NEBRASKA NATURAL RESOURCES COMMISSION

Water Sustainability Fund

Application for Funding

Section A.

ADMINISTRATIVE

PROJECT NAME: LPNNRD Source Water Monitoring Project

SPONSOR'S *PRIMARY CONTACT INFORMATION* **(Not Consultant's)**

Sponsor Business Name: Lower Platte North Natural Resources District

Sponsor Contact's Name: Jacob Maslonka

Sponsor Contact's Address: 511 Commercial Park Road Wahoo, NE 68066

Sponsor Contact's Phone: 402-443-4675

Sponsor Contact's Email: jmaslonka@lpnnrd.org

1. **Funding** amount requested from the Water Sustainability Fund:

   Grant amount requested. $ 248,807

   - If requesting less than 60% cost share, what %? Click here to enter text.

   If a loan is requested amount requested. $ Click here to enter text.

   - How many years repayment period? Click here to enter text.
   - Supply a complete year-by-year repayment schedule. Click here to enter text.

2. **Neb. Rev. Stat. § 2-1507 (2)**

   Are you applying for a **combined sewer overflow project**? YES☐ NO☒

   If yes:

- Do you have a Long Term Control Plan that is currently approved by the Nebraska Department of Environmental Quality? YES☐ NO☐
- Attach a copy to your application. Click here to enter text.
- What is the population served by your project? Click here to enter text.
- Provide a demonstration of need. Click here to enter text.
- **Do not complete the remainder of the application.**

3. **Permits Required/Obtained** Attach a copy of each that has been obtained. For those needed, but not yet obtained (box **"NO"** checked), 1.) State when you will apply for the permit, 2.) When you anticipate receiving the permit, and 3.) Your estimated cost to obtain the permit.

(N/A = Not applicable/not asking for cost share to obtain)
(Yes = See attached)
(No = Might need, don't have & are asking for 60% cost share to obtain)

G&P - T&E consultation (required)	N/A☒ Obtained: YES☐ NO☐
DNR Surface Water Right	N/A☒ Obtained: YES☐ NO☐
USACE (e.g., 404/other Permit)	N/A☒ Obtained: YES☐ NO☐
FEMA (CLOMR)	N/A☒ Obtained: YES☐ NO☐
Local Zoning/Construction	N/A☒ Obtained: YES☐ NO☐
Cultural Resources Evaluation	N/A☒ Obtained: YES☐ NO☐
Other (provide explanation below)	N/A☒ Obtained: YES☐ NO☐

Click here to enter text.

4. **Partnerships**

List each Partner / Co-sponsor, attach documentation of agreement:

N/A

Identify the roles and responsibilities of each Partner / Co-sponsor involved in the proposed project regardless of whether each is an additional funding source.

N/A

5. **Other Sources of Funding**

Identify the costs of the entire project, what costs each other source of funding will be applied to, and whether each of these other sources of funding is confirmed. If not, please identify those entities and list the date when confirmation is expected. Explain how you will implement the project if these sources are not obtained.

The total cost of the Where feasible, implement cost-share programsfor irrigation conservation by partnering withproducers in technologies that improve irrigationefficiency and track water usage over time.project will be $414,678. The LPNNRD will provide $165,871 with the remaining $248,807 of the proposed project coming from the Water Sustainability Fund. Attached is the LPNNRD Fiscal Year 2025 Budget.

6. **Overview**

In 1,000 words *or less*, provide a brief description of your project including the nature/purpose of the project and its objectives. Do not exceed one page!

The Lower Platte North Natural Resources District (LPNNRD) has been recently working on developing a drought mitigation plan and updating the Groundwater Management Plan along with associated Rules and Regulations. To complete these plans, District personnel individually met with Community Public Water Systems to gather information about their system and how prepared they are for future droughts and water quality threats. Meetings with public water system operators and elected officials over the past six months have revealed a need for more dedicated monitoring wells to fill gaps in the district's monitoring network and assist Public Water Systems with short and long-term planning. This project proposes installing dedicated monitoring wells, installing transducers with telemetry, and collecting samples with analysis. Wells are planned within Wellhead Protection (WHP) area modeled time-of-travel paths, nested in clusters of 1-3 per area based on localized geology and aquifer conditions. Real time data loggers and telemetry will be installed in all wells so Public Water Systems and the LPNNRD can continuously monitor changes in water levels. Capturing data during high pumping and drought conditions is vital to getting a more complete picture of how the aquifer recharges and reacts when stressed. Along with collecting real-time water level data in these WHP areas, wells will also allow the district to collect more frequent water quality samples with a higher degree of quality assurance. This will allow for trend analysis, helping predict potential future needs so appropriate resources can be planned. Specifically, this project proposes installing 29 monitoring wells into 12 of the district's most vulnerable Community Public Water Systems. The Conservation and Survey Division (CSD)

will be utilized to drill test holes at all 12 locations to allow for proper monitoring well design by a Professional Geologist. The test hole data will be added to CSD's database making it available to the public. Approximately 10 wells per year are planned for three years. Expanding the LPNNRD's dedicated monitoring well network through this funding is an important step to getting more real time data to help monitor groundwater in Eastern Nebraska. This will give the district a larger sample of better data, and just as importantly, give Communities within the District defendable data so they can better monitor their source water and be able to prepare for any issues that may arise in the future.

7. **Project Tasks and Timeline**

Identify what activities will be conducted to complete the project, and the anticipated completion date.
For multiyear projects please list (using the following example):

Tasks	Year 1$	Year 2$	Year 3$	Remaining	Total $ Amt.
Permits	$18,000				$18,000
Engineering		$96,000			$96,000
Construction		$87,000	$96,000		$183,000
Close-out				$8,000	$8,000
				TOTAL	$305,000

- What activities (Tasks) are to be completed.
- An estimate of each Tasks expenditures/cost per year.
- Activities in years 4 through project completion under a single column.

The project aims to construct 29 monitoring wells into the Wellhead Protection Areas (WHPs) of the district of the course of 3 years. The LPNNRD will begin by having the CSD drill test holes in viable locations to construct the monitoring wells. The wells will then be designed by a Professional Geologist. Along with the construction of these monitoring wells, the district plans to put real time data loggers installed with telemetry into the wells. Finally, the LPNNRD will run water quality analysis at every monitoring site. The total cost of the project is $414,678. The breakdown of the budget is below.

Tasks	Year 1	Year 2	Year 3	Total
Test Hole Cost $15/ft	$22,050	$21,525	$16,500	
Well Construction Cost	$97,200	$105,356	$60,800	
Data Loggers	$11,008	$9,907	$11,008	
Telemetry Cost	$11,400	$10,260	$11,400	
Cable Cost	$6,719	$6,440	$5,461	

DHHS 13 Parameter Water Sampling Kit	$2,730	$2,184	$2,730	
				$414,678

8. **IMP**

Do you have an **Integrated Management Plan** in place, or have you initiated one? YES☒ NO☐ Sponsor is not an NRD☐

Section B.

DNR DIRECTOR'S FINDINGS

Prove Engineering & Technical Feasibility
(Applicant must demonstrate compliance with Title 261, CH 2 - 004)

1. Does your project include physical construction (defined as moving dirt, directing water, physically constructing something, or installing equipment)?
YES☐ NO☒

If you answered "YES" you must answer all questions in section 1.A.
If you answer "NO" you must answer all questions in section 1.B.

If "YES", it is considered mostly structural, so answer the following:

1.A.1 Insert a feasibility report to comply with Title 261, Chapter 2, including engineering and technical data; Click here to enter text.

1.A.2 Describe the plan of development (004.01 A); Click here to enter text.

1.A.3 Include a description of all field investigations made to substantiate the feasibility report (004.01 B); Click here to enter text.

1.A.4 Provide maps, drawings, charts, tables, etc., used as a basis for the feasibility report (004.01 C); Click here to enter text.

1.A.5 Describe any necessary water and/or land rights including pertinent water supply and water quality information (004.01 D); Click here to enter text.

1.A.6 Discuss each component of the final plan (004.01 E); Click here to enter text.

1.A.7 When applicable include the geologic investigation required for the project (004.01 E 1); Click here to enter text.

1.A.8 When applicable include the hydrologic data investigation required for the project (004.01 E 2); Click here to enter text.

1.A.9 When applicable include the criteria for final design including, but not limited to, soil mechanics, hydraulic, hydrologic, structural, embankments and foundation criteria (004.01 E 3). Click here to enter text.

If "NO", it is considered mostly non-structural, so answer the following:

1.B.1 Insert data necessary to establish technical feasibility (004.02); **Installing dedicated monitoring wells is common practice throughout the NRDs. These monitoring wells will also be equipped with transducers with**

telemetry installed so the LPNNRD and the public water system will get continuous data on water levels. The proposed project will start by having CSD drill test holes in viable spots upgradient from municipal wells and then having the monitoring wells designed by a Professional Geologist. The test hole data will be made public through CSD. After the wells have been installed, the LPNNRD will then take water samples using DHHS 13 Parameter Sampling Kit to start collecting data on the condition of the source water in the area. Public Water Systems will then be able to see the data collected from these monitoring wells to aid in decision making when it comes to their system.

1.B.2 Discuss the plan of development (004.02 A); **The LPNNRD will begin by consulting with a team of Nebraska Department of Environment and Energy (NDEE) and UNL-Conservation and Survey Division (CSD) Professional Geologists (PG) to review existing WHP area delineations and update if needed. NDEE does a simplified version of this utilizing NeDNR regional models for free. Once WHP area time-of-travels are finalized, the team will define priority locations for new wells and work with landowners for permission. Test holes will be drilled and logged in cooperation with CSD and data will be added to the statewide test hole database. The team of PGs will design dedicated monitoring wells based on test hole data and other accessible hydrogeologic data. Their design will include nested wells – two or more wells at the same geographic location but screened at different depths – when appropriate. Dedicated water level transducers will be installed at all wells, at depths specified by the team. Telemetry will be included with all loggers making real-time water levels available to the Public Water System, LPNNRD, and NeDNR. Once wells are fully developed, a water quality sample will be collected and analyzed for a suite of drinking water constituents (13 Parameter analysis) at the Nebraska DHHS Laboratory. Analysis results will be evaluated by the team and shared with the Public Water System and uploaded to the Nebraska Groundwater Quality Clearinghouse. As the project concludes, the team will regroup to discuss water quantity and quality results to make plans for future trend analysis and sampling planning.**

1.B.3 Describe field or research investigations utilized to substantiate the project conception (004.02 B); **The LPNNRD discovered the need for this project based on a few different projects and plans that have recently taken place. The first was talking to the public water systems in our district. This was done to gather information for the drought mitigation plan that is currently being developed for the district. These meetings were designed for the public water systems to answer questions not only about their vulnerability to drought, but also their water quality and quantity issues. A common**

theme from these talks was the need for more monitoring in the source water areas. When asked if more monitoring wells in these areas were needed, most public water systems agreed that more monitoring would be a good thing. Apart from the meetings, the consultant group JEO has put together a vulnerability matrix, which guided the district in which source water areas to put monitoring wells in. These public water systems were found to be the most at-risk in the district. Aside from the drought mitigation plan, the LPNNRD is also going through an update to the Groundwater Management Plan (GWMP). Based on work LRE has done to update the plan, it was found that there are spatial holes in our dedicated water level monitoring network. This project looks to remedy this by placing dedicated monitoring wells strategically in these source water areas where they are upgradient of public water system wells.

1.B.4 Describe any necessary water and/or land rights (004.02 C); **The LPNNRD will develop agreements with landowners for drilling test holes and wells as well as long term access to said site. The LPNNRD will maintain monitoring sites.**

1.B.5 Discuss the anticipated effects, if any, of the project upon the development and/or operation of existing or envisioned structural measures including a brief description of any such measure (004.02 D). **No structural measures are proposed.**

Prove Economic Feasibility

(Applicant must demonstrate compliance with Title 261, CH 2 - 005)

2. Provide evidence that there are no known means of accomplishing the same purpose or purposes more economically, by describing the next best alternative. **There are not currently wells in appropriate locations to collect the quantity of good data to guide public water systems to make educated long-term planning decisions. This project seeks to add to LPNNRD's monitoring well network and collect real time data using telemetry. Having these monitoring wells will give LPNNRD and public water systems critical data as to how the aquifer they are pulling from reacts to stress during dry spells or during high pumping times during the growing season. The next best alternative to this project would be to still install said monitoring wells with data loggers, but no telemetry. This would result in more cost overall once drive time, employees' salaries, benefits, and time at each well are accounted for.**

3. Document all sources and report all **costs** and **benefit data** using current data, (commodity prices, recreation benefit prices, and wildlife prices as prescribed by the Director) using both dollar values and other units of measurement when

appropriate (environmental, social, cultural, data improvement, etc.). The period of analysis for economic feasibility studies is the project life. (Title 261, CH 2 - 005). **The benefit of this project is the access to real-time data on water quality and quantity in WHP areas throughout the year. With dedicated loggers and telemetry, the district will be able to collect data on how the aquifer reacts to usage throughout the year instead of the district's routine twice a year sampling. This will be interesting in the short term; however, the real benefit is after long term data capturing to truly see how the aquifer reacts over a multi-year time frame. It will also give the LPNNRD the ability to collect water samples throughout the year in these WHP areas to see how contaminants in the groundwater trend over time.**

3.A Describe any relevant cost information including, but not limited to the engineering and inspection costs, capital construction costs, annual operation and maintenance costs, and replacement costs. Cost information shall also include the estimated construction period as well as the estimated project life (005.01). **The total cost of the project is $414,678. This includes the costs of constructing 29 monitoring wells equaling $263,356. There is also the cost of installing the data loggers and cable which equals $50,543 as well as the cost of installing telemetry and cell service will equal $33,060. This telemetry cost is for the installation and the first 12 months of the subscription. This cost will be spread throughout the 3-year period of the project as the district plans to install around 10 wells per year. Ongoing subscription and maintenance costs will be provided by the LPNNRD. Finally, the cost of the 13 Parameter drinking water sampling kits from DHHS will total $7,644. Sampling will occur after the monitoring wells have been installed. These LPNNRD will pay for ongoing testing after the initial water testing.**

3.B Only primary tangible benefits may be counted in providing the monetary benefit information and shall be displayed by year for the project life. In a multi-purpose project, estimate benefits for each purpose, by year, for the life of the project. Describe intangible or secondary benefits (if any) separately. In a case where there is no generally accepted method for calculation of primary tangible benefits describe how the project will increase water sustainability, in a way that justifies economic feasibility of the project such that the finding can be approved by the Director and the Commission (005.02). **The tangible benefit of this project is gathering real time water levels in source water areas continuously through telemetry while also having the ability to collect high quality groundwater samples. This high-quality data will then be shared between the LPNNRD, Public Water Systems, and NeDNR. This is critical in source water areas so planning can happen for future resource allocation.**

3.C Present all cost and benefit data in a table to indicate the annual cash flow for the life of the project (005.03).

The benefits of this project are the installation of monitoring wells in source water areas for the purpose of gathering high-quality data to aid the LPNNRD and communities in the detection of rising concentrations of contaminants and for continuous monitoring of water levels in these areas. This is vital for the purpose of making defendable, water management decisions.

Cost Activity	Year 1	Year 2	Year 3	Cost Total
WSF Grant	$90,664	$93,403	$64,739	$248,806
LPNNRD Match	$60,443	$62,269	$43,160	$165,872
Cost Total	$151,107	$155,672	$107,899	$414,678

3.D In the case of projects for which there is no generally accepted method for calculation of primary tangible benefits and if the project will increase water sustainability, demonstrate the economic feasibility of such proposal by such method as the Director and the Commission deem appropriate (005.04). (For example, show costs of and describe the next best alternative.)

The next best alternative to this project would be to have employees of the NRD drive out and collect levels from existing wells, typically irrigation wells, and sample in the spring, fall, and summer months to collect the data this project plans to do in source water areas. When comparing the cost of installing dedicated monitoring wells that have loggers with telemetry to having employees going out to multiple sites multiple times a year, the proposed project is cheaper. While the initial cost is higher with the project, the long-term cost of having employees drive out to collect data manually out of loggers becomes greater than that of the initial cost and the continuing telemetry subscription cost. There is also the fact that using existing irrigation wells does not produce the high-quality data this project wants to collect due to factors such as unknown construction and the impact of high-capacity pumping from these existing wells.

Prove Financial Feasibility

(Applicant must demonstrate compliance with Title 261, CH 2 - 006)

4. Provide evidence that sufficient funds are available to complete the proposal. **See the LPNNRDs Fiscal Year 2025 Budget which is attached.**

5. Provide evidence that sufficient annual revenue is available to repay the reimbursable costs and to cover OM&R (operate, maintain, and replace). **See the LPNNRDs Fiscal Year 2025 Budget which is attached.**

6. If a loan is involved, provide sufficient documentation to prove that the loan can be repaid during the repayment life of the proposal. **N/A**

7. Describe how the plan of development minimizes impacts on the natural environment (i.e. timing vs nesting/migration, etc.). **This project will not have a negative impact on the environment. All installations will be done by a certified well driller and designed by a Nebraska licensed Professional Geologist.**

8. Explain how you are qualified, responsible and legally capable of carrying out the project for which you are seeking funds. **The Lower Platte North NRD has multiple duties that make it qualified to legally and responsibly pursue this project. With the adoption of LB 1106 in 1985, the state required the NRD's to develop groundwater management plans. The LPNNRD GWMP has focuses on both water quality and quantity, showing the LPNNRD has the legal authority to have the monitoring wells proposed in the project constructed to improve our ability to monitor water.**

9. Explain how your project considers plans and programs of the state and resources development plans of the political subdivisions of the state. **This project considers a couple of different programs including WHP Plans and Hazard Mitigation Plans. Of the WHP areas this project is focusing on, 4 have WHP Plans approved by the state with one currently going through the process of being approved. Besides WHP Plans, the district is also working on a drought mitigation plan. This plan focuses on communities with WHP areas within the district to assess their vulnerabilities to drought and help them be more prepared for it. It was through these talks and looking at the goals of the district's GWMP that this project was conceived. These plans focus on the objective of monitoring for water quality and quantity in these WHP areas.**

10. Are land rights necessary to complete your project? YES☐ NO☒

If yes:

10.A Provide a complete listing of all lands involved in the project. Click here to enter text.

10.B Attach proof of ownership for each easements, rights-of-way and fee title currently held. Click here to enter text.

10.C Provide assurance that you can hold or can acquire title to all lands not currently held. Click here to enter text.

11. Identify how you possess all necessary authority to undertake or participate in the project. **The Lower Platte North NRD has multiple duties that make it**

qualified to legally and responsibly pursue this project. With the adoption of LB 1106 in 1985, the state required the NRD's to develop groundwater management plans. The LPNNRD GWMP has focuses on both water quality and quantity, showing the LPNNRD has the legal authority to have the monitoring wells proposed in the project constructed to improve our ability to monitor water.

12. Identify the probable consequences (environmental and ecological) that may result if the project is or is not completed. **N/A**

Section C.

NRC SCORING

In the NRC's scoring process, points will be given to each project in ranking the projects, with the total number of points determining the final project ranking list.

The following 15 criteria constitute the items for which points will be assigned. Point assignments will be 0 to 6 for items (1) - (9); and 0 to 3 for items (10) - (15). Two additional points will be awarded to projects which address issues determined by the NRC to be the result of a federal mandate.

Notes:

- The responses to one criterion *will not* be considered in the scoring of other criteria. Repeat references as needed to support documentation in each criterion as appropriate. The 15 categories are specified by statute and will be used to create scoring matrixes which will ultimately determine which projects receive funding.

- There is a total of 72 possible points, plus two bonus points. The potential number of points awarded for each criteria are noted above. Once points are assigned, they will be added to determine a final score. The scores will determine ranking.

- The Commission recommends providing the requested information and the requests are not intended to limit the information an applicant may provide. An applicant should include additional information that is believed will assist the Commission in understanding a proposal so that it can be awarded the points to which it is entitled.

Complete any of the following (15) criteria which apply to your project. Your response will be reviewed and scored by the NRC. Place an N/A (not applicable) in any that do not apply, an N/A will automatically be placed in any response fields left blank.

1. Remediates or mitigates threats to drinking water;

   - Describe the specific threats to drinking water the project will address.
   - Identify whose drinking water, how many people are affected, how will project remediate or mitigate.
   - Provide a history of issues and tried solutions.
   - Provide detail regarding long-range impacts if issues are not resolved.

   The LPNNRD serves 28 communities with a total population of 65,447 that rely on groundwater to meet their drinking needs. Breaking down the demographics a bit more, with 50% of that population living in an

urban setting, it is likely that they live inside a Wellhead Protection Area. This project seeks to help those communities at most risk for water quality and quantity issues by installing monitoring wells in their WHP areas. Installing these monitoring wells on the time-to-travel paths that were modeled for the WHP areas will give the public water systems and the district the ability to mitigate drinking water threats by acting as an early warning system for the rise of contaminants or the lowering of water levels in times of drought or high pumping during growing season. With these monitoring wells being installed in such a way, it will give the public water systems and the district time to figure out a solution to remediate the problem instead of having it become an issue that needs to be dealt with immediately. The LPNNRD would be monitoring water levels in these wells continuously with data loggers using telemetry, so there will be high-quality real time data to substantiate whether there is a cause for concern on dropping water levels. The LPNNRD will also be taking high-quality samples from the wells for water quality concerns such as nitrates, arsenic, uranium, and other emerging contaminants with the 13 Parameter testing kit from DHHS. If these potential issues went undiscovered, the potential long-range impact could be devastating to municipalities who do not have the financial resources to deal with these problems. This project would act as a mitigation factor for these municipalities and give them the time to either save money to remediate the problem or try out a different solution altogether. Monitoring wells have proven to be successful tools for monitoring contaminants as they are used throughout the NRDs and with the added benefit of having telemetry, they also continuously collect high-quality data that is instrumental in defendable management decisions.

2. Meets the goals and objectives of an approved integrated management plan or ground water management plan;

   - Identify the specific plan that is being referenced including date, who issued it and whether it is an IMP or GW management plan.
   - Provide the history of work completed to achieve the goals of this plan.
   - List which goals and objectives of the management plan the project provides benefits for and how the project provides those benefits.

The project will aid in achieving the goals and objectives laid out in the groundwater management plan (GWMP). The current GWMP was passed in 1995, and the LPNNRD is in the process of updating the GWMP. As far as the goals of the project are concerned, it aligns with both the new and proposed GWMP. For purposes of this application, only the goals and objectives of the GWMP that was passed in 1995 are being used. Along with the district's GWMP, the project also aligns with the goals of our voluntary Integrated Management Plan (IMP) which went in effect in June of 2018.

GWMP Goals and Objectives

Goal 1: To provide a sustained groundwater supply of quality water adequate to support reasonable and beneficial uses, and maintain long-term quality yields

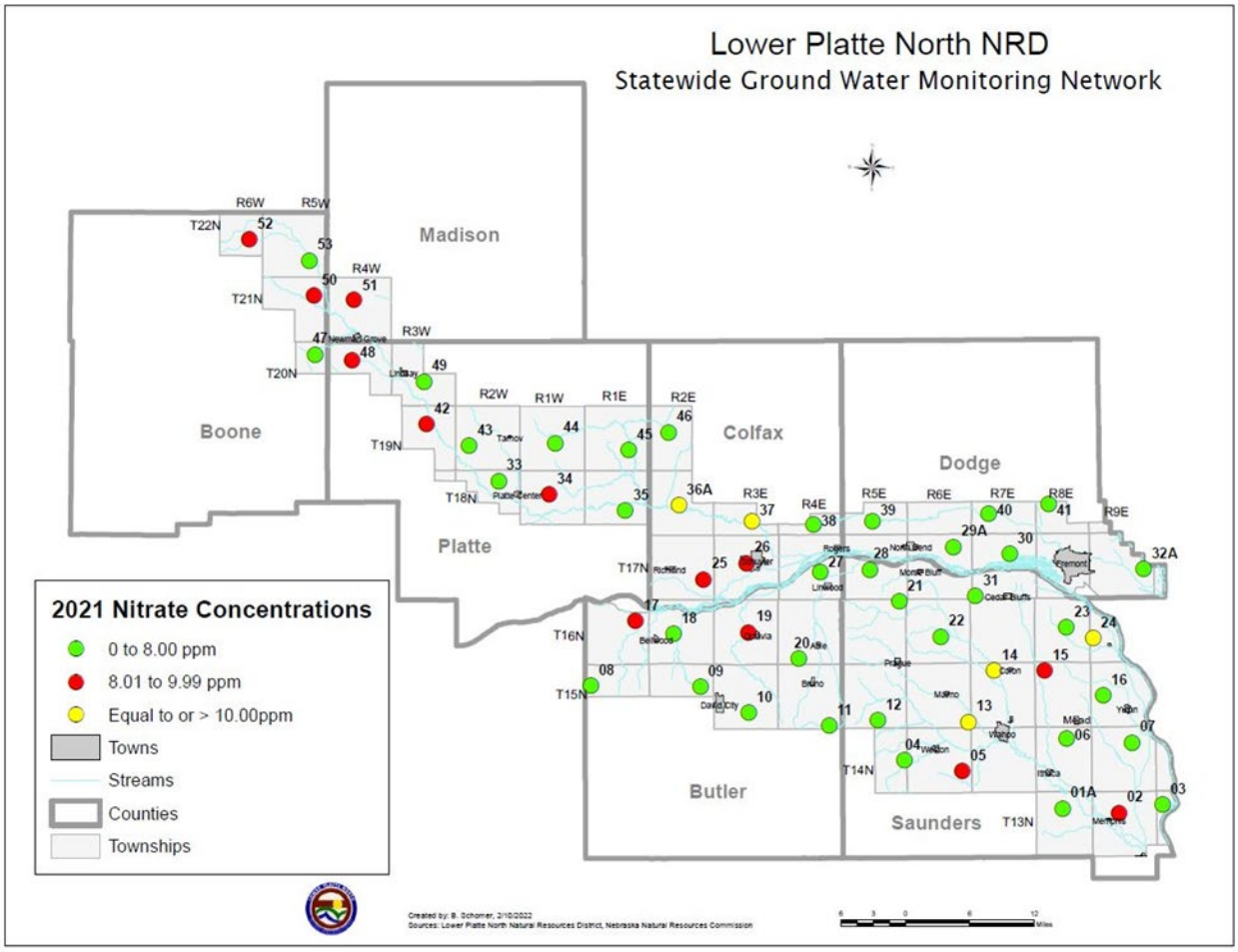
Objective 7: Maintain groundwater quality and quantity programs

Voluntary IMP Goals and Objectives

Goal 1: Develop and maintain a District-wide water supply inventory

Objective 1.1: Conduct data collection and analyses of current and potential water supplies using the best available information, data, science, and considering future technological advances.

The GWMP for the LPNNRD states in Objective 7 the need to maintain groundwater quality and quantity programs. The LPNNRD has successfully achieved this objective by maintaining and improving water quality and quantity programs since the time of its' inception. Below is the current monitoring network of the LPNNRD.



This network has provided the LPNNRD invaluable data to help with the monitoring of the state's groundwater resources. It has shown trends in both the quality and quantity of groundwater through long term data collection and will continue to be instrumental in how the district approaches groundwater management decisions. This project would help maintain Objective 7 in expanding and improving the district's ability to monitor groundwater quality and quantity in source water areas. By following Objective 7 and expanding the monitoring network, the district will ultimately be able to maintain its' success in achieving the first goal of the GWMP which states, "To provide a sustained groundwater supply of quality water adequate to support reasonable and beneficial uses and maintain long-term quality yields." Monitoring the quality and quantity of the water in source water areas helps the LPNNRD fulfill this goal by monitoring the long-term quality of the groundwater. This will be done through the continuous data collection of water levels through telemetry and from taking high-quality water samples at the monitoring sites.

Similarly, the project will also help in achieving some of the goals and objectives laid out in the voluntary IMP. Goal 1 states, "Develop and maintain a District-wide water supply inventory." The district currently uses telemetry throughout its monitoring network. However, this project looks to add monitoring wells in source water areas to fill in the gaps in the network that were found through the updating of our current GWMP. The project also fulfills objective 1.1 which states, "Conduct data collection and analyses of current and potential water supplies using the best available information, data, science, and considering future technological advances." Not only is this project strengthening the LPNNRDs' current monitoring network, but it will also have real time data loggers and telemetry installed into the monitoring wells so the LPNNRD will have high-quality real time data from those areas. Using technology in this way gives the district the best available data during the summer months when water usage is the highest to see how the aquifer is responding to the stress.

3. Contributes to water sustainability goals by increasing aquifer recharge, reducing aquifer depletion, or increasing streamflow;

   List the following information that is applicable:

   - The location, area and amount of recharge;
   - The location, area and amount that aquifer depletion will be reduced;
   - The reach, amount and timing of increased streamflow. Describe how the project will meet these objectives and what the source of the water is;
   - Provide a detailed listing of cross basin benefits, if any.

This project focuses on installing monitoring wells with telemetry in source water areas. With the additional continuous monitoring of the groundwater in these source water areas, the LPNNRD can gain high quality data on the recharge rates of the aquifers in that specific location as well as aquifer depletion. Since the LPNNRD has a wide array of different aquifers and hydrogeologic conditions within the district, adding these monitoring wells to source water areas will give the district and those public water systems high-quality data on their specific location. This will allow the district to perform trend analysis for these source water areas for both water quality and quantity with a high degree of confidence, allowing the district to make best management decisions when it comes to those source water areas.

4. Contributes to multiple water supply goals, including, but not limited to, flood control, agricultural use, municipal and industrial uses, recreational benefits, wildlife habitat, conservation of water resources, and preservation of water resources;

   - List the goals the project provides benefits.
   - Describe how the project will provide these benefits

- Provide a long range forecast of the expected benefits this project could have versus continuing on current path.

This project will contribute to multiple goals including water sustainability, sustainable agricultural use, and protection of municipal wells. The project contributes to the goal of water sustainability by adding dedicated monitoring wells into WHP areas. This will give the LPNNRD more water level data in the area, allowing for more accurate groundwater management. It will also give the district better data on how the aquifer in that area recharges not only during normal summers, but also during drought and high pumping seasons. This will lead to better management decisions when it comes to that specific area. The LPNNRD will also be able to monitor water quality with regular sampling at those monitoring wells. This will also lead to better data for management decisions to ultimately lead to better water sustainability. Along with the overall goal of water sustainability, the goal of sustainable agricultural use will be contributed to those reasons specified above, among others. Agricultural producers in WHP areas know they have a responsibility to keep the drinking water clean for the communities they surround because they are either a part of that community or regularly are in that community. This project will help to spread awareness of the LPNNRD's commitment to sustainable water use to the public not only from the data that will be collected, but also by the public's curiosity when these monitoring wells are being constructed. It is a good opportunity to answer questions about why the monitoring wells are being put in and will help put water sustainability at the forefront of their minds.
The last goal deals with the protection of municipal wells. These monitoring wells will be placed on time-of- travel paths that are modeled within WHP areas. That way, if there is a rise in contaminants that would indicate it will eventually pass the maximum contaminant level (MCL), the district would be able to notify the municipality, so they have time to figure out the solution to their problem. With this type of early warning system, the municipalities will have time to decide what they are going to do, since most do not have the financial resources to treat their water and must rely on grants to achieve their water sustainability goals and updates to their public water system.
The long-range forecast of the benefits of this project is better water sustainability throughout the WHP areas in the LPNNRD as well as getting the district the data it needs to make better management decisions. If the district were to continue its current path, communities would not necessarily have that early warning system of monitoring wells, so they would need to make their decisions faster and may not have the time to figure out what choice in remediating their drinking water is right for them.

5. Maximizes the beneficial use of Nebraska's water resources for the benefit of the state's residents;

- Describe how the project will maximize the increased beneficial use of Nebraska's water resources.

- Describe the beneficial uses that will be reduced, if any.
- Describe how the project provides a beneficial impact to the state's residents.

Goal 1, Objective 1.2.3 of the voluntary IMP states that the district identifies data gaps in monitoring networks (precipitation, stream flow, groundwater level networks, etc.). In that regard, this project would aim to fill those gaps that occur in WHP areas. This will give the district more monitoring capabilities on water levels and water quality in WHP areas. This can also be used as an educational component, to show both citizens of communities and landowners in WHP areas the impacts of their water usage on the local aquifer to raise awareness of the importance of water conservation. LPNNRD does not foresee any beneficial uses that will be reduced from the implementation of this proposed project.

6. Is cost-effective;

- List the estimated construction costs, O/M costs, land and water acquisition costs, alternative options, value of benefits gained.
- Compare these costs to other methods of achieving the same benefits.
- List the costs of the project.
- Describe how it is a cost effective project or alternative.

The costs of the project are listed in the table under the Project Tasks and Timelines. When comparing the cost of the project compared to the alternative options, it really comes down to telemetry. Being able to continuously collect data from a site and have it sent wirelessly to the LPNNRD office is cheaper than having an employee go to each site and download data from a logger. It saves the district on time, employee pay, and the costs of driving and maintaining a vehicle.

7. Helps the state meet its obligations under interstate compacts, decrees, or other state contracts or agreements or federal law;

- Identify the interstate compact, decree, state contract or agreement or federal law.
- Describe how the project will help the state meet its obligations under compacts, decrees, state contracts or agreements or federal law.
- Describe current deficiencies and document how the project will reduce deficiencies.

Federal law (Safe Drinking Water Act) requires that municipalities provide drinking water that is clean and safe. This importance of clean drinking water is what brought the idea of this project to the forefront. Having these monitoring wells installed upgradient of municipal wells means they will see rises in contaminants before the municipality will. The LPNNRD will be able to track these contaminants long term and allow the district to perform

trend analysis to see if any contaminants have the potential to go above the maximum contaminant level. This will give the municipality time to prepare a solution and have the defendable data to back up that decision. The monitoring wells will also be continuously collecting water level data, so during drought municipalities will have more data on how the aquifer is reacting to the stress of high pumping, allowing them to have more defendable data when enforcing water restriction ordinances.

8. Reduces threats to property damage or protects critical infrastructure that consists of the physical assets, systems, and networks vital to the state or the United States such that their incapacitation would have a debilitating effect on public security or public health and safety;

   - Identify the property that the project is intended to reduce threats to.
   - Describe and quantify reductions in threats to critical infrastructure provided by the project and how the infrastructure is vital to Nebraska or the United States.
   - Identify the potential value of cost savings resulting from completion of the project.
   - Describe the benefits for public security, public health and safety.

   One of the main duties of the districts is to monitor water levels and water quality of the state's groundwater resources. Water, and specifically, groundwater, for the state of Nebraska is a critical resource not only for drinking water, but for agricultural and industrial use as well. The monitoring network established and the proposed installation of monitoring wells in source water areas work to ensure the district will have high-quality data and be alerted to any contamination or depletion that is happening in the area. The LPNNRD would then be able to warn the public water system of what is occurring. This will help protect current water infrastructure from having to be replaced immediately and give the public water system time to make defendable management decisions. Long-term sampling data collection and the test hole data taken at the beginning of the project will help public water systems in making future water infrastructure decisions. If anything were to happen to Nebraska's groundwater, it would cause major instability not only in our state's economy, but it would erode the trust of the citizens living here due to the uncertainty of water.

9. Improves water quality;

   - Describe what quality issue(s) is/are to be improved.
   - Describe and quantify how the project improves water quality, what is the target area, what is the population or acreage receiving benefits, what is the usage of the water: residential, industrial, agriculture or recreational.
   - Describe other possible solutions to remedy this issue.

- Describe the history of the water quality issue including previous attempts to remedy the problem and the results obtained.

The LPNNRD has Phase Areas for nitrate concentration in the district. See the attached link for current Quality and Quantity management areas of the LPNNRD (https://lpnnrd.org/wp-content/uploads/2025/01/Groundwater-Quality-Quantity-Map-2024.pdf). Currently, the whole district is in a Phase I for drinking water with one area in a Phase II by Bellwood, NE and another area in Phase III/IV in the Richland-Schuyler area. Putting more monitoring wells into Wellhead Protection Areas is extremely important to water quality, especially in those protection areas that are at elevated management phases for nitrate. We currently have 5 monitoring wells that read at or above the maximum contaminant level (MCL) and 13 that are in the 8.01 to 9.99 ppm range. By installing these monitoring wells in line with the groundwater's time to travel based off wellhead protection area modeling, the LPNNRD will be able to collect continuous high-quality data on water quantity as well as collecting high-quality water sampling. Through this long-term data collection, the LPNNRD will be able to perform trend analysis on the area to support management decisions that improve water quality.

10. Has utilized all available funding resources of the local jurisdiction to support the program, project, or activity;

- Identify the local jurisdiction that supports the project.
- List current property tax levy, valuations, or other sources of revenue for the sponsoring entity.
- List other funding sources for the project.

The local jurisdiction that is in support of this project is the LPNNRD. The approval to apply for this application and the estimated cost to the district was approved by the board as noted under section 5 Ground Water Programs subsection c in the board minutes for March 2025 (https://lpnnrd.org/wp-content/uploads/2025/03/03.10.25.pdf). Aside from approval, the LPNNRD has already procured cost estimates for the proposed project and has the option to support the project through their tax levy authority. The Lower Platte North NRD is financed by a tax levy which may be up to four and one-half cents per $100 valuation for general purposes and another one cent for water programs. The FY 2025 tax levy is 0.025767cents per $100 valuation.

11. Has a local jurisdiction with plans in place that support sustainable water use;

- List the local jurisdiction and identify specific plans being referenced that are in place to support sustainable water use.
- Provide the history of work completed to achieve the goals of these plans.

- List which goals and objectives this project will provide benefits for and how this project supports or contributes to those plans.
- Describe and quantify how the project supports sustainable water use, what is the target area, what is the population or acreage receiving benefits, what is the usage of the water: residential, industrial, agriculture or recreational.
- List all stakeholders involved in project.
- Identify who benefits from this project.

The LPNNRD has multiple plans and programs that stem from those plans in place that support sustainable water use. The current GWMP was passed in 1995, and the LPNNRD is in the process of updating the GWMP. As far as supporting water sustainability goes, both the new and proposed GWMP support water sustainability. For purposes of this application, only the goals and objectives of the GWMP that was passed in 1995 are being used. Along with the district's GWMP, the LPNNRD also has an IMP which went into effect in June of 2018. also aligns with the goals of our voluntary Integrated Management Plan (IMP) which went in effect in June of 2018.

<u>GWMP Goals and Objectives</u>

Goal 1: To provide a sustained groundwater supply of quality water adequate to support reasonable and beneficial uses, and maintain long-term quality yields

Objective 7: Maintain groundwater quality and quantity programs

<u>Voluntary IMP Goals and Objectives</u>

Goal 3: Develop and implement water use policies and practices with the purpose of achieving and sustaining a balance between water uses and supplies

Objective 3.2.1: Where feasible, implement cost-share programs for irrigation conservation by partnering with producers in technologies that improve irrigation efficiency and track water usage over time.

The GWMP for the LPNNRD states in Objective 7 the need to maintain groundwater quality and quantity programs. Maintaining the LPNNRD's monitoring network is vital to water sustainability. Without it, the district would not be able to make water management decisions backed up with high-quality data. Without high-quality data to support those decisions, the LPNNRD would not be able to implement any programs, such as the district's flowmeter program. Flowmeters are required in the areas of the district where water consumption is regulated. Flowmeter reporting allows producers to see how much water they are using and allows the district to know too. Producers will use flowmeters throughout the season to check water usage, ultimately enabling a level of water sustainability. The district also gets this data through reporting, so the LPNNRD

will have a general idea of how much water is being used in different areas of the district.

Along with the GWMP, the LPNNRD also implemented its voluntary IMP in 2018. Goal 3 of the IMP states, "Develop and implement water use policies and practices with the purpose of achieving and sustaining a balance between water uses and supplies." Goal 3 outlines the importance of water sustainability within the district. The LPNNRD has many programs that are aimed towards achieving better water sustainability throughout the district. Within goal 3 is the objective 3.2.1 which states, "Where feasible, implement cost-share programs for irrigation conservation by partnering with producers in technologies that improve irrigation efficiency and track water usage over time." Many of the LPNNRD's water sustainability programs revolve around cost-sharing with producers. One example is the flowmeter cost-share program within the Special Quantity Subareas (SQS). These SQS have concerns of in-season water decline, causing the district to enforce a rolling allocation of 27 inches within a 3-year period and require flowmeters to track water usage. In these areas, water sustainability is crucial for agricultural and municipal use. Cost-share programs help producers with the initial burden of adding this extra equipment to their pivots and shows the district is willing to help to create water sustainability in the area.

The project will contribute to water sustainability in the district by adding monitoring wells with data loggers and telemetry into WHP areas where there is a lack of monitoring wells. This will give the district high-quality water level data and high-quality water sampling data to make the most informed water management decisions when it comes to water sustainability. This will benefit not only the municipalities in these source water areas, but also the agricultural producers within the source water areas as well. They will be able to see how water levels within their groundwater react to the stresses of high pumping years and will have the ability to change their water usage habits during those times, creating better water sustainability.

12. Addresses a statewide problem or issue;

- List the issues or problems addressed by the project and why they should be considered statewide.
- Describe how the project will address each issue and/or problem.
- Describe the total number of people and/or total number of acres that would receive benefits.
- Identify the benefit, to the state, this project would provide.

This project will be installing monitoring wells in multiple WHP areas throughout the district. The district has a population of 65,447 people, covering 1,031,000 acres (https://www.nrdnet.org/nrds/lower-platte-north-nrd). With the increase of contaminants, such as nitrates, in the state, it is

vital to improve the LPNNRDs monitoring well network to monitor concentrations and trends in WHP areas. This will allow the district and communities to see problems that will eventually make their way to municipal wells and give those municipalities the time to prepare for whatever issues could arise from a water quality standpoint. The project will also be constantly monitoring water levels, so if there is a significant decrease in said levels, the district would be able to notify the communities and have them implement their water restriction ordinances faster than they may have been able to before. This is a significant benefit to the state. With the ability to have an early warning system for water quality and quantity issues, these communities in WHP areas can be proactive in how they handle their water management decisions. This will ultimately save the public water systems money, since they will be able to remediate the problem before it becomes an emergency.

13. Contributes to the state's ability to leverage state dollars with local or federal government partners or other partners to maximize the use of its resources;

- List other funding sources or other partners, and the amount each will contribute, in a funding matrix.
- Describe how each source of funding is made available if the project is funded.
- Provide a copy or evidence of each commitment, for each separate source, of match dollars and funding partners.
- Describe how you will proceed if other funding sources do not come through.

The LPNNRD will pay 40% of the proposed project cost of the WSF application for a total of $165,871. LPNNRD has already determined the estimated cost of the project and will be reflected in the next budget cycle. The motion to apply for the WSF and pay 40% of the proposed project was approved on March 10, 2025. This can be found in the board minutes for March under Ground Water Programs subsection c (https://lpnnrd.org/wp-content/uploads/2025/03/03.10.25.pdf).

14. Contributes to watershed health and function;

- Describe how the project will contribute to watershed health and function in detail and list all of the watersheds affected.

With this proposed project, the LPNNRD would be putting monitoring wells into multiple different watersheds including the Shell Creek Watershed, and Wahoo Creek watershed. Monitoring water quality and quantity in these watersheds is vital to understanding the current health and function of said watersheds. It gives the district the tools to be proactive in the management of these areas by giving the district earlier warnings of possible contaminants that are working their way through the watershed.

With that ability, the district will be able to figure out how to deal with the potential problems that could arise from rising contaminant sources. It also gives the district more real time data on water levels in the watershed, allowing LPNNRD to see recharge rates and how the watersheds are affected by drought and high pumping seasons.

15. Uses objectives described in the annual report and plan of work for the state water planning and review process issued by the department.

- Identify the date of the Annual Report utilized.
- List any and all objectives of the Annual Report intended to be met by the project
- Explain how the project meets each objective.

Looking at the goals from the 2024 Annual Report, this project best aligns itself with goal 5 which states, "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." The LPNNRD has worked collaboratively with communities in WHP areas by meeting with them and asking questions about their public water systems to determine the need for more monitoring wells in WHP areas. While the NRD is the entity that will be taking responsibility for these monitoring wells, communities will benefit by having extra water quality and quantity sampling taking place to help warn them of any potential issues heading their way.

16. Federal Mandate Bonus. If you believe that your project is designed to meet the requirements of a federal mandate which furthers the goals of the WSF, then:

- Describe the federal mandate.
- Provide documentary evidence of the federal mandate.
- Describe how the project meets the requirements of the federal mandate.
- Describe the relationship between the federal mandate and how the project furthers the goals of water sustainability.

N/A