

LOWER PLATTE SOUTH NRD WATER QUALITY MANAGEMENT PLAN

UPDATED 2024



ORIGINALLY PREPARED MAY 2019

UPDATED: JULY 2024

EPA Accepted: OCTOBER 2024

FOR THE LOWER PLATTE SOUTH NRD
BY JEO CONSULTING GROUP, INC.



LOWER PLATTE SOUTH
natural resources district



Lower Platte South Natural Resources District



LOWER PLATTE SOUTH
natural resources district

2024 – 2029 Revision

District-Wide Water Quality Management Plan

Prepared: July 2024

Accepted by EPA: October 24, 2024

Adopted by Board of Directors: November 20, 2024

Prepared by: JEO Consulting Group, Inc.

JEO Project Number: 231640.00

REVISION TO THE LPSNRD DISTRICT-WIDE WQMP

INTRODUCTION

This document constitutes a revision and amendment to the 2019-2024 water quality management plan (WQMP) for the Lower Platte South Natural Resources District (LPSNRD) accepted by EPA on May 6, 2019. The WQMP area is intended to match the LPSNRD boundary as closely as possible, while following watershed boundaries. This generally follows all or portions of three major HUC 8 subbasins: Keg-Weeping Water (HUC 8: 10240001), Lower Platte (HUC 8: 10200202), and Salt (HUC 8: 10200203), hereinafter referred to as the “LPSNRD Watersheds”.

This amendment will be attached to the original LPSNRD District-wide WQMP upon finalization. The WQMP, including this revision, is intended to serve as a coordinating guide for the LPSNRD, conservation organizations, communities, and educational institutions to plan and implement water quality management projects within the LPSNRD Watersheds. It is expected that potential project sponsors will communicate and coordinate their activities with the key partners in this plan, including the LPSNRD and Nebraska Department of Environment and Energy (NDEE). Other plan stakeholders include the Natural Resources Conservation Service (NRCS), Nebraska Game and parks Commission (NGPC) and the City of Lincoln.

HIGHLIGHTS OF ACCOMPLISHMENTS 2019 - 2024

The LPSNRD utilizes multiple funding sources and programs to help accomplish its mission of “Maintain a sustainable environment through the conservation of land, water, and wildlife.” While many of these activities are related to water quality, this amendment highlights the following projects which have directly resulted from the WQMP and are tied to Section 319 funding provided by NDEE.

TWIN LAKES WATERSHED TARGET AREA IMPLEMENTATION (56-2082)

Following the completion of the 2019 WQMP, LPSNRD begin implementation efforts starting in the watershed area of East and West Twin Lakes. The project received Section 319 funding from NDEE in 2021 with the overall intent to implement best management practices (BMPs) in the watershed. These efforts are intended to reduce pollutant loadings (sediment and nutrients) to East and West Twin Lakes, which will improve water quality entering the lakes from the watershed and help protect future in-lake water quality improvements planned for the lakes. This initial phase of the project is intended to only address external pollutant sources, with future phases planned to address internal (in-lake) sources. To facilitate adoption of agricultural BMPs, information and education efforts have also been undertaken to target stakeholders, area landowners/producers, and the public.

Since the project has begun in 2021, the following has been accomplished:

- Began work with UNL and NDEE to develop a citizen science program in the watershed.

- Began coordinating with local agricultural service providers to educate them on water quality issues.
- Have held 2 stakeholder meetings, including a 2021 stakeholder tour of the watershed with LPSNRD, NRCS, and NGPC to identify potential locations for BMPs.
- Two educational signs have been installed in the watershed.
- In 2022, NGPC completed an updated bathymetric survey of East Twin Lake.
- Installed terraces to treat 115 acres.
- In 2022, The Nebraska Game and Parks Commission (NGPC) completed a stream stabilization project to reduce erosion and serve as a demonstration site.
- Four (4) farm ponds have been identified for implementation, however, due to weather and in-field conditions construction has been delayed on two of them.
 - 1 application has been withdrawn by the landowner.
 - 1 application is under review by USACE for 404 permitting.

WAVERLY WELLHEAD PROTECTION AREA IMPLEMENTATION (56-2287)

The WQMP recognized wellhead protection (WHP) areas as special priority areas due to the influence a WHP Area has on the management needs of source water aquifers and associated public drinking water systems. In the LPSNRD, WHP areas are also referred to as Community Water System Protection Areas (CWSPAs). In 2022, a drinking water protection and management plan (DWMP) was finalized for the Waverly WHP Area, which included a detailed groundwater assessment, focused stakeholder involvement, and outlined key implementation strategies. These two planning efforts complimented each other and helped to bring multiple partners to the table to begin implementation efforts.

The Waverly WHP Area Implementation Project received Section 319 funding from NDEE in 2023. The project is focused on the adoption of agricultural best management practices (BMPs) such as fertilizer and nutrient management, irrigation water management, cover crops, and others. To facilitate the adoption of these practices, this project includes funding for a new staff position at LPSNRD: a Drinking Water Protection (DWP) Specialist. The DWP Specialist was hired and began work in 2023 and is leading a focused public outreach and education effort, targeted at key producers and other members of the public, in order to identify barriers to BMP implementation and then overcome them by developing tailored programming to fill potential educational, technical, and monetary gaps. These efforts are building relationships with producers with the goal of increasing adoption of BMPs.

Since the project has begun in 2023, the following items have been completed:

- Hiring of the DWP Specialist.
- Three public meetings have been held.
- 18 individual landowner meetings have been held, with several follow-up meetings
- Coordination with UNL to conduct research on a landowners field, based on reduced nitrogen application.

- Five mailings targeted to the project area.
- Five social media posts targeted to the project area.
- Working with the City of Waverly and local agronomy cooperatives and implement dealers to better connect with farmers and promote BMPs.
- Hosted a Test-Your-Well Night at Waverly High School, with over 50 water samples brought in.
- 78 applications of Cover Crops have been approved and established since April of 2023.
- There were no cover crop acres established in the Waverly area during the Fall/Winter of 2023-2024. Will evaluate this upcoming Fall/Winter (2024-2025) to determine if cover crops are implemented.
- Working with UNL to get more cover crop acres established using their air seeder highboy project.
- Continue working on getting more landowners/producers to soil sample before making their fertilizer application decisions. Utilize the nitrogen credits available to them and reduce inputs if possible.

AMENDMENTS TO THE WATER QUALITY MANAGEMENT PLAN

1. This amendment revises and extends the Lower Platte South Natural Resources District's District-Wide Water Quality Management Plan for another five years.
 - a. Goals, objectives, tasks, priorities, and other actions, except as amended here, continue as guidance for implementing nonpoint source management projects in the LPSNRD Watersheds.
 - b. Target area watersheds, other priorities, load reduction data, and land use data remain the same due to insignificant overall change in LPSNRD Watersheds.
2. All references to the Nebraska Department of Environmental Quality (NDEQ) are amended to the Nebraska Environment and Energy (NDEE), reflecting the department's name change.
3. The 2016 Nebraska Water Quality Integrated Report (IR) was used as the basis for preparing the WQMP. As such, this amendment recognizes changes to water body assessments and the 2018, 2020, and 2022 IRs are appended to the References section as:
 - a. Nebraska Department of Environment and Energy (NDEE). *2018 Water Quality Integrated Report*. Published April 2018. Retrieved from: <http://dee.ne.gov/Publica.nsf/Pages/WAT251>
 - b. Nebraska Department of Environment and Energy (NDEE). *2020 Water Quality Integrated Report*. Published May 2021. Retrieved from: <http://dee.ne.gov/publica.nsf/pages/WAT352>
 - c. Nebraska Department of Environment and Energy (NDEE). *2022 Water Quality Integrated Report*. Published June 2023. Retrieved from: <http://dee.ne.gov/Publica.nsf/Pages/23-012>
4. The following changes to water quality standards/assessment methodologies were noted in the IRs, and are included here as they affect some of the impairment listings:

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- a. **Selenium** – In 2018 the selenium assessment methods were updated for the acute water quality standard to reflect EPA's toxic pollutants method of no more than one violation in the last 3 years. Chronic water quality standards were not able to be assessed against the same dataset due to the state's monitoring protocol which does not allow for the calculation of a 4-day average.
 - b. **Arsenic** – A 2019 revision of Nebraska's water quality standards lowered the arsenic drinking water standard from 10 ug/L to 0.18 ug/L. Under the Safe Drinking Water Act, the EPA recommended drinking water standard for Arsenic remains at 10 ug/L.
 5. Table 37 (Impaired Stream Segments in the Planning Area), page 107, is revised to reflect updated assessments reported in the new integrated reports (*changes are italicized and in red text*). **See Attachment 1.**
 - a. Notable changes to stream assessments includes:
 - i. Several streams were either removed from the impaired waters list or new data allowed them to be shown as meeting some or all beneficial uses: Fourmile, Fountain, Stevens, Elk, and Salt, and Weeping Water (and some tributaries), and Tyson Creeks.
 - ii. Antelope Creek's impairment to recreation (due to *E. coli* bacteria) was removed.
 - iii. A new impairment was added to the Platte River (drinking water, due to arsenic).
 6. Table 38 (Impaired Lakes in the Planning Area), page 108, is revised to reflect updated assessments reported in the new integrated reports (*changes are italicized and in red text*). **See Attachment 1.**
 - a. Notable changes to lake assessments includes:
 - i. Weeping Water City Lake was removed from the impaired waters list.
 - ii. Several lakes were added to the impaired waters list: Hedgefield, Cottontail, Red Cedar, and Timber Point.
 - iii. A new impairment was added to Holmes and Branched Oak Lakes (Recreation, due to *E. coli* bacteria).
 7. No new Total Maximum Daily Loads (TMDLs) or 5-alts have been prepared since completion of the 2019 WQMP.
 8. Protection of groundwater within the district remains a priority. Building on the Waverly WHP Area Implementation Project, the NRD will work with NDEE to identify additional WHP areas to expand targeted implementation efforts to. As part of these projects the NRD will begin to consider the need for modeling groundwater nitrate load reductions. Additional feedback from NDEE will be necessary to determine the next steps for these efforts, including identifying requirements for Section 319 funding.
 - a. For further discussion on groundwater resources, issues, priorities, and a map of community water system protection areas (CWSPAs) and wellhead protection areas (WHPAs) see pages 60-68 of the WQMP.

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9. The master schedule and milestones (page 299-301, Tables 101 and 102) are revised to reflect the new timeline. **See Attachment 2.**
 - a. Detailed project-level, schedules and milestones will be prepared as part of any project implementation plans (PIPs).

ATTACHMENT 1: UPDATED LISTS OF IMPAIRED WATER

TABLE 1 (AMENDED): IMPAIRED STREAM SEGMENTS IN THE PLANNING AREA

Watershed	Stream Name	Segment	Beneficial Use (Pollutant Causing Impairment)
Lower Platte	Platte River	LP1-10000	Aquatic Life (Selenium , Fish Consumption Advisory) <i>Recreation (E. coli bacteria); Public Drinking Water (Arsenic)</i>
	Decker Creek	LP1-11200	Recreation (Bacteria)
Salt Creek	Salt Creek	LP2-10000	Recreation (Bacteria), <i>Aquatic Life (Selenium)</i>
	Callahan Creek	LP2-10500	Aquatic Life (Iron)
	Robinson Creek	LP2-10600	Aquatic Life (Iron)
	Greenwood Creek	LP2-10700	Aquatic Life (Iron)
	Dee Creek	LP2-10800	Aquatic Life (Iron)
	Camp Creek	LP2-10900	Aquatic Life (Iron)
	Rock Creek	LP2-11000	Aquatic Life (Iron)
	North Fork Rock Creek	LP2-11010	Aquatic Life (Iron)
	Salt Creek	LP2-20000	Recreation (Bacteria), Aquatic Life (<i>Fish Consumption Advisory, Impaired Aquatic Community, Aluminum</i>)
	Little Salt Creek	LP2-20300	Aquatic Life (Copper, Selenium , Ammonia, Impaired Aquatic community)
	Dead Man's Run	LP2-20400	Recreation (Bacteria), Aquatic Life (Naturally High pH, Dissolved Oxygen)
	Oak Creek	LP2-20500	Recreation (Bacteria), Aquatic Life (Chloride, Fish Consumption Advisory, <i>Hazard Index Compounds, Mercury</i>)
	Oak Creek	LP2-20600	Recreation (Bacteria), Aquatic Life (Impaired Aquatic Community)
	Middle Oak Creek	LP2-20710	Aquatic life (Atrazine)
	Oak Creek	LP2-20800	Aquatic life (Atrazine)
	Antelope Creek*	LP2-20900	<i>Recreation (Bacteria)</i> , Aquatic Life (Selenium , Copper)
	Middle Creek	LP2-21100	Aquatic life (Atrazine)
	Beal Slough	LP2-21500	Recreation (Bacteria)
	Salt Creek	LP2-30000	Recreation (Bacteria), Aquatic Life (Impaired Aquatic Community)
	Cardwell Branch	LP2-30100	Recreation (Bacteria)
	Olive Branch	LP2-40300	Aquatic Life (Impaired Aquatic Community)

Keg-Weeping Water	Weeping Water Creek	NE1-12800	Aquatic Life (Selenium)
	Weeping Water Creek	NE1-13000	Recreation (Bacteria)

TABLE 2 (AMENDED): IMPAIRED LAKES IN THE PLANNING AREA

Watershed	Lake Name	Lake ID	Beneficial Use (Pollutant Causing Impairment)
Lower Platte	Jenny Newman	LP1-L0060	Aquatic Life (Nutrients, Chlorophyll-a, pH)
	Wagon Train	LP2-L0030	Aquatic Life (Nutrients, Chlorophyll-a, Dissolved Oxygen) Fish Consumption Advisory (Hazard Index Compounds, Mercury)
Salt Creek	Hedgefield	LP2-L0020	Aquatic Life (Mercury, pH)
	Holmes	LP2-L0040	Aquatic Life (Nutrients, Chlorophyll-a, pH) Fish Consumption Advisory (Hazard Index Compounds, Mercury). Recreation (E. coli bacteria)
	Stagecoach	LP2-L0050	Aquatic Life (Nutrients, Chlorophyll-a) Fish Consumption Advisory (Hazard Index Compounds, Mercury) Aesthetics (Sedimentation)
	Oak	LP2-L0060	Aquatic Life (DO, Chlorides)
	Cottontail Lake	LP2-L0070	Aquatic Life, Fish Consumption Advisory (Mercury)
	Yankee Hill	LP2-L0090	Aquatic Life (Nutrients, Chlorophyll-a, pH) Fish Consumption Advisory (Mercury)
	Bowling	LP2-L0100	Aquatic Life (Nutrients, Chlorophyll-a) Fish Consumption Advisory (Mercury)
	Bluestem Lake	LP2-L0110	Aquatic Life (Nutrients, Chlorophyll-a) Fish Consumption Advisory (Hazard Index Compounds, Mercury) Aesthetics (Sedimentation) Recreation (E. coli bacteria)
	Wildwood Lake	LP2-L0120	Aquatic Life (Nutrients, Chlorophyll-a, Dissolved Oxygen,) Fish Consumption Advisory (Hazard Index Compounds, Mercury)
	Conestoga Lake	LP2-L0130	Aquatic Life (Nutrients, Chlorophyll-a) Aesthetics (Sedimentation)
	Olive Creek Lake	LP2-L0140	Aquatic Life (Nutrients, Chlorophyll-a, pH, Dissolved Oxygen) Fish Consumption Advisory (Mercury)
	Branched Oak Lake	LP2-L0150	Aquatic Life (Nutrients, Chlorophyll-a); Recreation (E. coli bacteria)

	Pawnee Lake	LP2-L0160	Aquatic Life (Nutrients, Chlorophyll-a) Aesthetics (Sedimentation) <i>Fish Consumption Advisory (Mercury)</i>
	Merganser Lake	LP2-L0170	Aquatic Life (Fish Consumption Advisory, Hazard Index Compounds , Mercury)
	<i>Red Cedar</i>	<i>LP2-L0190</i>	<i>Fish Consumption Advisory (Mercury)</i>
	Meadowlark Lake	LP2-L0220	Aquatic Life (Nutrients, Chlorophyll-a, Dissolved Oxygen) <i>Fish Consumption Assessment (Mercury)</i>
	East Twin Lake	LP2-L0240	Aquatic Life (Nutrients, Chlorophyll-a)
	Timber Point	LP2-L0250	<i>Fish Consumption Assessment (Mercury)</i>
	West Twin Lake	LP2-L0260	Aquatic Life (Nutrients, Chlorophyll-a, Ammonia)
	Redtail Lake	LP2-L0280	Aquatic Life (Nutrients, Chlorophyll-a, Selenium , Hazard Index Compounds) <i>Recreation (E. coli bacteria)</i>
Keg-Weeping Water	Weeping Water City Lake	NE1-L0020	Aquatic Life (Fish Consumption Advisory, Hazard Index Compounds, Mercury)

ATTACHMENT 2: REVISED MASTER SCHEDULE AND MILESTONES

The following is a district-wide summary of the activities and accomplishments expected to be achieved through implementation projects during the next 5-year phase of this plan. This master schedule summarizes an approximate timeline based on management actions and will be updated every five years. Detailed project-level, schedules and milestones will be prepared as part of any project implementation plans (PIPs), which may be on a different timeline than the WQMP.

Major Activities	2024	2025	2026	2027	2028	2029
East and West Twin Lakes Target Area Implementation						
Submit PIP for next phase of project			X			
Project monitoring	X	X	X	X	X	
Stakeholder engagement & I&E activities	X	X	X	X	X	X
Implement BMPs	X	X	X	X	X	X
Complete in-lake BMP engineering study			X	X		
Project evaluation & final report		X	X			
Waverly Wellhead Protection Area Implementation						
Stakeholder engagement & I&E activities	X	X	X	X	X	
Implement BMPs	X	X	X	X	X	
Project evaluation & final report					X	
Submit PIP for next phase of project				X	X	
Groundwater Protection Efforts						
Begin coordination on next steps/needs to expand implementation to other CWSPAs/WHPAs	X					
Submit PIP to begin project work		X				
Revise and update District-wide WQMP (completed every 5 years)						X

**Schedule and milestones may be revised in updated Project Implementation Plan (PIP)*

ATTACHMENT 3: COPY OF EPA ACCEPTANCE

- **EPA Acceptance Checklist Completed on 10/24/2024 – 3 pages**

Watershed Based Plan Amendment Checklist

Watershed Management Plan Title: Lower Platte South NRD Water Quality Management Plan (May 2019)		Amendment Title: 2024-2029 Revision Papio-Missouri River Basin Water Quality Management Plan	
Amendment Number: 1		Reviewer: Angela Puls	Review Date: 10/24/2024
Project Name/Number: Multiple		<div>ANGELA PULS</div> <div>Digitally signed by ANGELA PULS Date: 2024.10.24 14:11:52 -05'00'</div>	
Comments: <div>a) (X) Accept b) () Accept with Comments c) () Needs Revision</div>			

Element A: Causes and Sources of Pollution

Criteria	Brief Description	Reference Document	Page(s)
1. Are new priority areas and/or new water quality goals (if any) identified and mapped?	No new priority areas or water quality goals due to insignificant overall change in LPSNRD Watersheds.		
2. Are new best management practices (if any) identified, quantified, and mapped?	No new BMPs identified due to insignificant overall change in LPSNRD Watersheds. LPSNRD would like to build on the Waverly WHP Area Implementation Project and identify additional WHP areas to expand targeted implementation efforts.	Pages 60-68 f WQMP	
3. Is there an updated implementation and cost schedule?	Master schedule and milestones (page 299-301, Tables 101 and 102) are revised to reflect new timeline. Cost schedule has not been updated.	Pages 299-301 of WQMP	
4. Are load reductions provided associated with the water quality goals of the plan?	Load reductions have not been updated due to insignificant overall change in LPSNRD Watersheds.		

Summary of amendment:

1. Highlights of Accomplishments 2018-2024
 - a. Twin Lakes Watershed Target Area Implementation Project
 - b. Waverly Wellhead Protection Area Implementation
2. Amendments to the Watershed Management Plan 2024-2029
 - a. This amendment revises and extends the Lower Platte South Natural Resources District's District-Wide Water Quality Management Plan for another five years.
 - b. Reference to Nebraska Department of Environmental Quality is amended to Nebraska Department of Environment and Energy (NDEE) reflecting the Department's name change.
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