NEBRASKA NATURAL RESOURCES COMMISSION

Water Sustainability Fund

Application for Funding

Section A.

ADMINISTRATIVE

PROJECT NAME: **Lower Elkhorn NRD Sub-Regional Groundwater Model**

PRIMARY CONTACT INFORMATION

Entity Name: **Lower Elkhorn Natural Resources District**

Contact Name: **Kristie Olmer**

Address: **1508 Square Turn Blvd, Norfolk, NE 68701**

Phone: **402-371-7313**

Email: **kolmer@lenrd.org**

Partners / Co-sponsors, if any: **N/A**

1. Dollar amounts requested: Grant, $**321,600**

   Grant amount requested. $ **321,600**

   Loan amount requested. $ **N/A**

   If Loan, how many years repayment period? **N/A**

   If Loan, supply a complete year-by-year repayment schedule.
   N/A

   Are you requesting less than 60% cost share from the fund?
   No
   If so what % ? **N/A**

2. Permits Needed - Attach copy for each obtained (N/A = not applicable)

Nebraska Game & Parks Commission (G&P) consultation on Threatened and Endangered Species and their Habitat	N/A☒	Obtained: YES☐	NO☐
Surface Water Right	N/A☒	Obtained: YES☐	NO☐
USACE (e.g., 404 Permit)	N/A☒	Obtained: YES☐	NO☐
Cultural Resources Evaluation	N/A☒	Obtained: YES☐	NO☐
Other (provide explanation below) Click here to enter text.	N/A☒	Obtained: YES☐	NO☐

3. Are you applying for funding for a combined sewer over-flow 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☒

If yes attach a copy to your application. **N/A**

If yes what is the population served by your project? **N/A**

If yes provide a demonstration of need. **N/A**

If yes and you were approved for funding in the most recent funding cycle, then resubmit the above information updated annually but you need not complete the remainder of the application.

4. If you are or are representing an NRD, do you have an Integrated Management Plan in place, or have you initiated one?

N/A☐ YES☒ NO☐

5. Has this application previously been submitted for funding assistance from the Water Sustainability Fund and not been funded?

YES☐ NO☒

If yes, have any changes been made to the application in comparison to the previously submitted application? **N/A**

If yes, describe the changes that have been made since the last application. **N/A**

No, I certify the application is a true and exact copy of the previously submitted and scored application. (Signature required) **N/A**

Section B.

DNR DIRECTOR'S FINDINGS

Does your project include physical construction (defined as moving dirt, directing water, physically constructing something, or installing equipment)?

YES☐ NO☒

1(a). If yes (structural), submit a feasibility report (to comply with Title 261, CH 2) including engineering and technical data and the following information:

A discussion of the plan of development (004.01 A);
N/A

A description of all field investigations made to substantiate the feasibility report (004.01 B); **N/A**

Maps, drawings, charts, tables, etc., used as a basis for the feasibility report (004.01 C); **N/A**

A description of any necessary water and land rights and pertinent water supply and water quality information, if appropriate (004.01 D);
N/A

A discussion of each component of the final plan including, when applicable (004.01 E);

Required geologic investigation (004.01 E 1); **N/A**

Required hydrologic data (004.01 E 2); **N/A**

Design criteria for final design including, but not limited to, soil mechanics, hydraulic, hydrologic, structural, embankments and foundation criteria (004.01 E 3). **N/A**

1(b). If no (non-structural), submit data necessary to establish technical feasibility including, but not limited to the following (004.02):

A discussion of the plan of development (004.02 A);

The citizens of the Lower Elkhorn Natural Resources District (LENRD) depend on abundant, clean water in their homes for domestic use, on their farms for agricultural production, and for their industries to maintain economic viability. Wildlife that live and migrate through the LENRD also depend on clean, abundant water for sustenance and habitat. Furthermore, human inhabitants of the LENRD

use water in rivers and lakes for recreation, including fishing, hunting, boating, and swimming.

Since its inception in 1972, the LENRD has striven to maintain, and improve, the groundwater it is charged with protecting. Examples of the LENRD's past efforts include:

- **Millions of dollars spent on conservation and best management practices.**
- **Development of a Water Inventory Report[1] and a water balance study to document the current understanding of the LENRD's water supplies and demands.**
- **Drafting an Integrated Management Plan[2] in collaboration with the Nebraska Department of Natural Resources (NeDNR) and extensive local stakeholder involvement.**
- **Significant changes to the Groundwater Management Plan[3], Rules, and Regulations, including adding a requirement that landowners and operators using high-capacity wells (wells that pump more than 50 gpm) install a flow meter to track groundwater use and annually report flow meter readings to the LENRD.**
- **Collection of Aerial Electromagnetic (AEM) surveys throughout the entire LENRD.**
- **Certification of all irrigated acres within the LENRD.**

With approximately 5,584 active, registered, irrigation wells, 2,219 domestic wells, 681 livestock wells, and 105 commercial/industrial wells within the LENRD, and a population of almost 90,000, it becomes vital to understand the complex aquifer systems underlying the LENRD. While the LENRD has taken steps to collect more information regarding the underlying aquifers and other groundwater data, there is currently no way to combine and fully utilize this information to make management decisions. The development of a sub-regional groundwater model specific to the LENRD will provide the framework necessary to make management decisions that benefit the long-term sustainability of groundwater aquifers, on a regional and local-scale, while balancing the needs of the agricultural community. Some uses of the groundwater model may include evaluation of areas for potential expansion of irrigation development; evaluation of areas where groundwater allocations may be necessary; drought condition forecasting; identifying areas at risk of well interference; evaluating potential impacts of land cover changes on groundwater supplies; estimating stream flow depletions; and evaluating areas with otherwise limited data. The model will also be available as a tool for communities within the LENRD for projects such as delineating wellhead protection areas (WHPAs); siting new wells; performing aquifer studies; drought management planning; and recharge assessments. The

[1] Olsson Associates, 2015, Water Inventory Report for the Lower Elkhorn Natural Resources District.

[2] Lower Elkhorn Natural Resources District, 2015, Draft Integrated Management Plan, in progress.

[3] Lower Elkhorn Natural Resources District, 2018, Groundwater Management Plan, 2018 revision.

LENRD will collaborate on development of the model with NeDNR and the University of Nebraska – Lincoln Conservation and Survey Division (UNL CSD).

Not only will the groundwater model be useful for making informed management decisions, it will also be an effective educational tool. The ability to run various scenarios and predict the impact on short, mid, and long-term water supplies will be a powerful learning tool for LENRD staff, directors, and constituents.

A description of field or research investigations utilized to substantiate the project conception (004.02 B);

The LENRD collects static water level measurements from a system of 240 wells each year, in addition to levels recorded by a transducer every eight hours in the LENRD's 65 dedicated monitoring wells. This data has been collected since the mid 1970's, and the LENRD continues to expand the well network in order to collect more groundwater quantity data.

While the majority of wells are able to recharge by each spring, it is not uncommon for decreased water levels to occur during times of heavy irrigation, particularly in drought years. Two areas of the LENRD, one in Madison County and one in Wayne County, have been identified as having groundwater quantity issues. Irrigators in these areas are subject to an annual groundwater allocation. The LENRD strives to proactively manage groundwater quantity, with the intent to allow as much groundwater development as possible, while preventing over development in areas that cannot sustain it.

Groundwater quality data has also been collected by the LENRD since the 1980's. Samples are tested when groundwater levels are measured, and concentrated efforts have been made to take additional samples from irrigation wells in varying areas of the LENRD. These samples have shown steadily increasing nitrate levels in some areas of the LENRD. Pierce County, with the exception of the most northeastern township, has been classified as a Phase 2 area, meaning additional controls are placed on irrigators, since 1996. The Phase classifications are currently under review by the LENRD to become more stringent and better reflect current conditions. Six townships in Pierce County, and the LENRD's portion of Knox County are also in the Bazile Groundwater Management Area (BGMA). The BGMA was formed between four neighboring NRDs in 2014 in response to elevated nitrate levels.

A description of the necessary water and/or land rights, if applicable (004.02 C); **N/A**

A discussion of 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).

While there are currently no planned structural measures, the model would be a valuable tool in identifying the most effective areas for groundwater recharge.

2. Provide evidence that there are no known means of accomplishing the same purpose or purposes more economically, by describing the next best alternative.

This project will result in a sub-regional groundwater model that encompasses the LENRD and that incorporates AEM data, all available NeDNR well logs, existing groundwater studies and data, and UNL CSD test holes. The level of detailed information produced by this model is necessary for the LENRD Board of Directors to make field-based type management decisions. This model will be constructed using hydrogeologic parameters from NeDNR's existing Lower Platte-Missouri Tributaries (LPMT) regional groundwater model. The primary difference is the level of detail in the LENRD model, which will provide one-quarter mile scale data. Also, the LPMT model does not include AEM which has been flow recently.

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 shall be fifty (50) years or with prior approval of the Director, up to one hundred (100) years [T261 CH 2 (005)].

- 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).

Total cost to develop this sub-regional model for the LENRD is $536,000, over an approximately 18-month time period. This includes $68,000 for Project Management, Agency Coordination, and Meetings; $3,000 to Obtain and Review Existing Information; $171,000 to Complete a Hydrogeologic Framework; $166,000 to Construct and Calibrate a Numerical Groundwater Model; $60,000 to Provide Model Application Graphic User Interface Tool; and $68,000 to Create Final Report and Map Book. Because the project is based upon geologic data, its project life extends to an indefinite point in time at which point more accurate geologic data is collected, and the model is updated. Because the LENRD is utilizing AEM data recently collected, the project life will be long-term in nature.

- 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 any intangible or secondary benefits 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, such that the economic feasibility of the project can be approved by the Director and the Commission (005.02).

There is no generally accepted method for calculation of primary tangible benefits for this project, but the LENRD is confident it will greatly promote and increase water sustainability efforts in our region. While this project will result in a groundwater model, it will also have a significant impact on groundwater management decisions within the LENRD. The model will enable the LENRD Board of Directors to make decisions based on the potential impacts that decisions may have on the groundwater. This will help ensure that all decisions are made with water sustainability in mind. Water will be used in a more efficient manner, communities will have scientific data to base decisions such as well siting on, among a large number of other ancillary benefits.

The first of four goals in the draft Integrated Management Plan developed by the LENRD in collaboration with NeDNR was to "Develop and maintain a water supply and use inventory based on the best available data and analysis." A sub-regional groundwater model will fulfill that goal, by utilizing all the data the LENRD has collected, and providing an advanced method to analyze and model groundwater scenarios. This is the best possible method the LENRD has found to balance the need for further groundwater development, with the associated risks to water sustainability.

- All benefit and cost data shall be presented in a table form to indicate the annual cash flow for the life of the proposal, not to exceed 100 years (005.03).

There is no generally accepted method for calculation of primary tangible benefits for this project; however, the table below illustrates the annual costs associated with the project.

Activity	Cost Year 1	Cost Year 2
Project Management	$48,000	$20,000
Obtain/Review Existing Information	$3,000	$0
Complete Hydrogeologic Framework	$121,000	$50,000
Construct/Calibrate Numerical Groundwater Model	$116,000	$50,000
Provide Model	$0	$60,000

Application Graphic User Interface Tool		
Create Final Report & Map Book	$0	$68,000
Total By Year & Partner	**$288,000** (WSF $172,800) (LENRD $115,200)	**$248,000** (WSF $148,800) (LENRD $99,200)

- 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, the economic feasibility of such proposal shall be demonstrated by such method as the Director and the Commission deem appropriate (005.04). **N/A**

4. Provide evidence that sufficient funds are available to complete the proposal.

   The LENRD has estimated the 2018-2019 property tax request at 2.30871 cents per $100 of valuation, for an estimated total of $4,275,860. The annual property tax request is finalized and approved by the LENRD Board of Directors each year.

5. Provide evidence that sufficient annual revenue is available to repay the reimbursable costs and to cover OM&R (operate, maintain, and replace).
   N/A. There are no OM&R costs associated with this project.

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.

The development of this project will have no negative impacts on the natural environment. Once the project is developed, the sub-regional groundwater model will be able to provide positive impacts to water sustainability through more educated decisions made by the LENRD Board, communities, and other agencies that will benefit from the use of the model.

8. Explain how you are qualified, responsible and legally capable of carrying out the project for which you are seeking funds.

The LENRD is well qualified to carry out this project. Since its inception in 1972, the LENRD has been collecting groundwater data and utilizing that data for management decisions. This project will only expand and improve on the

LENRD's ability to make sound groundwater management decisions. Groundwater management is a statutory duty of Natural Resources Districts (NRDs). The development of this project will aid the LENRD in adhering to the statutory responsibilities and authorities given to the NRDs by the state, including but not limited to Nebraska Revised Statutes 2-3,201 through 2-3,243 and 46-701 through 46-755. As one of the state's preferred regulators of groundwater, the LENRD is clearly both qualified and responsible to carry out the proposed project.

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 is being implemented to assist in fulfilling the requirements in the LENRDs Groundwater Management Plan and draft Voluntary Integrated Management Plan. The 2015 Groundwater Management Plan[4] (GMP) issued by the LENRD identifies a reservoir life goal to *provide an adequate supply of acceptable quality groundwater to forever fulfill the reasonable groundwater demands within the NRD for domestic, municipal, agricultural, industrial, wildlife and other uses deemed beneficial by the NRD Board*. This project will help fulfill multiple goals of the GMP by allowing the LENRD Board to make management decisions with these goals in mind.

This project directly addresses the first goal in the voluntary Integrated Management Plan[5] (IMP) currently being developed in collaboration with the NeDNR. The first goal is to *Gain a better understanding of water resources.* This project will enable the LENRD to combine all of the groundwater data, particularly the AEM data collected in 2013, 2014, 2016, and 2018 the LENRD has collected and utilize it through modeling.

10. Are land rights necessary to complete your project?

YES☐ NO☒

If yes, provide a complete listing of all lands involved in the project.
N/A

If yes, attach proof of ownership for each easements, rights-of-way and fee title currently held.
N/A

If yes, provide assurance that you can hold or can acquire title to all lands not currently held.
N/A

[4] Lower Elkhorn Natural Resources District, 2015, Groundwater Management Plan, 2015 Revision.
[5] Lower Elkhorn Natural Resources District, 2015, Integrated Management Plan, in progress.

11. Identify how you possess all necessary authority to undertake or participate in the project.

Nebraska's NRDs are specifically tasked by the legislature to manage groundwater, as well as the hydrologically connected groundwater and surface water. In the Groundwater Management and Protection Act, financial and other incentive programs are referenced 19 timed and the necessary authority is granted to NRDs to implement such programs.

12. Identify the probable environmental and ecological consequences that may result as the result of the project.

The LENRD does not anticipate any negative environmental or ecological consequences as a result of this project. The purpose of this project is to positively impact groundwater sustainability by best utilizing all available groundwater data when making groundwater management decisions.

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, 2, 4, or 6 for items 1 through 8; and 0, 1, 2, or 3 for items 9 through 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 69 possible points, plus two bonus points. The potential number of points awarded for each criteria are noted in parenthesis. 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.

Ground water quality and quantity are both issues of great importance within the LENRD. Without adequate clean, abundant ground water, the health of the almost 90,000 residents is as risk. While the LENRD has, and will continue to make the

best decisions they can to address the risks to residents, agriculture, and industry, their ability to do so will be dramatically improved by the completion of this project. A sub-regional groundwater model will provide a mechanism to help predict and mitigate these risks in a way that wouldn't otherwise be possible.

A major portion of developing the sub-regional groundwater model is establishment of a hydrogeologic framework for the entire NRD, using AEM data. Once complete, the LENRD will have the most robust interpretation of hydrogeologic data in the state. A key deliverable includes a 'map book', which will include a wide variety of data such as transmissivity, aquifer thickness, aquifer locations, groundwater depths, etc. This data will help the LENRD establish more targeted Groundwater Management Areas. A deliverable of the project is to better delineate aquifer units in order to better define the Groundwater Management Areas. This will lead to more accurately placed management measures, such as best management practices (BMPs) to reduce nitrate infiltration to groundwater. The hydrogeologic framework will also be of use to communities to better understand geologic characteristics of their WHPAs. Furthermore, the detailed model could be used to more accurately delineate WHPAs, meaning that communities will have a better understanding of where their groundwater is coming from, thus a better understanding of where to apply management practices.

In addition to concerns about groundwater quality, the LENRD is also concerned about water quantity issues. The groundwater model and hydrogeologic framework will enable the LENRD to refine the two groundwater quantity subareas within the LENRD, one in Madison County and one in Wayne County. These are areas of known groundwater quantity issues. Within these areas, irrigators must abide by an allocation of irrigation water that is determined by the LENRD Board annually. With the new data, and better-defined areas, these regulations can be applied more precisely where they will benefit the resource, and the Board can be assured they are not applying allocations and other regulations onto producers where such actions may not be justified. This project will create a scientific basis for application of the rules and regulations.

Additional water quantity issues were discovered during the drought of 2012, when some areas of the LENRD experienced water shortages in domestic and irrigation wells. In response, the LENRD approved a Drought Mitigation Plan to help guide the response of the LENRD Board in future drought crises. The model and hydrogeologic framework will allow the LENRD to forecast areas that would be affected by drought by running a drought scenario in the model. This will enable the LENRD to notify communities far ahead of time using 'triggers', which could be defined by the model.

The LENRD has initiated many actions in an attempt to resolve the known water quality and quantity issues. All of Pierce County, with the exception of one township, has been designated a "Phase 2" area, meaning additional controls are

placed on irrigators within the area. These controls and areas are currently under review by the LENRD, as some areas may be subject to more strict controls due to persistent and increasing nitrate levels. In 2013, the LENRD, in addition to three other NRDs, formed the Bazile Groundwater Management Area (BGMA) to address nitrate related issues. Six townships in Pierce County and all or part of three townships in Knox County make up the LENRD's portion of the BGMA. Within the BGMA, a concentrated effort has been made to educate landowners and producers, provide additional cost share for BMPs, and increase and expand monitoring efforts. Other actions taken by the LENRD throughout the entire district include: obtaining a grant to install telemetry equipment on all dedicated monitoring wells to provide real-time groundwater level measurements; requiring flow meters on all high capacity wells (those that pump more than 50 gallons per minute); promoting and providing cost share for BMPs; and increasing outreach and education efforts.

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 2015 GMP issued by the LENRD identifies a reservoir life goal to *provide an adequate supply of acceptable quality groundwater to forever fulfill the reasonable groundwater demands within the NRD for domestic, municipal, agricultural, industrial, wildlife and other uses deemed beneficial by the NRD Board*. This project will help fulfill multiple goals of the GMP.

One such goal is to *establish a baseline of data and monitor trends in groundwater quality and quantity*. The LENRD has taken many steps to achieve this goal. A system of 65 dedicated monitoring wells is strategically placed throughout the LENRD. Each monitoring well is equipped with a transducer, a device that records and stores depth to groundwater measurements every eight hours. To best utilize these transducers and the data they collect, the LENRD recently pursued and received a grant through the Nebraska Environmental Trust (NET) to add telemetry to each monitoring well, so that data is available real-time. The LENRD also collects static water levels annually from a large network of privately owned irrigation wells. Water quality data is also collected from these wells, and each summer, a dedicated effort is made to collect nitrate samples from irrigation wells, with different parts of the LENRD being targeted each year. The LENRD has been collecting water quantity data since the mid 1970's, and water quality data since the 1980's. The real time water level data is vital to calibrating the flow model to actual groundwater levels throughout the NRD.

Another goal of the GMP is to *Maintain and improve groundwater quality.* In order to meet this goal, the LENRD has developed a Groundwater Management Area in Pierce County, in addition to helping to form the BGMA in parts of Pierce and Knox County, along with areas of three other NRDs. These areas are subjected to additional controls with the goal of reducing nitrate levels. The Groundwater Management Area is currently under review, with additional controls being proposed for some areas. The LENRD also promotes the use of BMPs that target water quality through the availability of cost share opportunities. The hydrogeologic data will indicate areas that are more vulnerable to nonpoint source pollution so actions to reduce infiltration of pollutants, mainly nitrates, can be more precisely targeted to where they will be most effective.

The LENRD also has a goal to *minimize pumping conflicts.* To address this, the LENRD does not allow irrigation wells to be drilled without a permit. Setbacks from other wells are also set and must be adhered to for new and replacement wells. The groundwater model, and graphic user interface, will enable LENRD staff to operate the model to understand how new high-capacity well development may affect wells already in use. The graphic user interface will enable the staff to do this in-house, without performing additional studies.

This project directly addresses the first goal in the voluntary IMP currently being developed in collaboration with the NeDNR. The first goal is to *Gain a better understanding of water resources.* This project will enable the LENRD to combine all of the groundwater data, particularly the AEM data collected in 2013, 2014, 2016, and 2018 the LENRD has collected and utilize it through modeling. The ability to model various scenarios will greatly assist the LENRD in understanding and predicting how different decisions and situations will affect groundwater supplies. This project also directly addresses the second goal, *Sustain a balance between current and future water uses and supplies through water management strategies and projects.* The ability to model different scenarios will also address goal three, *Improve the public's understanding and participation in integrated water management.* Finally, this project with also support goal four of the IMP, *Support planning and management in the Basin and ensure consistency with the Basin Plan.*

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.

The proposed sub-regional groundwater model will enable the LENRD to predict aquifer recharge, potential aquifer depletion, and impacts to streamflow. Without a groundwater model, the LENRD does not have a method to accurately predict these impacts.

With any structural project the LENRD would pursue, choosing a location with potential for recharge benefits is important. By utilizing the sub-regional model, the LENRD could choose the location for a project with the best recharge potential. The hydrogeologic framework will identify areas where clay layers are absent or thin, in combination with where the aquifer has the capacity to store recharged water. Then, the flow model will quantify potential recharge benefits, and display where the benefits will occur (i.e. how many high capacity wells will be offset).

Reducing aquifer depletion is also a priority with all decisions. While it is important to agricultural producers in the LENRD to allow new development of irrigation, this must also be balanced with ensuring that existing users and the underlying aquifers are not negatively impacted. This model could be used to determine areas that can withstand further development without causing additional depletion, while identifying areas that cannot be developed without causing negative impacts.

It is also important to maintain balance within the hydrologically connected areas. The model would be very useful in determining the impacts of groundwater pumping on streamflow within the hydrologically connected areas of the LENRD.

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.

The overall goal of this project is the development of a sub-regional groundwater model that can be utilized by the LENRD, and its communities, to make informed groundwater management decisions using all the available data. These decisions will impact both groundwater quantity and groundwater quality.

This project will benefit all water users in the LENRD by providing a means to make educated management decisions that will promote water sustainability for future use. Groundwater users, both agricultural and domestic, will be protected

from interference issues as future development occurs. The model could also benefit groundwater quality of users, by predicting movement of contaminants, such as nitrates. Wildlife will also benefit from decisions made with water quantity and quality in mind.

Without the ability to predict the impact various decisions may have on groundwater, the future quality and quantity of groundwater could be at risk. While the LENRD Board does its best to make informed decisions, it can function best when the best available information is utilized. Should expansion of irrigation be allowed in areas that cannot support it, the long-term impacts of that overuse will affect all water users, and not just irrigators.

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.

The groundwater model, when complete, will aid the LENRD Board in its decision making processes for groundwater management. Being able to utilize the model will assist the Board in allowing as much development as is sustainable, in the areas which will provide the most benefit. Agriculture is a driving force within the LENRD. It is important to allow the growth and development of the Ag industry, while balancing other beneficial uses and the need to maintain water sustainability.

It is not the goal to reduce beneficial uses. Instead the LENRD hopes to encourage the responsible and conservative use of groundwater resources. Doing so will benefit all residents of the LENRD in safeguarding the groundwater they rely on.

The groundwater model will be developed in collaboration with NeDNR, meaning that once NeDNR accepts the model, it will benefit their short-term and long-term water management goals in the Lower Elkhorn basin. The model could be used to display hydrologically connected areas. This is an opportunistic project for NeDNR as well, as it will provide a lesson on how well the AEM interpreted data can be interpolated into a sub-regional groundwater model. This project will also provide far more accurate and detailed hydrogeologic parameters, such as thickness of aquifers, transmissivity, hydrologic conductivity, and others.

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 table below illustrates the project costs. No O/M costs or land and water acquisition costs are associated with this project. There is no alternative, except to not develop a model on which to base groundwater management decisions. This would hinder the ability of the LENRD to make the best management decisions possible. There is no other method to achieve the same benefits.

The LENRD believes this is a cost effective project, as it helps the LENRD achieve water sustainability without using a trial and error approach.

Activity	**Cost Year 1**	**Cost Year 2**
Project Management	$48,000	20,000
Obtain/Review Existing Information	$3,000	$0
Complete Hydrogeologic Framework	$121,000	$50,000
Construct/Calibrate Numerical Groundwater Model	$116,000	$50,000
Provide Model Application Graphic User Interface Tool	$0	$60,000
Create Final Report & Map Book	$0	$68,000
Total By Year & Partner	**$288,000** (WSF $172,800) (LENRD $115,200)	**$248,000** (WSF $148,800) (LENRD $99,200)

Total WSF Contribution: $321,600 **Total LENRD Contribution: $214,400**

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.

There are no interstate compacts, decrees or state contracts or agreements in the Lower Platte or Elkhorn Basins. However, there are three federally listed

endangered species in the Lower Platte Basin that are protected under the Endangered Species Act of 1973:

- **Pallid Sturgeon**
- **Piping Plover**
- **Interior Least Tern**

Additionally, within the LENRD, there are two at-risk species identified by the Nebraska Game and Parks Commission:

- **Western Prairie Fringed Orchid**
- **Topeka Shiner**

The proposed project will promote water conservation which will have a positive cumulative impact on stream flow by minimizing aquifer depletion. More educated decisions can be made by the Board, particularly within the hydrologically connected areas, which will help reduce pumping impacts on streamflow. The beneficial impacts will be maximized in areas with the highest stream flow depletion factor (SDF) as defined by the NeDNR SDF analysis along the Elkhorn and Logan Creek. Current and potential future deficiencies in flow within the Lower Platte River or Elkhorn corridor would negatively impact the habitats for these three endangered and two at-risk species, increasing the importance of educated management through the use of a model.

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 Untied 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.

The groundwater supply in the LENRD is vital to the state of Nebraska and the United States of America. Currently the High Plains aquifer supplies water to 25% of the agricultural production in the US and without this supply there would be a debilitating effect on public security, public health, and safety. As an example of the concern, the United States Department of Homeland Security's Office of Cyber and Infrastructure Analysis released a report entitled Analysis of High Plains Resource Risk and Economic Impacts[6] which analyzed how continued

[6] Office of Cyber and Infrastructure Analysis, 2015, Analysis of High Plains Resource Risk and Economic Impacts, August 2015, Department of Homeland Security, National Protection and Programs Directorate.

depletions of the High Plains aquifer in Kansas and Nebraska might impact critical infrastructure and the economy at the local, regional, and national levels. In the introduction, the threat is described as follows, "The area overlying the High Plains Aquifer is one of the most prolific agricultural regions in the Nation, covering 111.8 million acres (175,000 square miles) in parts of eight States—Colorado, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, and Wyoming. Following World War II, improved pumps and center pivot irrigation technology made High Plains groundwater available for large-scale irrigated agriculture. The High Plains has since become one of the most intensively irrigated areas in the United States, accounting for about 30 percent of all groundwater withdrawn for irrigation. As of 2007, the High Plains supported 50 million acres of cropland, 15.4 million acres of which were irrigated. The High Plains supplies approximately one-fourth of the Nation's agricultural production. Associated crops provide significant amounts of feed to the Midwest cattle operations that account for 40 percent of U.S. feedlot beef output. The aquifer also provides drinking water to 82 percent of the people who live within its boundaries. Increasing reliance on the High Plains aquifer has exceeded groundwater recharge rates. Water-level declines began in parts of the High Plains Aquifer soon after the onset of substantial irrigation, around 1950; by 1980, water levels had declined by more than 100 feet in parts of Texas, Oklahoma, and southwestern Kansas."

A key finding of this report is that "(i)f current water use practices are continued into the future, sixty counties in Kansas and seven in Nebraska are projected to face exhaustion of groundwater supplies in 100 years or less." It is clear that water use practices will need to be carefully managed to ensure that groundwater is available in the future. This clear benefit to public security, public health and safety will be provided by the use of the sub-regional groundwater model in management decision making.

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 LENRD is home to almost 90,000 residents across 2,526,700 acres and 50 communities. High nitrate levels in portions of the LENRD have been an issue for years. In 1996, the LENRD created a Groundwater Quality Management Area in a portion of Pierce County due to the presence of nitrates in groundwater that exceeded the Maximum Contaminant Level (MCL) set at 10 parts per million by the Environmental Protection Agency (EPA). The area was later expanded, and a

new management area was created in conjunction with four other NRDs. In addition to the BGMA, high nitrate levels have affected numerous communities within the LENRD. Some of the affected communities have received Administrative Orders from the state regulatory agencies due to the persistent presence of nitrate in regular sampling events. Results of the LENRD's 2017 water quality sampling efforts showed that nitrate levels in Pierce County ranged from non-detect to over 44 ppm. Of the 310 samples collected, 176 samples tested greater than nine ppm.

For the industrial, domestic, and recreational water users, groundwater with elevated nitrate levels is a significant issue. Specifically, high nitrates can cause problems for process water in food production and processing plants, can require residential well owners to install expensive water treatment systems, and can cause increased toxic algal blooms in reservoirs and lakes, in addition to the health risks associated with consuming high nitrate water.

A sub-regional groundwater model would provide a mechanism to help predict and mitigate these risks. Utilizing the AEM data collected over the past six years will assist the LENRD in identifying the rate at which nitrates are moving through the aquifer. This information could then be used to develop programs to target nitrate infiltration, particularly in areas of high risk. These areas at risk of nitrate infiltration are also often areas with aquifer recharge potential. The hydrogeologic framework the model will create will be vital in mapping out these vulnerable areas and balancing the risk of nitrate infiltration with the need for recharge. This framework will also be available to communities to improve their understanding of geologic characteristics of their WHPAs. The model will enable the LENRD to take advantage of the investment the LENRD, Natural Resources Commission, and NeDNR have made in collecting groundwater data, and maximize the usefulness of this data.

The other solution to addressing water quality issues is to continue the current practices the LENRD has in place. However, encouraging the utilization of BMPs and implementing regulations to protect the resource have so far been unsuccessful by themselves. Without the use of a groundwater model and hydrogeologic framework, the LENRD Board does not have all the information needed to make the most effective decisions that will have the greatest impact on the water quality issues the LENRD faces.

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 supports the development of the sub-regional groundwater model is the LENRD. The LENRD has and will continue to support the proposed project through their tax levy authority. A pilot project model has been initiated and funded by the LENRD in conjunction with NeDNR. The pilot project is confined to an area within Wayne County within the LENRD. No funds expended from that project have been counted towards this application, as the pilot project and full sub-regional project are both standalone projects. No benefits or funds from the pilot project are being counted towards this project; however, the lessons learned from the pilot project will be invaluable to the development of the sub-regional groundwater modeling project.

LENRD fiscal year 2019 budget provides for an estimated property tax requirement of $4,275,860. The final levy is estimated to be set at 2.30871 cents per $100 actual 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 local jurisdiction that supports the sub-regional groundwater model is the LENRD, who is supported as a collaborator by the NeDNR. This project is proposed to assist with implementation of the requirements in their GMP and draft voluntary IMP developed in partnership with NeDNR. Development of the voluntary IMP was overseen by a stakeholder group composed of 23 individuals. Both the GMP and the IMP were developed under the authority granted through the Groundwater Management and Protection Act (GMPA) and both have the overarching intent to plan for and maintain water sustainability across the entire LENRD, and this project will assist in fulfilling those responsibilities.

The LENRD has collected a vast amount of groundwater quality and quantity data since its inception, and will continue to do so into the future. The proposed sub-regional groundwater model will enable the LENRD Board to make informed decisions that support sustainable water use for all groundwater users across the entire 2,526,700 acre district. Data collected by the LENRD includes nitrate levels, depth to groundwater measurements, AEM, among others. UNL CSD will also

collaborate with the LENRD on the project, providing data and assistance as needed.

The first of four goals in the draft IMP developed by the LENRD in collaboration with NeDNR was to "Develop and maintain a water supply and use inventory based on the best available data and analysis."

In addition to fulfilling the overall goal of water sustainability, the project will also help achieve many objectives within the LENRD's Long Range Implementation Plan, such as:

- **Utilize all land within the district for its most suitable purposes, with consideration given to conserving the resources and their continued productivity for future generations.**
- **Monitor groundwater to detect changes, trends, or problems.**
- **Improve groundwater conservation practices through education and information dissemination.**
- **Assist agricultural producers in proper irrigation and agrichemical usage.**
- **Protect municipal and domestic groundwater supplies.**
- **Increase our general knowledge of the hydrogeologic characteristics of the district.**
- **Establish and preserve fish and wildlife habitat on private lands.**
- **To ensure public awareness of the district's responsibilities, programs, projects and goals, and to increase public concern for the proper management and conservation of our natural resources.**

All of the communities and residents of the LENRD will both directly and indirectly benefit from this project. Direct benefits to the communities include: a better understanding of their source water, drought planning, and better well siting capabilities using the new data. By having a model built utilizing data specific to the region, the best possible framework will be in place for running various scenarios before making important management decision. This method of decision making will enable the LENRD to manage ground water use in a manner that achieves and sustains a balance between water uses and water supplies. This will provide environmental benefits to the inhabitants of the LENRD by maintaining adequate groundwater and surface water supplies for their use and minimizing conflicts between water users in the future.

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.

Development of the sub-regional groundwater model will help ensure future Board of Directors and LENRD staff have access to the most robust hydrogeologic data and modeling tool possible to support scientifically based water management decisions. It is well documented that water sustainability is a state wide issue. This project will directly and indirectly affect the almost 90,000 residents within the LENRD, which will support addressing the statewide issue of sustainability. By using the sub-regional groundwater model in decision making, the LENRD can ensure that it manages groundwater with sustainability as the goal. While that is currently the hope of each decision made, the model will help ensure that the goal of sustainability is attained.

Groundwater quality is also an issue within the state, and within the LENRD. The ability to model scenarios of how contaminants, such as nitrates, spread will be invaluable in the effort to decrease nitrate levels. Strategies derived from this model may also be applicable to other areas of the state.

Groundwater quality and quantity, and the overall sustainability of groundwater, are statewide issues. If each NRD strives to use their data in the best possible manner, to make the best possible decisions, these goals can be attained. That is the goal of this project in the LENRD.

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.

There are no other funding sources for this project.

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.

The proposed project's main objective is the development of a sub-regional groundwater model and hydrogeologic framework that will allow the LENRD to make better management decisions. Actions made through the guidance of this model will help to fulfill the LENRD's obligation to protect natural resources within the LENRD's boundaries. In the course of fulfilling its responsibilities, the

LENRD has identified a variety of concerns, many related to the agricultural industry found in northeast Nebraska. Not only will addressing these resource concerns benefit the agricultural industry, but communities within the LENRD will also reap the benefits of sustained and improved resources. These concerns primarily include water quantity and water quality, however, soil health, drought, and at-risk species habitat will all benefit through the implementation of practices guided by the model. While the primary objectives of the project focus on water resources, practices implemented by the project to improve quantity and quality of water will have additional benefits that address other resource concerns and improve watershed function.

Water quality and quantity issues within the LENRD have been identified through current groundwater monitoring practices. Areas at risk to decreased water levels and increased nitrate levels have been identified; however, a method to most effectively address these issues does not currently exist. Development of a hydrogeologic framework will allow the LENRD to pinpoint areas where management practices are needed to reduce infiltration of nitrates to the aquifer. Implementation of these practices will slow runoff, improve soil health, and reduce the quantity of fertilizers and chemicals needed. It will also help to identify areas at risk of groundwater declines and manage them accordingly.

The groundwater model will also assist in drought condition forecasting, identifying areas at risk of well interference, evaluating potential impacts of land cover changes on groundwater supplies, estimating stream flow depletions, and evaluating areas with otherwise limited data. The model will also be available as a tool for communities within the LENRD for projects such as delineating wellhead protection areas, siting new wells, performing aquifer studies, drought management planning, and recharge assessments. The combination of these capabilities will contribute to maintaining a healthy and functioning watershed.

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.

The development of the sub-regional groundwater model and hydrogeologic framework serves as an opportunistic project for the NeDNR to collaborate with the LENRD and meets four of the five program areas identified by NeDNR to implement Neb. Rev. Stat. 2-1599 as described below:

1. **Maintain data, information, and analysis capabilities for water planning, including specific programs for collecting, maintaining, and distributing**

information on streamflows, as well as analyzing water uses and water supplies across the state;

This project clearly meets Objective 1 by utilizing a wealth of data and information maintained by NeDNR for water planning purposes. Additionally, the NeDNR will directly benefit as a collaborator with the LENRD during the model development process.

2. **Provide staff and resources to support planning and implementation of water resources projects;**

NeDNR is a partner in the project and has allocated staff to provide resources and support implementation of the project.

3. **Support locally developed water management plans for managing hydrologically connected water supplies;**

The model and hydrogeologic framework will become the basis for scientifically based decision making directly associated with implementation of the LENRD Voluntary IMP.

4. **Provide coordination of federal agencies, state agencies, local NRDs, and other water interests for the development of water resources programs and projects.**

NeDNR will be providing coordination between resource agencies during development of this project. The LENRD has already engaged NeDNR in the process.

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

Section D.

PROJECT DESCRIPTION

1. Overview

In 1,000 characters *or less*, provide a brief description of your project including the nature and purpose of the project and objectives of the project.

The modeling project includes many other objectives beyond the numerical groundwater model (i.e., MODFLOW) that will be used to simulate the flow systems and make predictions. The LENRD intends to build the best model possible, with the best possible data, so the Board of Directors is better prepared to make management decisions that benefit the long-term sustainability of groundwater aquifers, on a sub-regional and local-scale, while balancing the needs of the agricultural community. Further breakdown of the purpose of the project is as follows:

1) **Develop a groundwater flow model, supported by a robust hydrogeologic framework that includes all available valid data, in order to make water management decisions at the local-scale level,**
2) **Create a foundation for future Board of Directors to base both short-term and long-term management decisions to support a sustainable groundwater supply,**
3) **Refine boundaries of groundwater management sub-areas,**
4) **Prepare a detailed Hydrogeologic 'Map Book' that illustrates and describes the hydrogeological framework of the entire NRD,**
5) **Utilize the AEM data to its fullest benefit,**
6) **Utilize existing NeDNR regional models, specifically the Lower Platte River and Missouri River Tributary Basins (LPMT) Model, to the fullest extent,**
7) **Establish a customized model application tool to enable the LENRD to run a variety of modeling scenarios, and;**
8) **Allow for a framework for future, more detailed modeling, as needed.**

Examples of how the groundwater model may benefit local-scale water management decision include:

- **Evaluation of areas in the district where well development could expand while minimizing impact to existing water users.**
- **Evaluation of areas where allocations may be necessary due to concerns with groundwater levels and maintaining a long-term sustainable groundwater supply.**
- **Drought condition forecasting.**
- **Identifying areas where there is a higher potential risk for well interference.**
- **Evaluating how land cover changes (i.e. grass to row crop) may affect groundwater supplies.**
- **Estimating stream flow depletions.**

- **Providing information on site specific wells within areas with limited data, or aquifers anticipated to be high-risk in regard to potential well development.**

The citizens of the Lower Elkhorn Natural Resources District (LENRD) will benefit as they depend on abundant, clean water in their homes for domestic use, on their farms for agricultural production, and for their industries to maintain economic viability. Wildlife that live and migrate through the LENRD depend on clean water for sustenance and habitat. Furthermore, human inhabitants of the LENRD use water in rivers and lakes for recreation including fishing, hunting, boating, and swimming.

Since its inception in 1972, the LENRD has striven to maintain, and improve, the groundwater it is charged with protecting. Examples of the LENRD's past efforts include:

- **Millions of dollars spent on conservation and best management practices.**
- **Development of a Water Inventory Report and a water balance study to document the current understanding of the LENRD's water supplies and demands.**
- **Drafting an Integrated Management Plan in collaboration with the NeDNR and extensive local stakeholder involvement.**
- **Significant changes to the Groundwater Management Plan, Rules, and Regulations, including adding a requirement that landowners and operators using high-capacity wells (wells that pump more than 50 gpm) install a flow meter to track groundwater use and annually report flow meter readings to the LENRD.**
- **Collection of AEM throughout the entire LENRD.**
- **Certification of all irrigated acres within the LENRD.**

Despite its efforts, water quality and water quantity issues exist within the LENRD. Through years of data collection, the LENRD has identified areas impacted by unsafe nitrate levels, as well as areas at risk to low water levels during drought and times of increased well pumping. While the LENRD has taken steps to address these issues with the information currently available, the LENRD cannot fully utilize its data in its existing form.

This project will ensure that all management decisions made within the LENRD take water sustainability into account. It will also allow the LENRD to utilize all of its data, including all of the AEM data previously collected, to the fullest extent.

2. Project Tasks and Timeline

Identify what activities will be conducted by the project. For multiyear projects please list what activities are to be completed each year.

2019: The LENRD has retained a qualified consultant team, led by JEO Consulting Group, Inc. (JEO), who is fully qualified and prepared to begin the project in 2019, to begin project development. Data collection will begin in January – March. By fall 2019, the hydrogeologic framework will be completed. Winter 2019, the numerical flow model will be completed, the model application tool will be created, a map book will be created, and the model will be reviewed.

2020: The final modeling report and deliverables will be completed.

3. Partnerships

Identify the roles and responsibilities of agencies and groups involved in the proposed project regardless of whether each is an additional funding source. List any other sources of funding that have been approached for project support and that have officially turned you down. Attach the rejection letter.

The LENRD will lead development of the groundwater model, provide data, and provide funding for the project. In addition, the LENRD will contract with JEO to begin project development, provide relevant data, attend all stakeholder meetings, and be responsible for all grant reporting responsibilities.

The University of Nebraska Conservation and Survey Division (UNL CSD) will also provide data for the project, assist in reviewing data, and be involved in all stakeholder meetings and other duties as necessary.

NeDNR will collaborate with the LENRD during project development. They will also provide staff to assist in project implementation and for coordination between resource agencies during development of this project.

4. 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 project is $536,000: $321,600 funded by WSF and $214,400 funded by the LENRD. The LENRD is committed to this project in collaboration with the WSF. If funding is not obtained through WSF, the LENRD Board will have to discuss whether it is feasible to continue the project without outside financial support.

5. Support/Opposition

Discuss both support and opposition to the project, including the group or interest each represents.

There is no known opposition to the project, and it is supported by the LENRD, NeDNR, and UNL CSD.