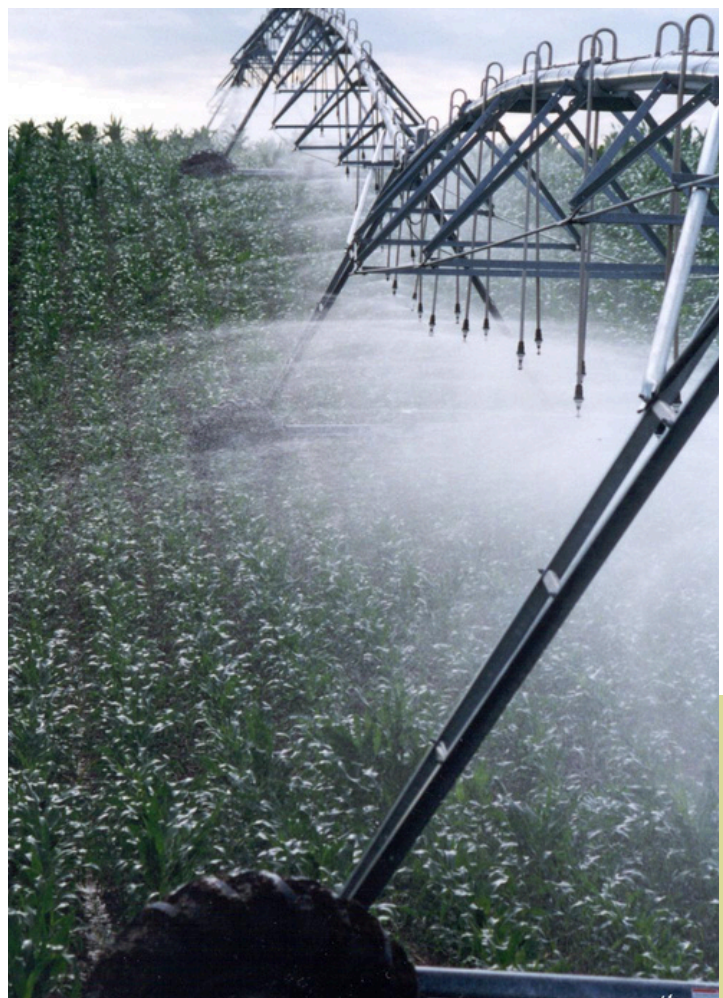
Nebraska has a vast amount of water, in our aquifer systems and in surface water systems. Protecting the quality of water is essential for Nebraska.

LB1368 was passed to encourage farmers to adopt efficient and sustainable practices, helping Nebraska protect its natural resources. The Department has been tasked with working with the 23 NRDs across the state to help provide incentive payments to farmers who incorporate innovative technology into farming practices.

The Department is in the early stages of working with a committee of NRD managers to help implement this program including determining target areas and an outline of outreach and educational promotion.



Commodities and state agency personal learning about various management practices in a corn field in Nebraska.



Center Pivot irrigating corn in Nebraska

# AMERICAN RESCUE **PLAN ACT**

**SAFEGUARD WATER USES THROUGH COLLABORATION.**



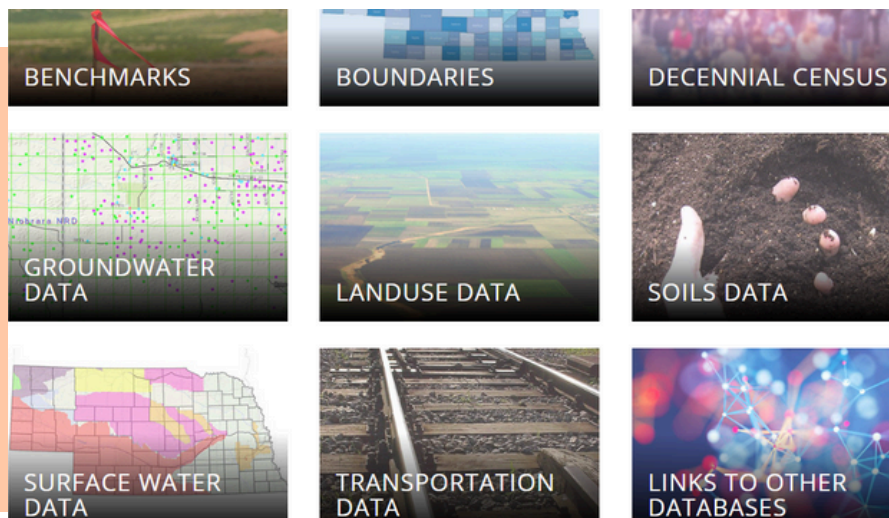
Drone shot of ice cover on a river in Nebraska.

In response to the economic crisis created by the COVID-19 pandemic, the federal government created the American Rescue Plan Act (ARPA). The NeDNR is responsible for administrating over \$200 million of these funds.

NeDNR allocated ARPA funds to help the city of Lincoln secure a second source of drinking water after various environmental factors like flooding and droughts which affected the Platte River's wells.

The Department also aided money to the completion of the repairs to the failed Gering-Fort Laramie Tunnel and Canal.

NeDNR Data home screen.





# THE WATER SUSTAINABILITY FUND

PROMOTE SCIENCE-BASED WATER MANAGEMENT WITH STATE LEADERSHIP SUPPORT THAT IS NECESSARY TO SUSTAIN STATE AND LOCAL WATER MANAGEMENT OUTCOMES.

The Water Sustainability Fund (WSF) was created through legislation in 2016. The fund is overseen by the Natural Resources Commission (NRC), with the NeDNR director tasked with reviewing applications to determine if they fit the criteria of the WSF before being scored by the members of the NRC.



In 2023, 11 projects were approved for funding totaling \$11.3 million. The approved projects chosen for funding greatly benefited the State of Nebraska.

The Upper Republican Natural Resources District (URNRD) was awarded a \$86,400 WSF grant by the NRC to incentivize the use of soil moisture probes within the NRD. This program helped reduce water use by encouraging farmers to use soil-moisture and root-depth data to make irrigation decisions. The URNRD's water-allocation system that limits the amount of water irrigators can apply creates demand for technology that reduces instances of over-watering with information available from soil-moisture probes.

Since 2013, the URNRD has utilized various grants to help provide cost share for approximately 80 probes and related services annually. Demand increased significantly during the WSF project period with applications to cost share with a total of 270 probes!

The average water use in the district is approximately 12 inches per acre. After this cost share program, the total value of the 52,000 acre inches of water saved is approximately \$2.2 million.



Republican River Sign in Nebraska



Irrigated corn in North Platte Nebraska

For more information on any WSF project, please visit:  
[nrc.nebraska.gov/water-sustainability-fund-0](http://nrc.nebraska.gov/water-sustainability-fund-0)





# SURFACE WATER IRRIGATION INFRASTRUCTURE FUND

**ENSURE SAFETY THROUGH QUALITY FLOOD MANAGEMENT SERVICES.**

In July of 2019, the No. 2 tunnel on the Goshen/Gering-Fort Laramie canal collapsed, cutting off irrigation to more than 50,000 acres of farmland, half of that in Nebraska.

This event drew attention to the aging critical infrastructure that provides water for irrigation, hydropower, and other benefits.

The Surface Water Irrigation Infrastructure Fund (SWIIF) was created by the 2022 Nebraska Legislature to address the aging irrigation infrastructure in Nebraska to mitigate the consequences of another disaster.

All of the SWIIF funds have been obligated and the Department has worked hard to ensure that every irrigation district across the state was included in discussions on funding. Examples of these projects include adding head gates to help automate flow for the Alliance Irrigation District and repairing concrete structures and canals in Sargent and Ainsworth Irrigation Districts.



Midland Overland before SWIIF funding.



Midland Overland after SWIIF funding.



# PUBLIC SAFETY

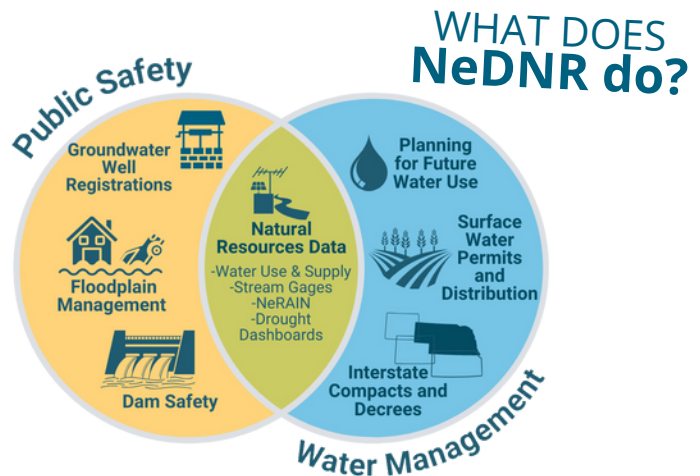


Public safety is a key function of NeDNR. Dam Safety, Floodplain Management, and Groundwater Well Registrations are some divisions within NeDNR **dedicated to ensuring the safety of the people of Nebraska.**

Last year the Dam, Safety Division inspected over 670 dams including low, significant, and high hazard potential. Public safety efforts intersect significantly with water management.

Since January, Floodplain Management has provided general technical assistance to 223 different Nebraska communities or counties. Additionally, they have assisted 98 communities with their post-disaster responsibilities after the April 26 tornadoes, the May 21-23 flooding, and the June 24-30 Missouri River Flooding.

Ord Field Office staff member, Jeremy Sedlacek, flying a drone for a dam inspection.



WATER TODAY. **WATER TOMORROW.**





# NEBRASKA REAL-TIME FLOOD FORECASTING

ENSURE SAFETY THROUGH QUALITY FLOOD MANAGEMENT SERVICES.

The ability to predict major flooding events saves lives, property, and livestock. The NeDNR has developed the Nebraska Real-Time Flood Forecasting (NeRFF) interactive map to allow state and local officials, as well as private citizens, to predict and react to possible floods.



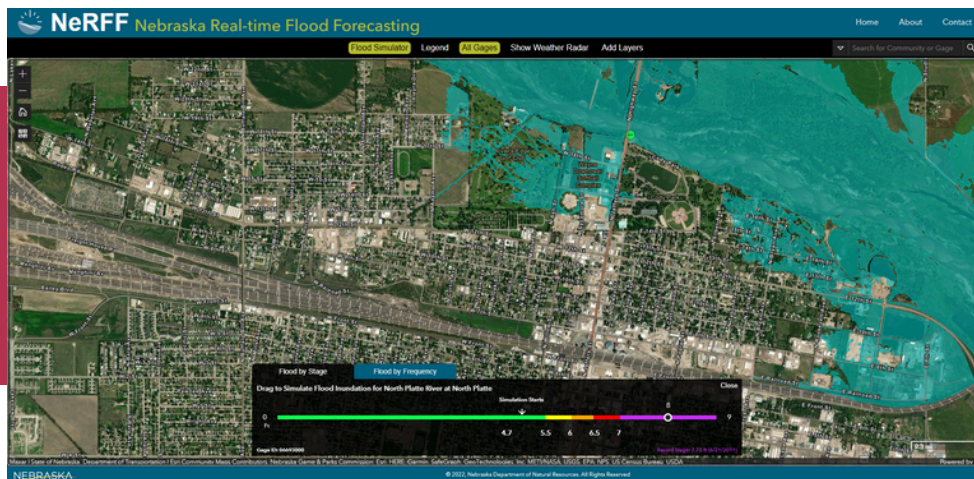
NeDNR IT and Floodplain staff that developed NeRFF.

Developed in response to the historic floods of 2019, NeRFF took two years to develop and currently covers 48 gage locations and 54 communities across the state.

The website, [nerff.nebraska.gov](http://nerff.nebraska.gov), brings together inundation and depth data, current and forecasted river stages provided by the National Weather Service, along with weather radar, dams, levees, weather alerts, and critical infrastructure information. This combined data allows communities and citizens to make quick, informed decisions about flood risks in real time.

The work done by the NeRFF team was also recognized for the presidents Special Achievement in GIS (SAG) Award at the 2024 Esri User Conference!

The interactive map is a living website with new data and additional gage sites for various communities being added as made available. For information on NeRFF, please contact one of our floodplain management professionals at <https://dnr.nebraska.gov/floodplain/contact>.



A depiction of the flood simulator within the Nebraska Real-time Flood Forecasting (NeRFF) application.



# DAM INUNDATION MAPS

ENSURE SAFETY THROUGH QUALITY DAM SAFETY SERVICES.

Dam Inundation Map near Crete, Nebraska.



Nebraska has over **2,900 dams**, each representing a vital piece of infrastructure safeguarding communities and resources. Within the Nebraska Department of Natural Resources (NeDNR), the Dam Safety section is tasked with the responsibility of ensuring the integrity and safety of these structures through comprehensive inspections, approval processes for new dams, and classification based on potential risk levels in the event of failure.

A key part of NeDNR's efforts lies in the proactive development of dam failure inundation maps for every permitted dam across the state. These maps serve as invaluable tools, empowering citizens, and local officials with critical insights into flood risk areas in the event of a dam failure.

For homeowners, these maps offer a crucial layer of protection, allowing them to make informed decisions before building or purchasing property, ensuring their homes remain safe from potential flooding hazards. Local authorities can utilize this data to make careful planning and zoning decisions, effectively reducing future flood damage costs, alleviating strain on emergency responders during crises, and minimizing disaster recovery expenses.



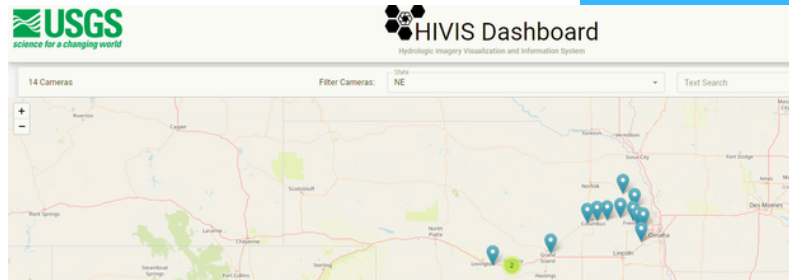
Upper Salt Creek 3-A Dam construction for upgrades.



# HYDROLOGIC IMAGERY VISUALIZATION & INFORMATION SYSTEM (HIVIS)

PROVIDE AGENCY-WIDE SERVICES AND SUPPORT IN THE AREAS OF INFORMATION TECHNOLOGY AND TRANSPARENT DATA SHARING, BUSINESS IMPROVEMENT, PUBLIC INFORMATION.

The Hydrologic Imagery Visualization and Information System (HIVIS) comprises a network of cameras positioned at stream gaging stations across the United States.



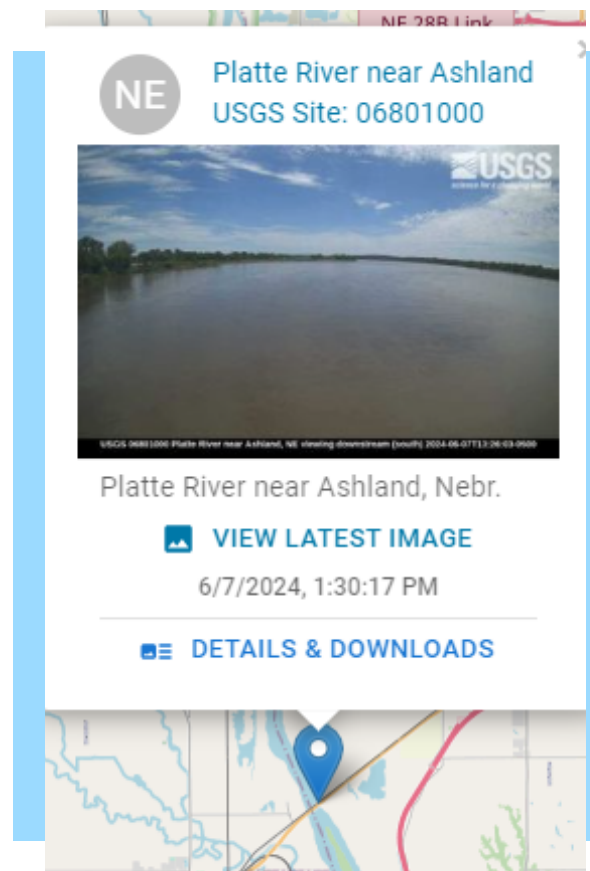
Visit the website at [apps.usgs.gov/hivis/](https://apps.usgs.gov/hivis/).

These state-of-the-art HIVIS cameras serve a crucial role in capturing and documenting real-time river and stream conditions, with a primary focus on enhancing public safety. Their capability to monitor phenomena such as ice jams, flooding, and droughts enables proactive response measures to mitigate their impact and foster broader public awareness.

Numerous stakeholders, including NeDNR, the Nebraska Emergency Management Agency (NEMA), the US Army Corps of Engineers, and various NRDs such as Pappio-Missouri River, Lower Platte South, and Lower Platte North, along with communities frequently affected by ice jams, rely on these cameras. They utilize them to assess ice buildup and breakup, ensuring the safety of citizens statewide.

NeDNR Water Administration staff regularly consult these cameras yearly to correlate hydrograph data with on-the-ground observations, particularly during high or low flows and when general icing conditions affect the stage-discharge relationship.

Currently, NeDNR collaborates with the United States Geological Survey USGS on camera installations. NeDNR is looking to expand its camera network through the addition of camera locations all across the state.



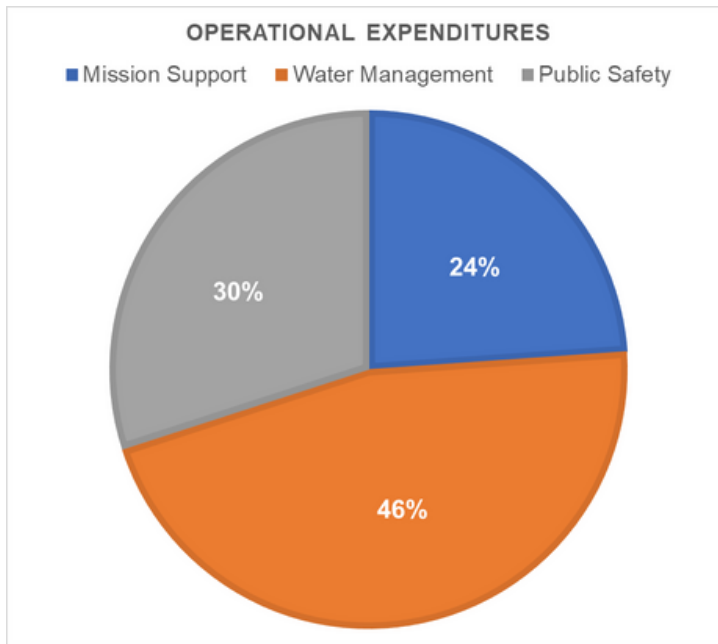
Visit the website at [apps.usgs.gov/hivis/](https://apps.usgs.gov/hivis/).



# DEPT. OF NATURAL REOSURCES FINANCIAL INFORMATION

The NeDNR organizational structure is divided into three major groups: *Public Safety*, *Water Management*, and *Mission Support*. These three major groups consist of the six staffing divisions where all functions utilize multiple budget subprograms. These include:

Mission Support comprises the Directors Office for senior management and houses the administrative and financial management functions of NeDNR. The agency director is also appointed by the governor, who represents Nebraska as a member of the Western States Water Council. Information Technology Division provides support to many of the data-driven tools that NeDNR’s mission relies upon.



Program 334 Operational Expenses	Actual Expenditures
Mission Support	\$ 3,476,927.00
Water Management	\$ 6,706,530.00
Public Safety	\$ 4,364,705.00

Water Management is comprised of Surface Water Permitting and Mapping), Streamgaging with operational support from Field Offices and Survey, Water Planning and Interstate Water Management. Compacts; Platte River Cooperative Agreement; and the Water Resources Cash Fund NeDNR also maintains Subprogram 8 to account for the repair and maintenance of the state-owned Bridgeport Field Office.

Public Safety is comprised of Floodplain Management and Dam Safety and Groundwater Registrations.

Realigning these programs into primary functions has provided continuity and standardization of services that have improved the business processes across multiple statutory needs of the citizens of Nebraska to ensure water today, water tomorrow. Funding for personnel for most programs has been shifted to Subprogram 1 to provide transparency and clarity for this expense. Despite the split among budgetary programs, operations are functionally coordinated, and each year the NeDNR produces an Annual Report and Plan of Work for the State Water Planning and Review Process that reviews NeDNR water planning efforts. In addition to the expenditures shown within the table, the Department also manages pass-through funds, such as Perkins County Canal Project, Critical Infrastructure, and SWIF to name a few, that help support water management efforts throughout the state

As shown in the chart, most of the Department’s expenditures are for water management and project and public safety. A majority of NeDNR’s activities include developing and maintaining relationships with water-related stakeholders; hydrology studies; modeling for water accounting and conjunctive management; cooperative work with NRDs, irrigation districts, and other interests; floodplain administration; and outreach and education.





# NEBRASKA DEPT. OF NATURAL RESOURCES

Thank you for reading the  
Nebraska Department of  
Natural Resources  
2024 Annual Report.

Curious about the work we do at  
DNR? **Visit our website at  
[DNR.Nebraska.gov](https://DNR.Nebraska.gov) to learn  
more.**



Drone used during a training session.



Cambridge Field Office.

Want to meet the people  
responsible for managing  
Nebraska's most precious  
natural resource? **NeDNR  
also has field offices**  
across the state to better  
manage water in Nebraska's  
unique agronomic zones.



Ord Field Office staff conducting a training session with  
Acoustic Doppler Radar equipment.

# NEBRASKA DEPT. OF NATURAL RESOURCES

Have questions or want to learn more about the work we do or the people managing Nebraska's water?

**Contact us!**

Want to stay up-to-date on Department projects and other activities in State Government? Follow our podcast, ***Around the Watercooler with NeDNR!*** Available for streaming on most major platforms.

Visit our website, explore NeRFF, and check out our social media by scanning the QR code!



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