

NEBRASKA NATURAL RESOURCES COMMISSION

Water Sustainability Fund

Application for Funding

Section A.

ADMINISTRATIVE

PROJECT NAME: Sargent Flood Resiliency Project

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

Sponsor Business Name: Lower Loup NRD

Sponsor Contact's Name: Russ Callan

Sponsor Contact's Address: 2620 Airport Drive

Sponsor Contact's Phone: 308-728-3221

Sponsor Contact's Email: rcallan@lnrd.org

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

Grant amount requested. \$ 858,290

- If requesting less than 60% cost share, what %? 16%

If a loan is requested amount requested. \$ 0

- How many years repayment period? N/A
- Supply a complete year-by-year repayment schedule. N/A

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 ☐

Nebraska Game and Parks Commission Letter (Attachment A.1)

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 ☐

The project will require coordination with the Nebraska DOT on a new structure for Highway 183.

4. **Partnerships**

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

City of Sargent; Reece Jensen, City Administrator, 106 North 2nd Street; PO Box 40, Sargent, NE 68874

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 LLNRD and City of Sargent are both funding partners for the Sargent Flood Resiliency Project. The LLNRD is acting as lead agency, as they have the technical expertise to oversee a flood control project of this size. The community of Sargent will provide funding and in-kind services on an as-needed basis. Attachment A.2 documents agreements to sponsor the project financially.

5. Other Sources of Funding

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

The project costs are summarized in the images below. Attachment A.1 is a Location Map identifying the project components.

Project costs that are not covered by a Water Sustainability Fund (WSF) grant will be paid for through a FEMA Hazard Mitigation Grant as well as matching funds from the LLNRD and the City of Sargent. The Nebraska Emergency Management Agency (NEMA) has prioritized the Sargent Flood Resiliency Project for HMGP funding, with confirmation of funding expected between September and December 2022. Funding amounts from the LLNRD and City of Sargent has been confirmed (see Attachment A.2).



**Phase 1
Drainage Improvements**

Item	Edith Street Culvert	Quantity	Unit	AUP	Total
1	Construct/Install 1@6'x2.5' RCB Culverts	87	LF		\$66,555.00
2	Concrete Pavement Replacement	51	SY		\$6,375.00
3	Erosion Control	1	LS		\$1,000.00
					\$73,930.00
Item	Della/Main Street Storm Sewer	Quantity	Unit	AUP	Total
1	Removal	700	LF		\$17,500.00
2	Construct/Install 2@7'x4.5' RCB Culverts	700	LF		\$847,000.00
3	Concrete Pavement Replacement	212	SY		\$26,500.00
4	Erosion Control	1	LS		\$7,000.00
					\$898,000.00
Item	Anna Street Culverts	Quantity	Unit	AUP	Total
1	Removal	320	LF		\$8,000.00
2	Construct/Install 2@7'x4.5' RCB Culverts	320	LF		\$393,600.00
3	Concrete Pavement Replacement	34	SY		\$4,250.00
4	Erosion Control	1	LS		\$3,500.00
					\$409,350.00
				Sub-Total	\$1,381,280.00
				Mobilization	15%
				Subtotal Construction	\$1,588,472.00
				Contingency	20%
				Total Construction	\$1,906,166.40
				Engineering and Permitting	\$190,616.64
				Total Project Cost	\$2,096,783.04



Phase 2
Diversion Channel

Item	Quantity	Unit	AUP	Total
1 Earthwork (Excavation)	153698	CY	\$5.00	\$768,490.00
2 HWY 183 Structure	100	LF	\$2,900.00	\$290,000.00
3 East Main Street Structure	65	LF	\$3,070.00	\$199,550.00
4 Canal Siphon	1	LS	\$450,000.00	\$450,000.00
5 Seeding and Mulching	47	AC	\$1,500.00	\$70,500.00
Sub-Total				\$1,778,540.00
Mobilization				15%
Subtotal Construction				\$2,045,321.00
Contingency				20%
Total Construction				\$2,454,385.20
Engineering and Permitting				\$245,438.52
6 Land Acquisition	47	AC	\$5,000.00	\$235,000.00
Total Project Cost				\$2,934,823.72

Sargent Drilling
INDUSTRIAL ENGINEERING
COMPLETE MUNICIPAL AND INDUSTRIAL
PUMPS AND WELL SERVICE

Box 627
263 South 23rd Street

Broken Bow, Nebraska
68822

Phone
(308) 872-5125
FAX (308) 872-3050

January 25, 2022

Olsson & Associates

RE: Sargent, NE Dewatering Well

ATTN: Carrie Romero

Budget pricing for a 100' PVC X Stainless Steel dewatering well with pitless unit, pump, motor, wire, drop pipe, VFD, meter pit, some piping and electrical - \$150,000.00 to \$160,000.00.

Regards,

Shad Yarrington

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!

Frequent flood events have plagued the community of Sargent over the course of the city's history. Located within the Middle Loup River basin, the city is not in the floodplain of the river, but local surface water runoff and a high water table through the city has caused recurrent damages to homes and businesses, along with the road infrastructure. In the spring and summer, precipitation events regularly overwhelm the drainage ditches and sewer system. The current City of Sargent drainage system can only convey precipitation events smaller in size than the 2-yr flood event. The local HMGP notes that the storm sewer system in Sargent cannot handle all the water and frequent roadway and basement flooding occurs due to surface water and groundwater inundation. Significant recent floods occurred in summer 2010; and March and July 2019. Limited information on past damages is available, beyond media and personal accounts. However, there are reports of wet basements across the community; several homes were left uninhabitable after the 2019 precipitation events; and important economic development in the community is at risk unless the widespread drainage problems can be mitigated. A feasibility study (Sargent Drainage Report, Olsson 2020) evaluated the flood risk and mitigation options in Sargent. The Sargent Flood Resiliency Project emerged from the feasibility study, with the objective of mitigating high ground water elevations and improving the performance of the storm drainage system in the community. The intent of the project is to protect Sargent from the 100-year flood (1% annual chance) event.

The project consists of three components to reduce flooding frequency. The first component includes improvements within the city limits that enlarge three culverts and storm sewers. A fourth culvert is currently in design and is being replaced using CBDG funds. The second component is the creation of a new diversion channel north and east of town to provide the community with protection from flooding for up to 100-year event. This diversion channel will

intercept runoff from the contributing drainage area north of the town and divert it to the Middle Loup River without passing through the community. Upon completion of these first two components of the Sargent Flood Resiliency Project, the drainage structures within the community will be able to contain runoff from the 100-year precipitation event. A third component is the installation of up to 5 dewatering wells north of the community, which will be used to lower the groundwater elevation over time, and therefore reduce repetitive damages from high groundwater levels and return groundwater to a beneficial use by directing it to the Middle Loup River, and ultimately to the lower Platte River.

7. Project Tasks and Timeline

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

For multiyear projects please list (using the following example):

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

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

This project is proposed as a phased project with Phase 1 consisting of engineering design and permitting and Phase 2 consisting of construction. Phase 1 will be completed over the course of the first year and Phase 2 will occur over years 2 and 3. Year 1 will include the completion of the grant agreement; project engineering and design; project permitting; and land acquisition. Year 2 will include construction mobilization, demolition and removal of the existing drainage structures at Anna Street, Della and Main Streets, and Edith Street; construction of the new culverts at each site and reconstruction of the roads and drainage ditches; and developing the dewatering wells. Year 3 will include the completion of the drainage structure improvements. Year 3 will also include construction of diversion channel and associated culverts at Highway 183 and East Main Street. A canal siphon for the diversion channel will be constructed, and post-construction site stabilization for the diversion channel will be completed in year 3.

Tasks	Year 1	Year 2	Year 3	Total \$ Amt.
Engineering and Permitting	\$394,902	\$0	\$0	\$394,902
Mobilization	\$0	\$327,041	\$163,521	\$490,562
Construct Replacement Culvert at Anna Street	\$0	\$423,677	\$0	\$423,677
Construct Replacement Storm Sewer between Della and Main Streets	\$0	\$929,430	\$0	\$929,430
Construct Replacement Culvert at Edith Street	\$0	\$76,518	\$0	\$76,518
Diversion Channel Land Acquisition	\$121,613	\$121,612	\$0	\$243,225
Drilling of Dewatering Wells	\$0	\$750,000	\$0	\$750,000
Diversion Channel Earthwork	\$0	\$0	\$868,355	\$868,355
Highway 183 Culvert for Diversion Channel	\$0	\$0	\$300,150	\$300,150
Main Street Culvert for Diversion Channel	\$0	\$0	\$206,534	\$206,534
Construction of Canal Siphon	\$0	\$0	\$465,750	\$465,750
Total				\$5,149,103

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

[\(Applicant must demonstrate compliance with Title 261, CH 2 - 004\)](#)

- 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; **The Sargent Drainage Report (Olsson 2020) is attachment A.3.**
- 1.A.2 Describe the plan of development [\(004.01 A\)](#); **The Sargent Flood Resiliency Project consists of three components to reduce flooding events. General**

locations of the improvements are shown in Figure 1 Sargent Flood Resiliency Project Location Map (attached). The first component includes improvements within the city limits that enlarge three culverts and storm sewers. The culverts are located on Edith Street, Della/Main Street, and Anna Street. The drainage structure at Edith Street would be enlarged from 1 @ 6-ft by 2.5-ft concrete box culvert (CBC) to 2 @ 6-ft by 2.5-ft CBC. The Della/Main Street structure would be enlarged from 1 @ 54" concrete pipe culvert (CPC) to 2 @ 7-ft by 4.5-ft CBC. The Anna Street structure would be enlarged from 2 @ 42" CPC to 2 @ 7-ft by 4.5-ft CBC. The second component includes grading a new diversion channel north and east of town. The diversion channel alignment is proposed to skirt the corporate limits of Sargent, running east from Sargent's main drainage ditch before passing below Highway 183 and roughly following the former railroad track alignment on the northeast side of the city; then turning directly south at East Main Street and routing runoff to the Middle Loup River. In order to reach the Middle Loup River, a canal siphon will be required at the intersection of the proposed diversion channel and the Middle Loup Irrigation District Canal No. 2. Both of these components of the project must be constructed for the city to see effective mitigation of both small and large flood events. The Sargent Drainage Study Report (Attachment A.3) includes details on how flow patterns will change in the community and illustrates those changes relative to the regulatory floodplain. The third component will drawdown groundwater levels by installing dewatering wells on the north side of the community (Attachment B.5). When running continuously, each of the up to 5 wells can pump 20 acre-ft of water per month. This pumped water will be directed to the diversion channel. Groundwater modeling indicates that over a 5 year period, water elevations could be reduced between 12 and 24 feet within Sargent. This will improve wet conditions in the community that result in wet basements and failing foundations. Additionally, the groundwater converted from storage to beneficial use will help meet the water sustainability goals and objectives of the Lower Platte River Basin Coalition Basin-wide Water Management Plan, covering 1/3 of the state of Nebraska. Once implemented, this project in Sargent will result in credit back to the Lower Platte River Basin Coalition for water sustainability.

- 1.A.3 Include a description of all field investigations made to substantiate the feasibility report (004.01 B); A site visit and public meeting with the Sargent Community was completed in February 2020 to begin the process of outlining the stormwater and drainage issues in the community that lead to widespread flooding. The Sargent Drainage Report (Olsson, 2020) includes a hydrologic and hydraulic analysis of the stormwater drainage in Sargent. Environmental scientists visited the community in November 2021 to initiate delineation of wetlands and proper environmental permitting of the project.

- 1.A.4 Provide maps, drawings, charts, tables, etc., used as a basis for the feasibility report (004.01 C); **Along with the descriptions of long time flooding from citizens in Sargent, the local Multi-Jurisdictional Hazard Mitigation Plan identifies a significant flood hazard area within Sargent, despite no current FEMA special flood hazard area delineated within the corporate limits of the city. The floodplain map from FEMA is included as Attachment B.6, along with the Hazard Mitigation Plan floodplain map (Attachment B.1) and the flood hazard area map developed as part of The Sargent Drainage Report (Attachment B.3). Attachment B.5 identifies the anticipated results on groundwater elevations if groundwater wells are installed. The complete Sargent Drainage Report (Olsson 2020) is attachment A.3.**
- 1.A.5 Describe any necessary water and/or land rights including pertinent water supply and water quality information (004.01 D); **The diversion channel component of the proposed project will require the acquisition of approximately 47 acres of land and ROW along the proposed alignment, which skirts the northern and eastern corporate boundaries of Sargent. To-date, 10 private landowners, 2 corporate land owners (BNSF Railway and Trotter Inc) and the City of Sargent have been identified as impacted landowners along the diversion channel alignment. See attachment A.4 for a list of impacted landowners along the proposed diversion channel. Land rights are not anticipated for the project work to enlarge drainage structures.**
- 1.A.6 Discuss each component of the final plan (004.01 E); **The Sargent Flood Resiliency Project consists of two components to reduce the frequency of flooding events. A third component, dewatering wells, is planned to gradually lower groundwater elevations around Sargent. General locations of the improvements are shown in Figure 1 Sargent Flood Resiliency Project Location Map (Attachment A.1). The first component includes improvements within the city limits that enlarge three culverts and storm sewers. The culverts are located on Edith Street, Della/Main Street, and Anna Street. The drainage structure at Edith Street would be enlarged from 1 @6-ft by 2.5-ft concrete box culvert (CBC) to 2 @ 6-ft by 2.5-ft CBC. The Della/Main Street structure would be enlarged from 1@54" concrete pipe culvert (CPC) to 2@7-ft by 4.5-ft CBC. The Anna Street structure would be enlarged from 2@42" CPC to 2@7-ft by 4.5-ft CBC. The second component includes grading a new diversion channel north and east of town. The diversion channel alignment is proposed to skirt the corporate limits of Sargent, running east from Sargent's main drainage ditch before passing below Highway 183 and roughly following the former railroad track alignment on the northeast side of the city; then turning directly south at East Main Street and routing runoff to the Middle Loup River. In order to reach the Middle Loup River, a canal siphon will be required at the intersection of the proposed diversion channel and the Middle Loup Irrigation District Canal No. 2. Both components of the project must be constructed for the city to see effective mitigation of both small and large**

flood events. The Sargent Drainage Study Report (Attachment A.3) includes details on how flow patterns will change in the community and those changes relative to the regulatory floodplain. The third component will drawdown groundwater levels by installing dewatering wells on the north side of the community. When running continuously, each of the up to 5 wells can pump 20 acre-ft of water per month. This pumped water will be directed to the diversion channel. Groundwater modeling indicates that over a 5 year period, water elevations could be reduced between 12 and 24 feet within Sargent. This will improve wet conditions in the community that result in wet and failing foundations and basements.

- 1.A.7 When applicable include the geologic investigation required for the project (004.01 E 1); **No geologic investigation was completed for the preliminary engineering study.**
- 1.A.8 When applicable include the hydrologic data investigation required for the project (004.01 E 2); **Two distinct types of modeling were used to evaluate the hydrologic conditions in and around Sargent. A groundwater model was built using the USGS modeling program called MODFLOW to simulate groundwater flow and water table fluctuations. The surface water conditions were simulated using HEC-HMS v 4.2.1, which considers soils, terrain, land use, and meteorology in the analysis. The Sargent Drainage Report (Olsson 2020) details both investigations and is attachment A.3.**
- 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). **Hydraulic structures will be designed in accordance with AASHTO LRFD Bridge Design Specifications; Box Culvert construction shall be completed in accordance with NDOT Standard Specifications for Highway Construction; drainage design will follow the NDOT Drainage Design and Erosion Control Manual.**

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

- 1.B.1 Insert data necessary to establish technical feasibility (004.02); [Click here to enter text.](#)
- 1.B.2 Discuss the plan of development (004.02 A); [Click here to enter text.](#)
- 1.B.3 Describe field or research investigations utilized to substantiate the project conception (004.02 B); [Click here to enter text.](#)
- 1.B.4 Describe any necessary water and/or land rights (004.02 C); [Click here to enter text.](#)

- 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). [Click here to enter text.](#)

Prove Economic Feasibility

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

- Provide evidence that there are no known means of accomplishing the same purpose or purposes more economically, by describing the next best alternative. **One of the alternatives included working with the Sargent Irrigation District to reline the canal north of town. Although it was found that the lining project did show some benefits in reducing groundwater elevations, those benefits would not be achieved quickly enough to benefit the town in a timely fashion. The next best alternative includes increasing the capacity of the channel through the center of town to accommodate passage of the 50- to 100-year flood event. Infrastructure, including roads, utilities, and private property improvements including homes, limit the ability to enlarge the channel and associated hydraulic structures within Sargent. Without the acquisition of private property along the ditch alignment, the main drainage ditch cannot be designed to pass the 100-year event and protect the city from flooding associated with large runoff events. The preferred alternative was selected because it can provide protection from both large and small runoff events, it will provide protection to a larger portion of the community than the ditch enlargement option (which only improves flooding conditions west of Highway 183), and it will not require the purchase of residential property, a timely and costly effort that could further reduce housing availability in the community and would be unpopular with residents.**
- Document all sources and report all **costs** and **benefit data** using current data, (commodity prices, recreation benefit prices, and wildlife prices as prescribed by the Director) using both dollar values and other units of measurement when appropriate (environmental, social, cultural, data improvement, etc.). The period of analysis for economic feasibility studies is the project life, up to fifty (50) years; or, with prior approval of the Director up to one hundred (100) years, ([Title 261, CH 2 - 005](#)). **As part of the process to apply for FEMA HMGP funding, a detailed Benefit Cost Analysis (BCA) was completed using construction costs, O/M costs, land acquisition costs, and value of benefits calculations, escalated for January 2022 costs. The FEMA developed BCA program calculated a project benefit cost ratio of 2.36 for the project, meaning the benefits achieved by the project amount to 2.36 times the cost of the project. Please refer to Attachment A.5 for a detailed budget and a budget narrative.**

- 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 Sargent Flooding and Drainage Study, Attachment A.3, included development of preliminary plans for the recommended action(s). As part of this preliminary design, a cost estimate was developed for each of the major components of the future project. The best available cost estimating data was used to estimate project costs, including recent bid tabs, cost data compiled by the Nebraska Department of Transportation (NDOT) and Iowa Department of Transportation (IDOT), and cost estimating spreadsheets developed internally at Olsson. Because detailed design is not yet complete, average unit prices (AUP) were estimated on a per linear foot/ square yard/ lump sum basis. Data used to support the project cost estimates is part of Attachment A.5. The entire project to protect Sargent involves the replacement and/or construction of six culverts, plus a canal siphon. The AUP for the proposed culvert construction was estimated based on the height, width, and length of the structure. This accounts for reinforcing steel and concrete that will be required, along with the labor needed to complete construction. The canal siphon project was estimated based on a recent canal siphon project in Nebraska. Excavation of the proposed diversion channel is a major cost item and was estimated based on excavations costs according to bid tab data available from the NDOT and IDOT. A final major construction cost is the required land acquisition for the diversion channel. This per acre AUP was developed through consultation with project engineers experienced with acquisition of agricultural land for dam, levee, and detention projects in Nebraska and final acquisition costs for similar projects in Nebraska. Attachment A.5 includes a summary of land acquisition costs considered during the cost estimation process. Finally, the total project cost estimate assumed contractor mobilization to amount to 15% of the estimated construction cost. A contingency of 20% was applied to the construction cost, to account for unknowns at this early design stage along with the uncertain construction timeframe. Engineering and permitting was estimated at 10% of the total construction cost (Construction Items + Mobilization + Contingency). Attachment A.5 contains the cost estimate for the proposed action(s), including AUP and assumptions. Maintenance costs were estimated based on the anticipated tasks required yearly for the new infrastructure. Since four of the culverts already exist, with the community already performing annual maintenance and debris clearing, the new maintenance costs at these locations were assumed to be very low. However, the diversion channel and associated drainage structures are a large set of infrastructure that will require significant upkeep. New maintenance actions include mowing, inspections, additional vegetation maintenance, and annual clean up and debris removal. Cost for these actions were estimated based on available information online on labor and**

equipment costs. The project useful life was set to 30 years, which is listed as the standard value for culverts and flood diversion projects within the FEMA BCA software. See detailed budget, budget narrative, and benefit cost analysis file in Attachment A.5.

- 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). **FEMA BCA indicates benefits to property within Sargent exceed project costs, resulting in a benefit cost ratio of 2.36. In addition to benefits realized by avoiding property damage and quantified in the BCA, secondary benefits of the project include losses avoided to roadways (Main Street; HWY 183; residential roadways); damages to water treatment ponds from stormwater ponding at treatment plant; avoiding extensive man-hours observing pumping operations at Della and Howard Streets, reduced risk to the Sargent drinking water supply, along with the benefits of returning water to the Middle Loup River and potential beneficial uses.**
- 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).

Table A.6 - Annual Cash Flow for Sargent Flood Resiliency Project

YEAR #	Capital Costs	O+M and Replacement Items	Annual Subtotal
0	\$ 516,515.00	\$ -	\$ 516,515.00
1	\$ 2,628,278.00	\$ -	\$ 2,628,278.00
2	\$ 2,004,310.00	\$ 34,860.00	\$ 2,039,170.00
3	\$ -	\$ 34,860.00	\$ 34,860.00
4	\$ -	\$ 34,860.00	\$ 34,860.00
5 through 30	\$ -	\$ 871,500.00	\$ 871,500.00
Total Project Cost over 30 year period:			\$ 6,125,183.00

Total Project Benefits* over 30 year period: \$ 13,070,552.00

*As calculated by FEMA Benefit Cost Analysis software

- 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.) **N/A**

Prove Financial Feasibility

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

- Provide evidence that sufficient funds are available to complete the proposal. **NEMA prioritized Sargent for a flood control project under DR-4521 for the Hazard Mitigation Grant Program (HMGP). An application has been completed and returned to NEMA for review and approval to obtain the 75% cost share offered by the program. The remaining 25% non-federal match is planned to come from a combination of local level funding from the LLNRD and City of Sargent (\$250,000 and \$226,000, respectively) and the Nebraska Water Sustainability Fund (\$858,300). Attachment A.2 includes assurances from the City and the NRD for their contribution to the project.**
- Provide evidence that sufficient annual revenue is available to repay the reimbursable costs and to cover OM&R (operate, maintain, and replace). **The Sargent City Council reviews the necessary rates to be charged to cover capital and operations and maintenance costs for city infrastructure. The council can implement changes to the rates charged or consider bonding certain costs. State statutes are cited below that allow the city to issue bonds and set rates. Authority to issue bonds (Neb. Rev. Stat. 16-693); Rate Making Authority (Neb. Rev. Stat. 16-679); Neb. Rev. Stat. 16-681.**

Authority to Issue Bonds - Neb. Rev. Stat. § 16-693

When any bonds shall have been issued by the city for the purpose of constructing or aiding in the construction of a system of waterworks, power plant, sewerage, heating, lighting or drainage, there shall thereafter be levied annually upon all taxable property of said city a tax not exceeding seven cents on each one hundred dollars for every twenty thousand dollars of bonds so issued, which shall be known as the waterworks tax, power tax, sewerage tax, heat tax, light tax or drainage tax, as the case may be, and shall be payable only in money. The proceeds of such tax, together with all income received by the city from the payment and collection of water, power, heat or light, rent, taxes, and rates of assessments, shall first be applied to the payment of the current expenses of waterworks, power plant, heating or lighting, to improvements, extensions, and additions thereto, and interest on money borrowed and bonds issued for their construction. The surplus, if any, shall be retained for a sinking fund for the payment of such loan or bonds at maturity.

Rate Making Authority - Neb. Rev. Stat. § 16-679

The mayor and council shall have power to require every individual or private corporation operating such works or plants, subject to reasonable rules and regulations, to furnish any person applying therefor, along the line of its pipes, mains, wires or other conduits, with gas, water, power, light or heat, and to supply said city with water for fire protection, and with gas, water, power, light or heat, for other necessary public or private purposes; to regulate and fix the rents or rates of water, power, gas, electric light or heat; and to regulate and fix the charges for water meters, power meters, gas meters, electric light or heat meters, or other device or means necessary for determining the consumption of water, power, gas, electric light or heat. These powers shall not be abridged by ordinance, resolution or contract.

Neb. Rev. Stat. § 16-681

Such city owning, operating or maintaining its own gas, water, power, light or heat system, shall furnish any person applying therefor, along the line of its pipes, mains, wires or other conduits, subject to reasonable rules and regulations, with gas, water, power, light or heat. It shall regulate and fix the rental or rate for gas, water, power, light or heat, and regulate and fix the charges for water meters, power meters, gas meters, light meters or heat meters or other device or means necessary for

determining the consumption of gas, water, power, light or heat. It shall require water meters, gas meters, light meters, power meters, or heat meters to be used, or other device or means necessary for determining the consumption of gas, water, power, light or heat.

- If a loan is involved, provide sufficient documentation to prove that the loan can be repaid during the repayment life of the proposal. [Click here to enter text.](#)
- Describe how the plan of development minimizes impacts on the natural environment (i.e. timing vs nesting/migration, etc.). **The project design and construction will occur only with coordination with regulatory agencies that oversee permitting related to the natural environment. These agencies include, but are not limited to, the Nebraska Game and Parks Commission, the Nebraska Department of Natural Resources, the U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers.**
- Explain how you are qualified, responsible and legally capable of carrying out the project for which you are seeking funds. **The LLNRD has a wide range of statutory responsibilities and authorities, including but not limited to Nebraska Revised Statutes §2-3,201 through 2-3,243. The purposes of natural resources districts shall be to develop and execute through the exercise of power and authorities contained in this act, plans, facilities, works, and programs relating to: 2. Prevention of damages from flood water and sediment; 3. Flood Prevention and Control; 5. Water supply for any beneficial use; 9. Drainage improvement and channel rectification.**

The LLNRD's authority to function is contained in State Statute Chapter 2, Article 32, Sections 2-3201 to 2-32101, RRS, Nebraska, 1943.

- 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 as part of the LLNRD's efforts to meet the regulatory purpose of flood prevention and control. Additionally, the project also meets other regulatory purposes in a secondary manner, such as water supply for any beneficial uses, pollution control, and drainage improvement. The project will help the LLNRD meet the goals of the Long Range Implementation Plan, the Lower Platte River Basin Coalition Lower Platte River Basin Coalition Basin-wide Water Management Plan and the LLNRD 2012-2022 Master Plan, as well as the local and state hazard mitigation plans.**
- 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. **See Attachment A.4 for a list of impacted landowners.**

- 10.B Attach proof of ownership for each easements, rights-of-way and fee title currently held. **No easements, rights-of-way, or fee title are currently held.**
- 10.C Provide assurance that you can hold or can acquire title to all lands not currently held. [Click here to enter text.](#)
11. Identify how you possess all necessary authority to undertake or participate in the project. **The LLNRD has a wide range of statutory responsibilities and authorities, including but not limited to Nebraska Revised Statutes §2-3,201 through 2-3,243. The LLNRD authority extends to the ability to acquire property in order to meet their statutory responsibilities.**
12. Identify the probable consequences (environmental and ecological) that may result if the project is or is not completed. **Sargent has a long history of flooding problems, with accounts of flooding going back to the 19th century. The 2017 Hazard Mitigation Plan for the Lower Loup Natural Resources District includes supporting information on flood damages and frequency. The plan notes that the storm sewer system in Sargent cannot handle all the water which causes the majority of basements and roadways to flood. No action alternative would consign the community to continued flooding problems. Home and business damage will continue; roadway infrastructure will require frequent repairs due to inundation frequency. Input from the public indicates that the future of the community is at risk if the frequency of flooding is not mitigated.**

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.

According to the current LLNRD Multi-Hazard Mitigation Plan, the community of Sargent has 12 identified critical facilities, 4 of which are drinking water wells and a 5th facility is the water tower (see Attachment B.1 Critical

Attachment B.1 Critical Facilities in the Flood Risk Area

[illegible]

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The LLNRD completed a voluntary Integrated Management Plan which was adopted by the NDNR on May 9, 2016. The LLNRD and NDNR sought to develop the IMP with the purpose of achieving and sustaining a balance between water users and water supplies for the near and long term. The Sargent Flood Resiliency Project contributes to multiple goals of the IMP, including Goal 2, Objective 2.1. Goal 2 is to “implement this water management plan to maintain an efficient and economical balance between current and future water supplies and demands.” Objective 2.1 is to “collaborate with state and local governments to identify opportunities to augment water supplies within the District and, if necessary, identify opportunities to supplement with imported water from outside the District.” By converting nuisance groundwater flow to stream flow, the project converts water to a beneficial use. The Project also contributes in a similar way towards Goal 3 of the IMP, which reads “Develop and implement water use policies and practices that contribute to the protection of existing surface and groundwater uses while allowing for future water development.” The project supports this goal by converting surface water previously lost to ponding and evaporation to beneficial use by returning the water to the Middle Loup River via a diversion channel around the city.

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 Sargent Flood Resiliency Project will create a diversion channel that will reroute surface runoff around the City of Sargent, rather than through the community. Currently, surface water runoff from the drainage area north of Sargent is directed through the community. Because of the flat terrain, this results in widespread flooding and long-term areas of ponding. By intercepting the runoff that originates in drainage areas outside of the community, discharges of up to approximately 1,400 cfs (during a 100-year precipitation event) could be returned directly to the Middle Loup River, below the existing Sargent Diversion, augmenting flows during irrigation periods. Frequent, small events may provide the most benefit because previously water would pond and evaporate. With the construction of a diversion channel, that streamflow can be returned to the Middle Loup River. Additionally, groundwater wells will convert nuisance groundwater to a beneficial use through pumping and will increase streamflow. A

secondary benefit of the augmented streamflow is enhanced wildlife habitat along the Middle Loup River and diversion channel where streamflow augmentation occurs.

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 project meets multiple goals listed within the Lower Loup NRD (LLNRD) Multi-Hazard Mitigation Plan:

- **Reduce or eliminate long term risk to human life**
- **Reduce or eliminate long term risk to property and/or the environment**
- **Protect public health and safety from hazard events**
- **Protect existing and new properties from hazard events**

The project will achieve these goals by re-designing the stormwater drainage system in the community. The city drainage system currently can only convey precipitation events smaller in size than the 2-yr flood event. The local HMGP notes that the storm sewer system in Sargent cannot handle all the water and frequent roadway and basement flooding occurs due to surface water and groundwater inundation. Adding a diversion channel to intercept surface water flows and re-sizing hydraulic structures in the community will reduce risk to life and property. Installing dewatering wells to pump groundwater also protects life and property by lowering the groundwater elevation and reducing the repeated damages to homes and businesses due to high groundwater. The public water system for Sargent will gain protection by the project because key infrastructure will be removed from the floodplain, lowering the contamination risk at ground water wells. Public input has indicated that the survival of the City of Sargent is at risk if the flood control and drainage problems are not addressed. Without implementing this project, long term investment in the community will be difficult due to the repetitive flooding. Low housing inventory will continue to be a problem as existing homes are damaged and destroyed during flood events.

Section Seven: City of Sargent Community Profile, covers the continuing mitigation actions of the city. Among several objectives is the high priority objective to improve drainage. Additionally, Sargent has identified a high priority project to relocate municipal infrastructure in order to lower

vulnerability to various hazards. The Sargent Flood Resiliency Project will help meet this objective by reducing flooding at key water infrastructure, such as well houses 1 and 3 and the water tower. Section Seven: City of Sargent Community Profile is included with this application in Attachment B.2.

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.

Under existing conditions, surface water runoff spreads out across the flat terrain of the areas in and around Sargent, resulting in ponding and seepage that contributes to a high water table in the community. This high water table has been a source of water damages, especially for home and business owners with basements in Sargent. By installing wells to drawdown the water table, water can be converted from a nuisance to a beneficial use by being directed to the Middle Loup River for consumption downstream. Adding a diversion channel to intercept the runoff that originates north of the community also will contribute positively to stream flows. A benefit of increased stream flow is wildlife and habitat enhancement, extending downstream from Sargent to the Middle Loup River, Platte River, and the confluence with the Missouri River. This project will return water previously seen as a detriment in Sargent to true beneficial use in the Platte River watershed.

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.



**Phase 1
Drainage Improvements**

Item	Edith Street Culvert	Quantity	Unit	AUP	Total
	1 Construct/Install 1@6'x2.5' RCB Culverts	87	LF		\$765.00
	2 Concrete Pavement Replacement	51	SY		\$125.00
	3 Erosion Control	1	LS		\$1,000.00
					\$73,930.00
Item	Della/Main Street Storm Sewer	Quantity	Unit	AUP	Total
	1 Removal	700	LF		\$25.00
	2 Construct/Install 2@7'x4.5' RCB Culverts	700	LF		\$1,210.00
	3 Concrete Pavement Replacement	212	SY		\$125.00
	4 Erosion Control	1	LS		\$7,000.00
					\$898,000.00
Item	Anna Street Culverts	Quantity	Unit	AUP	Total
	1 Removal	320	LF		\$25.00
	2 Construct/Install 2@7'x4.5' RCB Culverts	320	LF		\$1,230.00
	3 Concrete Pavement Replacement	34	SY		\$125.00
	4 Erosion Control	1	LS		\$3,500.00
					\$409,350.00
Sub-Total					\$1,381,280.00
Mobilization					15%
Subtotal Construction					\$1,588,472.00
Contingency					20%
Total Construction					\$1,906,166.40
Engineering and Permitting					\$190,616.64
Total Project Cost					\$2,096,783.04



Phase 2
Diversion Channel

Item	Quantity	Unit	AUP	Total
1 Earthwork (Excavation)	153698	CY	\$5.00	\$768,490.00
2 HWY 183 Structure	100	LF	\$2,900.00	\$290,000.00
3 East Main Street Structure	65	LF	\$3,070.00	\$199,550.00
4 Canal Siphon	1	LS	\$450,000.00	\$450,000.00
5 Seeding and Mulching	47	AC	\$1,500.00	\$70,500.00
Sub-Total				\$1,778,540.00
Mobilization				15%
Subtotal Construction				\$2,045,321.00
Contingency				20%
Total Construction				\$2,454,385.20
Engineering and Permitting				\$245,438.52
6 Land Acquisition	47	AC	\$5,000.00	\$235,000.00
Total Project Cost				\$2,934,823.72

Sargent Drilling
INDUSTRIAL ENGINEERING
COMPLETE MUNICIPAL AND INDUSTRIAL
PUMPS AND WELL SERVICE

Box 627
263 South 23rd Street

Broken Bow, Nebraska
68822

Phone
(308) 872-5125
FAX (308) 872-3050

January 25, 2022

Olsson & Associates

RE: Sargent, NE Dewatering Well

ATTN: Carrie Romero

Budget pricing for a 100' PVC X Stainless Steel dewatering well with pitless unit, pump, motor, wire, drop pipe, VFD, meter pit, some piping and electrical - \$150,000.00 to \$160,000.00.

Regards,



Shad Yarrington

Table 1: Sargent Flood Resiliency Project Anticipated Maintenance Costs

Item	Quantity	AUP	Frequency	Total
Maintenance Mowing	47 acres	\$50/acre	6 times per year	\$14,100
Inspections and Vegetation Maintenance	12 hours	\$60/hour	8 times per year	\$5,760
Debris Removal	1 Visit	\$15,000/visit	1 time per year	\$15,000
			Total:	\$34,860

As part of the process to apply for FEMA HMGP funding, a detailed Benefit Cost Analysis (BCA) was completed using construction costs, O/M costs, land acquisition costs, and value of benefits calculations. Following FEMA methodology and using the FEMA developed Benefit Cost Analysis (BCA) program, a project benefit cost ratio (BCR) of 2.36 was developed for the Sargent Flood Resiliency Project. This means the benefits amount to 2.36 times the cost of the project. In other words, for every dollar spent on mitigation in Sargent, \$2.36 is saved in damages. Benefits for individual

structures can be reviewed as part of the detailed budget narrative that is part of this application. FEMA considers a BCA of 1.0 and higher to be an acceptable project; a BCR of 2.36 indicates the project has an excellent return on investment. A detailed budget and budget narrative is included in Attachment A.5. Attachment A.6 is a printout from the BCA summarizing costs and benefits of the project

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.

The Sargent Flood Resiliency Project helps meet the obligations of a state agreement and also a federal law. The LLNRD has endorsed the project because it helps the meet the goals and objectives of their voluntary IMP. IMPs are agreements that are required in certain parts of the state, however in the case of the LLNRD, the state agreement was completed voluntarily to ensure long-term sustainability of the integrated groundwater and surface water supplies. The project also helps the state meet the obligations of the Safe Drinking Water Act (SDWA). For the LLNRD IMP the project meets Goal 3, Objective 3.1, Identify available water storage opportunities throughout the district. Collecting and diverting the runoff and pumped groundwater at Sargent offers an opportunity for future water storage, or streamflow augmentation.

The SDWA applies to every public water system in the United States. Sargent relies on groundwater wells to supply clean water to the community. This project provides the necessary drainage improvements to remove key water infrastructure such as the water tower and at least two wells from the 100-year floodplain. The project will improve reliability of the drinking water supply in Sargent. Without the project, drinking water infrastructure will remain in the floodplain, leaving the system at risk of contamination during flooding.

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

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

The Sargent Flood Resiliency Project will impact both public and private property in the community by reducing flood elevations and rerouting runoff around the community. As indicated in the Sargent Drainage Report (Attachment A.3), a high water table and surface water flooding has been a recurring problem in the community. The proposed project will provide security and decrease vulnerability to flooding for the local population around Sargent by protecting the drinking water supply from contamination. The project will remove two well houses and the water tower from the 100-year floodplain. The debilitating impacts of frequently flooded homes and businesses will be avoided, helping this small Sandhills community remain open to economic development and able to provide safe and secure housing.

U.S. Highway 183 passes through Sargent and provides a major connecting route from Interstate 80 to the South Dakota border with Nebraska. This federal asset is impacted by the flooding in Sargent, and has been overtopped by floodwaters in the major events of 2010 and 2019. If another flood event compromises the integrity of the roadway, this significant transportation corridor through the state could temporarily close, resulting in time-consuming detours. The 2019 failure of the Highway 281 Bridge over the Niobrara River similarly closed a major highway, limiting the transportation of mail, commercial goods, regional travelers, and commodities. Implementing the Sargent Flood Resiliency Project will reduce the vulnerability of Highway 183 to flooding and associated flood damages. Water surface elevations in the Highway 183 corridor are reduced by up to 2 feet for the 100-year flood event (see Attachment B.3 and B.4 for a comparison of pre- and post-project water surface elevation data).

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 proposed project will provide security and decrease vulnerability to flooding for the local population around Sargent by protecting the drinking water supply from contamination from fecal matter, heavy metals, pesticides, nitrogen and other contaminants found in flood waters. The project will remove two well houses and the water tower from the 100-year floodplain, protecting the water supply for the 479 (2020 Census) residents of the community . Additionally, the project will reduce the risks to contaminated water supplies and contaminated surface water runoff by lowering flood elevations. Trotter Grain and Fertilizer is one location in the community where hazardous materials are stored. That facility currently depends on a pump to remove ponded water from the areas in and around the property. If the facilities are inundated, surface water contamination is possible. Lowering flood elevations reduces the risk of compromising 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.

Both the City of Sargent and the LLNRD are active supporters of the proposed project, as demonstrated by their time and financial commitment. The LLNRD has actively assisted the City of Sargent with the needed studies, preliminary design, and grant application processes required for obtaining funding for construction. Letters of support, confirming the level of financial commitment to the project, are located in Attachment A.2. Sargent is in the process of securing their match of \$226,000 dollars. The LLNRD matching funds of \$250,000 have been approved by the LLNRD board already and are ready to be used. In 2021 the LLNRD, project sponsor, had a total valuation of \$16,326,977,392. The district had a levy of \$0.030786 and a total budget of \$19,655,782.02. Sargent had a total valuation of \$22,518,176 in 2021. The community levy was \$0.426100 and the total budget was \$2,520,968.

The Central Nebraska Economic Development District has assisted the community in obtaining Community Development Block Grant (CDBG) funds to initiate the replacement of one of the undersized culverts in Sargent. In addition to the local jurisdiction funding support, funds from the federal Hazard Mitigation Grant Program has been applied for under DR-4521 under the direction of NEMA, which has designated the Sargent Flood Resiliency Project a priority project. Funds from the Nebraska Water Sustainability Fund are being requested to help with the non-federal match.

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 LLNRD and City of Sargent are the local jurisdictions involved in the project. The LLNRD Multi-Hazard Mitigation Plan, Master Plan 2012-2022, 2020 LLNRD Long Range Implementation Plan, 1985 Ground Water Management Plan, and Voluntary Integrated Management Plan have goals and objectives that support sustainable water use.

The community has initiated the first phase of the drainage improvement project by contracting with Olsson to complete plans for the replacement and enlargement of the Jesse Street Culvert at the lower end of the primary drainage ditch through town. In June 2022, the project was bid and as of July it was awarded to A+R Construction Company, with plans for construction to be complete by the end of 2022.

Outside of the coordination with the Central Nebraska Economic Development District, the LLNRD and community of Sargent have been working together with the Sargent Irrigation District since much of the irrigation rights in the vicinity of the project area are under the irrigation district's authority.

The 479 current residents of Sargent are the direct beneficiaries of this project. Reducing risk from floods will result in higher quality of life, additional economic development, the potential for more quality housing, improved mental health, and physical health. The project will decrease the risk of closure of HWY 183, benefitting the many commercial and private vehicles that pass through the community every day. The project will convert water to beneficial use by augmenting flows below the Sargent Diversion on the Middle Loup River, potentially providing benefits further downstream to the Lower Platte River.

(LLNRD) Multi-Hazard Mitigation Plan

The project meets multiple goals listed in the Hazard Mitigation Plan, including:

- Reduce or eliminate long term risk to human life
- Reduce or eliminate long term risk to property and/or the environment
- Protect public health and safety from hazard events

- Protect existing and new properties from hazard events

LLNRD Master Plan 2012-2022

The LLNRD Master Plan (2012-2022) includes the stated goals and objectives related to sustainable water use:

- Address integrated water management in the Loup River Basin
- Continue to pursue outside funding sources such as the Environmental Trust, 319, Resource Development Fund, and other sources for natural resources conservation.
- Through watershed planning and management, provide assistance with programs and project to assist municipal and rural residence with flood control measures
- Provide local, state, and federal governments with information on flooding potential and respond to needs when flooding occurs
- Utilize the special projects sections of the NRD Law to assist local communities on drainage and channel rectification problems
- Provide the necessary engineering and construction assistance to those communities with drainage and channel projects that will not have an adverse effect on the environment

This project will assist the LLNRD in achieving all of these goals within the watershed that Sargent is located by pursuing a varied list of funding sources, assisting the community with flood control, and return flows to the Middle Loup River.

LLNRD Long Range Implementation Plan

The LLNRD Long Range Implementation Plan has the following district goals and objectives in their Long Range Implementation Plan:

- Resource awareness
- Prevent damage from flood water
- Development and management of groundwater and surface water for beneficial uses
- Water quality and pollution control
- Drainage improvement and channel rectification

The community of Sargent and the LLNRD are aware of the complex interaction of water within the watershed. Two irrigation canals and many man-made drainage ditches and cutoffs route and re-route water across the flat Middle Loup River floodplain. Groundwater levels are typically very high, according to the Sargent Flooding and Drainage Study (Olsson, 2020). The proposed project would work toward meeting the goals listed in the Long Range Implementation Plan by developing groundwater for potential beneficial uses, improving drainage and preventing damage from flood water, and improving water quality through pollution prevention. The

500+ residents of Sargent will experience the primary benefits of the reduced flood frequency and associated damages. Improved economic development opportunities, improved housing and road quality, and improved regional surface water quality are all secondary benefits of the project.

1985 Groundwater Management Plan

The 1985 Groundwater Management Plan had stated goals to protect both groundwater quantity and groundwater quality. The Sargent Flood Resiliency Project can help the LLNRD continue to meet the stated goal of maintaining a perpetual source of groundwater for all uses, domestic, agricultural, and industrial. By converting nuisance groundwater in Sargent to beneficial use through pumping and returning water to the Middle Loup River, downstream users may realize the benefit of increased stream flows and consequently reduce their reliance on groundwater.

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.

Chapter 31, Article 10, Section 31-1001 of the Nebraska Revised Statutes states

The Legislature finds that recurrent flooding in various areas of the state presents serious hazards to the health, safety, welfare, and property of the people of the state, both within and outside such areas. The hazards include loss of life, loss of and damage to private and public property, disruption of lives and of livelihoods, interruption of commerce, transportation, communication, and governmental services, and unsanitary and unhealthy living and environmental conditions. The wise use of land subject to flooding is a matter of state concern. The Legislature further finds that the establishment of improved floodplain management practices and the availability of financial assistance to citizens of the state whose property is damaged during times of flooding are essential to the health, safety and general welfare of the people of Nebraska.

The Sargent Flood Resiliency Project will address a significant flooding problem in the state. In August 2019, Nebraska Governor Pete Ricketts visited the flooded community following the July 15, 2019 precipitation event. During his visit he assured the community the state would assist them in any possible way; he signed a disaster declaration for the flood event shortly after that visit (governor.nebraska.gov; Gov. Ricketts Declares State of Emergency to Aid

Victims of Late-Summer Floods). By completing the project and providing protection to the City of Sargent, the state would no longer have to provide funds or manpower for recovery from flood events in the community. The entire population of Sargent, 500 people, would benefit directly from the project. The benefit cost analysis completed for the project calculated a benefit cost ratio of 2.36, meaning that for every dollar spent on mitigation in Sargent, the community and state saves \$2.36 in flood damages.

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.

Both the City of Sargent and the LLNRD are active supporters of the proposed project, as demonstrated by their time and financial commitment. The LLNRD has actively assisted the City of Sargent with the needed studies, preliminary design, and grant application processes required for obtaining funding for construction. Letters of support, confirming the level of financial commitment to the project, are located in Attachment A.2. Sargent has secured their match of \$226,000 dollars and those funds are currently available. Similarly, the LLNRD matching funds of \$250,000 have been approved by the LLNRD board already and are ready to be used. The Central Nebraska Economic Development District has assisted the community in obtaining Community Development Block Grant (CDBG) funds to initiate the replacement of one of the undersized culverts in Sargent. In addition to the local jurisdiction funding support, funds from the federal Hazard Mitigation Grant Program has been applied for under DR-4521 under the direction of NEMA, which has designated the Sargent Flood Resiliency Project a priority project. Funds from the Nebraska Water Sustainability Fund are being requested to help with the non-federal match. An application for HMGP funding has been submitted to NEMA for the project. The funding strategy is to obtain 75% of the project costs from HMGP funding. The remaining 25% non-federal match will be obtained through a combination of local level funding from the LLNRD and the City of Sargent and the Nebraska Water Sustainability Fund. The City of Sargent does not have the means to complete the project with the available city resources. If funding sources listed below do not come through, the LLNRD and City will consider utilizing other grant programs or reapplying under future grant cycles.

Cost Share Breakdown				
Source of Funding		Amount	Percentage	Type of Funding
Federal Share	HMGP	\$4,002,864.27	75%	Cash
Non-Federal Share	Nebraska WSF	\$858,283.52	16%	Cash
Non-Federal Share	City of Sargent	\$226,004.57	4%	Cash and In-Kind Services
Non-Federal Share	LLNRD	\$250,000.00	5%	Cash and In-Kind Services

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 watershed affected by the project is an unnamed left bank tributary to the Middle Loup River and is delineated in the Sargent Flooding and Drainage Study (Olsson 2020). The watershed begins in the uplands about 2.5 miles north of Sargent, and the downstream limit of the watershed is the Middle Loup River. The unnamed watershed has a 6.10 square mile contributing drainage area, with an additional 3.30 square mile non-contributing drainage area. Sargent is located in the lower 1/3 portion of the watershed. By reducing the frequency of flooding in Sargent, water quality in the watershed will be improved, as pollutants in the community will not be picked up by the surface water. The community identified concerns that flooding could encroach on the storage facilities that are part of Trotter's Grain and Fertilizer, resulting in contaminated flood waters with unknown implications for the community. To date that scenario has not occurred, although flood water has risen close to the facilities several times. A secondary benefit of the project is the protection of the surface water runoff from contamination and improving water quality for flows entering the Middle Loup River. Creating the diversion channel and returning nuisance groundwater to beneficial use in the Middle Loup River also has the potential to contribute benefits to habitat in and around the Middle Loup River and downstream.

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 following excerpt is taken from the Annual Report published by the Department of Natural Resources (NeDNR) in September 2021.

“NeDNR actively seeks projects that directly reduce flood risk to human lives and property as well as outreach opportunities that engage communities on flood risk topics including Risk Mapping, Assessment and Planning (MAP) and mitigation. The Department plans for and assists communities with understanding and implementing risk reduction projects in the state by focusing on why flood risk is real and why a community should focus on reducing that risk, what kind of risk reduction project achieve a community’s goals, and where and how to best implement identified projects.”

Through the planning stages, the project has already helped identify the source of flood risk to the community of Sargent. If the project is funded it will greatly reduce flood risk to the community by improving drainage capacity in town; reducing peak discharges through town; minimizing or eliminating the inundation of State Highway 183; and minimizing standing water and the need to pump surface water out of the city limits. All of these benefits will greatly reduce the risk of property damage and improve the safety of the City of Sargent’s sewer and road infrastructure.

Additionally, the project has and will continue to “encourage strong public engagement with multiple constituents and stakeholder groups in planning and implementation activities to ensure that local and state needs are addressed” as stated in the September 2021 Annual Report from the NeDNR. The initial project planning stage included 2 rounds of public meetings with the community of Sargent as well as discussions with landowners; irrigation districts, the Lower Loup NRD, and regulatory agencies including the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Nebraska Game and Parks Commission, and History Nebraska.

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