NEBRASKA NATURAL RESOURCES COMMISSION

Water Sustainability Fund

Application for Funding

Section A.

ADMINISTRATIVE

PROJECT NAME: Village of McCool Junction – Water Quality Improvement Project

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

Sponsor Business Name: Village of McCool Junction

Sponsor Contact's Name: Brian White, Village Chairman

Sponsor Contact's Address: 323 East M Street, McCool Junction, NE 68401

Sponsor Contact's Phone: 402-724-2525

Sponsor Contact's Email: Mccoolclerk@galaxycable.net

1. **Funding** amount requested from the Water Sustainability Fund: $509,100

   Grant amount requested. $ 509,100

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

   If a loan is requested amount requested. $ N/A

   - How many years repayment period? N/A
   - 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. N/A

- What is the population served by your project? N/A
- Provide a demonstration of need. N/A
- **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☐

4. **Partnerships**

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

Upper Big Blue Natural Resource District/ Agreement is seen in ATTACHMENT 1

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

The role of the Upper Big Blue Natural Resource District will be of vital importance in the Water Quality Improvement project within the Village of McCool Junction. The project aligns with the goals and objectives outlined in the Municipal Water System Assistance Program. Upper Big Blue has agreed to provide financial assistance to the Village in support of the project which will ultimately reduce nitrate levels, creating a safer water supply for the citizens of McCool Junction.

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.

Total project cost for the project will total $848,500. This cost includes installing a new well, well house, generator, electric service, piping, and grading. This cost also includes a ten percent (10%) contingency and Engineering design and construction services. The main source of funding for this project will be from the Water Sustainability Fund. Dollars will be used for every aspect of the project; Upper Big Blue has committed a total of $16,650 which will be utilized for the installation of the new well. The remaining project cost will be secured with a municipal bond. If funding is not secured by Water Sustainability, the project will be re-evaluated by the Village Board to pursue other opportunities available to mitigate the rising levels of nitrates within the water system.

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 McCool Junction project is to drill a new well that extends into lower water bearing zones of the aquifer with low nitrate levels, extend a 6" pipeline from the new well to the existing wells to blend the water, and replace the pumps and motors in the existing wells to match the flow from the new wells so there is a 50% blending of water.

An Engineering Study was recently completed on the existing Wells, and pertinent water quality data was collected. After evaluating the data, the information allowed for a feasible recommended option and other possible alternatives to be presented to Village leaders. All recommended and proposed alternatives have opinions of probable costs associated with improving water quality to Village residents within McCool Junction. The Village has a total of two (2) Wells, both are trending upward in Nitrates. Water Quality MCL for Nitrate is 10 mg/l. Both existing Wells are above 8 mg/l. The recommended option would allow a new Well (Well #3) to be drilled from a lower water source which will then be blended to reduce the level of Nitrates creating higher water quality for all residents. In order for this to happen, McCool Junction would need to seal off portions of the aquifer at an existing confining layer in the aquifer and utilize water from a lower portion of the aquifer. The Test Well (highlighted in yellow) is included in TABLE 1, which shows a significant improvement of water quality. It is clear to see that the Village of McCool Junction is facing an imminent threat to the water supply from a high concentration of Nitrates. Funding for this project would ensure the Village can continue to provide their residents clean, potable water for years to come.

TABLE 1 - WATER QUALITY

	NEW TEST WELL (#3)	WEST WELL	EAST WELL	SMCL OR MCL	
IRON	0			300	ug/L
MANGANESE	7.77			50	ug/L
NITRATE	1.18	9.78	8.57	10	mg/L
ARSENIC	7.56	4.72	4.62	10	ug/L
URANIUM	2.43			30	ug/L
FLUORIDE	0.371	0.3	0.31	4	mg/L
HARDNESS	196	220	240		

It is recommended for the Village to proceed with constructing a well capable of providing blending water to each of the existing Wells. Site construction would include a Well with appurtenances and a control building. This project would also involve the extension of the water mains to each of the existing Wells

to blend low nitrate water with existing water. The existing well pumps and motors would need to be removed and replaced for lower volume. The proposed project will include a Variable Frequency Drive (VFD) on all Wells.

A budget summary of the major components is shown in **TABLE 2** below.

TABLE 2. BUDGET SUMMARY

Item No.	Item Description	Total Estimated Quantity	Unit	Unit Price	Total Price	W.S.F.	Local Match
1	Mobilization	1	L.S.	$ 25,000.00	$ 25,000.00	$ 15,000.00	$ 10,000.00
2	Furnish & Install Well & Well House	1	Each	$ 350,000.00	$ 350,000.00	$ 210,000.00	$ 140,000.00
3	Abandon Test Well	1	Each	$ 1,500.00	$ 1,500.00	$ 900.00	$ 600.00
4	Remove and replace pump in existing wells	2	Each	$ 30,000.00	$ 60,000.00	$ 36,000.00	$ 24,000.00
5	Furnish and Install SCADA modifications for Blending and new well	1	LS	$ 35,000.00	$ 35,000.00	$ 21,000.00	$ 14,000.00
6	Furnish and Install Generator	1	LS	$ 45,000.00	$ 45,000.00	$ 27,000.00	$ 18,000.00
7	New Electric Service	1	LS	$ 5,000.00	$ 5,000.00	$ 3,000.00	$ 2,000.00
8	Blending Pit	1	LS	$ 10,000.00	$ 10,000.00	$ 6,000.00	$ 4,000.00
9	Furnish and Install C 900 DR 18 PVC Pipe						
	a) 6" Diameter	2,500	L.F.	$ 30.00	$ 75,000.00	$ 45,000.00	$ 30,000.00
10	Furnish and Install Gate Valve & Valve Box, complete and in-place						
	a) 6" Diameter	4	Each	$ 1,400.00	$ 5,600.00	$ 3,360.00	$ 2,240.00
11	Furnish and Install Fittings, complete in place						
	a) 6" Tee	2	Each	$ 700.00	$ 1,400.00	$ 840.00	$ 560.00
	b) 6" 90 Degree Bend	6	Each	$ 500.00	$ 3,000.00	$ 1,800.00	$ 1,200.00
12	Furnish and Install Water Services complete	6	Each	$ 1,500.00	$ 9,000.00	$ 5,400.00	$ 3,600.00
	6" Water Main Connection	2	Each	$ 1,000.00	$ 2,000.00	$ 1,200.00	$ 800.00
13	Bore & Jack 12" Steel Casing	80	L.F.	$ 250.00	$ 20,000.00	$ 12,000.00	$ 8,000.00
14	Gravel Surfacing	420	Ton	$ 25.00	$ 10,500.00	$ 6,300.00	$ 4,200.00
15	White Rock Surfacing	200	tons	$ 65.00	$ 13,000.00	$ 7,800.00	$ 5,200.00
16	Sidewalk Replacement	200	SF	$ 10.00	$ 2,000.00	$ 1,200.00	$ 800.00
17	Furnish, Install, & Maintain Erosion Control Items						
	a) Silt Fence	200	L.F.	$ 10.00	$ 2,000.00	$ 1,200.00	$ 800.00
	b) Seeding Type B	1.5	AC	$ 2,500.00	$ 3,750.00	$ 2,280.00	$ 1,520.00
	Contingency (10%)				$ 67,900.00	$ 40,740.00	$ 27,160.00
	Engineering (Design & Construction Services 15%)				$ 101,800.00	$ 61,080.00	$ 40,720.00
	TOTAL				$ 848,500.00	$ 509,100.00	$ 339,400.00

Prepared by: Miller & Associates Consulting Engineers, P.C., 8/31/2018 *120-C1-006*

According to the Nebraska Water Funding Task Force Strategic Plan and Recommendations Report mitigating threats to drinking water is identified as a high priority across the State of Nebraska. See **ATTACHMENT 2**. The Village of McCool Junction is committed to getting this project completed within a reasonable timeframe as it concerns the health and safety of all those who utilize the water system.

7. Project Tasks and Timeline

Identify what activities will be conducted to complete the project, and the anticipated completion date.

The Project Timeline shown below in **Table 3** identifies project milestones and estimated monthly expenses from project design through project completion. Work will take place over the FY 2020 to FY 2021. The project Engineer will work closely with contractors to ensure the project is completed on time and within budget.

TABLE 3. PROJECT TIMELINE

FY 2020	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
McCool Junction Water Quality Improvement Project										
Phase I – Design										
Phase II – Bidding/Negotiation										
Phase III – Construction (Well, Well House, Transmission Line Installation)										
Phase IV – Project Closeout										
Phase V – Oversight, Analysis, and Reporting										
Estimated Monthly Expenses	$9,000	$9,000	$9,000	$9,000	$30,000	$120,000	$120,000	$120,000	$120,000	$120,000
Cumulative Monthly Expenses	$9,000	$18,000	$27,000	$36,000	$66,000	$186,000	$306,000	$426,000	$546,000	$666,000

FY 2021	Jan-21	Feb-21	Mar-21	Apr-21						
McCool Junction Water Quality Improvement Project										
Phase I - Design										
Phase II – Bidding/Negotiation										
Phase III- Construction (Well, Well House, Transmission Line Installation)										
Phase IV - Project Closeout										
Phase V – Oversight, Analysis, and Reporting										
Estimated Monthly Expenses	$45,625	$45,625	$45,625	$45,625						
Cumulative Monthly Expenses	$711,625	$757,250	$802,875	$848,500						

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

See **ATTACHMENT 3** for a completed Feasibility Report.

1.A.2 Describe the plan of development (004.01 A);

The Village of McCool Junction has been seeing an increase in Nitrate levels over the past 10-years. In order to stay in compliance with the State and continue to provide safe water to village residents, an evaluation needed completed on the existing wells to determine a feasible course of action. The Village Board chose to investigate lower water bearing zones of the aquifer. A plan was developed to drill test holes and a test well to determine if the lower water bearing zones of the aquifer would provide a sufficient volume for supply and satisfactory water quality. The Well logs for the existing two supply wells went through the upper water bearing zone and stopped after passing through what appeared to be a thin clay layer. The plan that was developed included drilling a test hole in the vicinity of each of the supply wells and a test well approximately midway between the two supply wells. The test holes are to be extended into the lower water bearing zone to determine the thickness of the confining layer below the upper water bearing zone and the lower zones. The test well will extend below the upper zone into the lower zone for aquifer testing and water quality sampling. As testing results were evaluated by the Engineer, three options were presented to the Board. In December of 2018 the Board chose to pursue funding to address the high nitrate problem in their water supply. This option utilizes the existing wells which are in good condition to help reduce project cost and the location of the new supply well for blending has known aquifer conditions as well as good water quality. This option will provide a long-term solution to the Village's water supply and water quality needs, as wells as have flexibility for future needs.

1.A.3 Include a description of all field investigations made to substantiate the feasibility report (004.01 B); **expand on details outlined in the Engineering Report*

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

See **ATTACHMENT 4** for project area Map and Water Quality Charts.

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

Currently, McCool Junction Area Rural Area Fire Department owns the land where Well #3 will be located. Once funding is secured for the project, a standard Interlocal Agreement will be implemented with the Village and the Rural Fire Department. The Village does not foresee any complications with this process.

1.A.6 Discuss each component of the final plan (004.01 E);

In July of 2018, the test well project was bid and work began on installing the test holes and test well. Test Hole #1 near the west supply well extended through the upper water-bearing zone, approximately forty feet of clay and only 10' of the water-bearing zone below the confining layer. Test Hole # 2 near the east production well was similar except the lower water-bearing zone was approximately 30' thick. Test Well #3 midway between the two supply wells also had a 40' thick clay layer separating the upper water-bearing zone from the lower zone but the lower water-bearing zone was approximately 40' thick. The test well was pumped at 396 gpm for 24 hours and the production wells were monitored during that time and no influence was seen from the test well pumping. Water quality testing was done and the Nitrates were 1.18, Iron 0 and Manganese 7.77. Typically, the lower water-bearing zones are high in Manganese and Iron but the water quality from the test well didn't show high levels in either constituent.

The Village reviewed the information from the test well project and was interested in looking at options for blending the water from the existing wells with water from new wells that extend into the lower water-bearing zone as well as replacement of the existing wells so all supply is from the lower water-bearing zone. The tables below show a model of the blended water quality with 50% blend from each of the water-bearing zones of the aquifer.

Blended WQ w/Well #1			**Below SMCL/MCL**
iron	5.00	ug/L	**yes**
manganese	8.89	ug/L	**yes**
nitrate	5.04	mg/L	**yes**
arsenic	6.14	ug/L	**yes**
Uranium	1.72	ug/L	**yes**

Blended WQ w/Well #2			**Below SMCL/MCL**
iron	5.00	ug/L	**yes**
manganese	8.89	ug/L	**yes**
nitrate	4.79	mg/L	**yes**
arsenic	6.09	ug/L	**yes**
Uranium	1.72	ug/L	**yes**

Three options were identified to pursue for further consideration. The first two options are for blending of the water from the lower and upper water-bearing zone and a third option to replace the existing wells so all supply would be from the lower water-bearing zone. The first two options are to blend 50% of the water from the upper water-bearing zone and 50% from the lower water-bearing zone. The first option is to install two smaller supply wells in the vicinity of the existing supply wells. Replace the pumps and motors in the existing wells to reduce their production capabilities to half of their original capacity and

blend the water from the existing well with the new well at each location. This approach is the cheapest of the three options but the concern was the ability of the new west well to meet the capacity needed with such a narrow water-bearing zone. Also, the water quality at the test hole locations is unknown.

The second option for blending water from the two aquifer zones is to drill a supply well at or near the location of Test Well #3 and extend piping to each of the existing wells for blending. The new well would be able to supply 620 gpm for blending with each of the existing wells. As part of the project, the existing pumps and motors would be replaced and the new pumps and motors would have half the original capacity of the wells. This option has a higher cost than the first option but the aquifer conditions and water quality is known.

The third option is to drill two new supply wells to replace the existing wells. One well would locate in the vicinity of Test Well #3 and the second well would be located near the east supply well. Both new wells would supply water from the lower water-bearing zone and would replace the existing supply wells. This option is the most expensive and the water quality from a new well near the existing east supply well is unknown.

In December of 2018, the Board chose to pursue funding for Option Number two to address the high nitrate problem in their water supply. This option utilizes the existing wells which are in good condition to help reduce project costs and the location of the new supply well for blending (Test Well #3) has known aquifer conditions as well as good water quality. This option will provide a long-term solution to the Village's water supply and water quality needs as well as have the flexibility for future needs.

1.A.7 When applicable include the geologic investigation required for the project (004.01 E 1); N/A

1.A.8 When applicable include the hydrologic data investigation required for the project (004.01 E 2); N/A

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). N/A

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

1.B.1 Insert data necessary to establish technical feasibility (004.02); N/A

1.B.2 Discuss the plan of development (004.02 A); N/A

1.B.3 Describe field or research investigations utilized to substantiate the project conception (004.02 B); N/A

1.B.4 Describe any necessary water and/or land rights (004.02 C); N/A

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). N/A

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.

Two alternatives were considered for the project that was not recommended by the Engineer. Option 2 involved installing two new Wells near the existing production Wells. The project scope would involve the construction of two (2) smaller Wells (12" casing) with approximately 50% current capacity of the existing Well. Connect Wells to the existing system within of near the Well House for each of the Wells. Remove and replace the existing pumps and motors with lower volume. Include VFD's on all Wells. There are several pros and cons to this alternative. Pros: Wells will be located in the vicinity of the existing Wells so controls can be put in or adjacent to existing buildings; operation costs are similar to the existing system; Minimal impacts to community; smaller Wells with less volume equates to less cost. Although there are many pros to this alternative, there are several cons. Con's for this project alternative include the following: unknown aquifer conditions and water quality; depth of water-bearing zone is less than test Well (Test hole #1 (west) 15' and Test hole #2 (east) 30'); Thinner water-bearing zones limit available pumping capacity; Available pumping volume is unknown; lower volume Wells could not be converted to production Well at a later date so existing Wells would have to remain in service; project would require additional costs to determine aquifer conditions and water quality. Total project cost for alternative option #2 is estimated at $623,800. Alternative #3 proposes to construct two new production Wells with one being near the test Well location and the second near the east production well; take West Well off-line after completion of the project; Include VFD's on all Wells; the pro's associated with Option #3 consists of the replacement of the existing Wells which have been in service for almost 40-years; Operation costs are similar to the existing system; the project alternative will have minimal impact on the community. This alternative also has associated con's which include the following; unknown aquifer conditions and water quality for the east Well; Depth of water-bearing zone is less than the test Well (test hole #2 (east)30'); Water bearing zone may limit available pumping capacity; additional cost to determine aquifer conditions and water quality. Total project cost for Alternative Option #3 is estimated a $1,032,500.

3. Document all sources and report all **costs** and **benefits 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, up to fifty (50) years; *or*, with prior approval of the Director up to one hundred (100) years, (Title 261, CH 2 - 005). Click here to enter text.

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 estimated cost for the Water Quality Improvement Project totals $848,500. See **Table 4** below for a breakdown of costs for each phase.

TABLE 4. BREAKDOWN OF COST

Description	Cost Estimate
Phase I – Design	$36,000
Phase II – Bidding/Negotiation	$15,000
Phase III – Construction	$736,875
Phase IV – Project Closeout	$45,625
Phase V – Oversight, Analysis, and Reporting	$15,000
TOTAL	**$848,500**

This cost includes engineering, inspection costs, and capital construction costs. The projected life of the project is 50+ years as once water is blended with the lower aquifer; nitrates will not be able to penetrate 40' into the soil.

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).

As water quality issues continue to be a rising problem across the State of Nebraska, the Village of McCool Junction continually monitors and tests the Wells. This data will serve as a baseline to measure any improvements with the levels of Nitrates or any other contaminates. The proposed project will increase water the water quality for an extended amount of time, if not indefinitely. As shown with the recent testing of Test Well #3. This recommended alternative was proven to be the most economically feasible project over the course of time, as it has the longest lifespan. All costs benefits are outlined in the attached report.

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).

As shown in the attached feasibility report, all costs associated with project will benefit the Village of McCool Junction over the course of fifty + years. The selected project capital items include fees, permitting, bidding, oversight, Well construction, testing, analysis and reporting. O&M includes operation and maintenance fees and equipment replacement costs.

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.)

Below is the cost estimate for the next best alternative. As the Engineer and Village Board evaluated the project scope and lifeline, it was determined this alternative was not the most feasible over the course of time, as there are other additions that would need to occur. See the attached report for further details on project alternatives.

McCool Junction Water Well Project
Estimated Quantities and Cost Approximation

Item No.	*Item Description*	*Total Estimated Quantity*	*Unit*	*Unit Price*	*Total Price*
	West Well				
	Mobilization	1	L.S.	$ 8,000.00	$ 8,000.00
	Confirmation Test Hole	1	LS	$ 2,000.00	$ 2,000.00
	Furnish & Install Well w/12" Casing & Submersible Pump	1	Each	$125,000.00	$ 125,000.00
	Furnish & Install Pitless Adapter and Electrical Service	1	LS	$ 30,000.00	$ 30,000.00
	Remove & Replace Pump in Existing Well	1	LS	$ 30,000.00	$ 30,000.00
	Blending Piping	1	LS	$ 15,000.00	$ 15,000.00
	Water Testing	1	LS	$ 7,000.00	$ 7,000.00
	Test Well Drilling and Pumping	1	LS	$ 25,000.00	$ 25,000.00
	Subtotal				**$ 242,000.00**
	East Well				
	Mobilization	1	L.S.	$ 8,000.00	$ 8,000.00
	Confirmation Test Hole	1	LS	$ 2,000.00	$ 2,000.00
	Furnish & Install Well w/12" Casing & Submersible Pump	1	Each	$105,000.00	$ 105,000.00
	Furnish & Install Pitless Adapter and Electrical Service	1	LS	$ 30,000.00	$ 30,000.00
	Remove & Replace Pump in Existing Well	1	LS	$ 30,000.00	$ 30,000.00
	Blending Piping	1	LS	$ 15,000.00	$ 15,000.00
	Water Testing	1	LS	$ 7,000.00	$ 7,000.00
	Test Well Drilling and Pumping	1	LS	$ 25,000.00	$ 25,000.00
	Subtotal			.	**$ 222,000.00**
	Scada system Upgrades	1	LS	$ 35,000.00	$ 35,000.00
	Contingency (10%)				$ 49,900.00
	Engineering (Design & Construction Services 15%)				$ 74,900.00
	Total				**$ 623,800.00**

Prepared by: Miller & Associates Consulting Engineers, P.C.,11/19/2018 120-C1-006

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.

   The Village of McCool Junction is prepared to provide the matching portion of the Water Quality Improvement Project. Currently, the Village has partnered with the Upper Big Blue Natural Resource District who has committed to a total of $16,650 in support of the project. As seen in the attached Agreement with the NRD. the Village intends to use municipal bonds alongside the NRD funds to cover all matching funds. The Village does have a current surplus in their water fund, and passed Ordinance NO. 2019-407 which established revised water and sewer rates until 2021. This rate increase along with the surplus of funds will ensure all project costs are covered.

5. Provide evidence that sufficient annual revenue is available to repay the reimbursable costs and to cover OM&R (operate, maintain, and replace).

   See **ATTACHMENT 5** for Ordinance No. 2019-407 establishing increased rates through 2021.

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.).

   The project is located within the corporate boundaries of McCool Junction. The project will not have an impact on any endangered, nesting/migration of species. Construction is estimated to begin Fall of 2020 which will cause a limited impact on the natural environment.

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

   The Village of McCool Junction has a qualified water operator, Jim Green, who is capable of handling all reporting and monitoring the existing and proposed new Well. Mr. Green will provide overall; project leadership and oversight, working with local contractors, Village leaders, and community stakeholders. He has years of experience in utility management involving wastewater, solid waste, and drinking 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 in particular follows the goals and objectives outlined within the Nebraska Water Funding Task Force as well as the the Integrated Management Planning (IMP) guide established by the Upper Big Blue Natural Resource District. See **ATTACHMENT 6** for details on the Upper Big Blue IMP's.

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. N/A

10.B Attach proof of ownership for each easements, rights-of-way and fee title currently held.
N/A

10.C Provide assurance that you can hold or can acquire title to all lands not currently held.
N/A

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

The Village of McCool Junction has the authority and obligation to provide its residents with basic drinking water services which meet all water quality standards established by the State. This includes the development and operation of the public water supply.

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, 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 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.

McCool Junction is a Village in York County, Nebraska. The population was 409 at the 2010 Census, and 428 according to the 2018 population estimate. Over the last 10-years, Village leaders have been monitoring water quality and watching the level of Nitrates rise. The Village is needing to address this statewide problem of rising Nitrates, as soon as possible, in order to stay in compliance and most importantly continue to provide safe drinking water to the residents of McCool Junction. Funding for this project will allow for the installation of a new third Well, which will mitigate high Nitrates for a substantial amount of time. If the project is not funded, water quality will continue to decline which will compromise the health of residents. Village leaders want to take a proactive stance and address water quality before it becomes a real health concern for the community.

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.

   McCool Junction is a part of the Upper Big Blue's "1 District, 2 Plans, 1 Water" plan. In January of 2018 the Board of Directors authorized the development of two unique water management plans, a Water Quality Management Plan and a Voluntary Integrated Management Plan. A water quality plan and a water quantity plan will be written in partnership with the Nebraska Department of Environmental Quality, the Nebraska Department of Natural Resources, and the NRD. The Water Management Quality Plan has involved public stakeholders to identify surface water and groundwater quality issues and how to solve them. The plan will be completed by September 2019. The District has also entered into an Agreement with the Nebraska Department of Natural Resources to prepare a Voluntary Integrated Management Plan. The planning effort will look at the relationship between groundwater and surface water use in the District. A Technical Advisory Committee has been established, and is comprised of officials from various agencies representing water governance. A Stakeholder Advisory Committee has also been established and is a geographical & vocational representation of groundwater and surface water irrigators, municipalities, ag business, public health & safety, and other concerned citizens of the District. These two groups will continue to meet over the next years to assist with the planning process. The Village of McCool Junction's Water Quality Improvement Project takes a proactive approach to mitigating Nitrate levels in their drinking water, as well as aligns with the overall goals and objectives of the Water Quality/Quantity Plans established with the local NRD and other partners.

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 project will not include any recharge or aquifer depletion as the water will be blended with the existing Wells and proposed Well #3. No change to the aquifer is expected. Overall benefits will be to the residential and industrial users.

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.

Overall benefits to the residential and industrial users of the McCool Junction water system includes providing a quality water source for all residents. The community serves a total of 409 people according to the 2010 Census. The proposed Water Improvement Project will provide quality water for a lifespan of over 50 years. If nothing is done to address the growing Nitrates in McCool Junction's water, the existing Wells will be placed on administrative order and possibly be decommissioned. This would force the Village to find an alternative water source, further increasing costs.

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.

   As mentioned before, this project addresses a statewide problem of growing nitrates. If funded, the project will mitigate Nitrates in the Village of McCool Junctions drinking water supply, reducing the footprint of Nitrates across the State.

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 project costs are proposed in the table below. There is no expected land and water acquisition costs associated with the project. All costs comparisons are outlined within the attached report.

Item No.	Item Description	Total Estimated Quantity	Unit	Unit Price	Total Price	W.S.F.	Local Match
1	Mobilization	1	L.S.	$ 25,000.00	$ 25,000.00	$ 15,000.00	$ 10,000.00
2	Furnish & Install Well & Well House	1	Each	$ 350,000.00	$ 350,000.00	$ 210,000.00	$ 140,000.00
3	Abandon Test Well	1	Each	$ 1,500.00	$ 1,500.00	$ 900.00	$ 600.00
4	Remove and replace pump in existing wells	2	Each	$ 30,000.00	$ 60,000.00	$ 36,000.00	$ 24,000.00
5	Furnish and Install SCADA modifications for Blending and new well	1	LS	$ 35,000.00	$ 35,000.00	$ 21,000.00	$ 14,000.00
6	Furnish and Install Generator	1	LS	$ 45,000.00	$ 45,000.00	$ 27,000.00	$ 18,000.00
7	New Electric Service	1	LS	$ 5,000.00	$ 5,000.00	$ 3,000.00	$ 2,000.00
8	Blending Pit	1	LS	$ 10,000.00	$ 10,000.00	$ 6,000.00	$ 4,000.00
9	Furnish and Install C 900 DR 18 PVC Pipe						
	a) 6" Diameter	2,500	L.F.	$ 30.00	$ 75,000.00	$ 45,000.00	$ 30,000.00
10	Furnish and Install Gate Valve & Valve Box, complete and in-place						
	a) 6" Diameter	4	Each	$ 1,400.00	$ 5,600.00	$ 3,360.00	$ 2,240.00
11	Furnish and Install Fittings, complete in place						
	a) 6" Tee	2	Each	$ 700.00	$ 1,400.00	$ 840.00	$ 560.00
	b) 6" 90 Degree Bend	6	Each	$ 500.00	$ 3,000.00	$ 1,800.00	$ 1,200.00
12	Furnish and Install Water Services complete	6	Each	$ 1,500.00	$ 9,000.00	$ 5,400.00	$ 3,600.00
	6" Water Main Connection	2	Each	$ 1,000.00	$ 2,000.00	$ 1,200.00	$ 800.00
13	Bore & Jack 12" Steel Casing	80	L.F.	$ 250.00	$ 20,000.00	$ 12,000.00	$ 8,000.00
14	Gravel Surfacing	420	Ton	$ 25.00	$ 10,500.00	$ 6,300.00	$ 4,200.00
15	White Rock Surfacing	200	tons	$ 65.00	$ 13,000.00	$ 7,800.00	$ 5,200.00
16	Sidewalk Replacement	200	SF	$ 10.00	$ 2,000.00	$ 1,200.00	$ 800.00
17	Furnish, Install, & Maintain Erosion Control Items						
	a) Silt Fence	200	L.F.	$ 10.00	$ 2,000.00	$ 1,200.00	$ 800.00
	b) Seeding Type B	1.5	AC	$ 2,500.00	$ 3,750.00	$ 2,280.00	$ 1,520.00
	Contingency (10%)				$ 67,900.00	$ 40,740.00	$ 27,160.00
	Engineering (Design & Construction Services 15%)				$ 101,800.00	$ 61,080.00	$ 40,720.00
	TOTAL				$ 848,500.00	$ 509,100.00	$ 339,400.00

- Identify the potential value of cost savings resulting from completion of the project.
- Describe the benefits for public security, public health and safety.

Reducing Nitrates within the Village of McCool Junction's water supply is a necessary measure that the Village Board needs to address to reduce any health and safety concerns over an extended period of time. Public health and safety are the upmost priority for Village leaders and local stakeholders.

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 Water Quality Improvement project will be addressing the high Nitrates within the Village's drinking water supply. The attached Engineering report gives data showing the numbers of Test Well #3 compared to the existing conditions. The proposed project will create a safer system for years to come.

There are other solutions that would remedy the high nitrate levels, but those options are more costly. This is the first professional evaluation completed on the Well to address 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.

Water rates were recently increased in anticipation of addressing improvements to the Water System. Other funding sources have been identified as the local Upper Big Blue Natural Resource District, Municipal Bonding, and the Water Sustainability Fund.

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.

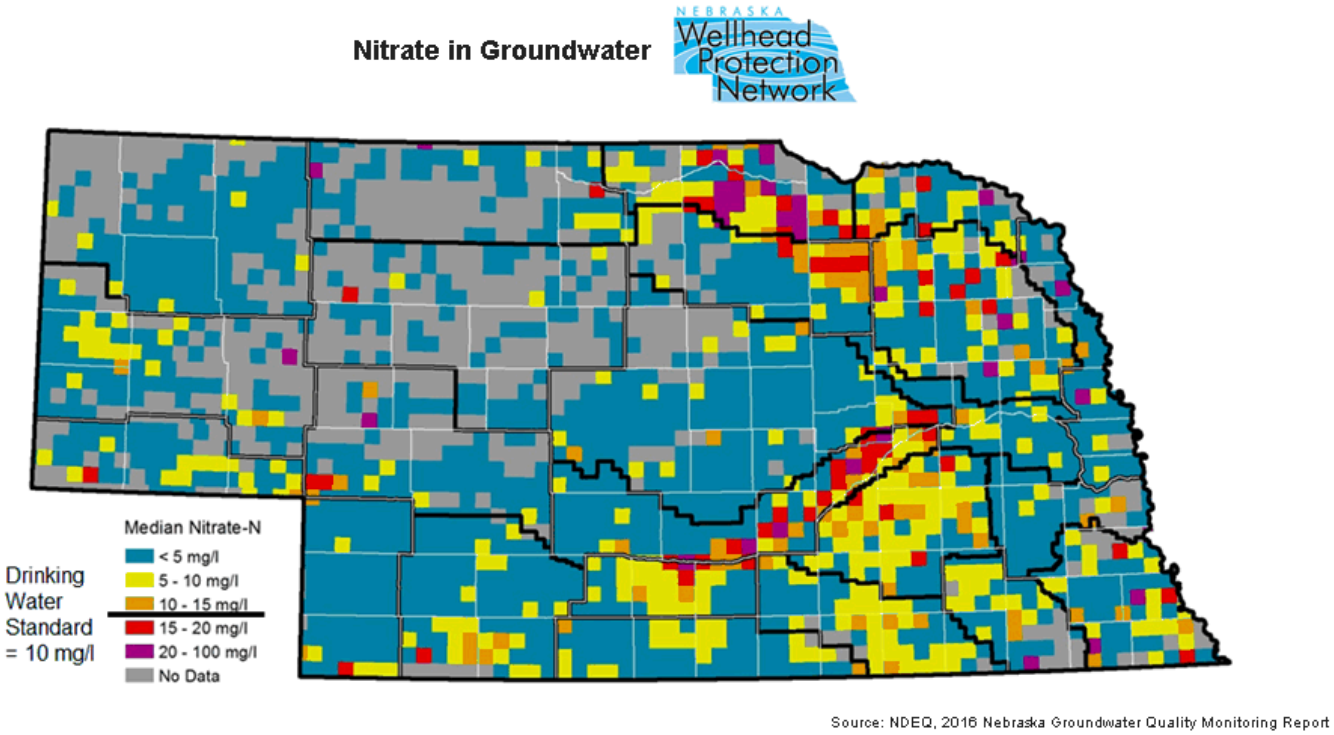
The Village of McCool Junction has been involved with the planning and participation of the IMP plan being established by Upper Big Blue NRD which will establish local long-term goals associated with water quality and water management solutions.

As previously mentioned, McCool Junction has a population of 409 at the 2010 Census. The impact of the project will be substantial for many generations to come, as the lifespan of the project will reduce Nitrates for a 50+ years. Over the course of time, the project will reduce costs and increase the health of all residents and visitors alike.

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.

The State of Nebraska has a growing Nitrate problem as seen the the map below from the Nebraska Groundwater Quality Management Report.



Source: NDEQ, 2016 Nebraska Groundwater Quality Monitoring Report

The Village is taking preventative measures to stay in compliance with the State as well as making sure the community has safe reliable drinking water.

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.

See attached documents for letters of financial commitment for the proposed 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.

N/A

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.

This proposed project is not associated with Hydrologically connected water supplies. Therefore, the above referenced questions are not applicable to this project.

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