

NATURAL RESOURCES DISTRICT PROFILE

LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT



LOWER PLATTE SOUTH **natural resources district**

Lower Platte South Natural Resources District
Multi-Jurisdictional Hazard Mitigation Plan Update

2020

Local Planning Team

Table LPSNRD.1: Lower Platte South NRD Local Planning Team

Name	Title	Jurisdiction
Paul Zillig	General Manager	LPSNRD
David Potter	Assistant General Manager	LPSNRD
Tracy Zayac	Stormwater/Watershed Specialist	LPSNRD

Location and Geography

The Lower Platte South NRD (LPSNRD or NRD) is a special conservation jurisdiction located in southeastern Nebraska. The LPSNRD is comprised of significant portions of Lancaster and Cass Counties in addition to portions of Butler, Seward, Saunders, and Otoe Counties. The NRD is bordered by Saline, Gage, and Sarpy Counties in Nebraska and Mills and Fremont Counties in Iowa. The total area of the LPSNRD is about 1,562 square miles. Major water bodies within the NRD include, but are not limited to: Salt Creek, Oak Creek, Platte River, Missouri River, Branched Oak Lake, Pawnee Lake, Wagon Train Lake, and Beaver Lake. Most of the LPSNRD lies in the rolling hills and valley topographic regions¹, with most of the NRD’s land characterized by agricultural fields.

Transportation

The LPSNRD has multiple types of transportation corridors; the following is a thorough but not complete list of corridors. Major transportation corridors include Interstate 80, US Highways 6, 34, 75, and 77; and Nebraska Highways 1, 2, 33, 50, 63, 66, 79, and 92. There are also rail lines from Union Pacific (UP), Burlington-Northern-Santa Fe (BNSF), and Omaha Public Power District (OPPD) Arbor Rail Line. The NRD also has several air landing strips dispersed throughout, the most significant of which include Lincoln Airport, Plattsmouth Municipal Airport, and Browns Airport in Weeping Water. This information is important to hazard mitigation plans as it suggests possible evacuation corridors across the NRD, as well as areas more at risk for transportation incidents.

Demographics

It is estimated that the LPSNRD serves a population of about 350,000 people across portions of six counties. However, the NRD does not collect the demographic information of the district’s population, nor does the U.S. Census Bureau recognize the NRD as a distinct unit. As a result, there is no population data generated specifically for the LPSNRD. For information regarding population data, please refer to a specific jurisdiction’s community profile or to *Section Three: Demographics and Asset Inventory*.

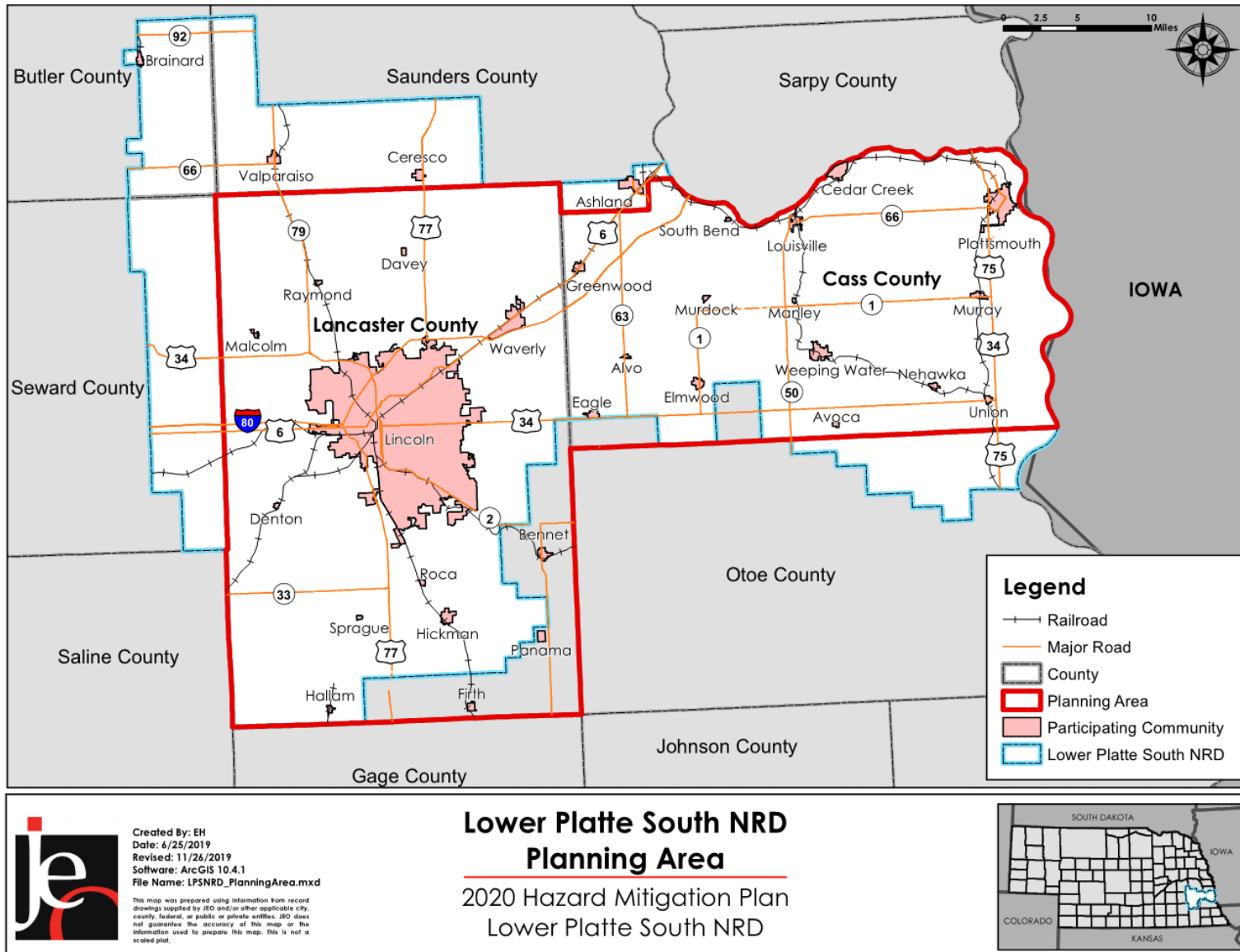
Future Development Trends

The district boundaries of the LPSNRD encompass an area experiencing widespread development, primarily in Lincoln, Waverly, the Interstate 80 corridor, and areas south of the Platte River in northern Cass County. Due to this development, urbanization of the rural landscape around and throughout the district has increased, and the NRD’s responsibilities have expanded. In the past five years, the NRD has been involved in numerous developments and projects in the district, including Deadmans Run Flood Reduction Project and the South Beltway.

In the next five years, the LPSNRD will continue to facilitate and assist partners in projects throughout the district, especially as it pertains to flood prevention and watershed protection, such as the East Beltway project, which intersects Stevens Creek.

¹ Center for Applied Rural Innovation. “Topographic Regions Map of Nebraska.” 2001. <http://digitalcommons.unl.edu/caripubs/62>.

Figure LPSNRD.1: LPSNRD Jurisdictional Map



Structural Inventory and Valuation

Please refer to the individual community profiles for information regarding parcel improvements, valuation, and discussion for specific jurisdictions across the planning area.

Critical Infrastructure/Key Resources

Chemical Storage Fixed Sites

Chemical sites are located throughout the NRD. Complete lists of chemical storage sites in each jurisdiction may be found in their community profile.

Critical Facilities

Each participating jurisdiction identified critical facilities vital for disaster response, providing shelter to the public (i.e. Red Cross Shelter), and essential for returning the jurisdiction's functions to normal during and after a disaster. Critical facilities were identified during the original planning process and updated by the local planning team as a part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

Table LPSNRD.2: Critical Facilities

CF Number	Name	Red Cross Shelter (Y/N)	Generator (Y/N)	Located in Floodplain (Y/N)
1	Lower Platte South NRD Office/Shop/Maintenance Building	N	Y*	N

*Includes: 2 Honda 2,000-watt portable generators; 1 3,500-watt portable generator; and 1 5,000-watt portable generator

Historical Occurrences

For the complete discussion on historical occurrences, please refer to *Section 4: Risk Assessment*.

Hazard Prioritization

For more information regarding these area-wide hazards, please see *Section Four: Risk Assessment*. The hazards discussed in detail below were prioritized by the local planning team based on the identification of hazards of greatest concern, hazard history, and the NRD's capabilities.

Dam Failure

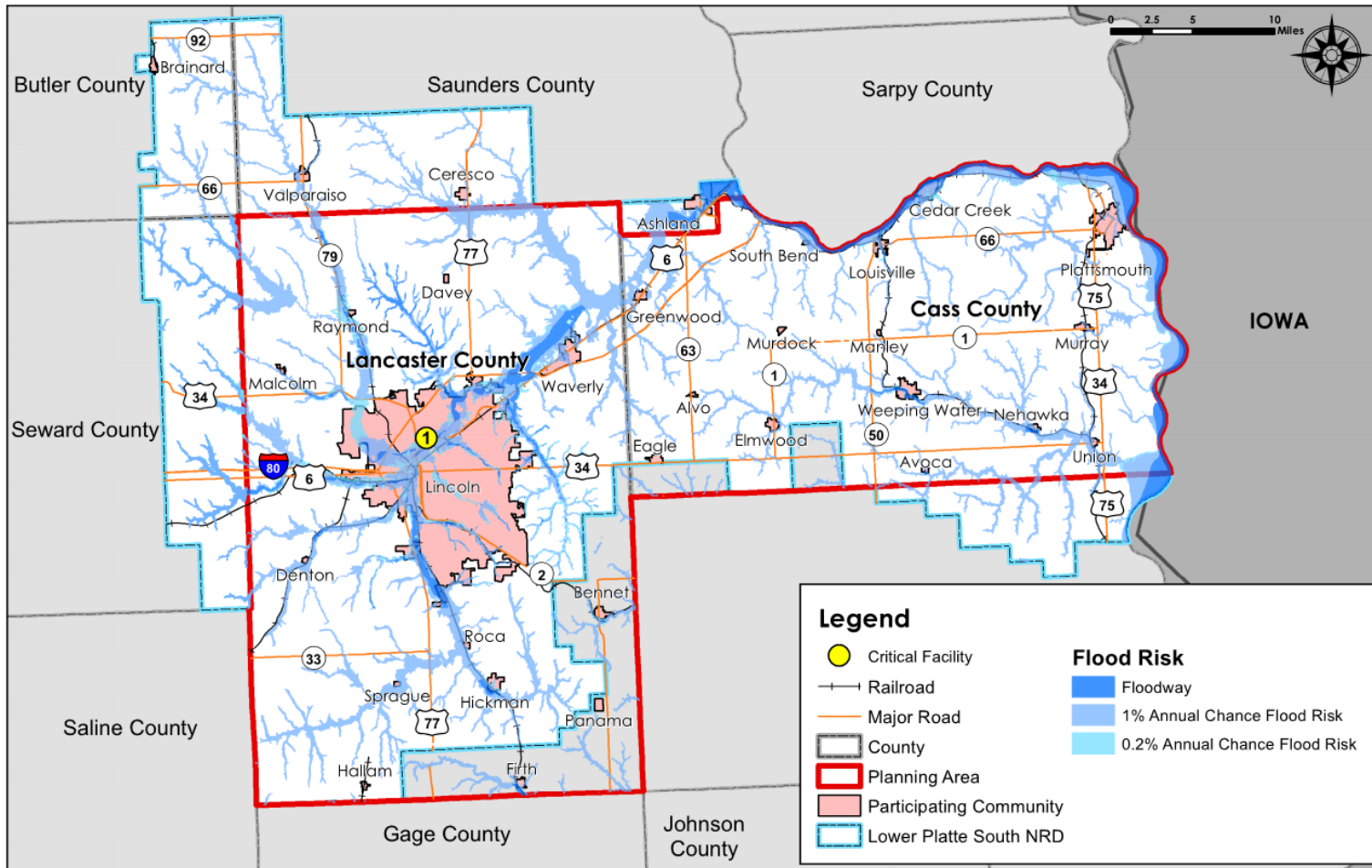
There are over 200 dams located within the LPSNRD, 30 of which are classified by NeDNR as high hazard dams (Table LPSNRD.3). While many of the dams across the NRD are privately or locally owned and operated, only ten of the 30 high hazard dams are owned and operated by the NRD. The local planning team indicated no significant dam failures have occurred.

The NRD regularly hosts dam failure exercises for high hazard dams in the district. A variety of stakeholders are invited to the exercise to review and test the emergency action plan for the dam. Following the dam failure exercise, an After-Action Report identifies areas for improvement for the dam owner and stakeholders that are critical to an emergency response at the dam.

Two dams, Upper Salt Watershed Dam 3-A and Oak-Middle 82-B Dam, are currently undergoing rehabilitation to meet higher standards. The dam projects will include upgrades such as new concrete reinforced principal spillway pipe, decommissioning of the existing pipe, new auxiliary spillway, increased height and width to the dam, filling of existing auxiliary spillway, and other work. These projects are anticipated to be completed in 2020-2021.

Figure LPSNRD.3 shows the location of dams across the Lower Platte South NRD. For a depiction of dams within the planning area, see *Section Four: Risk Assessment*.

Figure LPSNRD.2: Critical Facilities and Floodplain



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 Date: 6/25/2019
 Revised: 11/26/2019
 Software: ArcGIS 10.4.1
 File Name: LPSNRD_PlanningArea.mxd
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**Lower Platte South NRD
 Planning Area**
 2020 Hazard Mitigation Plan
 Lower Platte South NRD



Section Seven: Lower Platte South NRD Community Profile

Table LPSNRD.3: High Hazard Dams in the LPSNRD

City	Name	NIDID	Purpose	Dam Height	Maximum Storage (acre-feet)
Farmstead (Seward County)	Oak-Middle 82-B*	NE00068	Flood Control	35.4	371.4
Plattsmouth (Cass County)	Plattsmouth 10-A	NE00097	Flood Control	40	137
Plattsmouth (Cass County)	Plattsmouth 18-A	NE00098	Flood Control	25	117
Plattsmouth (Cass County)	Plattsmouth 12-A	NE00099	Flood Control	32	76
Rural Rock Bluff (Cass County)	Beaver Lake Dam	NE00102	Recreation	96	12,760
Plattsmouth (Cass County)	Plattsmouth 4-A	NE01888	Flood Control	25	16
Plattsmouth (Cass County)	Plattsmouth 7-C	NE01889	Flood Control	26	19
Rural Ashland (Cass County)	CenturyLink Dam	NE02322	Recreation	44	173
Rural Louisville (Cass County)	Mill Creek Rd Site 7*	NE02399	Flood Control	41	213
Rural Sprague (Lancaster County)	Upper Salt Creek 3-A*	NE00505	Flood Control	45	1,400
Rural Hickman (Lancaster County)	Upper Salt Creek 35-A*	NE00523	Flood Control	32	450
Rural Lincoln (Lancaster County)	Wedgewood Lake Dam	NE00527	Recreation	16	236
Rural Hickman (Lancaster County)	Upper Salt Creek 10-A*	NE00533	Flood Control	36	1,689
Rural Denton (Lancaster County)	Salt Creek Site 12-Conestoga	NE01055	Flood Control	60	15,000
Rural Hickman (Lancaster County)	Salt Creek Site 8-Wagon Train	NE01056	Flood Control	52	15,050
Rural Malcolm (Lancaster County)	Salt Creek Site 14-Pawnee	NE01057	Flood Control	70	38,300
Rural Denton (Lancaster County)	Salt Creek Site 10-Yankee Hill	NE01058	Flood Control	54	10,300
Hickman (Lancaster County)	Salt Creek Site 9-Stagecoach	NE01059	Flood Control	48	10,200
Lincoln (Lancaster County)	Salt Creek Site 13-Twin Lakes	NE01060	Flood Control	55	11,750
Lincoln (Lancaster County)	Salt Creek Site 17-Antelope Creek-Holmes	NE01061	Flood Control	61	7,455
Rural Sprague (Lancaster County)	Salt Creek Site 2-Olive Creek	NE01062	Flood Control	46	8,590
Rural Raymond (Lancaster County)	Salt Creek Site 18-Branched Oak	NE01063	Flood Control	82	122,283
Rural Sprague (Lancaster County)	Salt Creek Site 4-Bluestem	NE01064	Flood Control	59	17,550
Rural Valparaiso (Lancaster County)	N Oak Creek 1-A*	NE01665	Flood Control	48	3,168
Lincoln (Lancaster County)	Korver Dam	NE02652	Flood Control/Other	35	383
Rural Lincoln	Stevens Creek A2-1*	NE02756	Flood Control	25	256

Section Seven: Lower Platte South NRD Community Profile

City	Name	NIDID	Purpose	Dam Height	Maximum Storage (acre-feet)
(Lancaster County)					
Rural Lincoln (Lancaster County)	Stevens Creek A17-1*	NE02757	Flood Control	38	1,127
Lincoln (Lancaster County)	Village Gardens Dam	NE02805	Flood Control	26	51
Lincoln (Lancaster County)	Waterford Estates Dam*	NE02837	Flood Control	38	2,081
Waverly (Lancaster County)	Ash Hollow Dry Dam*	NE08364	Flood Control	33	1,744

*High-hazard dams owned and operated by the LPSNRD

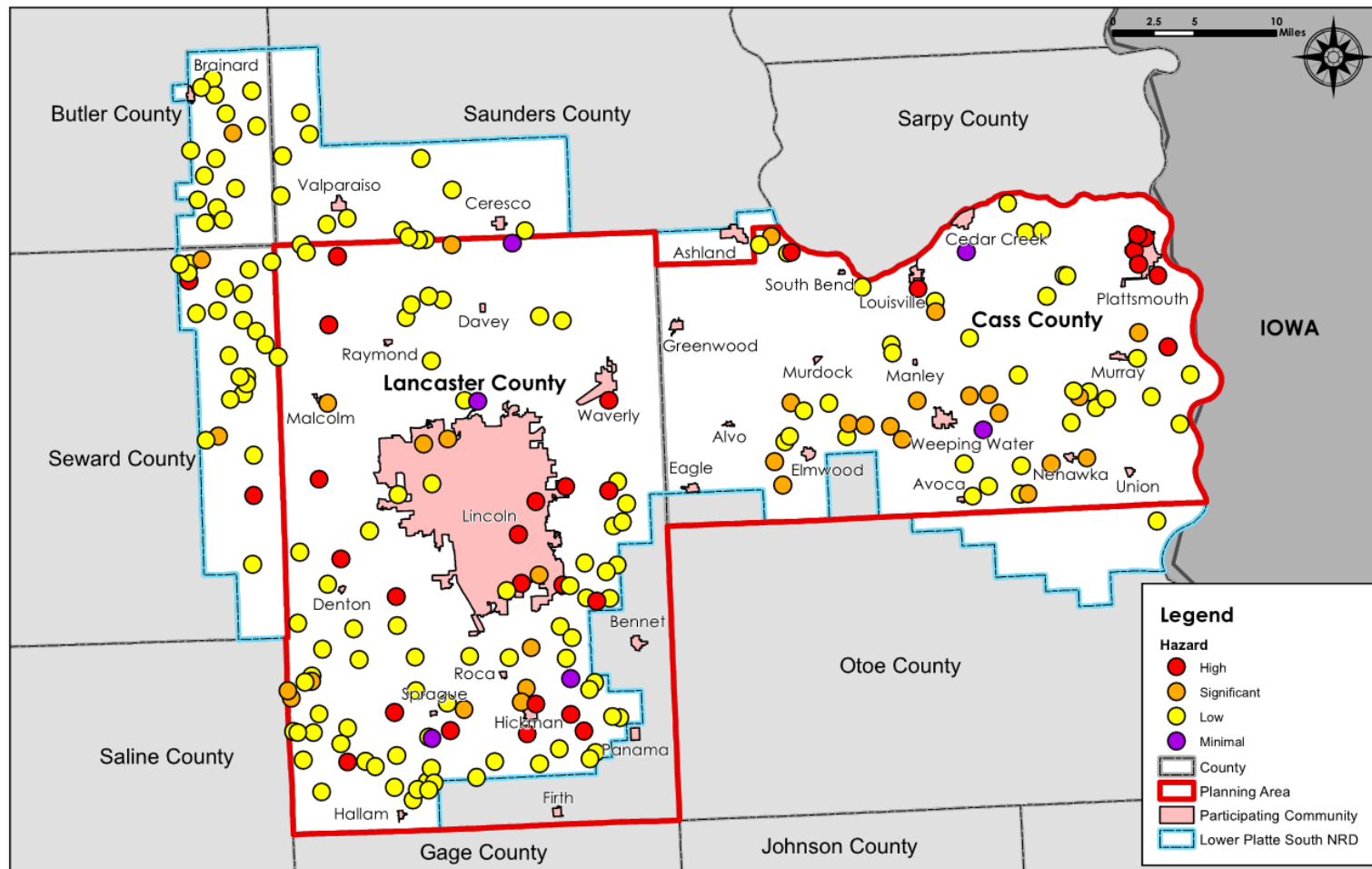
Drought

The local planning team indicated the district is vulnerable to the impacts of drought, as the local economy is heavily tied to agriculture. Since 1895, the district has been in drought conditions 28% of all months. Specifically, drought conditions in 2012 negatively impacted the local communities and caused significant damage. The LPSNRD is concerned about the impacts of drought conditions on water quality and quantity throughout the district. Communities throughout the district have implemented water restriction policies following drought events and rely on the NRD to be a local partner and guide in managing water resources during hazard events.

The NRD has developed a Drought Response Plan and was a collaborative member of the Lower Platte River Consortium Drought Contingency Plan, approved in December 2019, which both undergo periodic reviews. The Drought Contingency Plan includes the following partners: Lower Platte North NRD, Papio-Missouri River NRD, Omaha Metropolitan Utilities District, City of Lincoln Water System, and NeDNR. The Plan identified several mitigation measures which may improve available water supplies for the region during periods of drought. It is crucial to note that these actions are currently in the evaluation stage and no formal actions have been selected. Details about each potential action are available in the Drought Contingency Plan.

Section Seven: Lower Platte South NRD Community Profile

Figure LPSNRD.3: LPSNRD Dam Locations

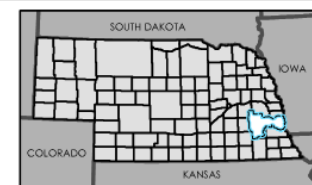


Created By: KD
 Date: 6/25/2019
 Revised: 12/5/2019
 Software: ArcGIS 10.4.1
 File Name: LPSNRD_Dams.mxd

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Lower Platte South NRD Dam Locations

2020 Hazard Mitigation Plan
 Lower Platte South NRD



Flooding

The planning team identified flooding as a significant concern for the district, especially after extensive flooding impacted the state in March 2019. The NCEI reported 106 flood events between 1996 and 2018 which have caused over \$100 million in property damages. There are 131,500 acres across Lancaster and Cass Counties, which are located within the floodplain. See Figure LPSNRD.2 for a map of the floodplain. Infrastructure throughout the district is located in the floodplain, including the City of Lincoln's wellfields in Ashland. Flooding significantly damages rail lines and transportation corridors, hindering travel for emergency response and residents. The Lied Platte River Trail Connector Bridge on the Platte River, co-owned by LPSNRD and the Papio-Missouri River NRD, has experienced damage from flooding and is currently being assessed. The Salt Creek levees through the City of Lincoln have experienced bank sloughing damage from flooding. High water levels on the Platte River by Plattsmouth caused significant damage to riverbanks and rechanneled the river, leading to additional localized flooding impacts.

Levee Failure

There are 11 federal levees and five non-federal levees located within the district. However, nine of the 16 levees are sponsored or co-sponsored by the LPSNRD. The tables below describe only the LPSNRD-sponsored levees within the district, as reported in the Army Corps of Engineers National Levee Database. Note that a single levee system may include multiple segments, which are separated in the tables below. While the Clear Creek Levee System in Saunders County is co-sponsored by the Lower Plate North NRD (LPNNRD) and LPSNRD, the lead sponsor is the LPNNRD as most of the system is located in the LPNNRD district and only the extreme southern section, notably the fuse plug portion, is within the jurisdiction of the LPSNRD.

Levee failure is a concern for the local planning team due to the likelihood of damage to infrastructure and danger to residents in the district; the March 2019 flooding event damaged or overtopped some levee structures in the district. For a full list of levees in the planning area, see *Section Four: Risk Assessment*.

In 2016, the NRD developed an Emergency Preparedness Plan (EPP) for the Salt Creek Levee in Lincoln. The EPP conveys procedures and processes that address levee emergency situations based on pre-identified triggers. The plan outlines stakeholder's roles and responsibilities, risk awareness communication, flood-related warnings, evacuation protocols and routes, emergency levels and activations, flood fighting techniques and resources, and notification processes. Following the development of the EPP, the NRD hosted levee stakeholders at a levee failure tabletop exercise to ensure emergency activations and stakeholder roles and responsibilities were properly outlined in the plan. The NRD will continue to host tabletop exercises in the future.

The March 2019 event caused significant damage to numerous levees across the district and eastern Nebraska. In particular, the Cedar Creek levee was damaged, and the LPSNRD is assisting local entities with repairs. Furthermore, the Clear Creek Levee System, located along the right bank of the Platte River in eastern Saunders County, was breached near Camp Ashland, which is a Nebraska National Guard training site. It also protects portions of the City of Lincoln's wellfield. Both Camp Ashland and the wellfield were heavily damaged during the flood. Emergency repairs have been completed at the Clear Creek Levee System by the USACE and permanent fixes are anticipated to begin in 2020. The Salt Creek Levee System in Lincoln was damaged, and repair estimates have been submitted to FEMA for funding assistance.

Severe Thunderstorms

Severe thunderstorms were identified as a hazard of top concern by the local planning team due to their frequency and the high likelihood of damage. Severe thunderstorms commonly include heavy rain, high winds, and hail. The NCEI reported 238 severe thunderstorm events in the planning area between 1996 and 2018, which caused over \$3 million in property damages and nearly \$8 million in crop damages. The planning area's economy is heavily tied to the agricultural market, which is significantly impacted by heavy rains associated with severe thunderstorms. The LPSNRD manages numerous public recreation areas which experience tree damage after storms. Wildwood Lake State Wildlife Management Area, one of the most heavily used recreation areas owned by the NRD, has two enclosed restroom structures that can serve as sheltering locations, but they are not FEMA certified.

Section Seven: Lower Platte South NRD Community Profile

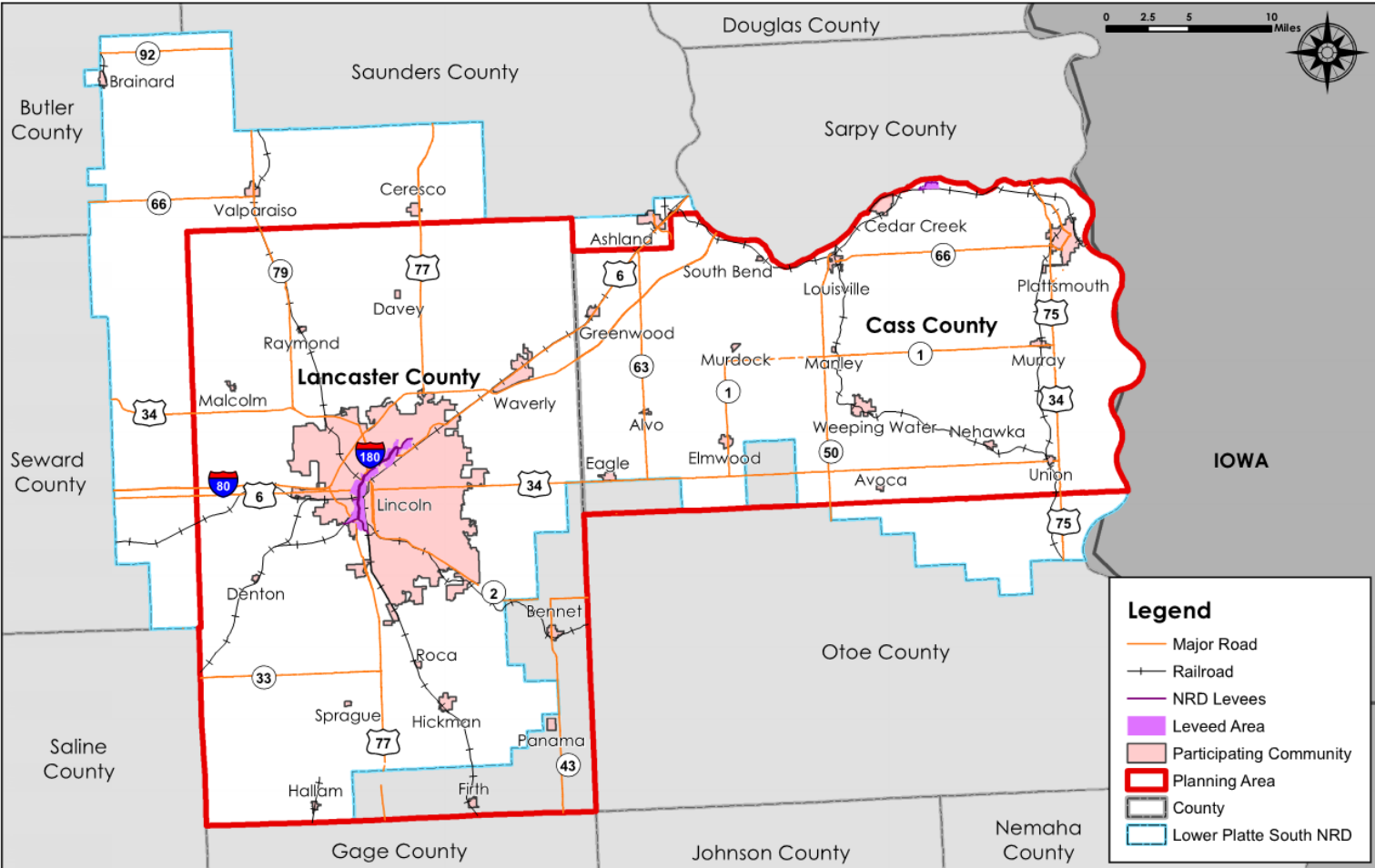
Table LPSNRD.4: LPSNRD Sponsored Levees

Name	Sponsor	Location	River	Length (miles)	Type of Protection	Protected Area (sq miles)	Risk Level	USACE?
Salt Creek LB & Haines RB	LPSNRD	Lincoln, Lancaster County	Salt Cr, Haines Cr	1.25	Urban	0.19	Low	Y
Salt Creek RB	LPSNRD	Lincoln, Lancaster County	Salt Creek	4.71	Urban	1.33	Moderate	Y
Salt Creek LB & Haines LB & Middle Cr RB	LPSNRD	Lincoln, Lancaster County	Salt Cr, Haines CR	2.49	Urban	0.47	Low	Y
Salt Creek LB & Middle Creek LB	LPSNRD	Lincoln, Lancaster County	Salt Cr, Middle Cr	1.5	Urban	0.47	Moderate	Y
Salt Creek LB & Oak Creek LB	LPSNRD	Lincoln, Lancaster County	Salt Cr, Oak Cr	1.72	Urban	0.45	Low	Y
Salt Creek RB to Dead Man's Run	LPSNRD	Lincoln, Lancaster County	Salt Creek	1.62	Urban	0.44	Low	Y
Salt Creek RB & Dead Man's Run RB	LPSNRD	Lincoln, Lancaster County	Salt Creek	1.6	Urban	0.38	Low	Y
Cedar Creek (Omaha F&W) – Platte RB	Omaha Fish & Wildlife Club and LPSNRD (co-sponsors)	Cedar Creek, Cass County	Platte River	1.56	Residential	0.38	Not Screened	Y
Clear Creek – Platte River RB*	LPNNRD and LPSNRD (co-sponsors)	Wann, Saunders County	Plate River	12.25	Urban	28.04	Not Screened	Y

Source: Army Corps of Engineers National Levee Database and LPSNRD


Note: The Clear Creek Levee System is not mapped below but is mapped in Section 4.

Figure LPSNRD.4: LPSNRD Sponsored Levees



Legend

- Major Road
- +— Railroad
- NRD Levees
- Leveed Area
- Participating Community
- Planning Area
- County
- Lower Platte South NRD



Created By: EH
 Date: 2/15/2019
 Revised: 12/11/2019
 Software: ArcGIS 10.4.1
 File Name: LPS_Levees.mxd

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**Lower Platte South NRD
 Sponsored Levees**
 2020 Hazard Mitigation Plan
 Lower Platte South NRD



Section Seven: Lower Platte South NRD Community Profile

Governance

The LPSNRD is governed by a Board of 21 elected Directors and entrusted with a broad range of responsibilities to protect and enhance Nebraska's many natural resources. The NRD serves both incorporated and unincorporated areas within their district and has the capability to financially and administratively assist villages, cities, and counties with mitigation actions (most commonly flood control and drainage improvements). The following positions may help implement mitigation projects:

Table LPSNRD.5: Staff

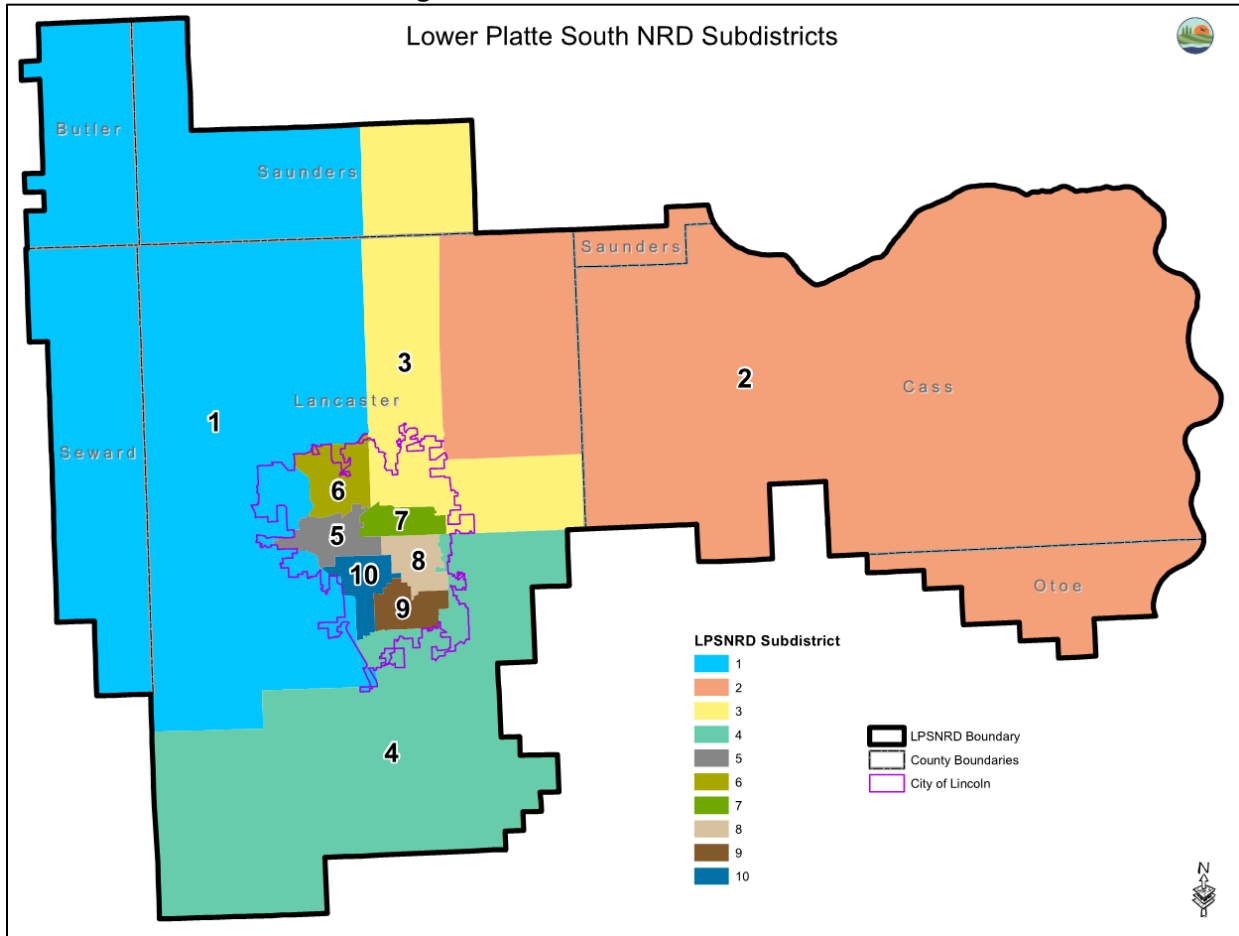
Administration	
General Manager	Paul Zillig
Assistant General manager	David Potter
Administrative Assistant	Kathy Spence
Clerical	
District Office Secretary/Program Assistant	Donna Reid
Receptionist/Secretary	Kathy Hauschild
District Field Office Secretary (Lancaster Co. NRCS Office)	Connie Hansen
District Field Office Secretary (Cass Co. NRCS Office)	Jean Ulrich
Technical	
Operations & Maintenance Coordinator	Al Langdale
Operations & Maintenance Technician	Craig Matulka
Resources Technician (Lancaster Co. NRCS Office)	John Albert
Resources Technician (Lancaster Co. NRCS Office)	Evan Sisel
Resources Technician (Cass Co. NRCS Office)	Cindy Spilinek
Stormwater/Watershed Specialist	Tracy Zayac
Resources Coordinator	Dan Schulz
Resources Conservationist	Ariana Kennedy
Environmental Education Specialist	McKenzie Barry
Public Information Specialist	Mike Mascoe
Social Media Assistant	Michelle Bliemeister
Water Resources Conservationist	Chris Witthuhn
Water Resources Specialist	Dick Ehrman

Projects Coordinator	Mike Murren
Technical	
Information Systems Administrator	Nathan Kuhlman
GIS Specialist	Shaula Ross
Water Resources Technician	Maclane Scott
Operation and Maintenance Technician	Bryce Jensen
Maintenance Technician	Drew Ratkovec
Environmental Education Assistant	Adam Sutton
ENWRA Project Coordinator (with UNL)	Katie Cameron
Bookkeeper	Connie Damrow
Water Resources Compliance Specialist	Steve Herdzina
District Engineer	Jared Nelson
Forester (with Nebraska Forest Service)	Jay Seaton
Corrections Crew Supervisor (Dept. of Corrections)	Doug Cheney
Corrections Crew Supervisor (Dept. of Corrections)	Sam Grove
Saline Wetlands Conservation Partnership (with Lincoln Parks)	Tom Malmstrom

Board Subcommittees:

- Land Resources
- Water Resources
- Urban
- Recreation, Forestry, and Wildlife
- Executive
- Finance and Planning
- Information and Education
- Platte River
- Integrated Management

Figure LPSNRD.5: NRD Sub-Districts



Source: Lower Platte South NRD

Table LPSNRD.6: LPSNRD Districts and Directors (as of January 2020)

Sub-District	Sub-district Director(s)		Town(s)
#1	Don Jacobson	Gary Hellerich	Lincoln, Denton, Pleasant Dale, Malcolm, Garland, Raymond, Brainard, Valparaiso
#2	Sarah Wilson	Mark Spangler	Waverly, Eagle, Alvo, Greenwood, Ashland, South Bend, Louisville, Cedar Creek, Plattsmouth, Murray, Manley, Murdock, Weeping Water, Elmwood, Nehawka, Avoca, Union
#3	Mike DeKalb	Vern Barrett	Lincoln, Ceresco, Davey
#4	Gary Aldridge	Larry Ruth	Lincoln, Roca, Hickman, Sprague, Hallam
#5	Greg Osborn	Bruce Johnson	Lincoln
#6	Anthony Schutz	Deborah Eagan	Lincoln
#7	Chelsea Johnson	Luke Peterson	Lincoln
#8	Dan Steinkruger	Tom Green	Lincoln
#9	Milt Schmidt	Bob Andersen	Lincoln
#10	Ray Stevens	Karen Amen	Lincoln
At-large	David Landis		All communities in District

Capability Assessment

The NRD has the authority to levy taxes to fund projects and programs that fulfill its statutory obligations. In addition, the NRD seeks out partnerships and alternative funding opportunities (e.g., grants) to accomplish NRD goals and implement mitigation strategies. The NRD also regularly engages in public education and information programs related to hazard mitigation in the area, and routinely works with other counties, cities, and villages within their jurisdictional boundaries.

Table LPSNRD.7: Overall Capability Assessment

Overall Capability	Limited/Moderate/High
Does the NRD have the financial resources needed to implement mitigation projects?	High
Does the NRD have the staff/expertise to implement projects?	High
Does the NRD have the community support to implement projects?	High
Does the NRD staff have the time to devote to hazard mitigation?	High

Plan Integration

The Lower Platte South Natural Resources District has several plans which integrate the goals, objectives, and projects identified in this HMP.

The Lower Platte South NRD 2019 Master Plan goals and objectives, as outlined below, focuses on eleven areas that are indicative of what the NRD strives to accomplish and are consistent with the goals and objectives of this hazard mitigation plan.

- **Sustainable water resources** – Groundwater levels are maintained and quality standards are exceeded or met for all domestic and other uses. Surface waters also meet or exceed water quality standards and minimum streamflows are determined and maintained.
- **Low impact developments** – All developments are compatible with and also conserve natural resources.
- **Minimal flood threat and damage** – Flood damages are reduced or eliminated and the public safety risk from flooding is minimized.
- **Protected natural and unique resource areas** – All remaining natural and unique resource areas are identified, assessed, and sustained, or enhanced.
- **Ample natural resource-based recreation** – The NRD provides diverse, safe, outdoor recreation opportunities across the district.
- **Properly managed agricultural lands** – Owners of all agricultural lands utilize best management practices for water quality and quantity, maintain soils at sustainable levels in accordance with their capabilities and conserve energy.
- **Healthy forests** – The forestry resources of the NRD are diversified and enhanced in urban area. Rural forests are preserved and expanded.
- **People are responsible conservationists** – The NRD is a credible source of information on natural resources for the public and other agencies and works with schools on providing natural resources education.
- **Healthy wildlife habitat** – Diverse, dispersed, and healthy wildlife populations thrive throughout the NRD.
- **Resiliency to changes in climate and clean environment** – Best management practices for energy and conservation are everyday activities for the residents and businesses of the NRD. Local efforts will mitigate and adapt to the changing climate and conservation measures work to protect resources.
- **NRD is a conservation leader** – The Lower Platte South NRD is at the forefront of innovative conservation with its projects and programs.

The District’s Long-Range Implementation Plan, 2020-2024, is annually updated. The plan is subdivided by subcommittees and further by Program Areas. The Program Areas identified are consistent with the

Section Seven: Lower Platte South NRD Community Profile

goals and objectives of the hazard mitigation plan and the identified mitigation strategies. The following is a snapshot of some of the identified outcomes outlined in the plan:

- Complete construction of two approved dams
- General information and educational programming
- Promote and cost-share tree plantings
- Approval of Drought Contingency Study
- Complete the Oak-Middle 82-B Watershed Rehabilitation Project
- Several groundwater (quantity and quality) management actions

The LPSNRD's Drought Response Plan, completed in 2015, outlines strategies to respond to and manage the impacts of a multi-year drought. The plan was developed as part of its integrated management plan, with input from communities and stakeholders within the district. The plan includes methods for the NRD, communities, agricultural, and recreational users to reduce demand during times of drought.

The NRD is a key stakeholder in the Lower Platte River Consortium, which is made up of the Lower Platte South NRD, Lower Platte North NRD, Papio-Missouri River NRD, Omaha Metropolitan Utilities District, City of Lincoln Water System, and NeDNR. The Consortium worked together to develop a Drought Contingency Plan, approved in December 2019, with the overall goal of sustaining public water supplies in the basin. The plan lists potential drought mitigation measures and drought monitoring techniques for the Consortium to evaluate and, potentially, adopt and implement.

The Ground Water Management Plan, approved in 1995, describes the NRD's overall strategy for ground water management, defines management goals, and details the objectives, programs, and policies designed to meet those goals. The plan is reviewed annually to assess the district's actions, activities, and effectiveness under the Ground Water Rules and Regulations for implementation of the plan.

The NRD's voluntary Integrated Management Plan (IMP) took effect in 2014 and is reviewed annually in collaboration with the Nebraska Department of Natural Resources. The IMP focuses on integrating the management of all water supplies and uses within the entire district. The three goals of the IMP are to:

1. Achieve a sustainable water supply,
2. Manage the supply and make it available whenever and wherever needed, and
3. Support water use and conservation that optimizes benefits.

With limited surface water sources, variable and discontinuous ground water resources, and the geographic reality of the NRD's downstream location in the river basin, the IMP includes the anticipated need to look outside district boundaries to collaborate and cooperate on future water supply expansion.

The district-wide Water Quality Management Plan, accepted by the EPA in 2019, was prepared to guide the NRD in developing and implementing future projects to improve water quality, hydrology, and aquatic resources with the district. The plan may also serve as a basis for seeking financial support for those projects.

Seven NRDs in the Lower Platte Basin and the Nebraska Department of Natural Resources formed a coalition to adopt, implement, and maintain a Basin-wide Water Management Plan. The plan focuses on water use policies and practices that contribute to the protection of existing surface water and ground water uses while allowing for future water development. The plan was first developed in 2017 and is reviewed annually.

The NRD developed an Emergency Preparedness Plan (EPP) for the Salt Creek Levee in Lincoln in 2016. The EPP is designed to provide holistic community planning relative to the needs of the levee system. The plan includes risk reduction strategies, emergency preparedness measures, documentation of emergency response activities, telephonic calling trees, and available resources.

The NRD also reviews and updates Emergency Action Plans as required for high hazard dams. The NRD regularly hosts dam and levee failure tabletop exercises with key stakeholders.

Mitigation Strategy

Completed Mitigation Actions

Mitigation Action	Master Plan
Description	Maintain NRD Master Plan to prioritize all hazard related projects.
Hazard(s)	All Hazards
Status	Master Plan was updated in December 2018 and funded by the NRD budget.

Ongoing and New Mitigation Actions

Mitigation Action	Backup Generators
Description	Provide backup power systems to provide redundant power supply to critical facilities and key infrastructure.
Hazard(s)	All Hazards
Estimated Cost	\$50,000+
Funding	NRD General Budget, PDM, HMGP
Timeline	2-5 years
Priority	Medium
Lead Agency	LPSNRD
Status	This project has not yet been started. A main generator is needed for the LPSNRD Office.

Mitigation Action	Continue & Expand Water Conservation Awareness Programs, such as pamphlets
Description	Improve a program to conserve water use by the citizens during prolonged periods of drought. Potential restrictions on water could include limitations on lawn watering, car washing, or water sold to outside sources. Work with DNR on farm irrigation restrictions.
Hazard(s)	Drought
Estimated Cost	\$1,000 +
Funding	NRD General Budget
Timeline	Ongoing
Priority	High
Lead Agency	LPSNRD
Status	This is an ongoing action.

Mitigation Action	Hazard Education
Description	Increase public awareness of vulnerability and risk reduction measures through hazard education.
Hazard(s)	All Hazards
Estimated Cost	\$0 - \$1,000
Funding	NRD General Budget, PDM, HMGP
Timeline	Ongoing
Priority	High
Lead Agency	LPSNRD
Status	Hazard education is an ongoing effort for the NRD. They sponsor High Hazard Dam workshops every four years, share information related to drought response, levee safety workshops, and participate in the Salt Creek Flood Resiliency Committee meetings.

Section Seven: Lower Platte South NRD Community Profile

Mitigation Action	Emergency Action Plans
Description	Maintain NRD Emergency Action Plans to ensure safety of dams in the NRD.
Hazard(s)	Dam Failure
Estimated Cost	\$1,000 +
Funding	NRD General Budget, PDM, HMGP
Timeline	5+ years
Priority	High
Lead Agency	LPSNRD
Status	This is an ongoing action, as the LPSNRD updates ten Emergency Action Plans for High Hazard Dams every five years.

Mitigation Action	Incorporate Hazards in Planning Mechanisms
Description	Incorporate known hazards into existing planning mechanisms as appropriate.
Hazard(s)	All Hazards
Estimated Cost	\$1,000 +
Funding	NRD General Budget, PDM, HMGP
Timeline	1 year
Priority	High
Lead Agency	LPSNRD, USACE, County and Community governments
Status	Integrating hazards into various planning mechanisms is an ongoing effort, which is detailed in the Plan Integration section of this profile.

Mitigation Action	Preserve Floodplain
Description	Preserve natural and beneficial functions of floodplain land through measures such as retaining natural vegetation, restoring streambeds, and preserving open space in the floodplain.
Hazard(s)	Flooding
Estimated Cost	Varies
Funding	NRD General Budget, PDM, HMGP, NeDNR
Timeline	Ongoing
Priority	Medium
Lead Agency	LPSNRD and City Governments
Status	The NRD has helped with conservation easements, and several thousand acres throughout the district have been converted to woodlands, wetlands, and/or prairies.

Mitigation Action	Utilize low impact development practices and green infrastructure to reduce flood risk
Description	Low impact development practices and green infrastructure can reduce runoff and result in a reduction in stormwater-related flooding.
Hazard(s)	Flooding
Estimated Cost	Varies
Funding	NRD General Budget
Timeline	5+ years
Priority	Medium
Lead Agency	LPSNRD
Status	Several projects have been implemented to reduce flood risk, including cost-share with landowners for rain gardens, street development, and building on existing partnerships.

Section Seven: Lower Platte South NRD Community Profile

Mitigation Action	Green Mitigation
Description	Educate the public and business owners regarding rain gardens, green roofs, and other minor mitigation measures.
Hazard(s)	All Hazards
Estimated Cost	Varies
Funding	NRD General Budget
Timeline	Ongoing
Priority	Medium
Lead Agency	LPSNRD
Status	This is an ongoing action with partnerships with the UNL extension offices and cost share opportunities with communities.

Mitigation Action	Hazard Risk Reduction
Description	Continue to work with Nebraska Department of Natural Resources to reduce flood hazard risk.
Hazard(s)	Flooding
Estimated Cost	Varies
Funding	NRD General Budget, PDM, HMGP, NEMA, NeDNR
Timeline	Ongoing
Priority	High
Lead Agency	LPSNRD, County EMA, Community Governments
Status	The NRD continues to work alongside NeDNR for dam inspection and rehabilitation efforts. The NRD also works with the City of Lincoln for floodplain easement purchases.

Mitigation Action	Integrated Water Management Plan (IMP)
Description	Maintain and update Integrated Water Management Plan to ensure sufficient water supply for the future.
Hazard(s)	Drought
Estimated Cost	Varies
Funding	NRD General Budget
Timeline	Ongoing
Priority	High
Lead Agency	LPSNRD and NeDNR
Status	The IMP has been developed as a joint effort by the NRD and NeDNR, and reviews are completed annually.

Mitigation Action	Infrastructure Hardening
Description	Install vehicular barriers to prevent accidental, or purposeful, vehicular impacts to critical facilities and key infrastructure such as wells, trails, recreation areas, etc.
Hazard(s)	Terrorism
Estimated Cost	\$5,000 +
Funding	NRD General Budget, DHS, PDM, HMGP
Timeline	5+ years
Priority	Low
Lead Agency	LPSNRD
Status	The NRD has monitoring wells located across the district which are gated off from public vehicles and cattle. Other trails have bollards and signage to protect them. Additional barricade materials are needed to protect gate structures or other NRD properties.

Section Seven: Lower Platte South NRD Community Profile

Mitigation Action	Drought Response Plan and Drought Contingency Plan
Description	Review, update, and implement the two drought plans to reduce impacts of drought across the NRD.
Hazard(s)	Drought
Estimated Cost	Varies
Funding	NRD General Budget, PDM, US Bureau of Reclamation Grant, Water Sustainability Fund
Timeline	Ongoing
Priority	Medium
Lead Agency	LPSNRD, Pappio-Missouri River NRD, Lower Platte North NRD, and other stakeholders
Status	Drought Response Plan (2015) and Drought Contingency Plan (2019) will be reviewed regularly and updated as needed.

Mitigation Action	Storm Shelters
Description	Design and construct storm shelters and safe rooms in highly vulnerable areas such as public recreation areas which have restrooms and picnic areas.
Hazard(s)	Hail, High Winds, Severe Thunderstorms, Tornadoes
Estimated Cost	\$250 per sf
Funding	NRD General Budget
Timeline	2-5 years
Priority	Medium
Lead Agency	LPSNRD
Status	This project has not yet been started.

Mitigation Action	Feasibility Study
Description	Conduct a feasibility study of potential drought mitigation actions identified in the Drought Contingency Plan.
Hazard(s)	Drought
Estimated Cost	Unknown
Funding	NRD General Budget, WSF
Timeline	5+ years
Priority	High
Lead Agency	LPSNRD
Status	This project has not yet been started.

Mitigation Action	Hazardous Tree Removal
Description	Educate public on appropriate tree planning, assist in removing hazardous trees and assist in efforts to augment tree stock.
Hazard(s)	Agricultural Plant Disease, Grass/Wildfire, High Winds, Severe Thunderstorms, Severe Winter Storms, Tornadoes
Estimated Cost	Unknown
Funding	NRD General Budget, HMGP, PDM
Timeline	Ongoing
Priority	High
Lead Agency	LPSNRD, Nebraska Forest Service
Status	The NRD currently assists in removing hazardous trees and has programs in place to replace removed trees. Additional emphasis is needed on removing ash trees which are at high mortality risk due to emerald ash borer (EAB). Both Lancaster and Cass Counties have had confirmed cases of EAB.

Removed Mitigation Actions

Mitigation Action	Plan Maintenance
Description	Assist jurisdictions with plan maintenance.
Hazard(s)	All Hazards
Reason for Removal	This action is outside of the responsibilities of the NRD. The NRD may assist communities as requested, but plan development and maintenance is the responsibility of the individual jurisdiction.