



Application Preparation by:



**Water Sustainability Fund Application
City of Papillion Levee Accreditation Process
July 31, 2019**

Enclosed in this document, in its entirety, is an application for the Nebraska Natural Resources Commission's (NRC) Water Sustainability Fund that has been divided into four categories.

The **Cover Letter** introduces the project and states the Applicant's intent.

The **Application** follows the format in the Application Form provided by the NRC answering all questions and requests for information in Sections A, B, and C. The responses and information provided are intended to address the information requested as directly as possible.

The Application references the **Supplemental Information Attachment (SIA)** where supporting documentation and additional information is contained. The SIA provides additional data and references to support the responses offered in the Application. The information in the SIA is provided in the same order and is numbered the same manner as in the Application. Note that not all sections of the Application will have information included in the SIA.

At the end of the SIA is a **Bibliography** for all external reports, design guidance or other material referenced in the Application. This Bibliography provides the reviewer with additional references relevant to the Application. The combined size of these references prohibits the inclusion of the references within the SIA. Digital copies of the references can be obtained by contacting Kent Zimmerman at NDNR (kent.zimmerman@nebraska.gov) or Mike Sotak at FYRA Engineering (msotak@fyraengineering.com). The information provided in the Bibliography is alphabetical, but each entry is cross referenced back to the Application/SIA section to which it pertains and is referenced.

Cover Letter

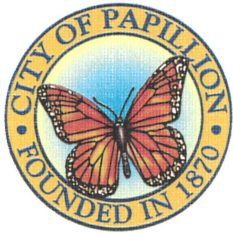
Application

Supplemental Information Attachment

Bibliography

COVER LETTER





CITY OF PAPIILLION
David P. Black, Mayor
Christine Myers, City Administrator
122 East Third Street
Papillion, Nebraska 68046
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E-Mail: cmyers@papillion.org

31 July 2019

Mr. Jeff Fassett, P.E.
Director, Nebraska Department of Natural Resources
via Electronic Submission

Re: City of Papillion Levee Accreditation Process Application for Water Sustainability Fund Grant

Director Fassett and members of Natural Resources Commission:

In accordance with the rules, regulations and guidelines for Nebraska's Water Sustainability Fund Grant Program, please accept this grant application on behalf of the City of Papillion for the above-referenced project.

This project is somewhat unique in that the levee system is not an entirely new project, since the levees are already in place and only require relatively minor improvements (in comparison to the cost to construct a new levee system) in order to attain FEMA accreditation. Improvements required to ensure the levees meet the requirements of FEMA accreditation guidelines will not only reduce flood risk, loss of life, and property damage, but directly impact over 200 property owners that are collectively subject to pay over \$1 million annually in flood insurance. The City of Papillion views this as their governmental duty to protect the citizens and remove the financial burden on those property owners with a very cost-effective project. The resulting benefit to cost ratio for this project is 4.64, which reflects that the overwhelming benefits of attaining FEMA accreditation for the existing levee system are well worth the costs of completing and maintaining this project.

In addition to the application form posted on the NDNR website, which has been copied verbatim into this grant application, there is also an attachment referenced as the Supplemental Information Attachment (SIA) to this application. Contained within the SIA is a bibliography of technical documents related to the project that contain additional information that can be reviewed if desired. In an effort to keep this application as concise as possible, Kent Zimmerman at NDNR will be provided an electronic copy of all of the documents referenced in the bibliography and therefore, copies of said information can be obtained through Mr. Zimmerman. The goal of this application structure was to first provide reviewers with the information required to directly answer the questions in the official application form at a concise level, second to provide additional maps, charts and supporting documents to address the required information in the SIA, and then third to provide the overall

documents that any information provided originates from (assuming it is from another document.) We trust that this allows you to quickly review the information you desire and gather additional data as each individual reviewer sees fit.

“Water Sustainability” is defined in Nebraska Title 264 as *when water use is sustainable when current use promotes healthy watersheds, improves water quality, and protects the ability of future generations to meet their needs.*

Recognizably, sustainability has varied meanings across the State. In Eastern Nebraska, watershed health is related to reducing the threat of flood damage first and foremost. Nearly every watershed plan in this region addresses flood control first. And as argued above, finding any project that would better protect the ability of future generations to meet their needs would be difficult, given the protection this project provides to one of Nebraska’s thriving communities and contributor to the State economy.

We thank you for your acceptance of this application and stand ready to provide any clarification on any information provided during your review.

Sincerely,



Christine Myers
Papillion City Administrator

Cover Letter

Application

Supplemental Information Attachment

Bibliography

APPLICATION



NEBRASKA NATURAL RESOURCES COMMISSION

Water Sustainability Fund

Application for Funding

Section A.

ADMINISTRATIVE

PROJECT NAME: City of Papillion Levee Accreditation Process

SPONSOR'S PRIMARY CONTACT INFORMATION

Sponsor Business Name: City of Papillion, Nebraska

Sponsor Contact's Name: Christine Myers, City Administrator

Sponsor Contact's Address: 113 East 3rd Street, Papillion, NE 68046

Sponsor Contact's Phone: 402.597.2000

Sponsor Contact's Email: cmyers@papillion.org

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

Grant amount requested. \$ 6,422,634

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

If a loan is requested amount requested. \$ 0

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

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.
- What is the population served by your project?
- Provide a demonstration of need.
- Do not complete the remainder of the application.

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

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

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

National Pollutant Discharge Elimination System (NPDES) Permit as required for standard construction projects.

4. **Partnerships**

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

- Papio-Missouri River Natural Resources District (P-MRNRD), (see interlocal agreement in SIA Attachments)
- Papillion Creek Watershed Partnership (PCWP)

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

The City of Papillion is the sponsor of the Project and is responsible for all contracting for planning, design and construction. The P-MRNRD is a funding partner and will assist with technical review as necessary.

5. **Other Sources of Funding**

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

The costs associated with Papillion Creek Levee Accreditation Process (the Project) are broken out by the components required to complete the Project. A more detailed breakdown of the construction quantities and cost estimate is provided in the SIA Section A-5. The P-MRNRD is a contributing funding partner and a detailed funding breakdown is included in the interlocal agreements between the City of Papillion and the P-MNRD in SIA Attachments. All of the project costs and the funding breakdown is included in Section A-5 of the SIA.

Table 1. Capital Cost Summary

Project Item	Cost
Professional Services	
Investigative and Funding Phases	\$369,530
Design and Permitting	\$834,000
Construction Observation	\$500,000
Legal/Appraisal Services	\$40,000
Professional Services Total	\$1,743,530
Land Acquisitions	\$40,000
Construction Costs	\$9,290,390
Project Total	\$11,073,920

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 West Branch Papillion Creek is located in Sarpy County, Nebraska. The downstream segment, prior to the confluence with Big Papillion Creek, runs through a highly urbanized and densely populated portion of the City of Papillion. See Figure A-6(1) in the SIA. There is a long history of flooding within the Papillion

Creek Basin with several events affecting the West Branch Papillion Creek. Since 1948, extreme climactic conditions in the basin have caused seven flood events on West Branch Papillion Creek. As urban development in the floodplain has progressed, the economic and social impacts of flooding have also increased. The most severe flood event on record occurred in June 1964, where the estimated flood damages totaled \$4,962,000 and the loss of seven lives. A complete history of flooding is described in Section 1.7.4.3 of the *Initial Eligibility Report for NESARP0084* (USACE, 2006) through 2006.

The West Branch Papillion Creek has left bank and right bank levees that span from 96th Street downstream to the confluence of the Big Papillion Creek (see SIA Figures A-6(2) and A-6(3)). Both levees are enrolled in the PL 84-99 Flood Damages and Rehabilitation Assistance Program. The combined protection currently provided by the levee system includes 532 people and 242 structures (USACE, 2018). Critical infrastructure in the protected area includes oil and gas pipelines, a school, a fire station, and a regional ambulance provider. The levees protect the heart of downtown Papillion as well as several city parks and recreation facilities. The City of Papillion has significant plans outlined for downtown improvements and redevelopment, however these are significantly limited by current floodplain regulations due to the 1% annual chance flood event. Improvements would lift those restrictions and allow for the most development flexibility outside the levee footprint.

The USACE Levee Safety Action Risk Classification of for both right bank and left bank levees is “low” and the latest reported USACE inspection from October 2016 listed the levees as “Minimally Acceptable”. These levees are defined as floodway and Special Flood Hazard Area (SFHA) Zone AE on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs). In addition, these levees are not accredited and do not provide mapped protection from the 1% annual chance flood event. These areas are subject to mandatory flood insurance purchase and floodplain management standards.

The City of Papillion’s main goal for this Project is to attain FEMA accreditation for the levee system in order to reduce flood risk, loss of life, and property damage. In 2018, the City of Papillion in partnership with the P-MRNRD contracted FYRA Engineering to complete an investigative phase and alternatives analysis report to determine the modifications needed to meet guidelines outlined in 44 CFR 65.10 (Federal Government of the United States, 2015). The investigation concluded that the major modifications needed to meet accreditation criteria included raising approximately 1.8 miles of levees, extending and raising existing floodwalls, rehabilitating 41 levee penetrations, bank stabilization, seepage mitigation, and improving 66th Street to provide protection where the levee crosses the road.

7. **Project Tasks and Timeline**

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

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

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

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

A description of the tasks to be completed for the Project are as follows:

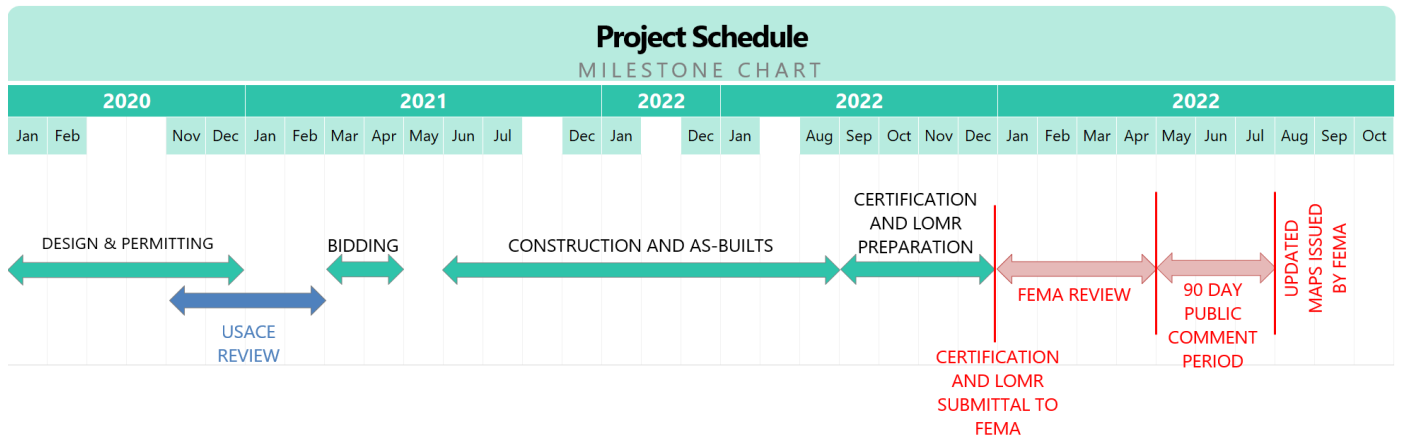
- Professional Services: includes the investigative and funding phases, design and permitting services, construction observation, and legal/land acquisition services that are required to complete the Project
- Land Acquisition: the purchase of land rights or easements required to complete Project implementation
- Construction: construction of the levee improvements described above

Table 2 is a breakdown of the annual costs for each task for the first three years, and the overall project timeline is presented in Figure 1.

Table 2. Annual Cost Breakdown

Project Task	Year 1 (2018)	Year 2 (2019)	Year 3 (2020)	Remaining (2021+)	Total \$ Amount
Professional Services	\$334,304	\$35,226	\$874,000	\$500,000	\$1,743,530
Land Acquisition	---	---	\$40,000	---	\$40,000
Construction Costs	---	---	---	\$9,290,390	\$9,290,390
Total	\$334,304	\$35,226	\$914,000	\$9,790,390	\$11,073,920

Figure 1. Project Timeline



8. **IMP**

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

As stated above, the sponsor is not an NRD and not directly responsible for the execution of the plan set forth in the Integrated Management Plan (IMP) controlling this project area, but as a member of the Papillion Creek Watershed Partnership, actively participates in the planning required for the development, updates and implementation of the IMP.

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;

A feasibility analysis was completed as part of the *Alternative Analysis Report* (FYRA, 2019) for the City of Papillion and P-MRNRD. This report is provided as a reference and results of this analysis are detailed within this submittal.

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

The plan development included an investigative phase, an alternatives analysis, and a preliminary design.

The investigation phase gathered information about the existing levee system and included document compilation and database setup, levee inspections, subsurface investigations, topographic and site surveys, video inspection of culvert penetrations, hydraulic and hydrology analyses, gathering of utility information, stakeholder coordination, and determination of design deficiencies. All of the information that was collected during the investigative phase was utilized to develop the preliminary design and proposed modifications that would be required to certify the levee.

The alternatives analysis looked at each design deficiency and evaluated alternatives for practicability and economic justification. An initial array of project measures was developed during alternatives analysis, which included:

- Bridge modifications
- Modification to the levee height and floodwall placement
- Culvert rehabilitation and repair methods including sliplining, centrifugally cast concrete lining and full pipe replacement
- Seepage mitigation including seepage berms, relief wells and cutoff walls
- Rehabilitation of the existing levee prism

These measures were screened for viability and effectiveness, and a final set of recommendations was determined. The final recommendations included raises to approximately 1.8 miles of levee; removal and replacement of 88,700 SF of

concrete bike/pedestrian trail in areas of levee raises; extending and raising the existing floodwalls upstream of 84th Street; rehabilitation (to varying levels) of 41 levee penetrations; minor removal of trees, vegetation, fences and other miscellaneous encroachments within 15 feet of the landside levee toe; placement of channel bank stabilization in necessary areas; seepage mitigation downstream of 66th Street; adjustments to 66th Street to provide increased protection at locations where the levee crosses the road. These are the components that are included as part of this Project to attain FEMA accreditation of the levees.

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

On-site field investigations and surveys were conducted by FYRA Engineering to collect visual observations and gain understanding of the existing conditions and modifications that would be required to certify the levee. Initial topographic surveys were conducted to verify elevation and location data for floodwall and hydraulic structures and also to validate LiDAR information available for topographic mapping. An additional site investigation was performed to inspect and rank features of the levee system, identify areas that would require modifications for levee certification and FEMA accreditation, and locate utilities in the vicinity. The inspection ranking reports for these levee segments are included in *Appendix F, Alternatives Analysis Report* (FYRA, 2019).

A wetland delineation was completed in October 2017 to identify the location of jurisdictional water bodies located on the project sites. This information will be used to determine environmental project impacts and develop design alternatives and/or modifications to reduce potential impacts. The investigation looked at wetland characteristics including prevalence of hydrophytic vegetation, permanent or periodic inundation or saturation, and hydric soils. Detailed results of the wetland delineation can be found in *Appendix D* of the *Alternatives Analysis Report*. FYRA also completed a limited environmental field investigation of the left bank levee upstream of the existing tie back to 96th Street to assess potential impacts for areas outside of the environmental study area that may be affected by construction activities. The initial environmental investigation did not identify major wetland impacts. Currently, there is less than 0.1 acres of impacts to the delineated wetlands with the proposed modifications, however, with the bank stabilization that is proposed within the channel, it is anticipated that there could be more than 0.1 acres of impacts. If this is the case, an alternatives analysis report (404(b)1) and individual 404 permit for this project will have to be completed.

A culvert/penetration inspection was completed to determine the condition of the levee penetrations using October 2016 video provided by the P-MRNRD. Levee penetration reports were generated for each penetration showing an overall ranking and locations of concern within each penetration. These reports, which highlight areas of future rehabilitation within the penetrations can be found in *Appendix G* of the *Alternatives Analysis Report*.

A preliminary and historical sub-surface geotechnical survey were completed for this project. Historic borings from the original levee design project that were completed by Geotechnical Services Inc (GSI) and recent borings for a City of Papillion project near the levee completed by Thompson Dreesen and Dorner (TD2) were available. A detailed geotechnical exploration was performed during the investigative phase consisting of nineteen drilled borings along the right and left bank levees. The geotechnical report is found in *Appendix J* of the *Alternatives Analysis Report* and map of the boring locations is included in Figure B-1.A.3 in the SIA.

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

A location map is comprised in SIA Section A, Figure A-6(1). There are numerous maps, charts, tables, etc. that help to define the project, show design intent and label site features. They are included throughout this application and in the SIA.

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

There are no water rights required for this Project.

The City of Papillion and the P-MRNRD own the majority of the land that encompasses the existing levees as well as a large portion of land required for construction. As a partner for this project, there will be no land rights required for levee modifications on P-MRNRD property. Additional land rights required outside the P-MRNRD property consist of temporary construction easements, permanent easements and land purchase for the construction, operation and maintenance of the Project. This include 0.50 acres of construction easement, 0.33 acres of permanent easement and 1.11 acres of land purchase. Land rights maps can be found in SIA Section B-1 on Figures B-1.A.5(1) and B-1.A.5(2).

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

Levee Embankment Raise:

Based on the hydraulic investigation, deficiencies in the existing levee heights were identified. Two alternatives were considered when determining the proposed modifications to the levee system:

1. Reduce the raises required to the system upstream of 66th Street, and reconstruct the 66th Street Bridge to a cross section that would not constrict upstream flow
2. Keep the 66th Street Bridge unchanged, and raise the levees higher and to greater extents

Based on the *Alternatives Analysis Report*, the final recommendation opted to keep the 66th Street Bridge unchanged, while raising the levees higher and to greater extents. The preliminary design proposed raises to approximately 1.8 miles of levee. This included raises ranging from 0.01' up to 3.10', at varying locations. See SIA Figure B-1.A.6 for proposed locations of levee raises. With changes to levee crown, the levee embankment raise also included a proposed removal and replacement of 88,700 SF of existing concrete bike/pedestrian trail.

Floodwall Raise and Extension:

Where the required levee raises occur in the vicinity of existing floodwalls, the floodwalls will need to be raised and extended on the upstream side. On the left bank, at 84th Street, the proposed floodwall will be raised 3.5'. In the same area, on the right bank, the proposed flood wall will be raised 2.5'. See SIA Figure B-1.A.6 for proposed locations of floodwall raises and extensions.

With the required levee raises in this area and updated FEMA requirements on tie backs, the left bank levee tie back will no longer be acceptable. The proposed tie back has been moved upstream to meet certification criteria. Raises to the levee do cause some impacts to adjacent improvements and create some new encroachments within the 15-foot encroachment free zone. These impacts are shown on the plan and profile sheets (*Appendix K*) but include extensions of existing penetrations and associated area inlets, vegetation/tree encroachments and fence encroachments. The proposed left bank levee tieback configurations are provided in SIA Figures B-1.A.6 (2).

Levee Penetration Rehabilitations:

Culvert/penetrations will require rehabilitation for certification. The majority of the recommended rehabilitations were noted with pipe replacement/repairs, flap gate repair/replacement, and addition of riprap outlet protection. Proposed are 41 levee penetration rehabilitations that vary based on the need of each site. The modifications that are proposed for each penetration are shown on the plan and profile sheets provided in the *Alternatives Analysis Report*, *Appendix K*, and detailed in the cost estimate (SIA Section A-5).

Levee Prism Rehabilitation:

The site investigation and survey revealed levee deficiencies that would need to be modified for certification. Areas that required rehabilitation included vegetation/trees and miscellaneous encroachments, animal burrows, steep side slopes, erosion and rutting in the levee section, displaced/degraded riprap, ponding areas, levee through seepage downstream of 66th Street, and sloughing of the channel banks.

The sloughing of the channel banks is of greatest concern to the integrity of the levee and specific areas of rehabilitation are recommended in the *Alternatives Analysis Report* (see plan and profiles - *Appendix K*). The proposed rehabilitation

techniques include adding bank stabilization and armoring, and placement of sheet pile on the river side of the levee.

66th Street Improvements:

Adjustments to 66th Street will provide increased protection at locations where the levee crosses the road. Several improvements have been proposed in the preliminary design. These improvements include raising the road surface, raising affected manholes to match the proposed road surface elevation, and providing transitions from the proposed raise to the existing ground surface adjacent to the road surface improvements. Plan and profiles are provided in the *Alternatives Analysis Report* (FYRA, 2019) and SIA Figure B-1.A.6(3).

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

The data collected in the sub-surface investigations describe above (1.A.3) was analyzed for the *Alternatives Analysis Report* (FYRA, 2019). Steady-state seepage models were developed for eight representative cross sections within the system to estimate the exit and seepage gradients at the landside toe and expected settlement within the levee system after modifications were in place. A detailed description of the geotechnical analysis and findings are reported in Appendix J of the *Alternatives Analysis Report* (FYRA, 2019).

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

The hydrology used for the investigative phase was from a FYRA hydrologic analysis of the Papillion Creek Watershed (FYRA, 2018). Table B-1.A.8 in the SIA summarizes the discharge values used for the alternatives analysis of this Project. The analysis, which has been approved by FEMA, involved updating hydrologic models to reflect current land use conditions, recently constructed and planned regional retention structures, and updates to rainfall temporal distributions and areal reduction factors. HEC-HMS models were used to determine peak discharge values at various locations along the West Branch Papillion Creek. The precipitation values that were used for these models were obtained from NOAA Atlas 14. The discharges from this analysis are a better representation of the current conditions throughout the watershed thus providing more accurate results for the WSEs within the HEC-RAS models.

- 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).

For the purpose of the Federal Emergency Management Agency (FEMA) Certification effort, all requirements are listed in 44 CFR 65.10 (Federal Government of the United States, 2015). These regulations require that all

technical aspects of the project meet current USACE regulations. There are numerous USACE engineering manuals that are used for the comprehensive design of levee systems, but the majority of the design information can be found in *EM 1110-2-1913 – Design and Construction of Levees* (USACE, 2000) and most others are cross-referenced in that document. Both of these documents are listed in the SIA Bibliography in the supporting materials attachment. A listing of all USACE guidelines which have been utilized in the design of this Project are listed in the SIA.

A hydraulic investigation was performed for the development of the *Alternatives Analysis Report*. The current effective FEMA HEC-RAS model was used as the basis of this investigation. The model was updated to include updated LiDAR and topographic data on the levee crest elevations and bridge sections for 84th Street and 72nd Street. Hydrologic model results discussed above were applied to the hydraulic model to determine base flow elevation for existing conditions and proposed alternatives. More details about the analysis can be found in Section 3.5 of the *Alternatives Analysis Report* listed in the SIA Bibliography (FYRA, 2019).

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

Prove Economic Feasibility

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

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

Two studies were performed, the *West Papillion Creek Levee Restoration – Summary of Previous Analyses* (HDR, 2006) and the *West Papillion Creek Levee Restoration Evaluation* (HDR, 2008), to assess flood control measures to restore the required levee freeboard. As a result of current watershed development, this levee system no longer contains the 1% annual chance flood event and FEMA required freeboard. The 2006 evaluations considered a range of alternatives including tributary detention storage, upstream regional detention storage, and bridge modifications. A conclusion of the 2006 summary document was that none of the evaluated options alone would restore the required levee freeboard and that

levee raises would be required as an additional flood control measure to provide the required freeboard. The 2008 study continued the evaluation of levee improvements with and without upstream detention structures. The net result of both plans was that the detention sites were vital to providing flood control in the watershed, but levee improvements would still be required to restore the FEMA required freeboard.

The *Papillion Creek Watershed Management Plan (PCWMP)* (HDR, 2009) was developed to address a long history of flooding within the entire Papillion Creek watershed, which extends from the upper reaches in Washington County, across Douglas County, and ending in Sarpy County at the confluence with the Missouri River. The 2009 study developed an integrated approach to address peak flow reduction using a combination of Low Impact Development (LID) and regional detention structures in the watershed. Even with incorporating LID techniques in the watershed, it was concluded that the regional detention structures would still be required to reduce flood flows and prevent associated damage. Multiple structure locations and combinations were analyzed for their flood reduction and water quality potential, including three sites (WP5, WP-6 and WP-7) in the West Papillion Creek watershed.

In 2009, TetraTech prepared another report for the City of Papillion that recommended updates to the current hydrology to include all of the upstream dams listed in the *PCWMP* that were scheduled for construction and updates to the effective HEC-RAS bridge modeling and boundary conditions.

The City of Papillion pursued the optimization of the levee improvements design for flood reduction in the West Branch Papillion Creek with an investigative phase that produced the *Alternatives Analysis Report*. The hydrologic and hydraulic modeling assumes the three dam sites (WP-5, WP-6 and WP-7) were in-place (WP-5, now Prairie Queen Reservoir, has been constructed and WP-6 and WP-7 are currently under construction). Various alternatives were identified and evaluated in the analysis. Alternatives considered included:

- Modifications to the 84th Street bridge
- Reconstruction of the 66th Street bridge
- Raising the levees
- Extending the levees

It was determined that modifications to the 84th Street bridge did not provide any hydraulic benefits and that construction costs to reconstruct the 66th Street bridge were significantly more than the cost to improve the levees (FYRA, 2019). Therefore, a combination of levee improvements that included raising and extending the levees was chosen as the most economical alternative. Additionally, levee penetration rehabilitations are required to maintain the proper interior drainage from the levee so not to increase interior ponding/flooding on the landside of the levee. Bank stabilization and seepage mitigation will also be incorporated

as needed. A detailed discussion of the alternative's studies is in the *Alternatives Analysis Report* included in the SIA Bibliography.

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](#)).

The costs are broken down into the following project components with the associated occurrence frequencies:

- Professional Services: One-time
- Land Acquisition: One-time
- Construction Costs: One-time
- Operation and Maintenance: Annual

Construction costs were developed based on preliminary design quantities and applying the most current commodity prices based on recent/relative construction bid tabs. Land acquisition was estimated based on necessary land rights (as discussed in Section B-1.A.5 above) and applying the most current land/structure valuations. Planning, design and permitting were based on past professional service fees and future contract estimates. Operation and maintenance costs were computed in accordance with federal guidelines at 0.75% construction costs annually.

The primary benefits are broken down into the following categories with the associated occurrence frequencies:

- Flood Damage Reductions: Annual (not quantified)
- Flood Insurance Avoidance: Annual
- Land-Improvement: One-time

Benefits were developed using the most current land/structure valuations and current insurance rate estimates.

- 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](#)).

A summary of all initial capital costs related to the project are shown below in Table 2. A more detailed breakdown is located in SIA Section A-5.

Table 2. Costs Summary

Project Item	Total	Occurrence
Professional Services	\$1,743,530	One-time
Land Acquisitions	\$40,000	One-time
Construction Costs	\$9,290,390	One-time
Operation and Maintenance	\$69,678	Annual

- 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).

A summary of the quantified benefits is included in Table 3. Supporting information and discussion of the approach to quantifying the benefits are provided in SIA Section B-3. The flood damage reductions were not quantified because the majority of this project includes certifying existing levees versus building new ones, therefore the benefit of flood damage reduction is not as greatly realized. Some does exist, but it is only realized near the 1% annual chance flood event (related to FEMA floodplain mapping), and therefore, when benefits are annualized, they will not be as significant as the other benefits described below. For this reason, flood damage reduction benefits have been ignored in the quantitative portion of this analysis.

Table 3. Benefits Summary

Project Item	Total	Occurrence
Flood Damage Reduction	Not Quantified	Annual
Flood Insurance Avoidance	\$1,220,400	Annual
Land Value Improvements	\$10,175,805	One-Time

- 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 costs are weighted against the primary tangible benefits as described in the Title 264 – Rules Governing the Administration of the Water Sustainability Fund (NDNR, 2015). The costs and benefits have been assessed over a 50-year lifetime as shown in the cash flow stream below in Table 4.

Table 4. Cash Flow Stream

Project Year(s)	Calendar Year(s)	Cash Flow Categories	Costs	Benefits	Details		
1	2018	Professional Services	\$334,304	---	Investigative Phase		
		Land Acquisition	---	---			
		Construction Costs	---	---			
		OMR&R	---	---			
				Total Costs:	\$334,304	---	
				Flood Insurance Avoidance	---	---	
				Land Value Improvements	---	---	
				Total Benefits:	---	\$0	
2	2019	Professional Services	\$35,226	---	Funding Assistance		
		Land Acquisition	---	---			
		Construction Costs	---	---			
		OMR&R	---	---			
				Total Costs:	\$35,226	---	
				Flood Insurance Avoidance	---	---	
				Land Value Improvements	---	---	
				Total Benefits:	---	\$0	
3	2020	Professional Services	\$874,000	---	Design, Permitting and Legal/Appraisal Services		
		Land Acquisition	\$40,000	---		Obtain Land Rights	
		Construction Costs	---	---			
		OMR&R	---	---			
				Total Costs:	\$914,000	---	
				Flood Insurance Avoidance	---	---	
				Land Value Improvements	---	---	
				Total Benefits:	---	\$0	
4	2021	Professional Services	\$500,000	---	Construction Observation		
		Land Acquisition	---	---			
		Construction Costs	\$9,290,390	---	Complete Construction		
		OMR&R	---	---			
				Total Costs:	\$9,790,390	---	
				Flood Insurance Avoidance	---	---	
				Land Value Improvements	---	---	
				Total Benefits:	---	\$0	

Project Year(s)	Calendar Year(s)	Cash Flow Categories	Costs	Benefits	Details
5-50	2022-2067				
		Professional Services	---	---	
		Land Acquisition	---	---	
		Construction Costs	---	---	
		OMR&R	\$3,205,185	---	46 yrs @ \$69,678 annually
		Total Costs:	\$3,205,185	---	
		Flood Insurance Avoidance	---	\$56,138,400	46 yrs @ \$1,220,400 annually
		Land Value Improvements	---	\$10,175,805	One-time occurrence
		Total Benefits:	---	\$66,314,205	

The benefit to cost ratio computed from the total annual costs and benefits reported in SIA Section B-3 is 4.64 for the 50-year project life. **Under direction of the NRC guidelines, an internal rate of return (IRR), also known as a “discount rate” to calculate present day values for all future benefits was not required.** The computed BCR differs from the *Alternatives Analysis Report* because the USACE utilizes a Federal Discount Rate (FDR) to annualize the costs and benefits (FYRA, 2019).

- 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.)

Recent studies have shown the socioeconomic impact of flooding on communities is extensive. Projects such as these reduce the threats to the general security, health and safety of the public by reducing the threat of the impacts of flooding. This benefit can be seen in a reduced need for emergency operations and rescue services during flooding and with a reduction in health hazards such as odor, insects, and other negative impacts of flooding. This improves the quality of life of local residents and business owners, and removes the stresses associated with the flood threat potential. Lost production time for businesses (income losses) can also occur due to flooding. These items are difficult to quantify, but play a significant role in the losses that can be incurred and contribute to the benefits for flood control.

Prove Financial Feasibility

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

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

The City of Papillion and the P-MRNRD have included the cost of the planning, permitting, design, construction, and land rights acquisition required for the Project

in their upcoming annual fiscal budgets and long-range plans. As the lead agency for the Project, the City of Papillion has a proven track record of planning their budgets on an annual basis to allocate budgets for upcoming projects. The City's current tax levy rate is 0.230983 and has a body levy of 0.220940, resulting in a total levy rate of 0.451923. With a city population of approximately 23,780, the total annual personal and real property tax generated is over \$8.5 million. This produces consistent annual funds to implement and maintain their planned and existing projects.

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 of Papillion includes operations and maintenance costs into annual budgets.

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

A loan is not involved.

7. Describe how the plan of development minimizes impacts on the natural environment (i.e. timing vs nesting/migration, etc.).

An on-site environmental field investigation was completed in October 2017 by FYRA to determine the location of wetlands and other Waters of the United States (WOTUS) within the environmental study area (ESA) for the Project. The investigation looked at wetland characteristics including prevalence of hydrophytic vegetation, permanent or periodic inundation or saturation, and hydric soils. A desktop review included investigating soil types within the ESA, the National Wetlands Inventory, topographical maps, and aerial photography. Wetlands were identified and mapped, which is summarized in the *Alternatives Analysis Report* Appendix D - City of Papillion Levee Certification Wetland Report. The design concept for the levee improvements has of the Project will minimize these impacts to less than 0.1 acres. The amount of bank stabilization required for the Project will be determined during final design, and this may increase impacts which could trigger the requirement for a USACE 404 individual permit. All permit constraints will be abided by, which include potential mitigation and avoiding the relevant nesting windows. Additionally, a NPDES permit for disturbed acres will be obtained, and a Stormwater Pollution Prevention Plan (SWPPP) will be developed to ensure minimal sediment transport from the site to the adjacent waterway.

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

The City of Papillion's vision is to "proactively improve and plan for the sustainable growth of the community through innovation, technology and accreditation while

maintaining the historic integrity.” The Public Works department handles a range of responsibilities for managing the City’s infrastructure, from cleaning, repairing and maintaining city streets and sewers, to supplying the city with drinking water. They also build and maintain public areas, coordinate street restructuring and repairs, and regulate street and sidewalk use while enhancing and protecting the public right-of-way. This Project falls in line with the City’s roles and responsibilities. Land rights will be acquired so that the Project will not take place on private property and all permits will be acquired to ensure all legal facets of the Project have been considered.

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

In the Nebraska Department of Natural Resource’s (NDNR’s) *Annual Report and Plan of Work for the Nebraska State Water Planning and Review Process* (hereafter referred to as the *Annual Report*) (NDNR 2018), the Statewide activities describe Water Sustainability Fund goals. This project fulfills multiple goals stated below:

- *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. (NDNR 2018)*

Flood Control and Reducing Threats to Property Damage

The primary purpose of this Project is to reduce the existing flood risk and 1% annual chance floodplain extents within the largely urbanized community along West Branch Papillion Creek in the City of Papillion. The levee improvements will increase the hydraulic capacity of the levee system to contain the 1% annual chance event. Infrastructure and private property of the local citizens would benefit from these levee improvements. The levees provide protection for approximately 520 people and 240 structures, indicating a large populous and substantial development area that would be impacted by the flood control improvements from this Project and will no longer be subject to mandatory flood insurance purchase and floodplain management standards. The investigative phase of the *Alternatives Analysis Report* deemed the USACE Levee Safety Action Risk Classification of this levees as “low” and the latest reported USACE inspection from October 2016 listed the levee as “Minimally Acceptable” (FYRA, 2019).

Reducing threats to Wildlife Habitat

The Papio-Missouri River Natural Resources District currently operates and maintains a wetland mitigation site, Rumsey Station West, which is located downstream of the 66th Street bridge on the landside of the right bank levee (south of the West Branch Papillion Creek). This wetland site has been degraded in recent years due to hydrology of the wetlands seeping out and into the adjacent creek. This seepage was noted during the recent site investigation and the Project

will mitigate the levee seepage to enhance the levee stability which will in turn enhance the wetland site and provide benefits to wildlife habitat within the wetland area.

Preservation of Water Resources

Preservation of water resources is achieved by this Project through water quality improvements. Floodwaters can cause changes in water quality that affect human health and the environment or affect commercial and recreations use of water resources. Floodwaters in the urbanized area along the West Branch Papillion Creek come in contact with numerous known contaminates such as gasoline, oil, pesticides and bacteria which are flushed into rivers and streams. *E. coli* standards are often exceeded in surface water used for drinking and/or recreation following flood events. Preservation of water resources is achieved with this Project by reducing the frequency in which the levee capacity is exceeded, and overland floodwaters collect contaminates from the urbanized floodplain, and transport them downstream.

Reducing the threat of floodwaters in this urban area will also reduce the chance of water main breaks that occur during flooding and thereby reducing potential contamination to distribution systems. Bank stabilization within the channel will reduce the amount of erosion and sediment and sediment-attached (primarily phosphorus and *E. coli*) pollutant loads. Improvements to levee penetrations will repair/eliminate corroded holes in pipes that allow stormwater to flow into the levee embankment and cause erosion/sediment transport along the pipe. The combination of these design components will collectively provide improvements to water quality and help preserve the state’s water resources.

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.

Table 5 is a list of all parcels that will be involved in the Project and are depicted in land rights maps location in SIA Section B-1.

Table 5. Land Rights Required for Project

Parcel	Acquisition Type	Acres
11586576	Purchase	0.54
10558098	Purchase	0.34
10518770	Purchase	0.13
11604344	Purchase	0.11
11593008	Permanent Easement	0.01
11594928	Permanent Easement	0.21
11594929	Permanent Easement	0.04

Parcel	Acquisition Type	Acres
11577981	Permanent Easement	0.07
11592530	Construction Easement	0.05
10460128	Construction Easement	0.04
11593007	Construction Easement	0.09
11594928	Construction Easement	0.21
11082682	Construction Easement	0.09
11593085	Construction Easement	0.02

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

The City of Papillion will acquire all necessary land rights and easements prior to Project construction. There is no foreseen controversy in acquiring the property required to complete this Project.

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

The City of Papillion has the power of eminent domain that could be applied, if necessary, but it is not expected that it will be needed.

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

The Project falls directly in line with the City of Papillion's roles and responsibilities. The City will obtain all necessary permits and land rights to complete the Project.

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

Without the Project, the risks associated with the floodwaters along the West Branch Papillion Creek, especially with the 'flashy' nature of the floodwaters in an urban area, include loss of life and property damage. These are catastrophic consequences that warrant action, such as the proposed Project which would help reduce these risks. Environmental and ecological benefits are expected as a result of this Project. As discussed in B.9 above, there are water quality improvements associated with the Project and those would not be realized if this Project is not completed. There are no long-term consequences of this Project. Temporary impacts would include land disturbance that increases erosion and sediment transport, but will be minimized with the installation of stormwater pollution prevention measures.

Section C.

NRC SCORING

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

The following 15 criteria constitute the items for which points will be assigned. Point assignments will be 0, 2, 4, or 6 for items 1 through 8; and 0, 1, 2, or 3 for items 9 through 15. Two additional points will be awarded to projects which address issues determined by the NRC to be the result of a federal mandate.

Notes:

- The responses to one criterion *will not* be considered in the scoring of other criteria. Repeat references as needed to support documentation in each criterion as appropriate. The 15 categories are specified by statute and will be used to create scoring matrixes which will ultimately determine which projects receive funding.
- There is a total of 69 possible points, plus two bonus points. The potential number of points awarded for each criteria are noted above. Once points are assigned, they will be added to determine a final score. The scores will determine ranking.
- The Commission recommends providing the requested information and the requests are not intended to limit the information an applicant may provide. An applicant should include additional information that is believed will assist the Commission in understanding a proposal so that it can be awarded the points to which it is entitled.

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

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

This Project mitigates threats to stormwater which will in turn mitigate threats to drinking water. Floodwaters can cause changes in water quality that affect human health and the environment or affect commercial and recreations use of water

resources. Floodwaters in the urbanized area along the West Branch Papillion Creek come in contact with numerous known contaminants such as gasoline, oil, pesticides and bacteria which are flushed into rivers and streams. *E. coli* standards are often exceeded in surface water used for drinking and/or recreation following flood events. Threats to drinking water will be minimized with this Project by reducing the frequency in which the channel flow capacity is exceeded, and overland floodwaters collect contaminants from the urbanized floodplain, and transport them downstream. Reducing the threat of floodwaters in this urban area will also reduce the chance of water main breaks that occur during flooding and thereby reducing potential contamination to distribution systems. Bank stabilization within the channel will reduce the amount of erosion and sediment and sediment-attached (primarily phosphorus and *E. coli*) pollutant loads. Improvements to levee penetrations will repair/eliminate corroded holes in pipes that allow stormwater to flow into the levee embankment and cause erosion/sediment transport along the pipe. The combination of these design components will collectively provide improvements to stormwater quality and drinking water.

There is a long history of water quality improvement planning and implementation in the Papillion Creek watershed. The *Papillion Creek Watershed Management Plan (PCWMP)* (HDR, 2009) assesses water quality conditions and requires low impact development (LID) regulations for new and redeveloped areas that have to place strict water quality controls. Additionally, water quality basins were identified in the *PCWMP* throughout the watershed for trapping sediment and sediment attached pollutants. The *Papio-Missouri River Basin Water Quality Management Plan (WQMP)* was also developed in partnership with the NDEQ to address the *E. coli* impairment on the Papillion Creek. Best management practices (BMPs) were recommended for agricultural and urban lands that will all help reduce non-point source pollution. The P-MRNRD is in the process of implementing a cost-share program for these practices. Lastly, the City of Omaha is undergoing a separation project for the combined sewer system in eastern Omaha, which is a very large contributor of *E. coli* to the Papillion Creek.

The cause of the water quality problems on the Papillion Creek is widespread and all projects that contribute to the *E. coli* load reduction on the Papillion Creek should be pursued. It will take a combination of numerous projects to observe improvements in water quality. If not addressed, contamination of local drinking water sources will continue creating a threat to human health, and drinking water treatment costs will only continue to increase.

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 *P-MRNRD Voluntary Integrated Management Plan (VIMP)* was developed in 2014 in partnership with the NDNR with the purpose to manage the hydrologically connected portions of the District to achieve and sustain a balance between water uses and water supplies for the long term. The goals of the plan include:

1. Develop and implement water use policies and practices that contribute to the protection of existing surface and groundwater uses while allowing for future water development.
2. Develop and maintain a water supply and use inventory based on the best available data and analysis.
3. Develop and implement water use educational programs that encourage conservation and effective water use.
4. Work with upstream NRDs and other relevant organizations to collectively develop a water management plan for the Platte River Basin that maintains a balance between current and future water supplies and demands.

Efforts to date to achieve goals of the VIMP include revision and adoption of the revised Groundwater Management Plan, collection of monitoring data on the Platte and Elkhorn River, as well as municipal water use, weather and climate data, develop and district water balance, development of the Lower Platte and Missouri Tributaries groundwater model, and host public outreach events such as World O' Water, urban water conservation education and adopted cost-share programs for soil moisture sensors and flow meters.

The Project most directly benefits Goal #1 by implementing practices that protect surface and groundwater uses. The discharge from the West Branch Papillion Creek drains directly into the Papillion Creek within a Groundwater Control Area (GCA) identified in the VIMP (see Figure 2). A GCA is defined as a location where groundwater is hydrologically connected to surface water. GCA are more carefully protected and are subject to groundwater regulatory action items per the P-MRNRDs Groundwater Management Plan and Rules and Regulations. The Project protects surface uses by providing flood control and water quality improvements. By keeping flows within the channel/levee confines, the amount of in-stream flow is increased by preventing overland losses, which transports greater volumes and creates greater infiltration potential, and provides groundwater benefits in the downstream GCA.

Figure 2. VIMP Groundwater Control Area



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 will add to recharge within the Papillion Creek basin which is located within a GCA as depicted in Figure 2 above. This is done through keeping water out of the urbanized floodplains and within the channels, increasing the time that water resides within the channel, and therefore the rate/force at which stream flow is delivered to the aquifers through the stream periphery. Because this project is not specifically a recharge project that measured volume and because the recharge would be realized over several miles, it is difficult to quantify, and of

course is subject to current conditions. The greater the current deficit in the aquifers, the greater the rate of recharge. By keeping flows within the channel/levee confines, the amount of in-stream flow is increased by preventing overland losses, which transports greater volumes and creating greater infiltration potential in the downstream GCA.

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 and Reducing Threats to Property Damage

The primary purpose of this Project is to reduce the existing flood risk and 1% annual chance floodplain extents within the largely urbanized community along West Branch Papillion Creek in the City of Papillion. The levee improvements will increase the hydraulic capacity of the levee system to contain the 1% annual chance event. Infrastructure and private property of the local citizens would benefit from these levee improvements. The levees provide protection for approximately 520 people and 240 structures, indicating a large populous and substantial development area that would be impacted by the flood control improvements from this Project and will no longer be subject to mandatory flood insurance purchase and floodplain management standards. The investigative phase of the *Alternatives Analysis Report* deemed the USACE Levee Safety Action Risk Classification of this levees as “low” and the latest reported USACE inspection from October 2016 listed the levee as “Minimally Acceptable” (FYRA, 2019).

Reducing threats to Wildlife Habitat

The Pappio-Missouri River Natural Resources District currently operates and maintains a wetland mitigation site, Rumsey Station West, which is located downstream of the 66th Street bridge on the landside of the right bank levee (south of the West Branch Papillion Creek). This wetland site has been degraded in recent years due to hydrology of the wetlands seeping out and into the adjacent creek. This seepage was noted during the recent site investigation and the Project will mitigate the levee seepage to enhance the levee stability which will in turn enhance the wetland site and provide benefits to wildlife habitat within the wetland area.

Preservation of Water Resources

Preservation of water resources is achieved by this Project through water quality improvements. Floodwaters can cause changes in water quality that affect human health and the environment or affect commercial and recreations use of water

resources. Floodwaters in the urbanized area along the West Branch Papillion Creek come in contact with numerous known contaminants such as gasoline, oil, pesticides and bacteria which are flushed into rivers and streams. *E. coli* standards are often exceeded in surface water used for drinking and/or recreation following flood events. Preservation of water resources is achieved with this Project by reducing the frequency in which the levee capacity is exceeded, and overland floodwaters collect contaminants from the urbanized floodplain, and transport them downstream.

Reducing the threat of floodwaters in this urban area will also reduce the chance of water main breaks that occur during flooding and thereby reducing potential contamination to distribution systems. Bank stabilization within the channel will reduce the amount of erosion and sediment and sediment-attached (primarily phosphorus and *E. coli*) pollutant loads. Improvements to levee penetrations will repair/eliminate corroded holes in pipes that allow stormwater to flow into the levee embankment and cause erosion/sediment transport along the pipe. The combination of these design components will collectively provide improvements to water quality and help preserve the state's water resources.

Without the Project, the long-range flood control and water quality benefits will not be realized. Local residents will continue to pay millions of dollars in NFIP insurance annually, which can be avoided if the levee is accredited which would remove these properties from the floodplain. In addition, the redevelopment potential of downtown Papillion would remain limited to the restrictions of building within the floodplain, and the eminent threat of flood damage and loss of life will remain.

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

- Describe how the project will maximize the increased beneficial use of Nebraska's water resources.
- Describe the beneficial uses that will be reduced, if any.
- Describe how the project provides a beneficial impact to the state's residents.

The modifications and rehabilitation to this existing levee will increase the flood risk reduction of this water resources infrastructure and ensure that flood protection is maintained for residents of the area.

No beneficial uses will be reduced. Beneficial impacts to state's residents include flood protection for private property, utilities, bridges and roadway infrastructures vital to the public for communication and transportation. This Project protects the heart of downtown Papillion, as well as several city parks and recreation facilities. The City of Papillion has significant plans outlined for downtown improvements and redevelopment, however these are significantly limited by current floodplain regulations due to the 1% annual chance flood event. This Project would lift those restrictions and allow for the most development flexibility outside the levee

footprint. Redevelopment of the downtown area will provide the state's residents the benefits of the new businesses and opportunities that would not be available without the Project.

6. Is cost-effective;

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

The *Papillion Creek Watershed Management Plan* (HDR, 2009) was developed to address a long history of flooding within the entire Papillion Creek watershed, which extends from the upper reaches in Washington County, across Douglas County, and ending in Sarpy County at the confluence with the Missouri River. This study developed an integrated approach to address peak flow reduction using a combination of Low Impact Development (LID) and regional detention structures in the watershed. Multiple structure locations and combinations were analyzed for their flood reduction and water quality potential, including three sites (WP5, WP-6 and WP-7) in the West Papillion Creek watershed. Even with incorporating LID techniques in the watershed and in the regional detention structures, it was concluded that the improvements to the West Branch Papillion Creek levees are still required to meet the requirements for FEMA accreditation.

While there are no other feasible alternatives to achieve FEMA accreditation, the City of Papillion did pursue the optimization of the levee improvements design for flood reduction in the West Branch Papillion Creek with an investigative phase that produced the *Alternatives Analysis Report*. The hydrologic and hydraulic modeling assumes the three dam sites (WP-5, WP-6 and WP-7) were in-place (WP-5, now Prairie Queen Reservoir, has been constructed and WP-6 and WP-7 are currently under construction). Various alternatives were identified and evaluated in the analysis. Alternatives considered included:

- Modifications to the 84th Street bridge
- Reconstruction of the 66th Street bridge
- Raising the levees
- Extending the levees

It was determined that modifications to the 84th Street bridge did not provide any hydraulic benefits and that construction costs to reconstruct the 66th Street bridge was significantly more than the cost to improve the levees (FYRA, 2019). Therefore, a combination of levee improvements that included raising and extending the levees was chosen as the most economical alternative

Summary tables of the Project's costs and benefits are provided below. The benefit to cost ratio computed from the total annual costs and benefits reported in

SIA Section B-3 is 4.64 for the 50-year project life. This high ratio demonstrates that there are numerous benefits of the Project substantial enough to justify the capital and annual maintenance costs.

Table 6. Costs Summary

Project Item	Total	Occurrence
Professional Services	\$1,743,530	One-Time
Land Acquisitions	\$40,000	One-Time
Construction Costs	\$9,290,390	One-Time
Operation and Maintenance	\$69,678	Annual

Table 7. Benefits Summary

Project Item	Total	Occurrence
Flood Damage Reduction	Not Quantified	Annual
Flood Insurance Avoidance	\$1,220,400	Annual
Land Value Improvements	\$10,175,805	One-Time

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.

Section 303(d) of the Environmental Protection Agency’s Clean Water Act is required to maintain the integrity of the Nation’s waters, and requires states to establish a list of impaired waters that do not meet water quality standards. Once on the 303(d) list of impaired waters, it is required that a Total Maximum Daily Load (TMDL) report is developed to set goals and pollutant load reductions required for the water body to meet water quality standards.

The NDEQ 2018 Water Quality Integrated Report (*Integrated Report*) lists the Papillion Creek system, which includes the Little Papillion Creek, Cole Creek, Big Papillion Creek, West Papillion Creek tributaries, on the 303(d) list of impaired waters for *E. coli* (NDEQ, 2018). The *TMDL for the Papillion Creek Watershed Report* (TMDL Report) (NDEQ, 2009) was developed for the entire Papillion Creek system. The water quality improvements from this Project will help contribute to reductions in the *E. coli* load the West Papillion Creek and main stem of the Papillion Creek that downstream of the Project. This is achieved by reducing the frequency in which the levee capacity is exceeded, and overland floodwaters

collect contaminants from the urbanized floodplain. Floodwaters in the urbanized area along the West Branch Papillion Creek come in contact with numerous known contaminants such as gasoline, oil, pesticides and bacteria which are flushed into rivers and streams. *E. coli* standards are often exceeded in surface water used for drinking and/or recreation following flood events. Bank stabilization within the channel will reduce the amount of erosion and sediment and sediment-attached (primarily phosphorus and *E. coli*) pollutant loads. Improvements to levee penetrations will repair/eliminate corroded holes in pipes that allow stormwater to flow into the levee embankment and cause erosion/sediment transport along the pipe. This Project will assist in reducing the *E. coli* load to West Branch Papillion and Papillion Creek main stem, for which they are impaired, and will help meet the goals of the TMDL.

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.

This Project reduces the potential for flood damage along the West Branch Papillion Creek. The current limits of the 1% annual chance floodplain is depicted in SIA Section A-6. This primarily includes private property, but also impacts utilities, bridges and roadway infrastructures vital to the public for communication and transportation. Critical infrastructure in the protected area includes oil and gas pipelines, a school, a fire station, and a regional ambulance provider. The West Branch Papillion Creek watershed is primarily urban and is comprised of highly impervious area, creating very 'flashy' flood events that are a great risk to public safety and the potential loss of life. Some specifically unique benefits provided by the flood protection include:

- Risk Management and Preservation of Downtown Papillion – While the existing downtown is protected by an unaccredited levee system, flooding potential is never entirely mitigated. These improvements would reduce the risk for potential flooding causing property damage, property loss, and the potential loss of life.
- Increased Marketability and Investment Grade Protection of the Limited Community Redevelopment Authority for the Downtown Redevelopment Area – While planned redevelopment of the area is eminent, it is significantly limited by current floodplain regulations due to the 1% annual chance flood event.

Improvements would lift those restrictions and allow for the most development flexibility outside the levee footprint.

- Parks Master Plan Realization – With lifted Community Floodplain Management Regulation, the City could realize the entire potential of its existing parks system with unbound visioning; a grand entrance to Halleck Park from 72nd Street; bridges spanning the West Papillion Creek and tributaries; Fricke baseball field and concessions; Papio Bay expansion; new pavilion, ice rink, Papillion Landing, and other City Park enhancements.

The annual costs savings in flood damage reductions are summarized in Table 13 below.

Table 13. Benefits Summary

Primary Benefits	Total	Occurrence
Flood Damage Reduction	Not Quantified	Annual
Flood Insurance Avoidance	\$1,120,000	Annual
Land Value Improvements	\$10,175,805	One-Time

Recent studies have shown the socioeconomic impact of flooding on communities is extensive. Projects such as these reduce the threats to the general security, health and safety of the public by reducing the threat of the impacts of flooding and reducing or eliminating the costs of flood insurance. This benefit can be seen in a reduced need for emergency operations and rescue services during flooding and with a reduction in health hazards such as odor, insects, and other negative impacts of flooding. Lost production time for businesses (income losses) has also been quantified and plays a significant role in tabulating total losses.

9. Improves water quality;

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

The NDEQ 2018 Water Quality Integrated Report (*Integrated Report*) lists the Papillion Creek system, which includes the Little Papillion Creek, Cole Creek, Big Papillion Creek, West Papillion Creek tributaries, on the 303(d) list of impaired waters for *E. coli* (NDEQ, 2018). The *TMDL for the Papillion Creek Watershed Report (TMDL Report)* (NDEQ, 2009) was developed for the entire Papillion Creek system. The water quality improvements from this Project will help contribute to reductions in the *E. coli* load the West Papillion Creek and main stem of the Papillion Creek that downstream of the Project. This is achieved by reducing the

frequency in which the levee capacity is exceeded, and overland floodwaters collect contaminants from the urbanized floodplain. Floodwaters in the urbanized area along the West Branch Papillion Creek come in contact with numerous known contaminants such as gasoline, oil, pesticides and bacteria which are flushed into rivers and streams. *E. coli* standards are often exceeded in surface water used for drinking and/or recreation following flood events. Bank stabilization within the channel will reduce the amount of erosion and sediment and sediment-attached (primarily phosphorus and *E. coli*) pollutant loads. Improvements to levee penetrations will repair/eliminate corroded holes in pipes that allow stormwater to flow into the levee embankment and cause erosion/sediment transport along the pipe. This Project will assist in reducing the *E. coli* load to West Branch Papillion and Papillion Creek main stem, for which they are impaired, and will help meet the goals of the TMDL.

There is a long history of water quality improvement planning and implementation in the Papillion Creek watershed. The *Papillion Creek Watershed Management Plan (PCWMP)* (HDR, 2009) assesses water quality conditions and requires low impact development (LID) regulations for new and redeveloped areas that have to place strict water quality controls. Additionally, water quality basins were identified in the *PCWMP* throughout the watershed for trapping sediment and sediment attached pollutants. The *Papio-Missouri River Basin Water Quality Management Plan (WQMP)* was also developed in partnership with the NDEQ to address the *E. coli* impairment on the Papillion Creek. Best management practices (BMPs) were recommended for agricultural and urban lands that will all help reduce non-point source pollution. The P-MRNRD is in the process of implementing a cost-share program for these practices. Lastly, the City of Omaha is undergoing a separation project for the combined sewer system in eastern Omaha, which is a very large contributor of *E. coli* to the Papillion Creek.

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

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

The City of Papillion is the local Project sponsor and the PCWP has been an avid supporter of this Project. The PCWP has been an active participant in the planning process to date and the P-MRNRD is prepared for the financial contributions required to complete the project. Sarpy County has been involved and supports the Project (with a letter of support in the SIA Attachments) but currently does not have budget available to participate in Project funding.

All anticipated funding sources for the project are shown in the cost summary in the SIA Table A-1.1. The City of Papillion and the P-MRNRD have included the

cost of the planning, permitting, design, construction, and land rights acquisition required for the Project in their upcoming annual fiscal budgets and long-range plans. As the lead agency for the Project, the City of Papillion has a proven track record of planning their budgets on an annual basis to allocate budgets for upcoming projects. The City's current tax levy rate is 0.230983 and has a body levy of 0.220940, resulting in a total levy rate of 0.451923. With a city population of approximately 23,780, the total annual personal and real property tax generated is over \$8.5 million. This produces consistent annual funds to implement and maintain their planned and existing projects.

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.

“Water Sustainability” is defined in Nebraska Title 261 as current water use that promotes healthy watersheds, improves water quality, and protects the ability of future generations to meet their needs. Recognizably, sustainability has varied meanings across the State. In Eastern Nebraska, watershed health is related to reducing the threat of flood damage first and foremost. Nearly every watershed plan in the eastern region addresses flood control first. The primary sustainable practices for this Project are flood control, water quality improvements, and reducing soil erosion and pollutant loading, which all contribute to healthy watersheds.

The local jurisdiction that manages these practices is the PCWP, and the practices are enforced by City of Papillion and the P-MRNRD. The PCWP was the lead agency in the development of the *PCWMP* and has been following the recommendations from this local plan to support sustainable water use. Both water quantity and quality are addressed in the *PCWMP*, of which several of the flood and water quality basin structures have been implemented, as well as LID restrictions/controls to minimize impacts to the environments. This Project will help achieve improvements to both water quantity and quality. The population that receive benefits of flood control includes 308 parcels and over 900 acres of area protected by the levee improvements. The extent to which the water quality benefits reach cannot be quantified, but a collective effort of numerous water quality improvement projects is required to reduce pollutant loads sufficiently to see a positive impact on water quality.

The local public within the City of Papillion will benefit most from this Project. Stakeholders of this Project not only include the partners (City of Papillion, PCWP, and P-MRNRD) but also agencies such as NDEQ, NGPC, USFWS, and the USACE permitting division.

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.

Flood protection in general is a critical issue across the State of Nebraska. With the dense population and infrastructure that is protected by the Project, flood control alone addresses a vital statewide problem. Recent flooding on the major river systems through the state could have been less severe in places if local runoff was more adequately managed. This Project addresses this issue with flood damage reduction as described here within and benefits thousands in the West Branch Papillion Creek watershed. These benefits will be provided to 347 parcels.

Lastly, Nebraska has a vast network of impaired streams including West Branch Papillion Creek, the mainstem of Papillion Creek and the Missouri River which are all impaired for *E. coli* bacteria. This project, as documented here within, will reduce that impairment the West Branch Papillion, which translates to the downstream main stem of the Papillion Creek, helping to meet water quality improvement goals set forth in the TMDLs and state-wide efforts.

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.

Any state WSF funds awarded to this Project will be maximized with local dollars from two government partners (City of Papillion and P-MRNRD), and will have planning and local support from the PCWP. The funding breakdown is shown in SIA Section A-5 and the partnership agreement with the City of Papillion and P-MRNRD is attached to the SIA. There are no federal funds applied to this Project.

14. Contributes to watershed health and function;

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

The benefits of this Project include significant improvements to the watershed health and function by reducing flood risk. The water quality improvements from this Project will help contribute to reductions in the *E. coli* load the West Papillion Creek and main stem of the Papillion Creek that downstream of the Project. This is achieved by reducing the frequency in which the levee capacity is exceeded, and overland floodwaters collect contaminants from the urbanized floodplain. Floodwaters in the urbanized area along the West Branch Papillion Creek come in contact with numerous known contaminants such as gasoline, oil, pesticides and bacteria which are flushed into rivers and streams. *E. coli* standards are often exceeded in surface water used for drinking and/or recreation following flood events. Bank stabilization within the channel will reduce the amount of erosion and sediment and sediment-attached (primarily phosphorus and *E. coli*) pollutant loads. Improvements to levee penetrations will repair/eliminate corroded holes in pipes that allow stormwater to flow into the levee embankment and cause erosion/sediment transport along the pipe. This Project will assist in reducing the *E. coli* load to West Branch Papillion and Papillion Creek main stem, for which they are impaired, and will help meet the goals of the TMDL.

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 *Annual Report* (NDNR, 2018), lists the following objectives as related to the Water Sustainability Fund:

Water Sustainability Fund

The Legislature created the Water Sustainability Fund in LB 906 (2014) and defined governance and appropriation in LB 1098 and LB 1098A. From July 2014 through June 2018, a net \$46,170,000 has been transferred to the fund. Funds committed to projects through June 2018, are \$41,702,715. Per LB 944, the appropriation for FY 2019 was reduced by \$429,557 to \$10,309,520. The transfer for FY 2019 is \$6,000,000 per LB 945. According to *Neb. Rev. Stat. § 2-1506*, the goals of the Water Sustainability Fund are to:

- Provide financial assistance to programs, projects, or activities that increase aquifer recharge, reduce aquifer depletion, and increase streamflow;
- Remediate or mitigate threats to drinking water;
- Promote the goals and objectives of approved integrated management plans or groundwater management plans;
- 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;
- Assist municipalities with the cost of constructing, upgrading, developing, and replacing sewer infrastructure facilities as part of a combined sewer overflow project;
- Provide increased water productivity and enhance water quality;
- Use the most cost-effective solutions available; and
- Comply with interstate compacts, decrees, other state contracts and agreements and federal law.

The benefits of this Project and how it achieves these goals are described in detail below:

Flood Control and Reducing Threats to Property Damage

The primary purpose of this Project is to reduce the existing flood risk and 1% annual chance floodplain extents within the largely urbanized community along West Branch Papillion Creek in the City of Papillion. The levee improvements will increase the hydraulic capacity of the levee system to contain the 1% annual chance event. Infrastructure and private property of the local citizens would benefit from these levee improvements. The levees provide protection for approximately 520 people and 240 structures, indicating a large populous and substantial development area that would be impacted by the flood control improvements from this Project and will no longer be subject to mandatory flood insurance purchase and floodplain management standards. The investigative phase of the *Alternatives Analysis Report* deemed the USACE Levee Safety Action Risk Classification of this levees as “low” and the latest reported USACE inspection from October 2016 listed the levee as “Minimally Acceptable” (FYRA, 2019).

Reducing threats to Wildlife Habitat

The Papio-Missouri River Natural Resources District currently operates and maintains a wetland mitigation site, Rumsey Station West, which is located downstream of the 66th Street bridge on the landside of the right bank levee (south of the West Branch Papillion Creek). This wetland site has been degraded in recent years due to hydrology of the wetlands seeping out and into the adjacent

creek. This seepage was noted during the recent site investigation and the Project will mitigate the levee seepage to enhance the levee stability which will in turn enhance the wetland site and provide benefits to wildlife habitat within the wetland area.

Preservation of Water Resources

Preservation of water resources is achieved by this Project through water quality improvements. Floodwaters can cause changes in water quality that affect human health and the environment or affect commercial and recreations use of water resources. Floodwaters in the urbanized area along the West Branch Papillion Creek come in contact with numerous known contaminants such as gasoline, oil, pesticides and bacteria which are flushed into rivers and streams. *E. coli* standards are often exceeded in surface water used for drinking and/or recreation following flood events. Preservation of water resources is achieved with this Project by reducing the frequency in which the levee capacity is exceeded, and overland floodwaters collect contaminants from the urbanized floodplain, and transport them downstream.

Reducing the threat of floodwaters in this urban area will also reduce the chance of water main breaks that occur during flooding and thereby reducing potential contamination to distribution systems. Bank stabilization within the channel will reduce the amount of erosion and sediment and sediment-attached (primarily phosphorus and *E. coli*) pollutant loads. Improvements to levee penetrations will repair/eliminate corroded holes in pipes that allow stormwater to flow into the levee embankment and cause erosion/sediment transport along the pipe. The combination of these design components will collectively provide improvements to water quality and help preserve the state's water resources.

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.

The purpose of the Project is to attain FEMA accreditation for the West Branch Papillion Creek levees. To be mapped on a Flood Insurance Rate Map (FIRM) as providing base flood risk reduction, levee systems must meet and continue to meet the National Flood Insurance Program (NFIP) minimum design, operation, and maintenance requirements described in Title 44, Chapter 1, Section 65.10 of the Code of Federal Regulations (44 CFR 65.10). These levee improvements are designed to meet these federal regulations and achieve the purpose of the Project.

Section 303(d) of the Environmental Protection Agency's Clean Water Act is required to maintain the integrity of the Nation's waters, and requires states to

establish a list of impaired waters that do not meet water quality standards. Once on the 303(d) list of impaired waters, it is required that a Total Maximum Daily Load (TMDL) report is developed to set goals and pollutant load reductions required for the water body to meet water quality standards. The state has a responsibility to meet the TMDL for the Papillion Creek system for bacteria in the streams. The water quality improvements from this Project will help contribute to reductions in the *E. coli* load the West Papillion Creek and main stem of the Papillion Creek that downstream of the Project. This is achieved by reducing the frequency in which the levee capacity is exceeded, and overland floodwaters collect contaminants from the urbanized floodplain. Floodwaters in the urbanized area along the West Branch Papillion Creek come in contact with numerous known contaminants such as gasoline, oil, pesticides and bacteria which are flushed into rivers and streams. *E. coli* standards are often exceeded in surface water used for drinking and/or recreation following flood events. Bank stabilization within the channel will reduce the amount of erosion and sediment and sediment-attached (primarily phosphorus and *E. coli*) pollutant loads. Improvements to levee penetrations will repair/eliminate corroded holes in pipes that allow stormwater to flow into the levee embankment and cause erosion/sediment transport along the pipe. This Project will assist in reducing the *E. coli* load to West Branch Papillion and Papillion Creek main stem, for which they are impaired, and will help meet the goals of the TMDL.

SUPPLEMENTAL INFORMATION ATTACHMENT



Cover Letter

Application

Supplemental Information Attachment

Bibliography

SECTION A

A-5 Project Cost and Funding Breakdown

Table A-1.1 – Project Cost and Funding Breakdown

	Total Costs	Costs Incurred to Date	Future (Grant Eligible) Costs	STATE	LOCAL (Includes Costs Incurred)	
				WSF	City of Papillion	P-MRNRD
Professional Services	\$1,743,530	\$369,530	\$1,374,000	\$824,400	\$459,565	\$459,565
Land Acquisition	\$40,000	\$0	\$40,000	\$24,000	\$8,000	\$8,000
Construction Costs	\$9,290,390	\$0	\$9,290,390	\$5,574,234	\$1,858,078	\$1,858,078
Totals	\$11,073,920	\$369,530	\$10,704,390	\$6,422,634	\$2,325,643	\$2,325,643

A-5 Other Sources of Funding

Figure A-5(1) - Construction Quantities and Cost Estimates

NAME	ITEM	UNIT	QUANTITY	UNIT PRICE	EXTENSION
	REMOVE EXISTING ROAD EMBANKMENT	CY	140	\$ 8.00	\$ 1,120.00
	REMOVE EXISTING PARKING LOT PAVEMENT	SF	325	\$ 8.00	\$ 2,600.00
WB-L24	REMOVE 24" DIA CMP	LF	100	\$ 20.00	\$ 2,000.00
	REMOVE AND REINSTALL 60" DIA OPEN THROAT AREA INLET TOP	EA	1	\$ 800.00	\$ 800.00
	REMOVE EXISTING TIMBER PILE PIPE SUPPORT	EA	1	\$ 750.00	\$ 750.00
	60" DIA AREA INLET BASE	EA	1	\$ 975.00	\$ 975.00
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
	48" DIA RCP	LF	150	\$ 300.00	\$ 45,000.00
	FLAP GATE FOR 48" DIA RCP	EA	1	\$ 4,000.00	\$ 4,000.00
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
	DOUBLE TIMBER PILE PIPE SUPPORT	EA	1	\$ 6,000.00	\$ 6,000.00
	SHEET PILE	SF	300	\$ 40.00	\$ 12,000.00
	RING LEVEE EMBANKMENT AND REMOVAL	EA	1	\$ 13,000.00	\$ 13,000.00
	UPSTREAM OF 84TH STREET	FLOODWALL	LF	350	\$ 975.00
3.5' FLOODWALL RAISE		LF	490	\$ 425.00	\$ 208,250.00
4' CHAIN LINK FENCE ON TOP OF FLOODWALL		LF	350	\$ 100.00	\$ 35,000.00
REMOVE AND REPLACE 4' CHAIN LINK FENCE ON TOP OF FLOODWALL		LF	490	\$ 50.00	\$ 24,500.00
ADDITIONAL SHEET PILE FOR FLOODWALL		SF	600	\$ 40.00	\$ 24,000.00
WB-L23	REMOVE EXISTING TIMBER PILE PIPE SUPPORT	EA	1	\$ 750.00	\$ 750.00
	48" DIA JOINT REPAIR	EA	7	\$ 425.00	\$ 2,975.00
	RIP RAP OUTLET PROTECTION	TON	250	\$ 68.00	\$ 17,000.00
	DOUBLE TIMBER PILE PIPE SUPPORT	EA	1	\$ 6,000.00	\$ 6,000.00
WB-L22	SHEET PILE	SF	300	\$ 40.00	\$ 12,000.00
	24" DIA JOINT REPAIR	EA	12	\$ 225.00	\$ 2,700.00
	FLAP GATE FOR 24" DIA RCP	EA	1	\$ 2,000.00	\$ 2,000.00
	RIP RAP OUTLET PROTECTION	TONS	125	\$ 68.00	\$ 8,500.00
WB-L21	SINGLE TIMBER PILE OUTLET STRUCTURE	EA	1	\$ 4,000.00	\$ 4,000.00
	24" DIA JOINT REPAIR	EA	15	\$ 225.00	\$ 3,375.00
	REMOVE 24" DIA FLAP GATE	EA	1	\$ 100.00	\$ 100.00
	FLAP GATE FOR 24" DIA RCP	EA	1	\$ 2,000.00	\$ 2,000.00
	RIP RAP OUTLET PROTECTION	TONS	125	\$ 68.00	\$ 8,500.00
WB-L20	SINGLE TIMBER PILE OUTLET STRUCTURE	EA	1	\$ 4,000.00	\$ 4,000.00
	CCCCP FOR 24" DIA RCP	LF	110	\$ 225.00	\$ 24,750.00
	REMOVE 24" DIA FLAP GATE	EA	1	\$ 100.00	\$ 100.00
	FLAP GATE FOR 24" DIA RCP	EA	1	\$ 2,000.00	\$ 2,000.00
	RIP RAP OUTLET PROTECTION	TON	250	\$ 68.00	\$ 17,000.00
WB-L19A	SINGLE TIMBER PILE OUTLET STRUCTURE	EA	1	\$ 4,000.00	\$ 4,000.00
	REMOVE 24" DIA RCP	LF	36	\$ 85.00	\$ 3,060.00
	REMOVE 24" DIA FLAP GATE	EA	1	\$ 100.00	\$ 100.00
	24" DIA RCP	LF	36	\$ 125.00	\$ 4,500.00
	24" DIA CONCRETE COLLAR	EA	2	\$ 400.00	\$ 800.00
	FLAP GATE FOR 24" DIA RCP	EA	1	\$ 2,000.00	\$ 2,000.00
	SINGLE TIMBER PILE OUTLET STRUCTURE	EA	1	\$ 4,000.00	\$ 4,000.00
WB-L19	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
	REMOVE 24" DIA RCP	LF	112	\$ 85.00	\$ 9,520.00
	RING LEVEE EMBANKMENT AND REMOVAL	EA	1	\$ 13,000.00	\$ 13,000.00
	CONNECT TO EXISTING AREA INLET	EA	1	\$ 800.00	\$ 800.00
	24" DIA RCP	LF	136	\$ 125.00	\$ 17,000.00
	FLAP GATE FOR 24" DIA RCP	EA	1	\$ 2,000.00	\$ 2,000.00
	SINGLE TIMBER PILE OUTLET STRUCTURE	EA	1	\$ 4,000.00	\$ 4,000.00
WB-L18	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
	72" DIA RCP	LF	12	\$ 425.00	\$ 5,100.00
	CCCCP FOR 72" DIA RCP	EA	124	\$ 625.00	\$ 77,500.00
	SHEET PILE	SF	450	\$ 40.00	\$ 18,000.00
	REMOVE AND REPLACE HEADWALL	EA	1	\$ 4,000.00	\$ 4,000.00
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00

Figure A-5(2) - Construction Quantities and Cost Estimates

NAME	ITEM	UNIT	QUANTITY	UNIT PRICE	EXTENSION	
WB-L17B	REMOVE 24" DIA FLAP GATE	EA	1	\$ 100.00	\$ 100.00	
	24" DIA JOINT REPAIR	EA	12	\$ 225.00	\$ 2,700.00	
	REMOVE AND REPLACE 24" DIA RCP	LF	38	\$ 125.00	\$ 4,750.00	
	24" DIA CONCRETE COLLAR	EA	1	\$ 400.00	\$ 400.00	
	CONNECT TO EXISTING AREA INLET	EA	1	\$ 800.00	\$ 800.00	
	FLAP GATE FOR 24" DIA RCP	EA	1	\$ 2,000.00	\$ 2,000.00	
	SINGLE TIMBER PILE OUTLET STRUCTURE	EA	1	\$ 4,000.00	\$ 4,000.00	
WB-L17	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00	
	REMOVE 24" DIA CMP	LF	22	\$ 20.00	\$ 440.00	
	REMOVE 24" DIA FLAP GATE	EA	1	\$ 100.00	\$ 100.00	
	REMOVE 24" DIA RCP	LF	16	\$ 85.00	\$ 1,360.00	
	24" DIA RCP	LF	38	\$ 125.00	\$ 4,750.00	
	24" DIA JOINT REPAIR	EA	16	\$ 225.00	\$ 3,600.00	
	FLAP GATE FOR 24" DIA RCP	EA	1	\$ 2,000.00	\$ 2,000.00	
WB-L16	SINGLE TIMBER PILE OUTLET STRUCTURE	EA	1	\$ 4,000.00	\$ 4,000.00	
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00	
	CCCCP FOR 6'x8" RCB	LF	120	\$ 875.00	\$ 105,000.00	
	SHEET PILE	SF	549	\$ 40.00	\$ 21,960.00	
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00	
	WB-L15, 15A AND 15B	REMOVE 60" DIA CMP	LF	120	\$ 85.00	\$ 10,200.00
		REMOVE 60" DIA FLAP GATE	EA	3	\$ 250.00	\$ 750.00
REMOVE HEADWALL		EA	1	\$ 1,500.00	\$ 1,500.00	
REMOVE AND REPLACE CONCRETE APPROACH APRON		EA	1	\$ 2,200.00	\$ 2,200.00	
60" DIA RCP		LF	192	\$ 475.00	\$ 91,200.00	
60" DIA CONCRETE COLLAR		EA	3	\$ 1,100.00	\$ 3,300.00	
REHAB 60" DIA RCP JOINTS AND LONGITUDINAL CRACKING		EA	48	\$ 525.00	\$ 25,200.00	
FLAP GATE FOR 60" DIA RCP		EA	3	\$ 6,000.00	\$ 18,000.00	
RIP RAP OUTLET PROTECTION		TONS	250	\$ 68.00	\$ 17,000.00	
CONCRETE HEADWALL FOR OUTLET		EA	1	\$ 5,000.00	\$ 5,000.00	
WB-L14	SHEET PILE	SF	400	\$ 40.00	\$ 16,000.00	
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00	
WB-L13	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00	
	REHAB 72" DIA CMP (INVERT ONLY)	LF	159	\$ 75.00	\$ 11,925.00	
WB-L11	72" DIA FLARED END SECTION	EA	1	\$ 1,900.00	\$ 1,900.00	
	FLAP GATE FOR 72" DIA CMP	EA	1	\$ 6,200.00	\$ 6,200.00	
	SHEET PILE	SF	540	\$ 40.00	\$ 21,600.00	
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00	
WB-L10	REHAB 78" DIA CMP	EA	10	\$ 150.00	\$ 1,500.00	
	SHEET PILE	SF	350	\$ 40.00	\$ 14,000.00	
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00	
WB-L09	REHAB 30" DIA CMP (INVERT ONLY)	LF	236	\$ 40.00	\$ 9,440.00	
	30" DIA CMP	LF	10	\$ 85.00	\$ 850.00	
	REMOVE TIMBER PILE PIPE SUPPORT	EA	1	\$ 750.00	\$ 750.00	
	SINGLE TIMBER PILE OUTLET STRUCTURE	EA	1	\$ 4,000.00	\$ 4,000.00	
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00	
WB-L08	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00	
	REHAB 42" DIA CMP (INVERT ONLY)	LF	147	\$ 50.00	\$ 7,350.00	
WB-L06	REMOVE, RECONDITION AND REPLACE 42" DIA FLAP GATE	EA	1	\$ 950.00	\$ 950.00	
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00	
TOTAL COST FROM LEFT BANK PENETRATIONS AND MISC ITEMS					\$ 1,692,150.00	

Figure A-5(3) - Construction Quantities and Cost Estimates

NAME	ITEM	UNIT	QUANTITY	UNIT PRICE	EXTENSION
LEFT AND RIGHT BANK SEGMENTS COMBINED	MOBILIZATION	LS	1	\$ 506,484.92	\$ 506,484.92
	STRIP, STOCKPILE AND REPLACE 6" TOPSOIL	CY	6,289	\$ 5.00	\$ 31,445.00
	REMOVE AND REPLACE 6" CONCRETE BIKE TRAIL	SF	88,662	\$ 10.00	\$ 886,620.00
	LEVEE EMBANKMENT	CY	22,786	\$ 12.00	\$ 273,432.00
	SEEDING AND EROSION CONTROL MAT	AC	5.76	\$ 8,000.00	\$ 46,116.80
	REMOVE AND REPLACE PEDESTRIAN TRAIL SIGNAGE	EA	5	\$ 1,200.00	\$ 6,000.00
	REMOVE AND REPLACE LEVEE ROW MARKERS	EA	7	\$ 200.00	\$ 1,400.00
	CHANNEL BANK STABILIZATION	LF	5,640	\$ 264.00	\$ 1,488,960.00
	SHEET PILE CHANNEL BANK STABILIZATION	SF	15,960	\$ 40.00	\$ 638,400.00
	REMOVE AND REPLACE CRUSHED ROCK SURFACING	SF	24,316	\$ 15.00	\$ 364,740.00
	66TH STREET ROADWAY ADJUSTMENTS NORTH & SOUTH OF BRIDGE	LS	1	\$ 225,000.00	\$ 225,000.00
TOTAL COST FROM LEFT BANK PENETRATIONS AND MISC LEFT BANK ITEMS					\$ 1,692,150.00
WB-R-28	REMOVE AND REINSTALL 88" DIA OPEN THROAT AREA INLET TOP	EA	1	\$ 1,000.00	\$ 1,000.00
	REMOVE 88" DIA AREA INLET BASE	EA	1	\$ 1,000.00	\$ 1,000.00
	REMOVE EXSTING TIMBER PILE PIPE SUPPORT	EA	1	\$ 750.00	\$ 750.00
	88" DIA AREA INLET BASE	VF	7	\$ 1,250.00	\$ 8,750.00
	REMOVE AND REPLACE 42" DIA RCP	LF	24	\$ 300.00	\$ 7,200.00
	42" DIA CONCRETE COLLAR	EA	1	\$ 600.00	\$ 600.00
	REMOVE AND REINSTALL 42" DIA FLAP GATE	EA	1	\$ 1,100.00	\$ 1,100.00
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
	DOUBLE TIMBER PILE PIPE SUPPORT	EA	1	\$ 6,000.00	\$ 6,000.00
	SHEET PILE	SF	300	\$ 40.00	\$ 12,000.00
REHAB 42" DIA RCP JOINTS	EA	13	\$ 400.00	\$ 5,200.00	
WB-R-27	REMOVE AND REINSTALL 88" DIA OPEN THROAT INLET TOP	EA	1	\$ 1,000.00	\$ 1,000.00
	REMOVE 88" DIA AREA INLET BASE	EA	1	\$ 1,000.00	\$ 1,000.00
	REMOVE EXISTING TIMBER PILE PIPE SUPPORT	EA	1	\$ 750.00	\$ 750.00
	88" DIA AREA INLET BASE	VF	1	\$ 1,250.00	\$ 1,250.00
	REMOVE AND REPLACE 48" DIA RCP	LF	24	\$ 350.00	\$ 8,400.00
	48" DIA CONCRETE COLLAR	EA	1	\$ 750.00	\$ 750.00
	REMOVE AND REINSTALL 48" DIA FLAP GATE	EA	1	\$ 1,200.00	\$ 1,200.00
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
	DOUBLE TIMBER PILE PIPE SUPPORT	EA	1	\$ 6,000.00	\$ 6,000.00
	SHEET PILE	SF	300	\$ 40.00	\$ 12,000.00
REHAB 48" DIA RCP JOINTS	EA	21	\$ 425.00	\$ 8,925.00	
WB-R-26	REMOVE AND REINSTALL 60" DIA OPEN THROAT INLET TOP	EA	1	\$ 800.00	\$ 800.00
	REMOVE 60" DIA AREA INLET BASE	EA	1	\$ 800.00	\$ 800.00
	60" DIA AREA INLET BASE	VF	6	\$ 975.00	\$ 5,850.00
	REMOVE AND REPLACE 24" DIA RCP	LF	24	\$ 125.00	\$ 3,000.00
	24" DIA CONCRETE COLLAR	EA	1	\$ 400.00	\$ 400.00
	REMOVE 24" DIA FLAP GATE	EA	1	\$ 200.00	\$ 200.00
	FLAP GATE FOR 24" DIA RCP	EA	1	\$ 2,000.00	\$ 2,000.00
	SINGLE TIMBER PILE OUTLET STRUCTURE	EA	1	\$ 4,000.00	\$ 4,000.00
	RIP RAP OUTLET PROTECTION	TONS	125	\$ 68.00	\$ 8,500.00
REMOVE TREES 6" TO 24" DIAMETER	EA	24	\$ 1,000.00	\$ 24,000.00	
WB-R25 A/B	REMOVE CONCRETE HEADWALL	EA	1	\$ 1,500.00	\$ 1,500.00
	54" DIA RCP (COST FOR EXTENDING BOTH PIPES)	LF	20	\$ 300.00	\$ 6,000.00
	CONCRETE HEADWALL	EA	1	\$ 3,000.00	\$ 3,000.00
	CLEARING AND GRUBBING	LS	1	\$ 3,000.00	\$ 3,000.00
	SHEET PILE	SF	260	\$ 40.00	\$ 10,400.00
RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00	

Figure A-5(4) - Construction Quantities and Cost Estimates

NAME	ITEM	UNIT	QUANTITY	UNIT PRICE	EXTENSION
STA 231+96 PENETRATION	REMOVE AND REINSTALL 60" DIA OPEN THROAT INLET TOP	EA	1	\$ 800.00	\$ 800.00
	REMOVE 60" DIA AREA INLET BASE	EA	1	\$ 800.00	\$ 800.00
	60" DIA AREA INLET BASE	VF	1	\$ 975.00	\$ 975.00
	24" DIA CMP	EA	32	\$ 75.00	\$ 2,400.00
	24" DIA CONCRETE COLLAR	EA	2	\$ 400.00	\$ 800.00
	REMOVE 24" DIA FLAP GATE	EA	1	\$ 200.00	\$ 200.00
	FLAP GATE FOR 24" DIA RCP	EA	1	\$ 2,000.00	\$ 2,000.00
	SINGLE TIMBER PILE OUTLET STRUCTURE	EA	1	\$ 4,000.00	\$ 4,000.00
	18" O.D. HDPE SLIPLINE WITH GROUT	LF	175	\$ 140.00	\$ 24,500.00
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
UPSTREAM OF 84TH STREET	REMOVE AND TRANSPLANT TREES (6" TO 24" DIA)	EA	12	\$ 2,800.00	\$ 33,600.00
	FLOODWALL EXTENSION	LF	120	\$ 975.00	\$ 117,000.00
	4' CHAIN LINK FENCE ON TOP OF FLOODWALL	LF	120	\$ 100.00	\$ 12,000.00
	2.5' FLOODWALL RAISE	LF	75	\$ 300.00	\$ 22,500.00
	REMOVE AND REPLACE 4' CHAIN LINK FENCE ON TOP OF FLOODWALL	LF	75	\$ 50.00	\$ 3,750.00
	REMOVE AND REPLACE NRD ACCESS GATE	EA	4	\$ 800.00	\$ 3,200.00
	ADDITIONAL SHEET PILE FOR FLOODWALL	SF	200	\$ 40.00	\$ 8,000.00
R24	REHAB 24" DIA RCP JOINTS	EA	16	\$ 275.00	\$ 4,400.00
	RIP RAP OUTLET PROTECTION	TONS	125	\$ 68.00	\$ 8,500.00
WB-R23	REMOVE AND REPLACE 24" DIA RCP	LF	24	\$ 125.00	\$ 3,000.00
	24" DIA CONCRETE COLLAR	EA	1	\$ 400.00	\$ 400.00
	REMOVE AND REINSTALL 24" DIA FLAP GATE	EA	1	\$ 500.00	\$ 500.00
	REHAB 24" DIA RCP JOINTS	EA	13	\$ 275.00	\$ 3,575.00
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
WB-R22	REMOVE TIMBER PILE PIPE SUPPORT	EA	1	\$ 750.00	\$ 750.00
	REMOVE AND REPLACE 30" DIA RCP	LF	36	\$ 150.00	\$ 5,400.00
	30" DIA CONCRETE COLLAR	EA	1	\$ 500.00	\$ 500.00
	REMOVE AND REINSTALL 30" DIA FLAP GATE	EA	1	\$ 650.00	\$ 650.00
	REHAB 30" DIA RCP JOINTS	EA	13	\$ 275.00	\$ 3,575.00
	SINGLE TIMBER PILE OUTLET STRUCTURE	EA	1	\$ 4,000.00	\$ 4,000.00
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
WB-R21	REMOVE AND REINSTALL 60" DIA OPEN THROAT AREA INLET TOP	EA	1	\$ 800.00	\$ 800.00
	REMOVE 60" DIA AREA INLET BASE	EA	1	\$ 800.00	\$ 800.00
	REMOVE TIMBER PILE PIPE SUPPORT	EA	1	\$ 750.00	\$ 750.00
	REMOVE 36" DIA FLAP GATE	EA	1	\$ 200.00	\$ 200.00
	INSTALL 60" DIA AREA INLET BASE	VF	1	\$ 975.00	\$ 975.00
	36" DIA RCP	LF	24	\$ 150.00	\$ 3,600.00
	REMOVE AND REPLACE 36" DIA RCP	LF	24	\$ 175.00	\$ 4,200.00
	REHAB 36" DIA RCP JOINTS	EA	10	\$ 300.00	\$ 3,000.00
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
	DOUBLE TIMBER PILE PIPE SUPPORT	EA	1	\$ 6,000.00	\$ 6,000.00
WB-R19	RELIEF WELL	EA	6	\$ 38,000.00	\$ 228,000.00
	SHEET PILE	SF	700	\$ 40.00	\$ 28,000.00
	RIP RAP OUTLET PROTECTION	TONS	325	\$ 68.00	\$ 22,100.00
WB-R18	REPAIR OUTLET STRUCTURE	EA	1	\$ 1,500.00	\$ 1,500.00
	REMOVE AND REINSTALL 7' X 7' FLAP GATE	EA	3	\$ 2,500.00	\$ 7,500.00
	REMOVE AND REPLACE GUARDRAIL	LF	25	\$ 125.00	\$ 3,125.00
	RIP RAP OUTLET PROTECTION	TONS	325	\$ 68.00	\$ 22,100.00
	SHEET PILE	SF	750	\$ 40.00	\$ 30,000.00
WB-R17	72" DIAMETER CMP	LF	36	\$ 350.00	\$ 12,600.00
	REMOVE AND REPLACE 72" DIA CMP	LF	10	\$ 380.00	\$ 3,800.00
	REMOVE AND REPLACE 72" DIA FLARED END SECTION	EA	1	\$ 2,200.00	\$ 2,200.00
	REMOVE AND REINSTALL 72" DIA FLAP GATE	EA	1	\$ 1,300.00	\$ 1,300.00
	63" O.D. HDPE SLIPLINE WITH GROUT	LF	190	\$ 550.00	\$ 104,500.00
	REMOVE AND REPLACE SPLIT RAIL FENCE	LF	65	\$ 25.00	\$ 1,625.00
	DOUBLE TIMBER PILE PIPE SUPPORT	EA	1	\$ 5,000.00	\$ 5,000.00
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
WB-R16	90" DIA RCP JOINT REPAIR	EA	26	\$ 700.00	\$ 18,200.00

Figure A-5(5) - Construction Quantities and Cost Estimates

NAME	ITEM	UNIT	QUANTITY	UNIT PRICE	EXTENSION
WB-R15	63" O.D. HDPE SLIPLINE WITH GROUT	LF	157	\$ 550.00	\$ 86,350.00
	REMOVE, REHABILITATE AND REPLACE 72" DIA FLAP GATE	EA	1	\$ 1,500.00	\$ 1,500.00
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
	SHEET PILE	SF	250	\$ 40.00	\$ 10,000.00
WB-R14	REMOVE 42" DIA FLAP GATE	EA	1	\$ 150.00	\$ 150.00
	32" O.D. HDPE SLIPLINE WITH GROUT	LF	244	\$ 185.00	\$ 45,140.00
	42" DIA FLAP GATE	EA	1	\$ 1,000.00	\$ 1,000.00
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
WB-R13	SHEET PILE	SF	250	\$ 40.00	\$ 10,000.00
	REMOVE 42" DIA FLAP GATE	EA	1	\$ 150.00	\$ 150.00
	32" O.D. HDPE SLIPLINE WITH GROUT	LF	162	\$ 185.00	\$ 29,970.00
	42" DIA FLAP GATE	EA	1	\$ 1,000.00	\$ 1,000.00
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
WB-R12 AND 12A	SHEET PILE	SF	250	\$ 40.00	\$ 10,000.00
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
	REMOVE AND REPLACE 54" DIAMETER FLARED END SECTIONS	EA	2	\$ 1,650.00	\$ 3,300.00
	54" DIA CMP	LF	16	\$ 300.00	\$ 4,800.00
WB-R11	DOUBLE TIMBER PILE PIPE SUPPORT	EA	2	\$ 5,000.00	\$ 10,000.00
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
	REMOVE 24" DIA FLARED END SECTION	EA	1	\$ 150.00	\$ 150.00
	24" DIA GALVANIZED STEEL FLARED END SECTION	EA	1	\$ 350.00	\$ 350.00
	18" O.D. HDPE SLIPLINE WITH GROUT	LF	190	\$ 140.00	\$ 26,600.00
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
WB-R10 AND 10A	REMOVE 24" DIA FLAP GATE	EA	1	\$ 100.00	\$ 100.00
	24" FLAP GATE	EA	1	\$ 2,000.00	\$ 2,000.00
	SHEET PILE	SF	600	\$ 40.00	\$ 24,000.00
	REMOVE AND REPLACE 54" DIAMETER FLARED END SECTION	EA	2	\$ 1,650.00	\$ 3,300.00
WB-R09	REMOVE AND REPLACE 54" DIA CMP	LF	30	\$ 250.00	\$ 7,500.00
	54" DIA CONCRETE COLLAR	EA	2	\$ 900.00	\$ 1,800.00
WB-R08	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
	RIP RAP OUTLET PROTECTION	TONS	250	\$ 68.00	\$ 17,000.00
WB-R06	RING LEVEE	EA	1	\$ 12,000.00	\$ 12,000.00
	REMOVE 48" DIA CMP	LF	157	\$ 50.00	\$ 7,850.00
	REMOVE 48" DIA FLAP GATE	EA	1	\$ 150.00	\$ 150.00
	48" DIA RCP	LF	157	\$ 300.00	\$ 47,100.00
	CONNECT TO EXISTING AREA INLET	EA	1	\$ 800.00	\$ 800.00
	FLAP GATE FOR 48" DIA RCP	EA	1	\$ 4,000.00	\$ 4,000.00
	DOUBLE TIMBER PILE PIPE SUPPORT	EA	1	\$ 6,000.00	\$ 6,000.00
	RIP RAP OUTLET PROTECTION	TONS	150	\$ 68.00	\$ 10,200.00
Construction Cost Sub-Total					\$ 7,741,990
Contingency @ 20%					\$ 1,548,400
Total					\$ 9,290,390

Table A-5.1 – Land Purchase Summary

Acquisition Type	Acquisition Cost
Purchase	\$ 35,602.16
Permanent Easement	\$ 2,618.47
Construction Easement	\$ 1,251.75
Total Cost	\$ 39,472.38

Figure A-6(1) – Location Map



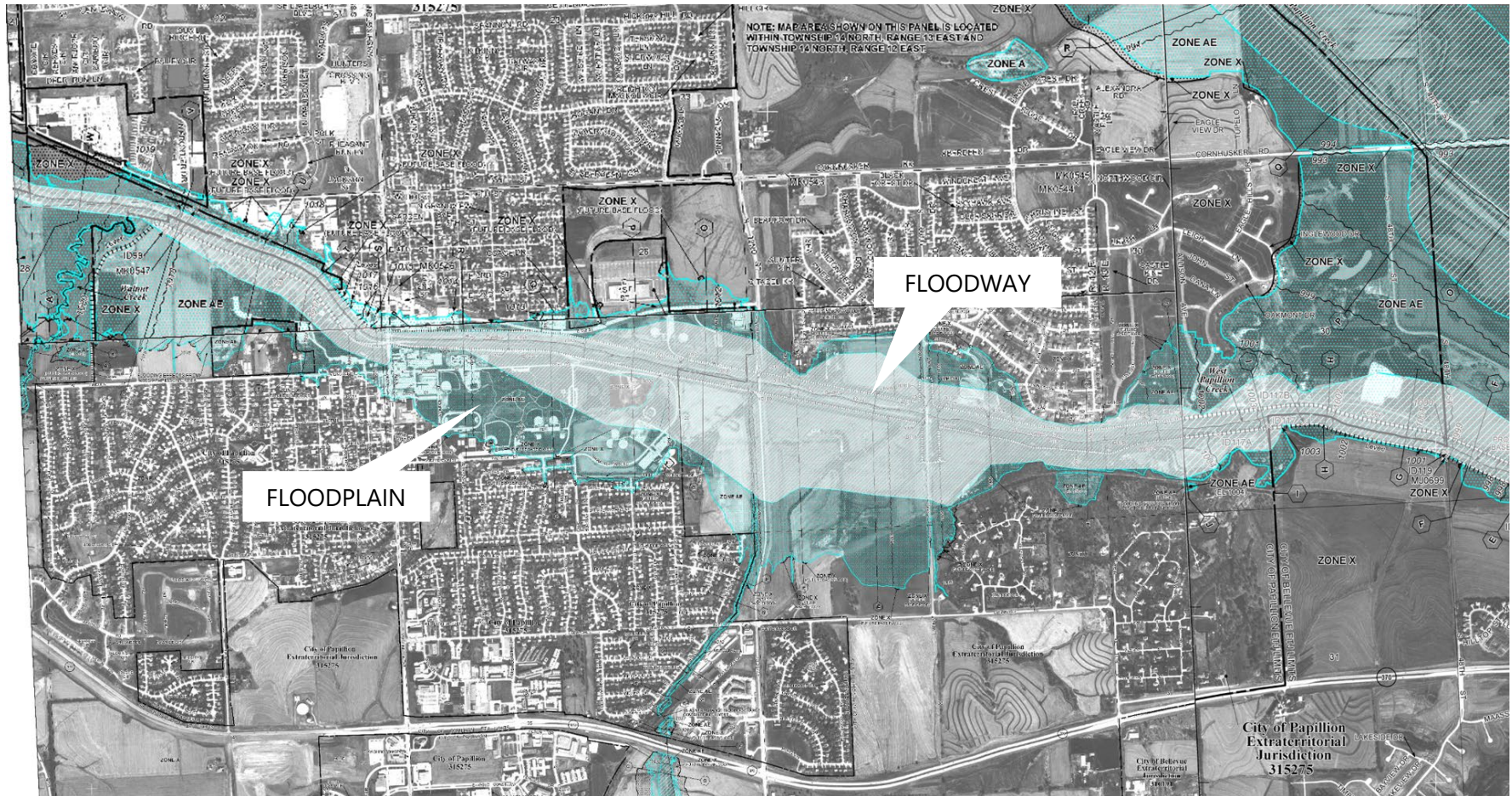
Figure A-6(2) – West Branch Papillion Creek Left Bank



Figure A-6(3) – West Branch Papillion Creek Right Bank



Figure A-6(4) – 2010 FEMA Flood Insurance Rate Maps for West Branch Papillion Creek



SECTION B-1

Figure B-1.A.3 – Geotechnical Boring Locations

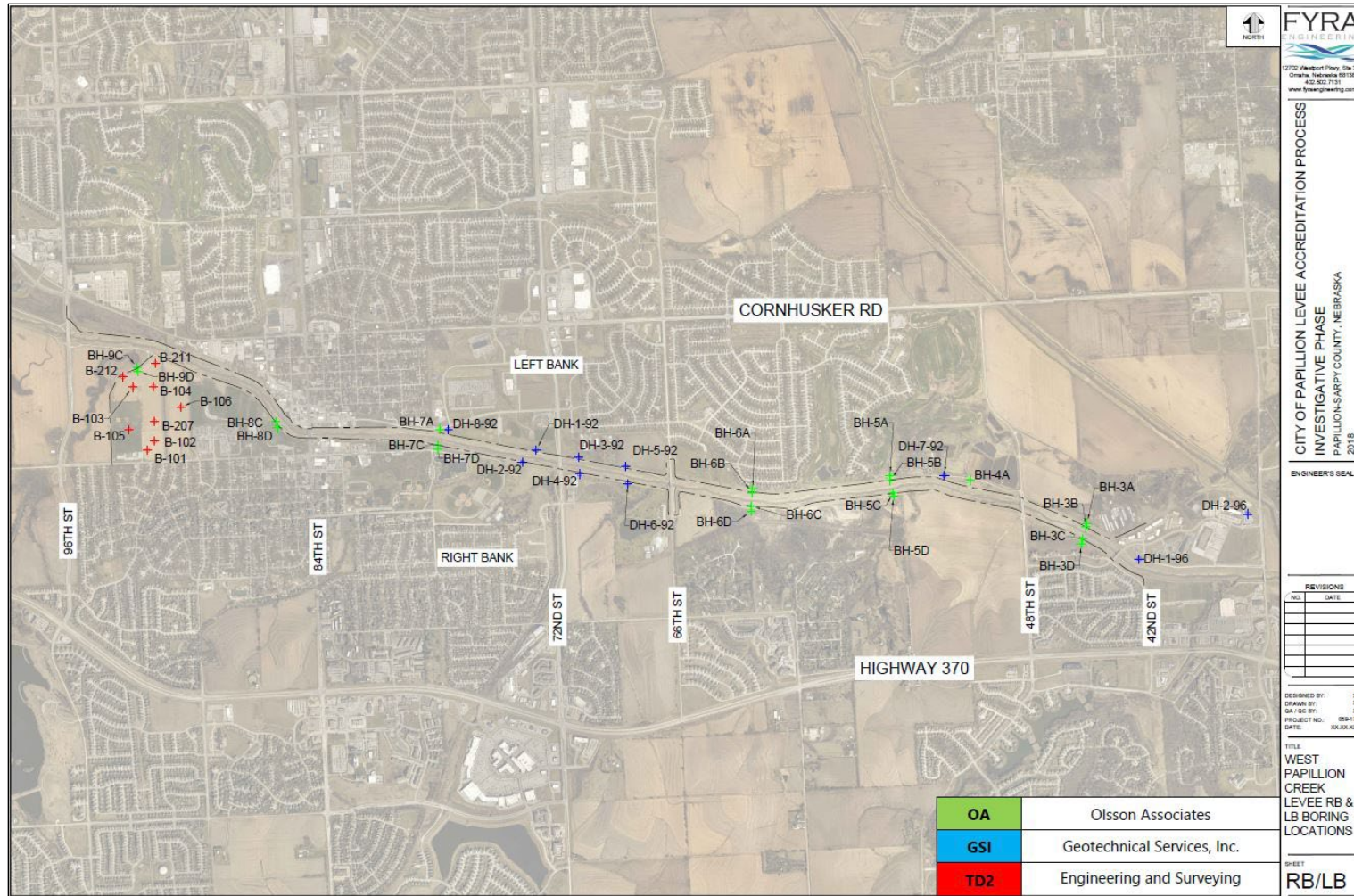


Table B-1.A.5 – Land Purchase Breakdown

Levee	Parcel #	Acquisition Type	Area (Ac)	Acquisition Value	Acquisition Cost
LB	11586576	Purchase	0.54	\$ 40,000.00	\$ 21,452.68
LB	10558098	Purchase	0.34	\$ 40,000.00	\$ 13,553.43
RB/LB	10518770	Purchase	0.13	\$ 2,500.00	\$ 315.34
RB/LB	11604344	Purchase	0.11	\$ 2,500.00	\$ 280.70
RB	11593008	Permanent Easement	0.01	\$ 8,000.00	\$ 73.41
RB	11594928	Permanent Easement	0.21	\$ 8,000.00	\$ 1,665.44
RB	11594929	Permanent Easement	0.04	\$ 8,000.00	\$ 288.42
LB	11577981	Permanent Easement	0.07	\$ 8,000.00	\$ 591.19
RB	11592530	Construction Easement	0.05	\$ 2,500.00	\$ 134.61
RB	10460128	Construction Easement	0.04	\$ 2,500.00	\$ 97.18
RB	11593007	Construction Easement	0.09	\$ 2,500.00	\$ 217.07
RB	11594928	Construction Easement	0.21	\$ 2,500.00	\$ 522.07
RB	11082682	Construction Easement	0.09	\$ 2,500.00	\$ 219.03
LB	11593085	Construction Easement	0.02	\$ 2,500.00	\$ 61.78
				TOTAL	\$ 39,472.38

Figure B-1.A.5(1) –Land Rights Maps

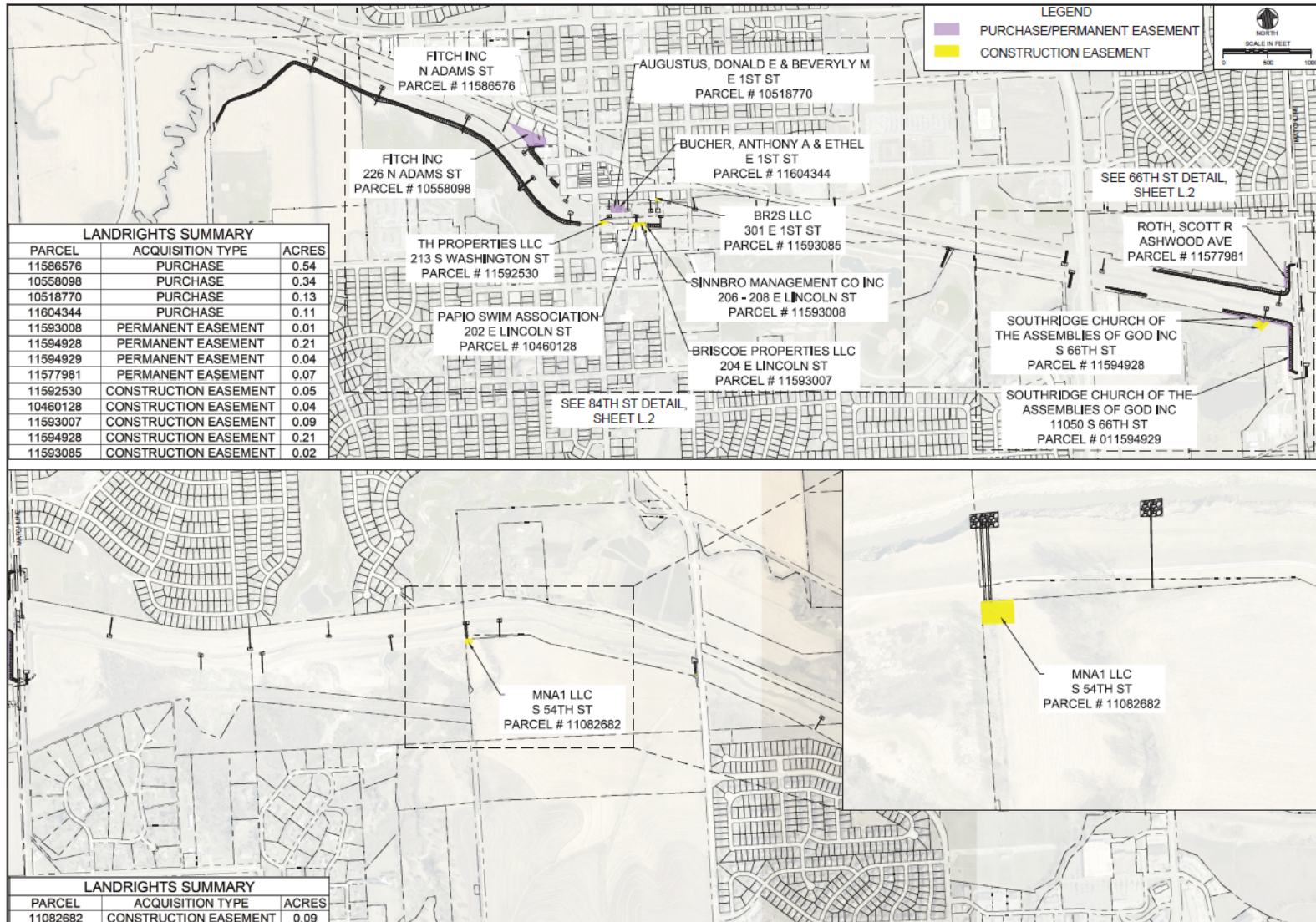


Figure B-1.A.5(2) –Land Rights Map

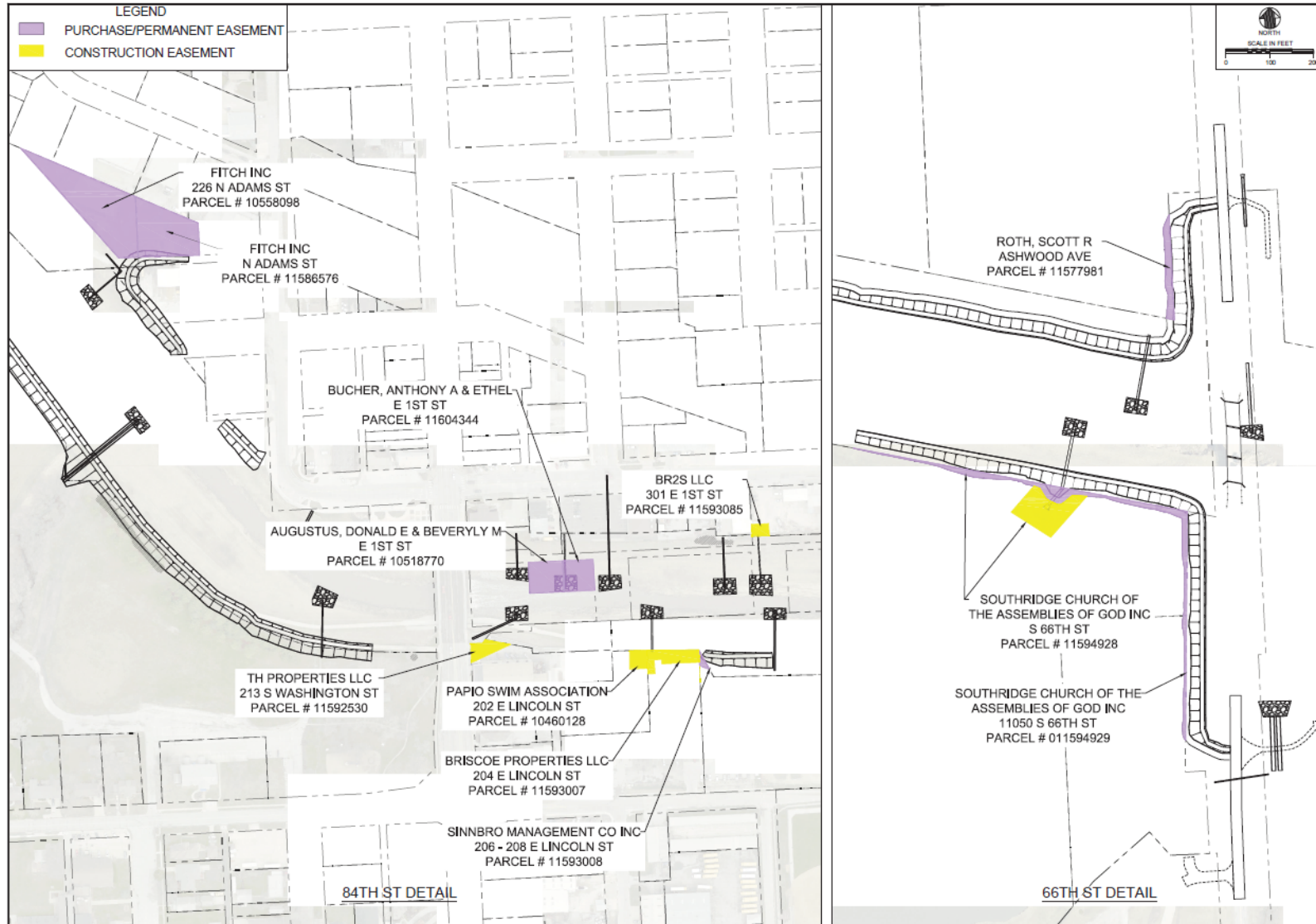


Figure B-1.A.6 - Required Levee Raises with No Modifications to 66th Street Bridge



Figure B-1.A.6(2) - Proposed Left Bank Levee Tieback Configuration 1

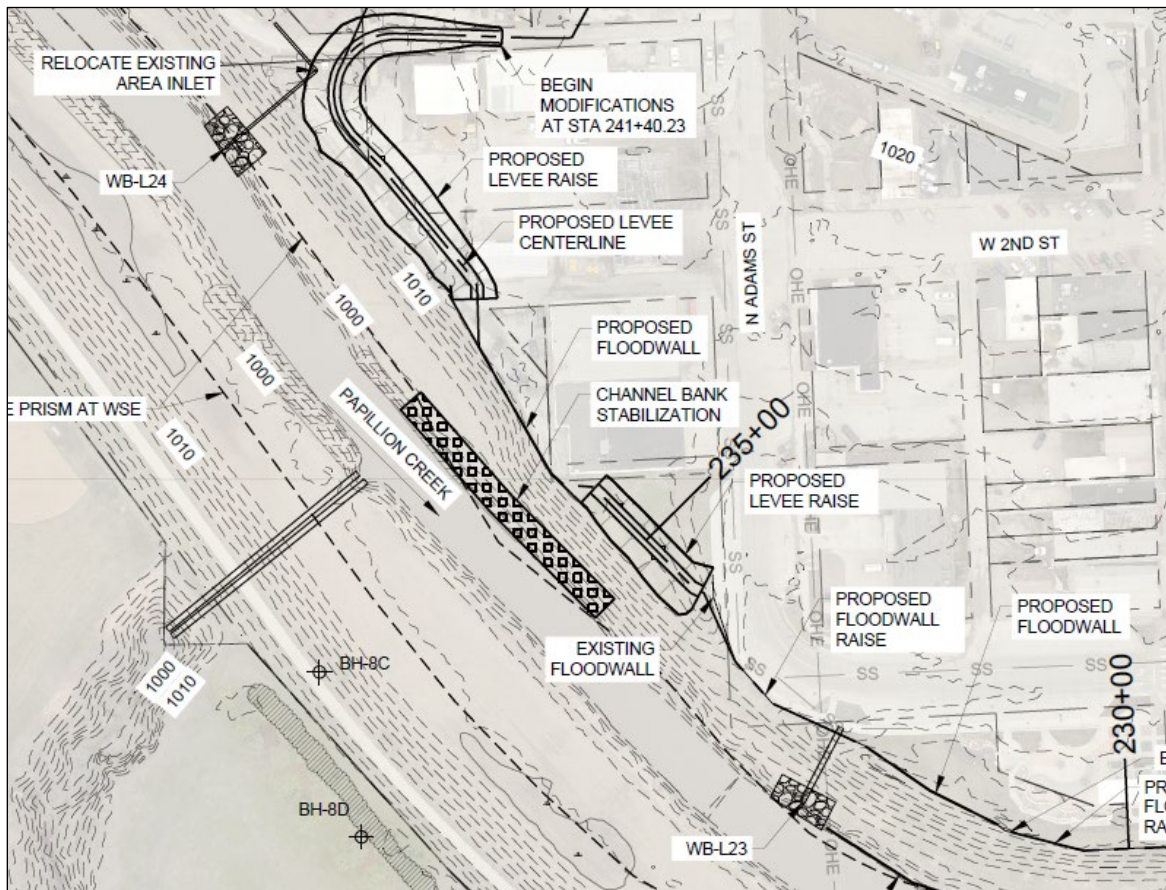


Figure B-1.A.6(3) - Proposed Left Bank Levee Tieback Configuration 2



Figure B-1.A.6(3) - 66th Street Improvements

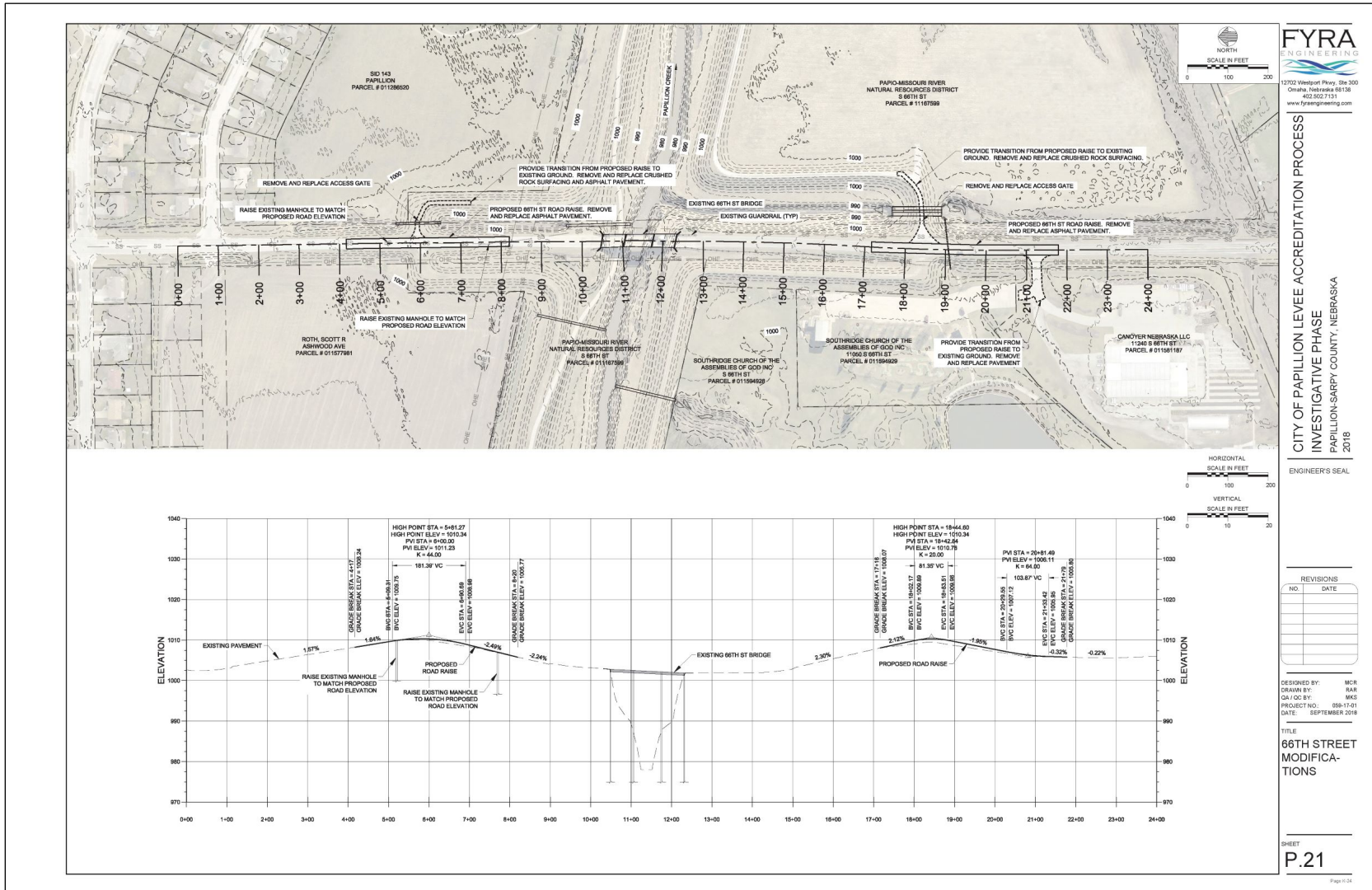


Table B-1.A.8 - West Papillion Creek Discharges (Future Values)

West Papillion Creek Discharges				
River Station	10-Percent Annual Chance (cfs)	2-Percent Annual Chance (cfs)	1-Percent Annual Chance (cfs)	0.2-Percent Annual Chance (cfs)
31937.90	16,150	25,100	28,740	38,130
27240.82	16,290	25,160	28,840	38,270
26617.82	16,530	25,280	29,050	38,540
22339.62	16,510	25,260	29,030	38,510
20522.12	15,850	24,780	28,580	37,970
17188.55	16,160	25,220	29,130	38,790
16132.91	16,120	25,190	29,110	38,720
13808.99	16,380	25,580	29,610	39,460
12351.95	16,350	25,540	29,590	39,410
9322.72	16,490	25,770	29,900	39,840
5479.711	17,050	26,590	31,000	41,410
1137.487	17,150	26,740	31,210	41,700

SECTION B-3

Benefits

Flood Insurance Avoidance

The removal of parcels from the delineated floodway and floodplain eliminates the mandatory need for the homeowners to purchase flood insurance. Even if homeowners elect to continue purchasing flood insurance, the difference in the premium cost once the parcel is removed from the floodplain/floodway is considered a project benefit. This is an annual benefit to the project of \$1,120,400.

Table B-3.1 – Flood Insurance Avoidance Estimate

Property	Properties Removed from the Floodplain	Enrollment Rate (%)	Insurance Rate (\$/yr)	Annual Insurance
Residential	162	80%	\$6,000	\$777,600
Commercial	82	90%	\$6,000	\$442,800
Total				\$1,220,400

Land Improvement Values

A significant number of parcels is being removed from the delineated floodway/floodplain. As also discussed qualitatively, the value of land increases with removal from the floodway/floodplain due to avoiding mandates on flood insurance associated with mortgages, quicker sale times, and elimination of restricted development types within the floodway and decreased fill requirements to elevate structures. While the amount of increase in the land value is a subjective matter, for the purpose of this exercise, a value increase of 10% for all parcels removed from the floodplain was assumed. In the assessment, parcels not currently developed were separated out from the total parcels being removed from the floodway/floodplain. The parcels that are currently in the floodplain could have been developed, but likely at a significant increase in costs and project review. Parcels within the current floodway extents are restricted completely from new development. For those reasons, the improved value of the parcels (and therefore stimulus to economy, increased tax base and other associated factors) attributable to adding these parcels back into developable areas has been ignored and a conservative improvement value of 10% above current assessed value was used for the overall benefit. The total value of parcels receiving the benefit of the project is \$101,758,051 (see table below), which equates to a one-time project benefit of \$10,175,805 after the levee is accredited by FEMA and Flood Insurance Rate Maps (FIRMs) have been revised.

Table B-3.2 – Value of Parcels Protected by Levees

LOCATION	TYPE	TOTAL NUMBER OF PARCELS	TOTAL AREA (ACRES)	TOTAL VALUE
WITHIN ETJ (EXTRATERRITORIAL JURISDICTION)	RESIDENTIAL	162	84.1	\$23,348,953
	COMM	82	423.2	\$68,348,826
	AG (FARM & AG-TRUST)	15	151.6	\$1,609,577
	OTHER	49	252.6	\$396,169
	TOTAL	308	911.5	\$93,703,525
OUTSIDE OF ETJ (EXTRATERRITORIAL JURISDICTION)	RESIDENTIAL	25	20.6	\$5,701,736
	COMM	2	7.5	\$318,231
	AG (FARM & AG-TRUST)	6	266.0	\$2,034,198
	OTHER	6	40.5	\$361
	TOTAL	39	334.6	\$8,054,526

Table B-3.3 – Benefit:Cost Ratio

Benefit Category	Calculated Benefit	# of Occurrences Over 50-Yr Lifetime	Lifetime Benefits	Cost Category	Calculated Costs	# of Occurrences Over 50-Yr Lifetime	Total Costs
Flood Insurance Avoidance	\$1,220,400	46	\$51,520,000	Professional Services	\$1,743,530	1	\$1,743,530
				Land Rights	\$40,000	1	\$40,000
Land Value Improvements	\$10,175,805	1	\$10,175,805	Construction Costs	\$9,290,390	1	\$9,290,390
				OMR&R	\$69,978	46	\$3,205,185
Total Benefits:			\$61,695,805	Total Costs:			\$14,279,105

Benefit:Cost Ratio= 4.64

ATTACHMENTS

City of Papillion and P-MRNRD Interlocal Agreements for Investigative and Funding Application Phases

Sarpy County Letter of Support

INTERLOCAL COOPERATION AGREEMENT

This INTERLOCAL COOPERATION AGREEMENT (“Agreement”) is made and entered into this 17th day of October, 2017 by and between the CITY OF PAPIILLION, a Nebraska municipal corporation (“City”), and PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT (“NRD”), a multi-county governmental political subdivision of the State of Nebraska (collectively, the “Parties”). This Agreement shall become effective upon the execution hereof by both of the Parties (the “Effective Date”).

RECITALS

WHEREAS, the City and the NRD are both political subdivisions duly authorized and existing under the laws of the State of Nebraska; and

WHEREAS, in order to promote the health, safety, and welfare of the public and pursuant to the authority granted to the Parties under the Interlocal Cooperation Act, Neb. Rev. Stat. §§ 13-801 to 13-827, the Parties wish to permit their local government units to make the most efficient use of their powers by enabling them to cooperate with each other on a basis of mutual advantage and thereby to provide services and facilities in a manner and pursuant to forms of government organization that will accord best with geographic, economic, population, and other factors influencing the needs and development of such local communities; and

WHEREAS, the West Papillion Creek (“Creek”) flows through portions of the City, which results in those portions of the City being within high-risk flood areas as determined by a Flood Insurance Rate Map (“FIRM”); and

WHEREAS, recent reservoir construction and updates in methodologies related to floodplain modeling are anticipated to reduce the discharges into the Creek; therefore, reducing the flood depths along the high-risk flood areas; and

WHEREAS, reduced flood depths along high-risk flood areas result in more affordable levee certification; and

WHEREAS, the Federal Emergency Management Agency (“FEMA”) requires a professional engineer to certify a levee system as support to accredit levee-protected areas on a FIRM; and

WHEREAS, certifying a levee system is a multi-phase certification process; and

WHEREAS, FYRA Engineering (the “Engineer”) has submitted a proposal to the Parties for a proposed Phase I: Investigation Phase of the levee accreditation process (“Phase I”) for a total contract price of \$334,304.00; and

WHEREAS, the scope of Phase I includes the following tasks: (1) project management, (2) levee inspection of approximately 8.4 miles of levee including West Papio Right Bank (NESARP84) from Lincoln Street to 42nd Street and West Papio Left Bank from just upstream

of 90th Street to 42nd Street, (3) geotechnical sampling, (4) geotechnical laboratory analysis, (5) geotechnical design, (6) hydraulics, and (7) wetland delineation of landside (100 feet from toe) and riverside (50 feet) of levee (all seven tasks of Phase I collectively being known as the “Scope”); and

WHEREAS, the Parties find that this Agreement is in their best interest, respectively, and will further the Parties’ cooperation in acquiring levee accreditation in order to help reduce the extent of the floodplain and floodway within the City along the Creek.

NOW THEREFORE, in consideration of the foregoing recitals and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties mutually agree as follows:

1. Purpose and Term. The purpose of this Agreement is to specify the rights and responsibilities of the Parties hereto regarding the proposed Phase I between the Parties and the Engineer. This Agreement shall commence on the Effective Date of this Agreement and shall terminate upon completion of Phase I, or two (2) years after the Effective Date of this Agreement, whichever occurs first (the “Term”).

2. Technical Support Agency. The Parties agree that the NRD will be the technical support agency, and will work directly with the Engineer to assist in the preparation of all necessary documents for the levee accreditation process. The Parties agree that the Engineer shall submit monthly invoices to the NRD for review and approval. Upon the NRD’s approval of the Engineer’s invoices, the Engineer’s invoices will be submitted to the City for payment in accordance with Paragraph 4 below.

3. Professional Services Agreement Contract. The City is authorized to enter into a Professional Services Agreement contract with the Engineer for Phase I (the “Contract”). As the technical support agency, the NRD agrees to review the proposed Contract and make a recommendation to the City as to whether such proposed Contract is appropriate.

4. Contract Amount and Payment. The total Contract amount shall not exceed \$334,304.00. The Parties shall share in the Engineer’s costs for Phase I equally, with each Party agreeing to pay an amount not to exceed \$167,152.00. As the technical support agency, the NRD shall receive the monthly invoices from the Engineer. The NRD shall review and approve the monthly invoices. Following the NRD’s approval, the NRD will pay the City for one-half of the monthly invoice within thirty (30) days of receipt of the invoice from the Engineer. Upon receipt of the NRD’s one-half share of the monthly invoice, the City will pay the Engineer for the total amount of the monthly invoice upon approval by the City of Papillion’s City Council.

5. Modifications to the Contract. The City shall not make any modifications or amendments to the Scope of the Contract or the Contract amount without written agreement signed by the governing bodies of both Parties. If the Engineer seeks a modification to the Scope of the Contract or to the Contract amount, the NRD shall review the proposed modification as technical support agency and make a recommendation to the City as to whether such proposed modification is appropriate.

6. Indemnification. Each Party shall release, indemnify and hold harmless (“Indemnifying Party”) each other Party (“Indemnified Party”) and said Indemnified Party’s officers, officials, employees, and agents, and each of them, from and against all losses, damages, liabilities, claims, costs, and expenses whatsoever arising out of or resulting from the negligence, acts, or omissions of the Indemnifying Party, or the officers, officials, employees, agents, or contractors of the Indemnifying Party.

7. Communication and Cooperation. Each Party agrees to communicate all necessary information to the other Party and to the Engineer as deemed appropriate for the successful execution of Phase I.

8. Miscellaneous.

a. Incorporation of Recitals. The recitals set forth above are, by this reference, incorporated into and deemed part of this Agreement.

b. No Administrative Entity. There shall be no separate legal or administrative entity created to administer this Agreement and, therefore, no separate budget established for such an entity.

c. Nondiscrimination Clause. In accordance with the Nebraska Fair Employment Practice Act, Neb. Rev. Stat. § 48-1122, neither Party nor any of its subcontractors or agents shall discriminate against any employee or applicant for employment to be employed in the performance of this Agreement, with respect to hire, tenure, terms, conditions, or privileges of employment because of the race, color, religion, sex, disability, or national origin of the employee or applicant.

d. Drug Free Policy. Each Party hereto represents and warrants to the other that it has established and maintains a drug free workplace policy.

e. Governing Law. The Parties shall conform to all existing and applicable City ordinances, resolutions, state and federal laws, and all existing and applicable rules and regulations. Any dispute arising from this contractual relationship shall be governed solely and exclusively by Nebraska law except to the extent such provisions may be superseded by applicable federal law, in which case the latter shall apply.

f. Forum Selection and Personal Jurisdiction. Any dispute arising from this contractual relationship shall be solely and exclusively filed in, conducted in, and decided by the courts located in Sarpy County, Nebraska. As such, the Parties also agree to exclusive personal jurisdiction in the courts located in Sarpy County, Nebraska.

g. Entire Agreement. This Agreement and all exhibits and documents referenced herein, which are hereby incorporated and specifically made a part of this Agreement by this reference, express the entire agreement of the Parties and shall be binding upon the

Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee.

- m. Conflict of Interest. The Parties warrant to each other that they have not employed nor retained any company or person, other than a bona fide employee working solely for the Parties to this Agreement, to solicit or secure this Agreement, and that they have not paid or agreed to pay any company or person other than a bona fide employee working solely for the Parties, any fee, commissions, percentage, brokerage fees, gifts or other consideration, contingent upon or resulting from the award or making of this Agreement.
- n. Representations. Each Party hereto represents and warrants to the other that (a) it has all necessary right, power and authority to enter into this Agreement, and (b) the execution and delivery of this Agreement and the performance and observance of all obligations and conditions to be performed or observed by such Party have been duly authorized by all necessary action on behalf of such Party.
- o. Counterparts. This Agreement may be executed in counterparts, each of which will be deemed an original and all of which together will constitute one Agreement. The signature page of any counterpart may be detached therefrom without impairing the legal effect of the signature(s) thereon provided such signature page is attached to any other counterpart identical thereto.

(Signature on following pages.)

**CITY OF PAPILLION,
a Nebraska Municipal Corporation**

By:  10-17-17
David P. Black, Mayor (date)

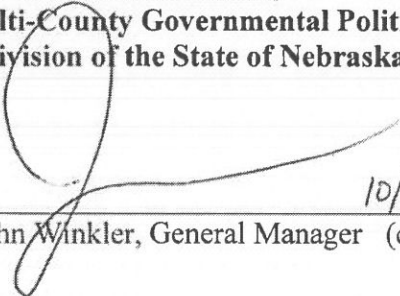
ATTEST:


Nicole Brown, City Clerk

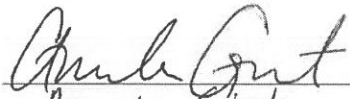
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**PAPIO-MISSOURI RIVER NATURAL
RESOURCES DISTRICT,
a Multi-County Governmental Political
Subdivision of the State of Nebraska**

By:  10/13/17
John Winkler, General Manager (date)

ATTEST:


Amanda Grint

Its: Water Resources Engineer

INTERLOCAL COOPERATION AGREEMENT

This INTERLOCAL COOPERATION AGREEMENT (“Agreement”) is made and entered into this 19th day of March, 2019 by and between the CITY OF PAPILLION, a Nebraska municipal corporation (“City”), and PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT (“NRD”), a multi-county governmental political subdivision of the State of Nebraska (collectively, the “Parties”). This Agreement shall become effective upon the execution hereof by both of the Parties (the “Effective Date”).

RECITALS

WHEREAS, the City and the NRD are both political subdivisions duly authorized and existing under the laws of the State of Nebraska; and

WHEREAS, in order to promote the health, safety, and welfare of the public and pursuant to the authority granted to the Parties under the Interlocal Cooperation Act, Neb. Rev. Stat. §§ 13-801 to 13-827, the Parties wish to permit their local government units to make the most efficient use of their powers by enabling them to cooperate with each other on a basis of mutual advantage and thereby to provide services and facilities in a manner and pursuant to forms of government organization that will accord best with geographic, economic, population, and other factors influencing the needs and development of such local communities; and

WHEREAS, the West Papillion Creek (“Creek”) flows through portions of the City, which results in those portions of the City being within high-risk flood areas as determined by a Flood Insurance Rate Map (“FIRM”); and

WHEREAS, recent reservoir construction and updates in methodologies related to floodplain modeling are anticipated to reduce the discharges into the Creek; therefore, reducing the flood depths along the high-risk flood areas; and

WHEREAS, reduced flood depths along high-risk flood areas result in more affordable levee certification; and

WHEREAS, the Federal Emergency Management Agency (“FEMA”) requires a professional engineer to certify a levee system as support to accredit levee-protected areas on a FIRM; and

WHEREAS, certifying a levee system is a multi-phase certification process; and

WHEREAS, FYRA Engineering (the “Engineer”) has completed Phase I: Investigation Phase of the levee accreditation process (“Phase I”) for the City; and

WHEREAS, The Engineer has submitted a proposal to the Parties for a proposed Phase IA: Water Sustainability Fund (WSF) Grant Application Phase of the levee accreditation process (“Phase IA”) for a total contract price of \$35,226.00; and

WHEREAS, the scope of Phase IA includes the following tasks: (1) project background, (2) technical feasibility, (3) economic feasibility, (4) environmental feasibility, and (5)

application preparation and submittal; Water Sustainability Fund (WSF) grant application (all five tasks of Phase IA collectively being known as the "Scope"); and

WHEREAS, the Parties find that this Agreement is in their best interest, respectively, and will further the Parties' cooperation in acquiring levee accreditation in order to help reduce the extent of the floodplain and floodway within the City along the Creek.

NOW THEREFORE, in consideration of the foregoing recitals and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties mutually agree as follows:

1. Purpose and Term. The purpose of this Agreement is to specify the rights and responsibilities of the Parties hereto regarding the proposed Phase IA between the City and the Engineer. This Agreement shall commence on the Effective Date of this Agreement and shall terminate upon completion of Phase IA, or two (2) years after the Effective Date of this Agreement, whichever occurs first (the "Term").
2. Technical Support Agency. The Parties agree that the NRD will be the technical support agency, and will work directly with the Engineer to assist in the preparation of all necessary documents for the levee accreditation process. The Parties agree that the Engineer shall submit monthly invoices to the NRD for review and approval. Upon the NRD's approval of the Engineer's invoices, the Engineer's invoices will be submitted to the City for payment in accordance with Paragraph 4 below.
3. Professional Services Agreement Contract. The City is authorized to enter into a Professional Services Agreement contract with the Engineer for Phase IA (the "Contract"). As the technical support agency, the NRD agrees to review the proposed Contract and make a recommendation to the City as to whether such proposed Contract is appropriate.
4. Contract Amount and Payment. The total Contract amount shall not exceed \$35,226.00. The Parties shall share in the Engineer's costs for Phase IA equally, with each Party agreeing to pay an amount not to exceed \$17,613.00. As the technical support agency, the NRD shall receive the monthly invoices from the Engineer. The NRD shall review and approve the monthly invoices. Following the NRD's approval, the NRD will pay the City for one-half of the monthly invoice within thirty (30) days of receipt of the invoice from the Engineer. Upon receipt of the NRD's one-half share of the monthly invoice, the City will pay the Engineer for the total amount of the monthly invoice upon approval by the City of Papillion's City Council.
5. Modifications to the Contract. The City shall not make any modifications or amendments to the Scope of the Contract or the Contract amount without written agreement signed by the governing bodies of both Parties. If the Engineer seeks a modification to the Scope of the Contract or to the Contract amount, the NRD shall review the proposed modification as technical support agency and make a recommendation to the City as to whether such proposed modification is appropriate.
6. Indemnification. Each Party shall release, indemnify and hold harmless ("Indemnifying Party") each other Party ("Indemnified Party") and said Indemnified Party's officers, officials, employees, and agents, and each of them, from and against all losses, damages, liabilities,

claims, costs, and expenses whatsoever arising out of or resulting from the negligence, acts, or omissions of the Indemnifying Party, or the officers, officials, employees, agents, or contractors of the Indemnifying Party.

7. Communication and Cooperation. Each Party agrees to communicate all necessary information to the other Party and to the Engineer as deemed appropriate for the successful execution of Phase IA.

8. Miscellaneous.

- a. Incorporation of Recitals. The recitals set forth above are, by this reference, incorporated into and deemed part of this Agreement.
- b. No Administrative Entity. There shall be no separate legal or administrative entity created to administer this Agreement and, therefore, no separate budget established for such an entity.
- c. Nondiscrimination Clause. In accordance with the Nebraska Fair Employment Practice Act, Neb. Rev. Stat. § 48-1122, neither Party nor any of its subcontractors or agents shall discriminate against any employee or applicant for employment to be employed in the performance of this Agreement, with respect to hire, tenure, terms, conditions, or privileges of employment because of the race, color, religion, sex, disability, or national origin of the employee or applicant.
- d. Drug Free Policy. Each Party hereto represents and warrants to the other that it has established and maintains a drug free workplace policy.
- e. Governing Law. The Parties shall conform to all existing and applicable City ordinances, resolutions, state and federal laws, and all existing and applicable rules and regulations. Any dispute arising from this contractual relationship shall be governed solely and exclusively by Nebraska law except to the extent such provisions may be superseded by applicable federal law, in which case the latter shall apply.
- f. Forum Selection and Personal Jurisdiction. Any dispute arising from this contractual relationship shall be solely and exclusively filed in, conducted in, and decided by the courts located in Sarpy County, Nebraska. As such, the Parties also agree to exclusive personal jurisdiction in the courts located in Sarpy County, Nebraska.
- g. Entire Agreement. This Agreement and all exhibits and documents referenced herein, which are hereby incorporated and specifically made a part of this Agreement by this reference, express the entire agreement of the Parties and shall be binding upon the successors and assigns of the respective Parties. Accordingly, this Agreement supersedes any prior written or oral agreement or understanding between the Parties concerning the subject matter hereof.
- h. Modification. Any modification or amendment of this Agreement, including termination, shall require a written agreement approved by the governing bodies of both Parties.

- i. Notices, Consents, and Approval. Unless expressly stated otherwise herein, all notices, requests, consents, approvals, authorizations, or other submissions required to be made by the Parties shall be in writing, whether or not so stated, and shall be deemed sufficient and served upon the other only if sent by United States registered mail, return receipt requested, postage prepaid and addressed as follows:

(1) For City: City of Papillion
 Attn: Nicole Brown, City Clerk
 122 East Third Street
 Papillion, NE 68046

(2) For NRD: Papio-Missouri River NRD
 Attn: Amanda Grint
 8901 S. 154th Street
 Omaha, NE 68138

Such addresses and contact persons may be changed from time to time upon written notice to the other Party.

- j. Headings. The headings herein are inserted for convenience and reference only and in no way define or limit the scope of any provisions hereof.
- k. Severability. In the event any portion of this Agreement may be held invalid, void, or illegal for any reason by a court of competent jurisdiction, any such holding shall in no way affect, impair, or invalidate any other provisions of this Agreement, and such other provisions shall remain in full force and effect as if the invalid, void, or illegal provision was never part of this Agreement.
- l. New Employee Work Eligibility Status. The Parties shall comply with the residency verification requirements of Neb. Rev. Stat. § 4-108 through § 4-114. The Parties are required and shall use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska. A federal immigration verification system means the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-Verify Program, or an equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee.
- m. Conflict of Interest. The Parties warrant to each other that they have not employed nor retained any company or person, other than a bona fide employee working solely for the Parties to this Agreement, to solicit or secure this Agreement, and that they have not paid or agreed to pay any company or person other than a bona fide employee working solely for the Parties, any fee, commissions, percentage, brokerage fees, gifts or other consideration, contingent upon or resulting from the award or making of this Agreement.

- n. Representations. Each Party hereto represents and warrants to the other that (a) it has all necessary right, power and authority to enter into this Agreement, and (b) the execution and delivery of this Agreement and the performance and observance of all obligations and conditions to be performed or observed by such Party have been duly authorized by all necessary action on behalf of such Party.

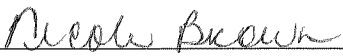
- o. Counterparts. This Agreement may be executed in counterparts, each of which will be deemed an original and all of which together will constitute one Agreement. The signature page of any counterpart may be detached therefrom without impairing the legal effect of the signature(s) thereon provided such signature page is attached to any other counterpart identical thereto.

(Signature on following pages.)

**CITY OF PAPILLION,
a Nebraska Municipal Corporation**

By: 
David P. Black, Mayor (03/19/2019)

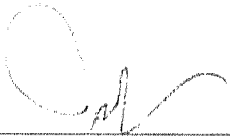
ATTEST:


Nicole Brown, City Clerk

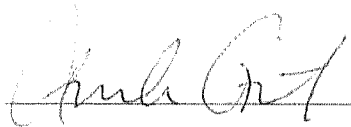
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**PAPIO-MISSOURI RIVER NATURAL
RESOURCES DISTRICT,
a Multi-County Governmental Political
Subdivision of the State of Nebraska**

By:  3/18/19
John Winkler, General Manager (date)

ATTEST:



Its: Water Resources Engineer

Sarpy County Board of Commissioners

1210 GOLDEN GATE DRIVE #1250
PAPILLION, NE 68046-2895
593-4155
www.sarpy.com
ADMINISTRATOR Dan Hoins
DEPUTY ADMINISTRATOR Scott Bovick
CHIEF FINANCIAL OFFICER Bill Conley



COMMISSIONERS Don Kelly District 1 David Klug District 2 Angela Burmeister District 3 Gary Mixan District 4 Jim Warren District 5
--

July 26, 2019

Amber Powers
Assistant City Administrator
City of Papillion
122 East Third Street
Papillion, NE 658046

Re: City of Papillion Levee Improvements

Dear Amber:

This letter is to pledge our support for the City of Papillion's Levee Improvement grant application through the Nebraska Natural Resources Water Sustainability Fund. While we understand the preferred plan may not require modifications to the South 66th Street Bridge over West Branch Papillion Creek, we realize work may need to be performed in our right-of-way or adjacent to other county-owned land or facilities.

We will work with the City of Papillion to make accommodations for the project's needs.

If you, project stakeholders or other funding partners have any questions about our support, please do not hesitate to contact me.

Sincerely,

Dan Hoins
Sarpy County Administrator
402-593-2347
dhoins@sarpy.com

cc: Deb Houghtaling
Scott Bovick

Cover Letter

Application

Supplemental Information Attachment

Bibliography

BIBLIOGRAPHY



BIBLIOGRAPHY

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Section B-1(A.9)

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Included in: *Alternatives Analysis Report*

Referenced in Application:
Section A-6

US Army Corps of Engineers (USACE). 2018. *National Levee Database*.

<https://levees.sec.usace.army.mil/#/>

Referenced in Application:
Section A-6

