

# NEBRASKA NATURAL RESOURCES COMMISSION

## Water Sustainability Fund

Application for Funding

### Section A.

#### ADMINISTRATIVE

**PROJECT NAME:** West Point Levee System Improvements

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

Sponsor Business Name: City of West Point, Nebraska (city)

Sponsor Contact's Name: Tom Goulette

Sponsor Contact's Address: 444 South Main Street, West Point, NE 68788

Sponsor Contact's Phone: 402-372-2466

Sponsor Contact's Email: tfgoulette@cableone.net

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

**Grant** amount requested. \$ \$1,249,125

- If requesting less than 60% cost share, what %? N/A

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

- 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** 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

G&P – T&E consultation will be completed through the USACE permitting process. Cost to complete is incorporated with the USACE permit process. Permit costs are outlined in Table 1.

DNR Surface Water Right N/A  Obtained: YES  NO

USACE 408 and 404 (e.g., 404/other Permit) N/A  Obtained: YES  NO

A minimum of 60% design is required to pursue USACE Section 408 permit approval. 60% design is anticipated to be completed by February 2020. USACE Section 408 permit approval is required before the USACE will issue a Section 404 permit. It is anticipated that both the Section 408 and the Section 404 permits will be secured by spring of 2021. Permit costs are outlined in Table 1.

FEMA (CLOMR) N/A  Obtained: YES  NO

Local Zoning/Construction N/A  Obtained: YES  NO

The city is the sponsor for the levee improvement project; therefore, the city will ensure that the project meets all local zoning and construction permit requirements.

Cultural Resources Evaluation

N/A  Obtained: YES  NO

The cultural resources evaluation will be completed through the USACE Section 404 permitting process. Cost to complete is incorporated with the USACE permit process. Permit costs are outlined in Table 1.

Other (provide explanation below)  
Floodplain Development Permit

N/A  Obtained: YES  NO

Application for the floodplain development permit will be completed between 60% and final design. It is anticipated that the permit will be secured by spring of 2021. Permit costs are outlined in Table 1.

NPDES Permit

Application for an NPDES permit will be completed at the time of final design. An NPDES permit will be secured prior to construction which is anticipated to begin in the summer of 2021. Permit costs are outlined in Table 1.

Table 1: Permit Costs

Permit	Cost
G&P T&E Consultation	Included with USACE Permits
USACE Section 408 & 404	\$73,190
Local Zoning/Construction	City in Kind
Cultural Resources Evaluation	Included with USACE Permits
Floodplain Development Permit	\$2,280
NPDES Permit	\$1,170
<b>Permits Total</b>	<b>\$76,640</b>

4. **Partnerships**

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

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

**Lower Elkhorn Natural Resources District (LENRD)**

The city is located within the LENRD. The LENRD is partnering with the city to reduce the risk of flooding to the community. The LENRD is a funding partner contributing 50% of the costs associated with planning, engineering, design, permitting and construction of the levee improvement project.

#### Nebraska Department of Natural Resources (NeDNR)

The NeDNR, in partnership with FEMA, is in the process of remapping the floodplain along the Elkhorn River. The NeDNR is leading the development of updated hydrologic and hydraulic information for the Elkhorn River watershed. The city is maintaining ongoing communication with the NeDNR regarding the status of the levee improvement project. The city is leveraging the information developed by the NeDNR to support design of levee system improvements. The NeDNR is not a funding partner.

#### US Army Corps of Engineers (USACE)

The USACE originally constructed the levee system in 1964. Prior to construction of the levee system, the city entered an agreement by resolution dated April 30, 1963 to give certain assurance to the United States of America relative to the local flood protection project (levee system). One of those assurances was that the city would “maintain and operate the improvement works after completion in accordance with regulations prescribed by the Secretary of the Army.” The city is required to continually invest in the condition of the levee system. Any proposed improvements to the levee system must be reviewed and approved by the USACE through the Section 408 process. Regular coordination has been conducted with the USACE regarding the levee system improvement plans. Design of levee system improvements will be reviewed and approved by the USACE. The USACE is not a funding partner.

#### Federal Emergency Management Agency (FEMA)

FEMA, in partnership with the NeDNR, is in the process of remapping the floodplain along the Elkhorn River. For the city’s levee system to be acknowledged and mapped (accredited) as providing the 100-year flood risk reduction on updated floodplain maps, the city must provide all data and documentation required to prove that the existing levee system meets FEMA’s requirements as specified in 44 Code of Federal Regulations (CFR) 65.10. The city is maintaining ongoing communication with FEMA regarding the status of the levee improvement project. Upon completion of levee system improvements, the city will submit the required data and documentation to FEMA for the levee to be accredited. FEMA is not a funding partner.

### **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.

Fifty percent (50%) cost share up to \$1.75 Million has been secured from the LENRD. The city is currently working on 60% design of levee system improvements. The city is only seeking funds from the Water Sustainability Fund

for final design, permitting and construction of levee system improvements. The construction cost for levee system improvements includes estimates for engineering services to oversee and manage construction of the project and includes estimates for land rights acquisitions. If the funding sources identified do not come through, the city will either delay the project until savings can fund the project, or the city will consider bonding to complete the project.

Table 2: Project Cost and Funding Source Breakdown

	<b>Cost Estimate</b>	<b>LENRD Share</b>	<b>Remaining Costs</b>		
<b>60% Design (Underway)</b>	\$325,770	\$162,885	\$162,885	<b>WSF Grant Request</b>	<b>Local Cost Share</b>
				60%	40%
<b>Final Design and Permitting</b>	\$168,990	\$84,495	\$84,495	\$50,697	\$33,798
<b>Construction of Levee System Improvements</b>	\$3,500,000	\$1,502,620	\$1,997,380	\$1,198,428	\$798,952
<b>TOTAL</b>	<b>\$3,994,760</b>	<b>\$1,750,000</b>	<b>\$2,244,760</b>	<b>\$1,249,125</b>	<b>\$832,750</b>

## 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 City of West Point is provided flood risk reduction from the Elkhorn River by an approximately 2-mile-long levee system that was constructed in 1964. In March 2019, record flooding on the Elkhorn River nearly resulted in levee system failure had it not been for the community's effort to fight the flood through their sandbagging efforts. If the levee system had failed, the impacts to the city would have been devastating considering the population protected and the likelihood that municipal water wells would have been compromised.

FEMA, in partnership with the NeDNR, is in the process of remapping the floodplain along the Elkhorn River. The levee system does not currently meet FEMA's requirements to map (accredit) the levee system as providing 100-year flood risk reduction to the city. If the city does not improve the levee system to meet FEMA's requirements, the levee system will be de-accredited, and the area currently shown as being provided flood risk reduction by the levee system will be mapped as floodplain. Properties within the floodplain with federally backed mortgages would be mandated to purchase flood insurance.

Due to these circumstances, the city is committed to improve the levee system to be more robust and resilient as well as to meet FEMA's requirements. This project consists of design, permitting and construction of levee system improvements. Levee system improvements will include:

- Levee height increases to at least 3 feet above the 100-year flood event,
- Levee surfacing/recreational trail,
- Improved levee/trail access,
- Underseepage management features
  - Sand seepage berm where possible
  - Pervious toe trench where limited space requires,
- Installation of flood monitoring staff gauges to improve flood fight capabilities,
- South tributary flow management improvements
  - Box culvert and necessary grading.
- Installation of water education signage

While the primary purpose of levee system improvements is flood control, the city will incorporate a recreational trail along the top of the levee. The trail will provide recreational benefits to the community while also providing a hard surface for access during wet conditions for flood surveillance. During flooding conditions, trail access will be restricted to emergency and designated flood response personnel only.

7. **Project Tasks and Timeline**

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

*Table 3: Project Tasks and Timeline*

Tasks	Year 1	Year 2	Year 3	Remaining	Total Amount
	2019	2020	2021	2022+	
<b>60% Design (Underway)</b>	\$200,000	\$125,770			\$325,770
<b>Final Design and Permitting</b>		\$125,000	\$43,990		\$168,990
<b>Construction</b>			\$1,000,000	\$2,500,000	\$3,500,000
<b>TOTAL PROJECT COST</b>					\$3,994,760

It is anticipated that construction of levee system improvements will be completed by fall of 2022. The city is only seeking funds from the Water Sustainability Fund for final design, permitting and construction of levee system improvements. The construction cost for levee system improvements includes estimates for engineering services to oversee and manage construction of the project and includes estimates for land rights acquisition.

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

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

Beginning in the fall of 2012, the city chose to pro-actively begin evaluating the levee system to determine whether the system meets FEMA levee accreditation requirements for the purposes of continuing to be shown as providing 100-year flood risk reduction on anticipated future updated floodplain maps for the city. The city retained JEO Consulting Group (JEO) to evaluate the levee system for feasibility of levee accreditation. A preliminary evaluation for feasibility of levee accreditation (Preliminary Evaluation) was completed in May 2014 (JEO 2014) and indicated that the levee system did not meet FEMA's requirements. A detailed evaluation for feasibility of levee accreditation (Detailed Evaluation) was completed in September 2016 (JEO 2016) and identified levee system (structural) improvements necessary to meet FEMA's requirements. To begin design of the levee system improvements, the city has had to wait on pertinent information from FEMA's Elkhorn River remapping project which kicked off in October 2017. The city now has enough information to proceed with design. Feasibility reports which include engineering and technical data to support the proposed project are included in Attachment B of this application.

- 1.A.2 Describe the plan of development ([004.01 A](#));

The March 2019 flood event further emphasizes the importance for completing levee system improvements. Record flooding on the Elkhorn River nearly resulted in levee system failure had it not been for the community's effort to fight the flood through their sandbagging efforts. If the levee system had failed, the impacts to the city would have been devastating considering the population protected and the likelihood that municipal water wells would have been compromised.

The city is committed to improve the levee system to be more robust and resilient as well as to meet FEMA's requirements. The city is in the process of completing 60% design of levee system improvements. 60% design is anticipated to be



completed by February 2020 and will be used to support permitting of levee system improvements. Permitting is anticipated to include:

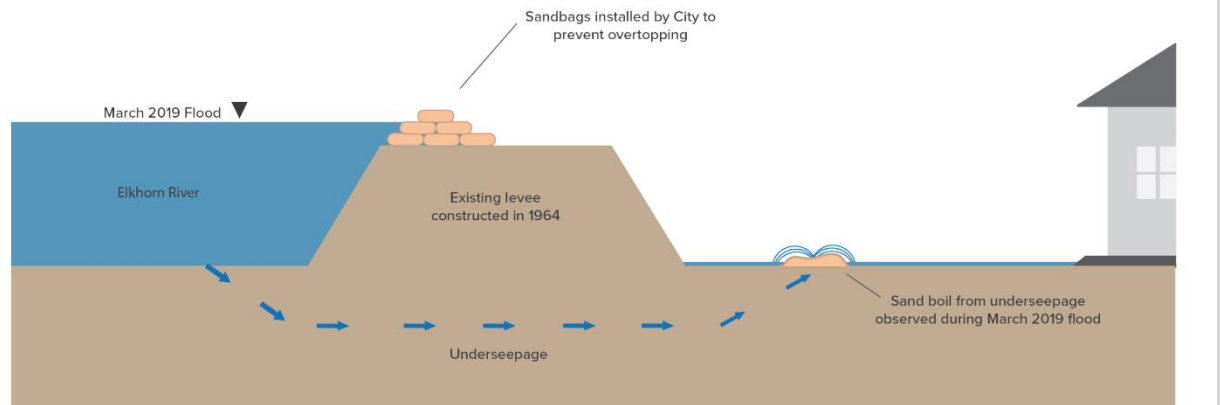
- Nebraska Game and Parks Threatened and Endangered Species Consultation
- USACE Section 408 Request to Alter USACE Civil Works Projects
- USACE Section 404
- Local Zoning and Construction
- Cultural Resources Evaluation
- Floodplain Development Permit
- NPDES Permit

Levee system improvements will include:

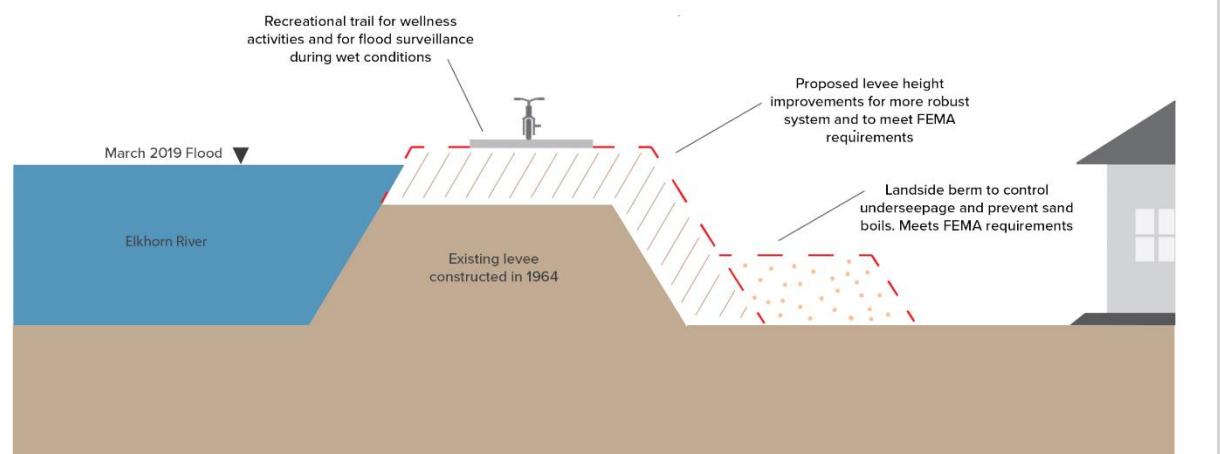
- Levee height increases to at least 3 feet above the 100-year flood event,
- Levee surfacing/recreational trail,
- Improved levee/trail access,
- Underseepage management features
  - Sand seepage berm where possible
  - Pervious toe trench where limited space requires,
- Installation of flood monitoring staff gauges to improve flood fight capabilities,
- South tributary flow management improvements
  - Box culvert and necessary grading.
- Installation of water education signage

While the primary purpose of levee system improvements is flood control, the city will incorporate a recreational trail along the top of the levee. The trail will provide recreational benefits to the community while also providing a hard surface for access during wet conditions for flood surveillance. During flooding conditions, trail access will be restricted to emergency and designated flood response personnel only.

Final design, permitting, bidding, and award of the project is anticipated to be completed by spring of 2021. Construction of levee system improvements is anticipated to be completed by fall of 2022.



*Elkhorn River flooding in March 2019 required the city to sandbag the levee system to prevent overtopping and failure. Sand boils were also observed landside of the levee.*



*Proposed levee system improvements to mitigate risks realized from Elkhorn River flooding in March 2019.*

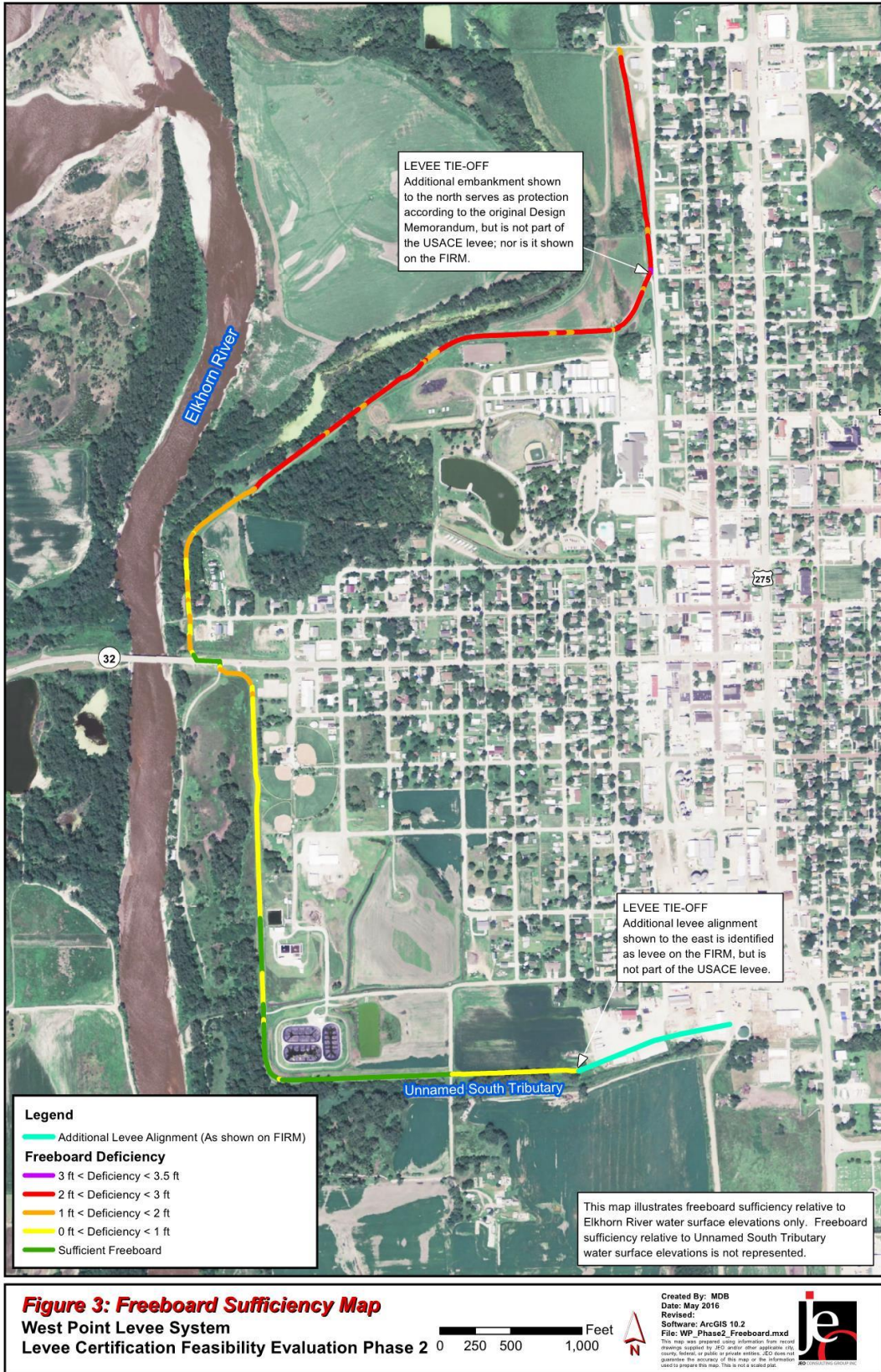
1.A.3 Include a description of all field investigations made to substantiate the feasibility report (004.01 B);

- Key levee system feature topographic survey was collected in spring of 2013 to inform levee system feasibility evaluations.
- Riverine hydraulic cross section survey was completed in fall of 2014 for the purposes of hydraulic analysis of the Elkhorn River and the tributary on the south end of West Point.
- A geotechnical (subsurface soil) investigation including borings and sample testing was completed in fall of 2014 to determine geotechnical improvement needs associated with the performance of the levee system. A geotechnical evaluation report from this investigation completed in August 2016 is provided in Appendix B of the Detailed Evaluation report (JEO 2016) included in Attachment B of this application.
- A hydrologic and hydraulic study of the Elkhorn River and adjacent tributary was completed in September 2016 to determine river water surface elevations and corresponding levee improvement needs. A hydrologic and

- hydraulic report from this study is provided in Appendix C of the Detailed Evaluation report (JEO 2016) included in Attachment B of this application.
- Legal boundary survey for the existing levee system was completed in fall of 2016 to understand and verify existing land rights boundaries. Plan sheets illustrating legal boundary survey completed thus far are included in Appendix H of the Detailed Evaluation report (JEO 2016) included in Attachment B of this application. Additional legal boundary survey is underway to supplement the surveyed areas already completed to determine potential land rights acquisitions needed to accommodate the levee improvements.
  - Riverine hydraulic cross section survey was completed in spring of 2019 after the March 2019 flood for the purposes of post flood event hydraulic analysis of the Elkhorn River. This analysis is underway and will assess how alignment changes to the Elkhorn River, resulting from the flood, impact 100-year water surface elevations at West Point.
  - Detailed topographic survey of the levee system and adjacent lands was completed in spring of 2019 to support design of levee system improvements.

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

An assessment of levee system freeboard was completed to determine levee system height improvement needs. The height of the existing levee embankment was compared to 100-year Elkhorn River water surface elevations. Figure 3 from the Detailed Evaluation report (JEO 2016) illustrates that levee height improvements are necessary for most of the levee system. Hydrologic and hydraulic data from the March 2019 flood event, including high water mark survey, will be factored into the design of levee height increases.



Freeboard Sufficiency Map, Figure 3, from the Detailed Evaluation report.





improvements will provide to adjacent properties. The citizens of West Point support this project. Letters of support from the community are included in Attachment D of this application. A letter from the city assuring that all necessary additional land rights will be acquired is included in Attachment A of this application.

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

Levee system improvements will include:

- Levee height increases  
Earthen fill will be used to raise the height of the existing levee to at least 3 feet above the 100-year flood event. Levee height increases average approximately 1.5 feet with increases as much as 3.5 feet in areas.
- Levee surfacing/recreational trail.  
A recreational trail will be constructed on the finished top of the levee. The trail will provide recreational benefits to the community while providing a hard surface for flood surveillance during wet conditions. During flooding conditions, trail access will be restricted to emergency and designated flood response personnel only.
- Improved levee/trail access.  
Access to the top of the levee and recreational trail will be improved for user benefit and for improved access during flood scenarios.
- Underseepage management features
  - Sand seepage berm where possible
  - Pervious toe trench where limited space requires,During the March 2019 flood, numerous sand boils were observed landside of the levee by city officials and engineers. Underseepage management features such as sand seepage berm and pervious toe trench will be installed to manage underseepage, mitigate seepage boils, and improve the integrity of the levee system.
- Flood monitoring staff gauges.  
Staff gauges will be installed at various points along the levee system to improve the city's ability to monitor rising floodwaters to support proactive decision making.
- South tributary flow management improvements
  - Box culvert and necessary gradingFlow improvements to the Elkhorn River tributary on the south end of West Point will be completed to prevent levee system overtopping. Existing drainage infrastructure is undersized to convey tributary flows. A new box culvert and ditch grading is proposed.
- Installation of water education signage  
Signage will be installed along the recreational trail on top of the levee system to educate the public on water topics such as conservation, flood risk reduction, flood control history, and the Elkhorn River watershed.

Signage will include, "Support provided by the Natural Resources Commission's Water Sustainability Fund".

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

A geotechnical (geological) investigation and evaluation of the levee system and adjacent areas was completed to support levee system improvement design. The investigation and evaluation consisted of soil borings, lab testing, stability analyses of levee slopes, underseepage analyses, and settlement analyses. The findings of this investigation and evaluation are presented in Appendix B of the Detailed Evaluation report (JEO 2016) included in Attachment B of this application.

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

Elkhorn River

A hydrologic and hydraulic study of the Elkhorn River at West Point was completed by JEO as part of the Detailed Evaluation (JEO 2016). Key elements considered included the influence of seasonal variation on peak flow (snowmelt season vs. rainfall season) based on available streamflow records, effects of streambed degradation during high flows that are not ice affected and impacts of ice cover on peak stages for ice affected flows. An assessment of the combined probability water surface elevations based on peak stages occurring during snowmelt season (ice affected) and rainfall season was also completed. A report from this study is provided in Appendix C of the Detailed Evaluation report (JEO 2016) included in Attachment B of this application.

In November 2018, the USACE completed a hydrologic evaluation of the Elkhorn River as part of the Elkhorn Basin Flood Plain Management Services (FPMS) Flood Risk Identification Study. The purpose of the analysis was to develop peak flow frequencies and corresponding hydrographs throughout the Elkhorn River Basin; including at West Point. This information is being leveraged to support levee system improvement design.

The March 2019 flood event provided beneficial hydrologic and hydraulic data that will be used to optimize design of levee system improvements. High water mark survey was collected. This data will be factored into the design of levee height increases.

Elkhorn River Tributary South of West Point

A hydrologic and hydraulic study of the Elkhorn River tributary on the south end of West Point was completed by JEO as part of the Detailed Evaluation. The analysis was completed to support design of improvements to mitigate overflows into the city and to resolve levee system freeboard deficiencies in the area. A

report from this study is included in the Detailed Evaluation report (JEO 2016) included in Attachment B of this application.

- 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).

Design of levee system improvements will meet all the following key design criteria:

- U.S. Department of the Army, Corps of Engineers, Engineering Manual (EM) 1110-2-1913, *Design and Construction of Levees*
- U.S. Department of the Army, Corps of Engineers, Engineering Circular (EC) 1165-2-220, *Policy and Procedural Guidance for Processing Requests to Alter US Army Corps of Engineers Civil Works Projects Pursuant to 33 USC 408*
- U.S. Code of Federal Regulations, Title 44 Section 65.10, *Mapping of Areas Protected by Levee System*

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.

The existing levee system was originally constructed by the USACE in 1964. Significant investment has been made to construct, operate and maintain the existing levee system. The existing levee system provides a corridor and foundation to accommodate improvement of the existing infrastructure. The city will not be starting from scratch, rather, the existing levee system is being improved based on a refined understanding of the flood risks in the area. The



next best alternative would be to raise, floodproof or relocate all structures located within the leveed area. Approximately 481 structures are located within the leveed area with a total asset value estimated at \$95.8 Million. The city's wastewater treatment facility, municipal water wells, municipal water storage, city offices, fire station, and police station are located within the leveed area. The cost required to relocate, raise or floodproof all structures and associated infrastructure located within the leveed area would be multiple times greater than the cost to complete the proposed alternative to improve the levee system.

Data regarding structures and assets protected is derived from the Levee Risk Screening completed by the USACE in 2018. A summary of the Levee Risk Screening findings is included in Attachment C of this application.

3. Document all sources and report all **costs** and **benefit data** using current data, (commodity prices, recreation benefit prices, and wildlife prices as prescribed by the Director) using both dollar values and other units of measurement when appropriate (environmental, social, cultural, data improvement, etc.). The period of analysis for economic feasibility studies is the project life, up to fifty (50) years; or, with prior approval of the Director up to one hundred (100) years, (Title 261, CH 2 - 005).

Economic feasibility was reviewed as described in Title 261 – Rules Governing the Administration of the Water Sustainability Fund. The period used for this economic feasibility analysis was 50 years pursuant to the guidelines of this application. The proposed design of levee system improvements will meet the design requirements to provide flood risk reduction from the 100-year flood event; therefore, a 100-year project life could be considered reasonable, but 50 years was used to be conservative.

- 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).

**Costs**

*Table 4: 50-Year Project Cost Estimate*

Cost Items	Year 0	Year 1	Year 2	Year 3	Year 4-50	Total Amount
	2019	2020	2021	2022	2023-2069	
60% Design	\$200,000	\$125,770				\$325,770
Final Design and Permitting		\$125,000	\$43,990			\$168,990
Construction			\$1,000,000	\$2,500,000		\$3,500,000
Operation and Maintenance (Est. \$10,000/year)					\$470,000	\$470,000

**TOTAL 50-YEAR PROJECT COST**    \$4,464,760

The city is only seeking funds from the Water Sustainability Fund for final design, permitting and construction of levee system improvements. The construction cost for levee system improvements includes estimates for engineering services to oversee and manage construction of the project and includes estimates for land rights acquisitions. Detailed information regarding project costs is provided within the “Costs” section starting on page 2 of Attachment A of this application.

- 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).

**Benefits**

*Table 5: 50-Year Project Benefit Estimate*

Benefit Items	Year 0	Year 1	Year 2	Year 3	Year 4 - 50	Total Amount
	2019	2020	2021	2022	2023-2069	
Flood Damage Reduction (Est. \$958,000 per year)					\$45,026,000	\$45,026,000
Flood Insurance Premium Savings (Est. \$395,000 per year for all impacted)					\$18,565,000	\$18,565,000
Recreation Benefits (Est. \$167,022 per year)					\$7,850,034	\$7,850,034

**TOTAL 50-YEAR PROJECT BENEFIT \$71,441,034**

Detailed information regarding project benefits is provided within the “Benefits” section starting on page 4 of Attachment A of this application.

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

The benefit:cost ratio calculated for the project over a 50-year period is 16:1. Justifications and explanations for the economic feasibility of the project, including a table indicating the annual cash flow stream, is included in Attachment A of this application.

- 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)

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

Of the total project cost, the LENRD has pledged 50% cost share up to \$1.75 Million. The interlocal agreement for cost share between the city and the LENRD is included in Attachment A of this application. The city is requesting \$1,249,125 from the Water Sustainability Fund for final design, permitting and construction of levee system improvements. The city is committed to this project and will contribute at least \$832,750 in cash as local match for this project. The city's letter of financial commitment is included in Attachment A of this application.

Table 6: Cost Share Breakdown

	Cost Estimate	LENRD Share	Remaining Costs	WSF Grant Request	Local Cost Share
60% Design (Underway)	\$325,770	\$162,885	\$162,885	60%	40%
Final Design and Permitting	\$168,990	\$84,495	\$84,495	\$50,697	\$33,798
Construction of Levee System Improvements	\$3,500,000	\$1,502,620	\$1,997,380	\$1,198,428	\$798,952
<b>TOTAL</b>	<b>\$3,994,760</b>	<b>\$1,750,000</b>	<b>\$2,244,760</b>	<b>\$1,249,125</b>	<b>\$832,750</b>

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

The city includes costs for levee system operation and maintenance in their annual budget each year. These costs are reviewed annually to ensure that the city sets aside the appropriate budget to operate and maintain the levee system so it performs at its designed level of integrity. It is estimated that an additional \$10,000 per year will be necessary for operation and maintenance of improvements to the levee system.

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 design of levee system improvements minimizes impacts on the natural environment. Levee improvement design will meet the requirements of the city's floodplain management ordinance which meets the Nebraska Minimum Standards for Floodplain Management Programs as well as the requirements in 44 CFR, Chapter 1, Part 60.3. Levee improvement design is being completed mindful of meeting or exceeding the requirements of the necessary permit processes such as Nebraska Game and Parks Commission Threatened and Endangered Species Consultation and USACE Section 404 permitting. The USACE Section 408 permit will require completion of an Environmental Assessment and subsequent receipt of Finding of No Significant Impact (FONSI) to support approval of the project. The timelines for construction of levee system improvements will take into consideration timelines for nesting and/or migration of endangered or threatened species.

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

The city currently owns right-of-way or easement for the corridor of the existing levee system. The city has authority to manage land use within its jurisdiction in such a way that is in the best interest of the city. All necessary land rights will be acquired so that the levee system will not reside on private property. If necessary, the city does have condemnation authority to acquire right-of-way for the project. All permits will be acquired to ensure all legal obligations of the project are fulfilled.

9. Explain how your project considers plans and programs of the state and resources development plans of the political subdivisions of the state.

The NeDNR's Annual Report and Plan of Work for the State Water Planning and Review Process (NeDNR Annual Report) dated September 2018 identifies objectives for implementing the state water planning and review process. This project meets multiple objectives identified, including:

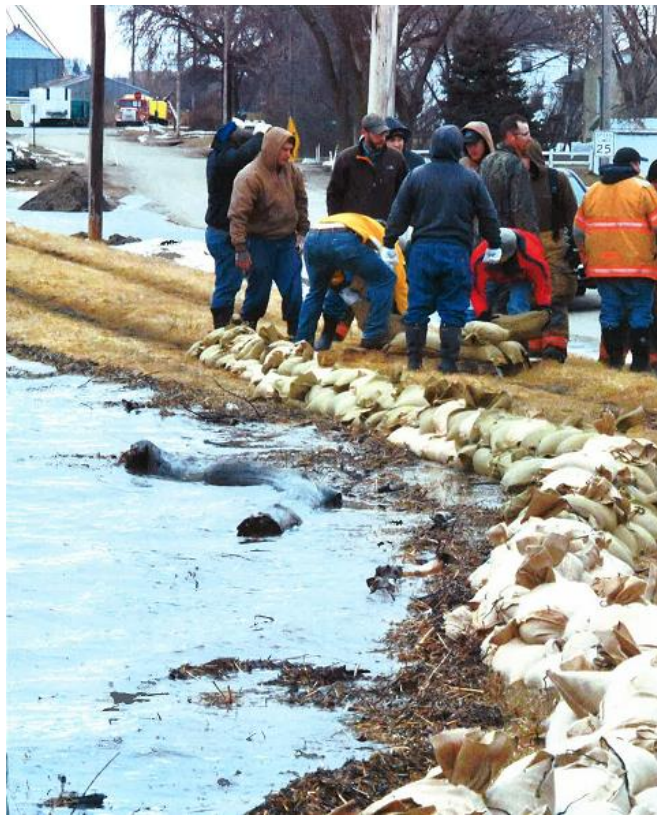
- *Maintain data, information, and analysis capabilities for water planning, including specific programs for collecting, maintaining, and distributing information on streamflows, as well as analyzing water uses and water supplies across the state;*

Staff gauges will be installed at various points along the levee system to improve the city's ability to monitor rising floodwaters to support proactive decision making. These staff gauges will provide opportunity to gather additional data regarding the hydraulic performance of the Elkhorn River

and will contribute to state planning goal for collecting, maintaining, and distributing information on streamflows.

- *Provide resources to map and identify areas vulnerable to flood damage;*

FEMA, in partnership with the NeDNR, is in the process of remapping the floodplain along the Elkhorn River. For the city's levee system to be acknowledged and mapped (accredited) as providing the 100-year flood risk reduction on updated floodplain maps, the city must provide all data and documentation required to prove that the levee system meets FEMA's requirements as specified in 44 CFR 65.10. The city plans to submit all necessary data and documentation to achieve levee accreditation. This data and documentation will provide FEMA and the NeDNR the information necessary to accurately map flood risk along the Elkhorn River at West Point.



*March 2019 – Volunteers place sandbags as floodwaters rise to the top of the levee system.*

- *Participate in interagency collaboration with federal agencies, state agencies, local natural resources districts (NRD's), and other water interest entities on various water resources programs and projects;*

For the proposed project to be successful, interagency collaboration is required between FEMA, the USACE, the NeDNR, the LENRD and the city.

As mentioned previously, FEMA, in partnership with the NeDNR, is in the process of remapping the floodplain along the Elkhorn River. The city is maintaining ongoing communication with FEMA and the NeDNR regarding the status of the levee improvement project.

Any proposed improvements to the levee system must be reviewed and approved by the USACE through the Section 408 process. Regular coordination has been conducted with the USACE regarding the levee system improvement plans. Design of levee system improvements will be reviewed and approved by the USACE.

The LENRD is partnering with the city to reduce the risk of flooding to the community and is a funding partner contributing 50% of the costs associated with planning, engineering, design, permitting and construction of the levee improvement project.

- *Consolidate and present information in a form that is understandable and useful to the public and interagency collaborators.*

The city will install signage along the proposed recreational trail on top of the levee system to educate the public on water topics such as conservation, flood risk reduction, flood control history, and the Elkhorn River watershed. This signage will present information in a form that is understandable and useful to the public. Signage will include, "Support provided by the Natural Resources Commission's Water Sustainability Fund".





March 2019 – A surveillance team monitors the condition of the levee as floodwaters rise to the sandbags.

The NeDNR Annual Report also identifies the goals of the Water Sustainability Fund according to *Neb. Rev. Stat. § 2-1506*. This project meets multiple goals identified, including:

- *Remediate or mitigate threats to drinking water;*

The city's drinking water supply wells are located within the leveed area. If the levee system were to fail (in the future) because the proposed levee system improvements were not completed, the city's water supply would be compromised. Five (5) municipal water wells and drinking water for 3,340 residents as well as multiple businesses would be compromised. Furthermore, the city would have issues obtaining access to alternative sources of clean drinking water as the major highways (Highway 275 and Highway 32) into town would be inundated during significant flood events.

- *Contribute to multiple water supply management goals including flood control, reducing threats to property damage, agricultural uses, municipal and industrial uses, recreational benefits, wildlife habitat, conservation, and preservation of water resources;*

**Flood Control:** The primary purpose of this levee improvement project is for flood control. The improved levee system will provide flood risk reduction from the 100-year (1% annual chance) flood event on the Elkhorn River. The improved levee system will meet the USACE design criteria as cited in Engineering Manual (EM) 1110-2-1913, *Design and Construction of Levees*. The improved levee system will provide the city

flood risk reduction from floods of the same magnitude as the March 2019 flood event.

Recreation: The project includes construction of a recreational trail on top of the improved levee system. The trail will provide the community opportunity for wellness activities such as walking, running, and biking. The trail will also provide a hard surface for conducting levee inspections and flood surveillance during wet conditions. During flooding conditions, trail access will be restricted to emergency and designated flood response personnel only.

Municipal and Industrial Uses: The improved levee system will provide flood risk reduction to a community of 3,340 people. Within the leveed area of the improved levee system are approximately 481 structures, including commercial properties and critical infrastructure such as the city's waste water treatment facility, five (5) municipal water wells, municipal water storage, the Cuming County Public Power District, city offices including the police and fire department, the city public works building, multiple religious institutions, the city community center, the Cuming County Historical Department, and an antique museum.

Completion of these improvements will allow the levee system to be accredited by FEMA on updated floodplain maps. Municipal, commercial and industrial properties within the leveed area will be identified as protected by a levee and will not be identified as within a floodplain. These property owners will be provided additional flood risk reduction by the improved levee system and will not be burdened by flood insurance mandates or development restrictions. Flood insurance can still be obtained, but the premiums will be significantly cheaper for property owners due to the accredited levee system. These cost savings will have a positive impact on the city's economy.

- *Use the most cost-effective solutions available;*

The existing levee system was originally constructed by the USACE in 1964. Significant investment has been made to construct, operate and maintain the existing levee system. The existing levee system provides a corridor and foundation to accommodate improvement of the existing infrastructure. **The city will not be starting from scratch, rather, the existing is being improved based on a refined understanding of the flood risks in the area.** The next best alternative would be to raise, floodproof or relocate all structures located within the leveed area. Approximately 481 structures are located within the leveed area with a total asset value estimated at \$95.8 Million. The city's wastewater treatment facility, municipal water wells, municipal water storage, city offices, fire station, and police station are located within the leveed area.



The cost required to relocate, raise or floodproof all structures and associated infrastructure located within the leveed area would be multiple times greater than the cost to complete the proposed alternative to improve the levee system.

Data regarding structures and assets protected is derived from the Levee Risk Screening completed by the USACE in 2018. A summary of the Levee Risk Screening findings is included in Attachment C of this application.

The project falls within the following category identified to meet the goals of the Water Sustainability Fund.

- *Rehabilitation or restoration of water supply infrastructure, new water supply infrastructure, or water supply infrastructure maintenance or **flood prevention and protection of critical infrastructure**;*

The existing levee system will be improved to provide the city flood risk reduction from floods of the same magnitude as the March 2019 flood event. The improved levee system will provide flood risk reduction to a community of 3,340 people. Within the leveed area of the improved levee system are approximately 481 structures, including commercial properties and **critical infrastructure**.



Critical infrastructure at risk within the leveed area.

The NeDNR Annual Report states that Water Sustainability Fund was intended to be equitably distributed statewide to the greatest extent possible for the long-term and to **give priority funding status to projects that are the result of federal mandates.**

This project is a result of a FEMA federal mandate. FEMA, in partnership with the NeDNR, is in the process of remapping the floodplain along the Elkhorn River. For the city's levee system to be acknowledged and mapped (accredited) as providing the 100-year flood risk reduction on updated floodplain maps, the city is **mandated** to provide all data and documentation required to prove that the existing levee system meets FEMA's requirements as specified in 44 CFR 65.10. Based on the accreditation evaluations completed by JEO (JEO 2014 and JEO 2016), the levee system does not currently meet FEMA's requirements to map (accredit) the levee system as providing 100-year flood risk reduction to the city. If the city does not improve the levee system to meet FEMA's requirements, the levee system will be officially de-accredited, and the area currently shown as provided flood risk reduction by the levee system will be mapped as floodplain. Properties within the floodplain with federally backed mortgages would be mandated to purchase flood insurance. Additionally, property values would suffer and development restrictions would be required within the newly mapped floodplain.

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.

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

The city currently owns right-of-way or easement for the corridor of the existing levee system. Plan sheets illustrating existing right-of-way and easement are included Appendix H of the Detailed Evaluation report (JEO 2016) included in Attachment B of this application.

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

The city has authority to manage land use within its jurisdiction in such a way that is in the best interest of the city. Any additional land rights needed will be acquired so that the levee system improvements will not reside on private property. The city does not anticipate any resistance considering the direct flood risk benefits that the levee system improvements will provide to adjacent properties. The citizens of West Point support this project. Letters of support from the community are

included in Attachment D of this application. If necessary, the city does have condemnation authority to acquire right-of-way for the improvements. A letter from the city assuring that all necessary additional land rights will be acquired is included in Attachment A of this application.

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

This project falls within the authority and jurisdiction of the city. The city entered into an agreement, pursuant to 33 CFR Part 208.10, by resolution with the USACE to operate and maintain the levee system to provide benefit to the community. The city has the authority to improve the levee system through the USACE Section 408 process pursuant to Engineering Circular (EC) 1165-2-220 *Policy and Procedural Guidance for Processing Requests to Alter US Army Corps of Engineers Civil Works Projects Pursuant to 33 USC 408*. Finally, this project aligns with specific goals identified in the city's 10-year Community Vision Comprehensive Plan (Hanna:Keelan 2012).

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

If the levee system is not improved, the city will be at risk from future flood events that exceed the structure's design level. Furthermore, the levee system would be de-accredited and the area behind the levee system would be mapped as floodplain; imposing flood insurance burdens on property owners with mortgages. Probable environmental and ecological consequences include:

- A levee system failure would put life safety at risk with potential for fatal consequences.
- An estimated 600 people are at risk from flooding inundation within the leveed area. A levee system failure would displace this population.
- Five (5) municipal water wells are located within the leveed area. A levee system failure would result in the city's drinking water supply being compromised. Five (5) municipal water wells and drinking water for 3,340 residents as well as multiple businesses would be compromised.
- The city's wastewater treatment facility is located within the leveed area. A levee system failure could overwhelm the wastewater treatment facility; requiring raw sewage to be discharged into the Elkhorn River and transported downstream for an indefinite period. Downstream communities and residents along the Elkhorn River, Platte River, and Missouri River would be adversely affected.
- Economic hardships may result for property owners who cannot afford the significant flood insurance premium costs that would be required.

## 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. Remediate 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.



In March 2019, record flooding on the Elkhorn River nearly resulted in levee system failure had it not been for the community's ability to fight the flood through their sandbagging efforts. If the levee system had failed, the impacts to the city would have been devastating. The city's municipal water supply wells are located within the leveed area providing a total capacity of 3,400 gallons per minute. If the levee system were to fail (in the future) because the proposed levee system improvements were not completed, the city's water supply would be compromised. Five (5) municipal water wells and drinking water for 3,340 residents as well as multiple businesses would be compromised. Furthermore, the city would have issues obtaining access to alternative sources of clean drinking water as the major highways (Highway 275 and Highway 32) into town would be inundated during significant flood events.



*March 2019 – Volunteers place sandbags as floodwaters rise to the top of the levee system.*

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

The project is located within the LENRD. The LENRD and the NeDNR jointly adopted a voluntary Integrated Water Management Plan (IMP) on October 25, 2018. The IMP identifies four (4) overarching goals with objectives to proactively manage growth of water uses while protecting existing uses. The proposed project helps to achieve objectives within all four overarching goals of the IMP. These include:

- Goal 1: Objective 1.1, Action 1.1.5  
*Investigate and prioritize installation of new stream gauge locations to align with District boundaries.*

Staff gauges will be installed at various points along the levee system to improve the city's ability to monitor rising floodwaters to support proactive decision making. These staff gauges will provide opportunity to gather additional data regarding the hydraulic performance of the Elkhorn River and will contribute to the IMP goal for maintaining a comprehensive inventory of data and information relevant to integrated water management.

- Goal 2: Objective 2.2, Action 2.2.2  
*Manage expanded uses and new development so that existing users are not adversely affected.*

The proposed levee improvement project maintains a status quo and does not propose altering the function or streamflow of the Elkhorn River watershed or the downstream watersheds. The existing levee system provides a corridor and foundation to accommodate improvement of the existing infrastructure. The city will be improving the existing levee system based on a refined understanding of the flood risks in the area. Other project alternatives to reduce flood risk could include construction of an upstream dam. An upstream dam could have adverse impacts through altering natural streamflow and introducing human intervention into the natural function of the watershed.

- Goal 3: Objective 3.2, Action 3.2.3  
*Collaborate with cities, counties, and public water suppliers to encourage expanded water education and the use of conservation practices.*

The city will install signage along the recreational trail on top of the levee system to educate the public on water topics such as conservation, flood risk reduction, flood control history, and the Elkhorn River watershed. Signage will include, "Support provided by the Natural Resources Commission's Water Sustainability Fund".

- Goal 4: Objective 4.2, Action 4.2.3  
*Coordinate with the Coalition and others to implement feasible water management projects.*

The LENRD is a member of the Lower Platte River Basin Coalition (Coalition). The LENRD is project partner for this project; contributing 50% cost share up to \$1.75 Million. This project is a feasible water management project in the form of flood control. The proposed project improves upon existing flood control infrastructure based on a refined understanding of flood risk in the area. The project is cost effective and provides substantial benefits including:

- **Flood damage reduction** to people and property including approximately 481 structures, including commercial properties and critical infrastructure such as the city's waste water treatment facility, five (5) municipal water wells, municipal water storage, the Cuming County Public Power District, city offices including the police and fire department, the city public works building, multiple religious institutions, the city community center, the Cuming County Historical Department, and an antique museum.
- **Flood insurance premium savings** for properties within the area that would be floodplain if the levee system is not improved.
- **Recreational benefits** from the construction of a recreational trail on top of the improved levee system. The trail will also provide a hard surface for conducting levee inspections and flood surveillance during wet conditions. During flooding conditions, trail access will be restricted to emergency and designated flood response personnel only.





March 2019 – A surveillance team monitors the condition of the levee as floodwaters rise to the sandbags.

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 project is located within the LENRD. The LENRD and the NeDNR jointly adopted a voluntary Integrated Water Management Plan (IMP) on October 25, 2018. The proposed project helps to achieve Goal 2: Objective 2.2, Action 2.2.2 as identified in the IMP.

- Goal 2: *Sustain a balance between current and future water uses and supplies through water management strategies and projects.*
  - Objective 2.2: *Develop and implement strategies to minimize impacts of future development on existing uses.*
    - Action 2.2.2: *Manage expanded uses and new development so that existing users are not adversely affected.*

The proposed levee improvement project does not propose altering the function or streamflow of the Elkhorn River watershed or the downstream

watersheds. The existing levee system provides a corridor and foundation to accommodate improvement of the existing infrastructure. The city will be improving the existing levee system based on a refined understanding of the flood risks in the area. Other project alternatives to reduce flood risk could include construction of an upstream dam. An upstream dam could have adverse impacts through altering natural streamflow and introducing human intervention into the natural function of the watershed. The proposed project will not result in aquifer depletion and will not adversely change existing streamflow.

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.

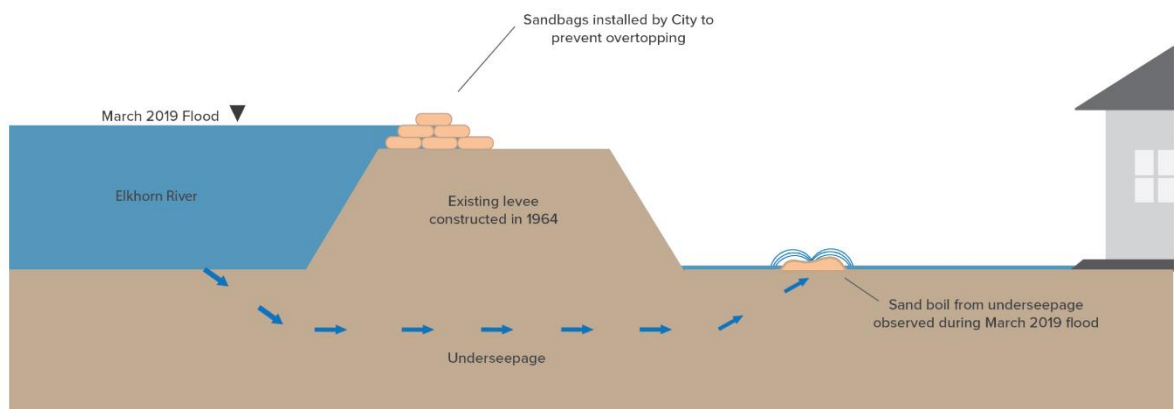
Flood Control: The primary purpose of this levee improvement project is for flood control. The improved levee system will provide flood risk reduction from the 100-year (1% annual chance) flood event on the Elkhorn River. The improved levee system will meet the USACE design criteria as cited in Engineering Manual (EM) 1110-2-1913, *Design and Construction of Levees*. The improved levee system will provide the city flood risk reduction from floods of the same magnitude as the March 2019 flood event.

Recreation: The project includes construction of a recreational trail on top of the improved levee system. The trail will provide the community opportunity for wellness activities such as walking, running, and biking. As noted in the Nebraska State Comprehensive Outdoor Recreation Plan (SCORP), recreational trails were identified as the recreation facility most important to Nebraskans (SCORP 2016, pg. 74). The most popular outdoor activities based on participation rate nationally and based on frequency of participation were running and biking (SCORP 2016, pg. 69). The trail will also provide a hard surface for conducting levee inspections and flood surveillance during wet conditions. During flooding conditions, trail access will be restricted to emergency and designated flood response personnel only.

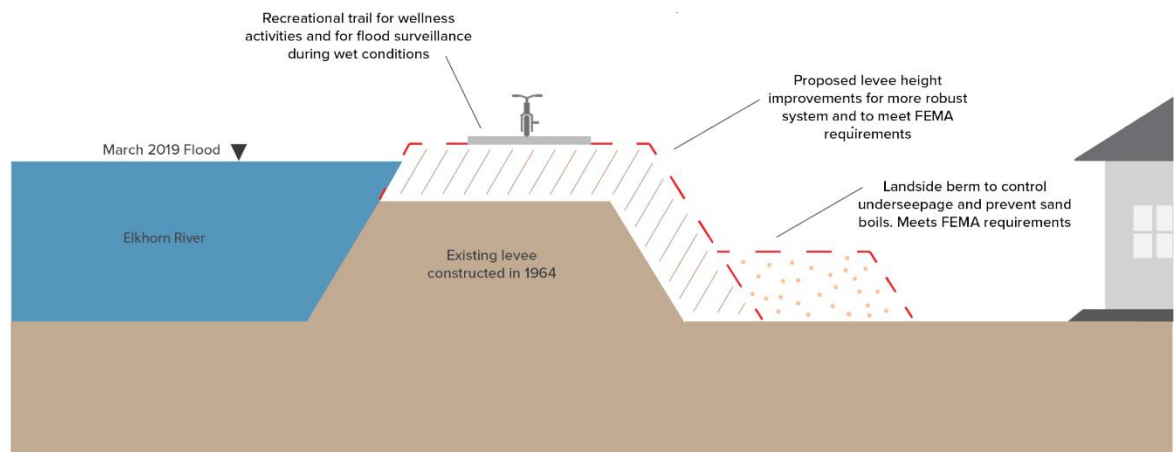
Municipal and Industrial Uses: The improved levee system will provide flood risk reduction to a community of 3,340. Within the leveed area of the improved levee system are approximately 481 structures, including commercial properties, the city's waste water treatment facility, five (5) municipal water wells, municipal water storage, the Cuming County Public Power District, city offices including the police and fire department, the city public works building, multiple religious

institutions, the city community center, the Cuming County Historical Department, and an antique museum.

Completion of levee system improvements will allow the levee system to be accredited by FEMA on updated floodplain maps. Municipal, commercial and industrial properties within the leveed area will be identified as protected by a levee and will not be identified as within a floodplain. These property owners will be provided additional flood risk reduction by the improved levee system and will not be burdened by flood insurance mandates or development restrictions. Flood insurance can still be obtained, but the premiums will be significantly cheaper for property owners due to the accredited levee system. These cost savings will have a positive impact on the city's economy.



*Elkhorn River flooding in March 2019 required the city to sandbag the levee system to prevent overtopping and failure. Sand boils were also observed landside of the levee.*



*Proposed levee system improvements to mitigate risks realized from Elkhorn River flooding in March 2019.*

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.

According to the Nebraska State Hazard Mitigation Plan (HMP) adopted in 2014, the number one (1) ranked hazard risk to Nebraskans is flooding. The flooding across Nebraska in March 2019, including at West Point, was one of the most widespread natural disasters in the state's history. According to the Nebraska Emergency Management Agency (NEMA) the disaster resulted in disaster declarations in 80 counties and 104 cities across Nebraska. The disaster has imposed a significant burden on local and state resources that will be felt for many years. This event provides an emphasis on the importance of maintaining and improving the states flood control infrastructure to reduce the risk for future damages and resource burdens. The city is provided flood risk reduction from the Elkhorn River by an approximately 2-mile-long levee system that was constructed in 1964. The March 2019 flooding on the Elkhorn River nearly resulted in levee system failure had it not been for the community's flood fighting efforts. If the levee system had failed, the impacts to the city would have been devastating considering the population protected and the likelihood that municipal water wells would have been compromised. Five (5) municipal water wells and drinking water for 3,340 residents as well as multiple businesses would be compromised.

Now nearing 60 years old, this levee system requires improvement to meet current design criteria and to ensure the levee continues to provide flood risk reduction to the city so it can thrive for another 60+ years. Furthermore, this improvement project provides a secondary beneficial use in the form of a recreational trail along the top of levee system. The trail will provide the community opportunity for wellness activities such as walking, running, and biking. As noted in the Nebraska State Comprehensive Outdoor Recreation Plan (SCORP), recreational trails were identified as the recreation facility most important to Nebraskans (SCORP 2016, pg. 74). The most popular outdoor activities based on participation rate nationally and based on frequency of participation were running and biking (SCORP 2016, pg. 69). The trail will also provide a hard surface for conducting levee inspections and flood surveillance during wet conditions. During flooding conditions, trail access will be restricted to emergency and designated flood response personnel only. This project will not reduce any existing beneficial uses of Nebraska's water resources.





March 2019 – Elkhorn River floodwaters and existing levee at West Point looking north.

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 proposed project is cost effective with a benefit:cost ratio calculated to be 16:1. Justifications and explanations for the economic feasibility of the project is included in Attachment A of this application.

Table 7: 50-Year Project Cost

Cost Items	Year 0	Year 1	Year 2	Year 3	Year 4-50	Total Amount
	2019	2020	2021	2022	2023-2069	
60% Design	\$200,000	\$125,770				\$325,770
Final Design and Permitting		\$125,000	\$43,990			\$168,990
Construction			\$1,000,000	\$2,500,000		\$3,500,000
Operation and Maintenance (Est. \$10,000/year)					\$470,000	\$470,000

**TOTAL 50-YEAR PROJECT COST \$4,464,760**

Detailed information regarding project costs is provided within the “Costs” section starting on page 2 of Attachment A of this application.

Table 8: 50-Year Project Benefit

Benefit Items	Year 0	Year 1	Year 2	Year 3	Year 4 - 50	Total Amount
	2019	2020	2021	2022	2023-2069	
Flood Damage Reduction (Est. \$958,000 per year)					\$45,026,000	\$45,026,000
Flood Insurance Premium Savings (Est. \$395,000 per year for all impacted)					\$18,565,000	\$18,565,000
Recreation Benefits (Est. \$167,022 per year)					\$7,850,034	\$7,850,034

**TOTAL 50-YEAR PROJECT BENEFIT** \$71,441,034

Detailed information regarding project benefits is provided within the “Benefits” section starting on page 4 of Attachment A of this application.

Significant investment has been made to construct, operate and maintain the existing levee system. The existing levee system provides a corridor and foundation to accommodate improvement of the existing infrastructure. **The city will not be starting from scratch, rather, the existing levee system is being improved based on a refined understanding of the flood risks in the area.** The next best alternative would be to raise, floodproof or relocate all structures located within the leveed area. Approximately 481 structures are located within the leveed area with a total asset value estimated at \$95.8 Million. The city’s wastewater treatment facility, municipal water wells, municipal water storage, city offices, fire station, and police station are located within the leveed area. The cost required to relocate, raise or floodproof all structures and associated infrastructure located within the leveed area would be astronomical compared to the cost to complete the proposed alternative to improve the levee system.

Data regarding structures and assets protected is derived from the Levee Risk Screening completed by the USACE in 2018. A summary of the Levee Risk Screening findings is included in Attachment C of this application.



March 2019 – Volunteers place sandbags as floodwaters rise to the top of the levee system.

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 USACE originally constructed the levee system in 1964. Prior to construction of the levee system, the city entered an agreement by resolution, dated April 30, 1963, to give certain assurance to the United States of America relative to the local flood protection project (levee system). One of those assurances was that the city would “maintain and operate the improvement works after completion in accordance with regulations prescribed by the Secretary of the Army.” The prescribed regulations are those articulated in 33 CFR § 208.10 *Local flood protection works; maintenance and operation of structures and facilities*. The federal regulations specifically state:

- (a) General. (1) “The structures and facilities constructed by the United States for local flood protection shall be continuously maintained in such a manner and operated at such times and for periods as may be necessary to obtain the maximum benefits.
- (a) General (2) “...responsible for the efficient operation and maintenance of all structures and facilities during flood periods and for continuous inspection and maintenance of the project works during period of low water, all without cost to the United States.

The city is required by federal law to operate and maintain the levee system to provide maximum benefits. Now nearing 60 years old, the levee system requires not just maintenance, but significant improvement to meet current design criteria and to ensure the levee continues to provide crucial flood risk reduction to the city.

This project is a result of a FEMA federal mandate. FEMA, in partnership with the NeDNR, is in the process of remapping the floodplain along the Elkhorn River. For the city’s levee system to be acknowledged and mapped (accredited) as providing the 100-year flood risk reduction on updated floodplain maps, the city is **mandated** to provide all data and documentation required to prove that the existing levee system meets FEMA’s requirements as specified in 44 CFR 65.10. Based on the accreditation evaluations completed by JEO (JEO 2014 and JEO 2016), the levee system does not currently meet FEMA’s requirements to map (accredit) the levee system as providing 100-year flood risk reduction to the city. If the city does not improve the levee system to meet FEMA’s requirements, the levee system will be de-accredited, and the area currently shown as provided flood risk reduction by the levee system will be mapped as floodplain. Properties within the floodplain with federally backed mortgages would be required to purchase flood insurance at a much higher rate. Additionally, property values would suffer, and development restrictions would be required within the newly mapped floodplain.

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 record flooding in March 2019 on the Elkhorn River nearly resulted in levee system failure had it not been for the community's effort to fight the flood through their sandbagging efforts. If the levee system had failed, the impacts to the city would have been devastating. The improved levee system will provide more robust flood risk reduction to the city with a population of 3,340, 481 structures, including commercial properties and critical infrastructure such as the city's waste water treatment facility, five (5) municipal water wells, municipal water storage, the Cuming County Public Power District, city offices including the police and fire department, the city public works building, multiple religious institutions, the city community center, Cuming County Historical Department, and an antique museum. A total \$95.8 Million in assets is estimated to be provided flood risk reduction by the levee system. The total estimated adverse economic impact that would result from a levee failure scenario is \$34.2 Million. Data regarding structures and assets protected is derived from the Levee Risk Screening completed by the USACE in 2018. A summary of the Levee Risk Screening findings is included in Attachment C of this application.



Critical infrastructure at risk within the leveed area.

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.

In March 2019, record flooding on the Elkhorn River nearly resulted in levee system failure had it not been for the community's effort to fight the flood through their sandbagging efforts. If the levee system had failed, the impacts to water quality would have been catastrophic. Many properties, including commercial and industrial properties and the city's wastewater treatment facility, are located within the leveed area. The levee system prevents nonpoint source pollution from entering the Elkhorn River during high river flows. If the levee were to fail because these improvements were not completed, water quality within the Elkhorn River Basin would be threatened. If the city's wastewater treatment facility were overwhelmed by floodwaters, raw sewage would be discharged into the Elkhorn River and transported downstream for an indefinite period. Floodwaters cascading through commercial and industrial properties will likely result in contaminants dispersed into floodwaters and transported downstream. Downstream communities and residents along the Elkhorn River, Platte River, and Missouri River would be adversely affected.



*March 2019 – Elkhorn River flooding west of West Point.*

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.

Of the total project cost, the LENRD has pledged 50% cost share up to \$1.75 Million. The interlocal agreement for cost share between the city and the LENRD is included in Attachment A of this application. The city is requesting \$1,249,125 from the Water Sustainability Fund for final design, permitting and construction of levee system improvements. The city is committed to this project and will contribute at least \$832,750 in cash as local match for this project. The city's letter of financial commitment is included in Attachment A of this application.

The USACE originally constructed the levee system in 1964. The USACE will not provide funding for improvements or betterments to the levee system. The USACE will only provide support (rehabilitation assistance) for repair or restoration of the levee system to the pre-disaster condition and level of protection if damaged during a flood event. Once the city completes the proposed improvements, the entire levee system, including improvements, will be eligible for USACE Rehabilitation Assistance pursuant to Public Law (PL) 84-99.

FEMA will not provide funding for improvements to the levee system. FEMA, in partnership with the NeDNR, is in the process of remapping the floodplain along the Elkhorn River. For the city's levee system to be acknowledged and mapped (accredited) as providing the 100-year flood risk reduction on updated floodplain maps, the city is mandated to provide all data and documentation required to prove that the existing levee system meets FEMA's requirements as specified in 44 CFR 65.10. Based on the accreditation evaluations completed by JEO (JEO 2014 and JEO 2016), the levee system does not currently meet FEMA's requirements to map (accredit) the levee system as providing 100-year flood risk reduction to the city. The city must fund and complete levee system improvements to meet FEMA's requirements.

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.

In 2012, the city completed and adopted a 10-year Community Vision Comprehensive Plan (Hanna:Keelan 2012). This project supports the implementation of the city's comprehensive plan.

Within the plan, the city identifies public facilities, utilities and transportation goals, policies and action strategies that support sustainable use of environmental resources, including water.

- Goal 1 states, "*Maintain and improve the existing public facilities and utilities in West Point and develop, as needed, new facilities and services to reflect the Community's needs and demands.*"
- Policy 1.3 states, "*Maintain the provision of facilities and services necessary to prevent pollution of the environment. Provide modern sewage treatment facilities, refuse collection and disposal, street cleaning, **flood control** and similar environmental control processes.*"

Also, within the plan, the city identifies land use and development goals, policies and action strategies that support sustainable use of environmental resources, including water.

- Goal 3 states, "*Adopt a Land Use Plan that encourages preservation and protection of environmental resources.*"
- Action Strategy 3.1.1 states, "*Preserve unique and sensitive natural areas within the planning jurisdiction of West Point from adverse development. These areas include unique scenic vistas and natural habitats associated with the Elkhorn River.*"

The proposed project will provide protection to and maintain the city's municipal drinking water supply. The city's drinking water supply wells are located within the leveed area. If the levee system were to fail (in the future) because the proposed levee system improvements were not completed, the city's water supply would be compromised. Five (5) municipal water wells and drinking water for 3,340 residents as well as multiple businesses would be compromised.

The city's wastewater treatment facility is also located within the leveed area. If the levee were to fail because these improvements were not completed, the city's wastewater treatment facility could be overwhelmed by floodwaters and raw sewage would be discharged into the Elkhorn River and transported downstream for an indefinite period. Downstream communities and residents along the Elkhorn River, Platte River, and Missouri River would be adversely affected.

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.

According to the Nebraska State Hazard Mitigation Plan (HMP) adopted in 2014, the number one (1) ranked hazard risk to Nebraskans is flooding. The flooding across Nebraska in March 2019, including at West Point, was one of the most widespread natural disasters in the state's history. According to NEMA, the disaster resulted in disaster declarations in 80 counties and 104 cities across Nebraska. The disaster has imposed a significant burden on the state's resources that will be felt for many years. This provides an emphasis on the importance of maintaining and improving the states flood control infrastructure to reduce the risk for future damages and resource burdens. The City of West Point is provided flood risk reduction from the Elkhorn River by an approximately 2-mile-long levee system that was constructed in 1964. The March 2019 flooding on the Elkhorn River nearly resulted in levee system failure had it not been for the community's effort to fight the flood through their sandbagging efforts. Total economic damages that are estimated would result from a levee failure scenario is \$34.2 Million

Now nearing 60 years old, the levee system requires significant improvement to meet current design criteria and to ensure the levee continues to provide flood reduction to the city so it can thrive for another 60+ years. This project addresses a statewide problem or issue in that it minimizes the future need of the state's resources. With an improved levee system, state resources will be able to be focused on areas of greater risk. The improvements will provide improved flood risk reduction to assets totaling an estimated \$95.8 Million. Data regarding assets protected is derived from the Levee Risk Screening completed by the USACE in 2018. A summary of the Levee Risk Screening findings is included in Attachment C of this application.

The proposed improvements align well with multiple pre-disaster mitigation actions identified in the state's HMP, including:

- (9) Control and protective works
- (10) Flood proofing, dams, reservoirs, levees, dikes and drainage systems
- (11) Critical facility flood proofing
- (12) Preparedness, response, relief and rehabilitation measures including effective warning capability





March 2019 – Elkhorn River floodwaters at West Point looking south.

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.

Table 9: Project Cost and Funding Source Breakdown

	<b>Cost Estimate</b>	<b>LENRD Share</b>	<b>Remaining Costs</b>		
<b>60% Design (Underway)</b>	\$325,770	\$162,885	\$162,885	<b>WSF Grant Request</b>	<b>Local Cost Share</b>
				60%	40%
<b>Final Design and Permitting</b>	\$168,990	\$84,495	\$84,495	\$50,697	\$33,798
<b>Construction of Levee System Improvements</b>	\$3,500,000	\$1,502,620	\$1,997,380	\$1,198,428	\$798,952
<b>TOTAL</b>	<b>\$3,994,760</b>	<b>\$1,750,000</b>	<b>\$2,244,760</b>	<b>\$1,249,125</b>	<b>\$832,750</b>

Of the total project cost, the LENRD has pledged 50% cost share up to \$1.75 Million. The interlocal agreement for cost share between the city and the LENRD is included in Attachment A of this application. The city is requesting \$1,249,125 from the Water Sustainability Fund for final design, permitting and construction of levee system improvements. The City is committed to this project and will contribute at least \$832,750 in cash as local match for this project. The city's letter of financial commitment is included in Attachment A of this application. If the funding sources identified do not come through, the city will either delay the project until savings can fund the project, or the city will consider bonding to complete the project.

The USACE originally constructed the levee system in 1964. The USACE will not provide funding for improvements or betterments to the levee system. The USACE will only provide financial support (rehabilitation assistance) for repair or restoration of the levee system to pre-disaster condition and level of protection if damaged during a flood event. Once the city completes improvements to the levee system, the entire levee system, including improvements, will be eligible for USACE Rehabilitation Assistance pursuant to Public Law (PL) 84-99.

FEMA will not provide funding for improvements to the levee system. FEMA, in partnership with the NeDNR, is in the process of remapping the floodplain along the Elkhorn River. For the city's levee system to be acknowledged and mapped (accredited) as providing the 100-year flood risk reduction on updated floodplain maps, the city is mandated to provide all data and documentation required to prove that the existing levee system meets FEMA's requirements as specified in 44 CFR 65.10. Based on the accreditation evaluations completed by JEO (JEO 2014 and JEO 2016), the levee system does not currently meet FEMA's requirements to map (accredit) the levee system as providing 100-year flood risk reduction to the city. The city must fund and complete levee system improvements to meet FEMA's requirements.

#### 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.

Many properties, including commercial and industrial properties and the city's wastewater treatment facility, are located within the leveed area. The levee system prevents nonpoint source pollution from entering the Elkhorn River during high river flows. If the levee were to fail because these improvements were not completed, water quality within the Elkhorn River basin would be threatened. If the city's wastewater treatment facility were overwhelmed by floodwaters, raw sewage would be discharged into the Elkhorn River and transported downstream for an indefinite period. Floodwaters cascading through commercial and industrial properties will likely result in contaminants dispersed into floodwaters and transported downstream.

The proposed levee improvement project does not propose altering the function or streamflow of the Elkhorn River watershed or the downstream watersheds. The existing levee system provides a corridor and foundation to accommodate improvement of the existing infrastructure. The city will not be starting from scratch, rather, the existing levee system is being improved based on a refined understanding of the flood risks in the area. Other project alternatives to reduce flood risk could include construction of an upstream dam. An upstream dam could have adverse impacts through altering natural streamflow and introducing human intervention into the natural function of the watershed.

Downstream watersheds affected would include the lower Elkhorn River, the lower Platte River, the Missouri River, and the Mississippi River.

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 NeDNR's Annual Report and Plan of Work for the State Water Planning and Review Process (NeDNR Annual Report) dated September 2018 identifies objectives for implementing the state water planning and review process. This project meets multiple objectives identified, including:

- *Maintain data, information, and analysis capabilities for water planning, including specific programs for collecting, maintaining, and distributing information on streamflows, as well as analyzing water uses and water supplies across the state;*

Staff gauges will be installed at various points along the levee system to improve the city's ability to monitor rising floodwaters to support proactive decision making. These staff gauges will provide opportunity to gather additional data regarding the hydraulic performance of the Elkhorn River and will contribute to state planning goal for collecting, maintaining, and distributing information on streamflows.

- *Provide resources to map and identify areas vulnerable to flood damage;*

FEMA, in partnership with the NeDNR, is in the process of remapping the floodplain along the Elkhorn River. For the city's levee system to be acknowledged and mapped (accredited) as providing the 100-year flood risk reduction on updated floodplain maps, the city must provide all data and documentation required to prove that the levee system meets FEMA's

requirements as specified in 44 CFR 65.10. The city plans to submit all necessary data and documentation to achieve levee accreditation. This data and documentation will provide FEMA and the NeDNR the information necessary to accurately map flood risk along the Elkhorn River at West Point.

- *Participate in interagency collaboration with federal agencies, state agencies, local natural resources districts (NRD's), and other water interest entities on various water resources programs and projects;*

For the proposed project to be successful, interagency collaboration is required between FEMA, the USACE, the NeDNR, the LENRD, and the city.

As mentioned previously, FEMA, in partnership with the NeDNR, is in the process of remapping the floodplain along the Elkhorn River. The city is maintaining ongoing communication with FEMA and the NeDNR regarding the status of the levee improvement project.

Any proposed improvements to the levee system must be reviewed and approved by the USACE through the Section 408 process. Regular coordination has been conducted with the USACE regarding the levee system improvement plans. Design of levee system improvements will be reviewed and approved by the USACE.

The LENRD is partnering with the city to reduce the risk of flooding to the community and is a funding partner contributing 50% of the costs associated with planning, engineering, design, permitting, and construction of the levee improvement project.

- *Consolidate and present information in a form that is understandable and useful to the public and interagency collaborators.*

The city will install signage along the proposed recreational trail on top of the levee system to educate the public on water topics such as conservation, flood risk reduction, flood control history, and the Elkhorn River watershed. This signage will present information in a form that is understandable and useful to the public. Signage will include, "Support provided by the Natural Resources Commission's Water Sustainability Fund".





March 2019 – Volunteers await the arrival of more sandbags as floodwaters rise to the top of the levee.

The NeDNR Annual Report also identifies the goals of the Water Sustainability Fund according to *Neb. Rev. Stat. § 2-1506*. This project meets multiple goals identified, including:

- *Remediate or mitigate threats to drinking water*

The city's drinking water supply wells are located within the leveed area. If the levee system were to fail (in the future) because the proposed levee system improvements were not completed, the city's water supply would be compromised. Five (5) municipal water wells and drinking water for 3,340 residents as well as multiple businesses would be compromised. Furthermore, the city would have issues obtaining access to alternative sources of clean drinking water as the major highways (Highway 275 and Highway 32) into town would be inundated during significant flood events.

- *Contribute to multiple water supply management goals including flood control, reducing threats to property damage, agricultural uses, municipal and industrial uses, recreational benefits, wildlife habitat, conservation, and preservation of water resources;*

- Flood Control: The primary purpose of this levee improvement project is for flood control. The improved levee system will provide flood risk reduction from the 100-year (1% annual chance) flood event on the Elkhorn River. The improved levee system will meet the USACE design criteria as cited in Engineering Manual (EM) 1110-2-1913, *Design and Construction of Levees*. The improved levee system will provide the city flood risk reduction from floods of the same magnitude as the March 2019 flood event.
- Recreation: The project includes construction of a recreational trail on top of the improved levee system. The trail will provide the community opportunity for wellness activities such as walking, running, and biking. The trail will also provide a hard surface for conducting levee inspections and flood surveillance during wet conditions. During flooding conditions, trail access will be restricted to emergency and designated flood response personnel only.
- Municipal and Industrial Uses: The improved levee system will provide flood risk reduction to a community of 3,340 people. Within the leveed area of the improved levee system are approximately 481 structures, including commercial properties and critical infrastructure such as the city's waste water treatment facility, five (5) municipal water wells, municipal water storage, the Cuming County Public Power District, city offices including the police and fire department, the city public works building, multiple religious institutions, the city community center, the Cuming County Historical Department, and an antique museum.

Completion of levee system improvements will allow the levee system to be accredited by FEMA on updated floodplain maps. Municipal, commercial and industrial properties within the leveed area will be identified as protected by a levee and will not be identified as within a floodplain. These property owners will be provided additional flood risk reduction by the improved levee system and will not be burdened by flood insurance mandates or development restrictions. Flood insurance can still be obtained, but the premiums will be significantly cheaper for property owners due to the accredited levee system. These cost savings will have a positive impact on the city's economy.

- *Use the most cost-effective solutions available*

The existing levee system was originally constructed by the USACE in 1964. Significant investment has been made to construct, operate and maintain the existing levee system. The existing levee system provides a corridor and foundation to accommodate improvement of the existing



infrastructure. **The city will not be starting from scratch, rather, the existing levee system is being improved based on a refined understanding of the flood risks in the area.** The next best alternative would be to raise, floodproof or relocate all structures located within the leveed area. Approximately 481 structures are located within the leveed area with a total asset value estimated at \$95.8 Million. The city's wastewater treatment facility, municipal water wells, municipal water storage, city offices, fire station, and police station are located within the leveed area. The cost required to relocate, raise or floodproof all structures and associated infrastructure located within the leveed area would be multiple times greater than the cost to complete the proposed alternative to improve the levee system.

Data regarding structures and assets protected is derived from the Levee Risk Screening completed by the USACE in 2018. A summary of the Levee Risk Screening findings is included in Attachment C of this application.

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.

This project is a result of a FEMA federal mandate for communities with levee systems. FEMA, in partnership with the NeDNR, is in the process of remapping the floodplain along the Elkhorn River. For the city's levee system to be acknowledged and mapped (accredited) as providing the 100-year flood risk reduction on updated floodplain maps, the city is **mandated** to provide all data and documentation required to prove that the existing levee system meets FEMA's requirements as specified in 44 CFR 65.10. Based on the accreditation evaluations completed by JEO (JEO 2014 and JEO 2016), the levee system does not currently meet FEMA's requirements to map (accredit) the levee system as providing 100-year flood risk reduction to the city. If the city does not improve the levee system to meet FEMA's requirements, the levee system will be de-accredited, and the area currently shown as being provided flood risk reduction by the levee system will be mapped as floodplain. Properties within the floodplain with federally backed mortgages would be mandated to purchase flood insurance. Additionally, property values would suffer and development restrictions would be required within the newly mapped floodplain.