MISSOURI-MADISON RIVER FUND RECREATION PROJECT
FY2023 GRANT APPLICATION FORM

Project Name: Chouteau County – Fort Benton Pedestrian Bridge

Reservoir or River Segment: Fort Benton County(ies) Chouteau

Site Name (or project location): City of Fort Benton

Applicant Name: Bob Pasha

Position and Agency: Chouteau County Commissioners

Telephone: (406)622-3017

Email: bobccc13@gmail.com

Project Sponsor Name: Bob Pasha

Position and Agency: Chouteau County Commissioners

Telephone: (406)622-3017

Email: bobccc13@gmail.com

Project Cost Breakdown and Financial Request:
Complete the financial section below by providing total project cost (to the nearest dollar), contributions by applicant and cooperators, request for NorthWestern Energy match of agency funds (see detailed instruction), and River Fund Grant request. Document in-kind contributions by public agencies for determination of NorthWestern Energy match request. A description of funding sources and in-kind contributions should be included in the Project Description.

Total project cost:	$473,402	
Applicant Contributions – cash	$8,000	
Applicant Contributions – value of in-kind:		
Other Contributions – Please list by source:		
Chouteau County: In kind labor	$4,000	
City of Fort Benton – bridge planks	$12,000	
	$	
	$	Percentage of Total Project Cost:
Total Applicant and Other Contributions:	$24,000	5%
NorthWestern Energy Match Request:	$6,000	1%
River Fund Grant Request:	$443,402	94%
Proposed Project Implementation Period:	Spring 2023	

MISSOURI-MADISON RIVER FUND RECREATION PROJECT
FY2023 GRANT APPLICATION FORM

1. Has this project been previously submitted for funding consideration by the River Fund Board, either as a separate project or part of another project? _____Yes __X___ No

   If yes, please identify which years the application was submitted and, if the project was previously funded, list the amount funded by year.

   Chouteau County received $123,000 in 2017 which paid for re-decking the 225-foot long by 18.5 foot wide first span (furthest west) and regrouted and repaired two piers. Actual cost was $113,853.39, and $9,146.61 was returned to the River Fund. The spans in this project are adjacent to the span funded in 2017.

2. **Project Description:** Provide a description of the proposed project. Be sure to include specific project elements that are planned, and any associated cost detail.

   ▶ The bridge in Fort Benton was built in 1888 and remained in service until 1963. Shortly thereafter, it was turned into a walking bridge and has served as a main feature of the historic river levee in Fort Benton. An engineering inspection conducted in 2015 revealed a need to re-deck the entire bridge and perform some minor repairs to the piers. The first span (225 ft.) was re-decked in 2017, a project sponsored by the River Fund. Engineers recommend re-decking the remaining spans, as included in this project proposal.

   The project consists of re-decking the remaining spans of the walking bridge, the 620-linear feet by 18.5-feet wide deck. Engineers recommend the entire remaining deck be re-decked. This will include mobilization ($44,300) and take 35,132 board feet of treated timber deck plates ($228,355), and 13,020 treated timber nailing strips ($91,140), and site cleanup and restoration ($5,000). Other costs include a 10% contingency (($36,879), preliminary engineering, bidding, and construction administration ($30,000), and an inflation cost if the project goes into 2024.

3. **Project Phasing:** Briefly discuss whether the project could be phased over more than one year or construction season.

   ▶ There are several failures to the bridge deck beyond the first span. It will soon become too dangerous to allow pedestrian access beyond the first span. However, phasing the project over multiple years would be possible but may limit access to retain public safety on spans not yet re-decked. Phasing the project over three years would cost $206,052 each year. This would include mobilization ($44,300), construction ($106,498), restore and cleanup ($5,000), along with a 10% contingency ($15,580), and 3% inflation ($4,674). The applicant contribution would be $24,000, with a NorthWestern match of $6,000, and a River Fund of $176,052. The engineers have further divided costs by span. Please see their attached August 2022 letter.

4. **Cultural Resource Management:** Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NorthWestern Energy as a condition of awarded River Fund grant funds or NorthWestern Energy matching funds. Grant and matching funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NorthWestern Energy representative for further information or assistance. Applications submitted without this section completed will be held without any action until the information has been submitted.

   Summarize how you will complete requirements for Cultural Resource Management.

▶ A published survey of Montana bridges by the National Park Service states flatly that "the Fort Benton Bridge is the most historically significant bridge in Montana." It was the first bridge to be constructed across the Missouri River in the then-Territory of Montana in 1888. It was the first, and is now the oldest, steel truss bridge built anywhere in Montana. For more than 70 years, it was the sole structural crossing of the Missouri for many hundreds of miles and provided the major line of communication and transportation between the Great Northern railroad and the rich farm and pasture lands of the Judith Basin area south and east of Fort Benton. After its closure to vehicle traffic in 1963, it was reincarnated as a walking bridge and is now the perfect place for residents and visitors to stroll out and take in views of the Missouri and surrounding bluffs and cottonwoods and look back on Fort Benton's Historic District and National Landmark steamboat levee. The Old Fort Benton Bridge has been listed on the National Register of Historic Places since 1980,

The Montana State Historic Preservation Office (SHPO) has been supportive of our efforts at preservation here in Fort Benton and in Chouteau County. We will continue to ensure the bridge receives due and proper care to preserve not only its significance but also its integrity. We received support from the SHPO from our efforts to preserve and protect the bridge in 2017. SHPO can only officially respond to a Federal Agency going through the 106 process. We are not a Federal Agency. Please see attached 2016 letter from Pete Brown. A current letter would be pursued if we are funded. Their staff often come to Fort Benton just to experience the bridge.

5. **Scoring Criteria.** Respond to the following Scoring Criteria. Put answers in the cell after ▶.

5.1 <u>Does the project occur at a 2188 license site?</u>

▶ No, the bridge is not a 2188 site.

5.2 <u>Project is for operation and maintenance of an existing recreation site</u>. Describe if the project will meet operation and maintenance needs. Higher points awarded to projects that are higher priority and are not a recurring expense. Lower points awarded to projects that are low priority and/or have been previously funded. It is unlikely that the timeframe of River Fund would address emergency operation and maintenance needs but could support non-emergency operation and maintenance needs.

▶ Operation and maintenance must be answered with a no. It is a major repair, that began six years ago with replacement of untreated bridge timbers with treated ones. Over the intervening years the new treated timbers have hardly noticed the extremes of weather, wind, and water, while the remaining deck timbers continue to deteriorate and fail.

5.3 <u>Project involves collaboration with other agencies or organizations</u>. Identify project partners other than NorthWestern Energy or River Fund, if any, and describe their participation. Document all funding sources and all in-kind support and services to a project because all are sources of partnerships and in-kind contributions from public agencies qualify for calculation of NorthWestern Energy matching funds. If there are no project partners, explain why.

▶ The collaborating partners include Chouteau County, the City of Fort Benton, the Fort Benton Community Improvement Association, Inc. (CIA), and Fort Benton Trails Committee. Financially the partners will contribute $24,000 and provide minor labor needs to ensure efficient use of any monies received. This will include hauling and disposal of old decking by volunteers at an estimated cost of $4,000 of in-kind labor. The CIA has acted as the informal historic preservation organization for the City of Fort Benton since the 1950's. In this case the CIA, a 501c3 organization, was the fiscal sponsor of Benton Fest, which raised $10,000 and was then donated to the City of Fort Benton for the bridge project. Fort Benton Trails Committee assists with planning, and operating walking trails in and around Fort Benton, including the old Fort Benton Bridge.

5.4 *Project provides a benefit to public recreation in the Project Area and addresses specific issues and goals of the Missouri-Madison Comprehensive Recreation Plan (CRP).* Identify how the project provides a benefit to public recreation and describe how the project specifically addresses issues and goals in Chapter 2-1 of the CRP.

▶ *Goal: To provide safe and well-managed recreation sites and dispersed use areas that provide enjoyable user experience across a spectrum of opportunities and seasons.*

The old Fort Benton Bridge project will provide a direct recreational benefit to the corridor and community as a whole through new decking on the remaining spans. Weddings, photo opportunities, and yes, the occasional stroll will be able to continue on the bridge. Funding will help continue safe public recreation access to this site, year around and through all seasons.

Goal: To maintain or proactively increase public safety for recreationists in the Project Area.

The old Fort Benton Bridge has not always been a safe and well-maintained recreation site. Untreated decking deteriorates quickly over time making the surface unsafe for pedestrians. Parts of the site have been repaired over time, the westernmost span most recently in 2017. The remaining spans decks are useable, but rapidly deteriorating due to exposure and the impact of the elements. The experience is greatly reduced as visitors pick their way around holes and patches beyond the first span. Some of the holes now pierce the entire depth of the decking timbers. It is now a continual process to check and cover them with plywood – being a trip and fall hazard until covered, and even then, potentially tripping over the raised patches. Replacing these failed decking timbers with new treated timber will increase visitor satisfaction, especially during the summer when the site is busiest. The bridge is open to visitors year around.

Goal: Continue to improve and expand recreation opportunities that offer universal accessibility.

The bridge was designed to carry vehicle traffic from one side of the Missouri to the other. The open level surface made it ideal for accessibility for those with physical limitation or disabilities. After it became a pedestrian bridge in the 1960's the City and County continued to maintain it as universally accessible. By repairing the bridge deck, it will remain entirely accessible for everyone into the foreseeable future.

5.5 *Project responds to a clearly identified need.* Describe and document the need for this project and how the project would address that need. Cite specific sources, as possible, to establish need and support the project. Discuss consequences if the funding request is unsuccessful. For a new construction or acquisition project, identify how post-project, long-term costs (such as site maintenance and management) will be provided.

▶ There are literal holes in the bridge deck that have been boarded over. Public safety is at risk. If funding isn't secured soon portions of the bridge will be closed to the public, perhaps permanently. The City plans to install what timbers it has purchased to re-deck about a hundred feet and then likely close off the remaining 500 feet until funds are secured to purchase more timbers. Without assistance from Benton Fest and the CIA raising $10,000 even this wouldn't happen. The City has no extra money to fund even a small part of this project. The County has no extra money.

Hanging iron over water is expensive and the iron always loses. The best we can hope for is to extend, if possible, the life of an iron bridge. This one has lasted 134 years with intense preservation activities by the City of Fort Benton and Chouteau County and its partners.

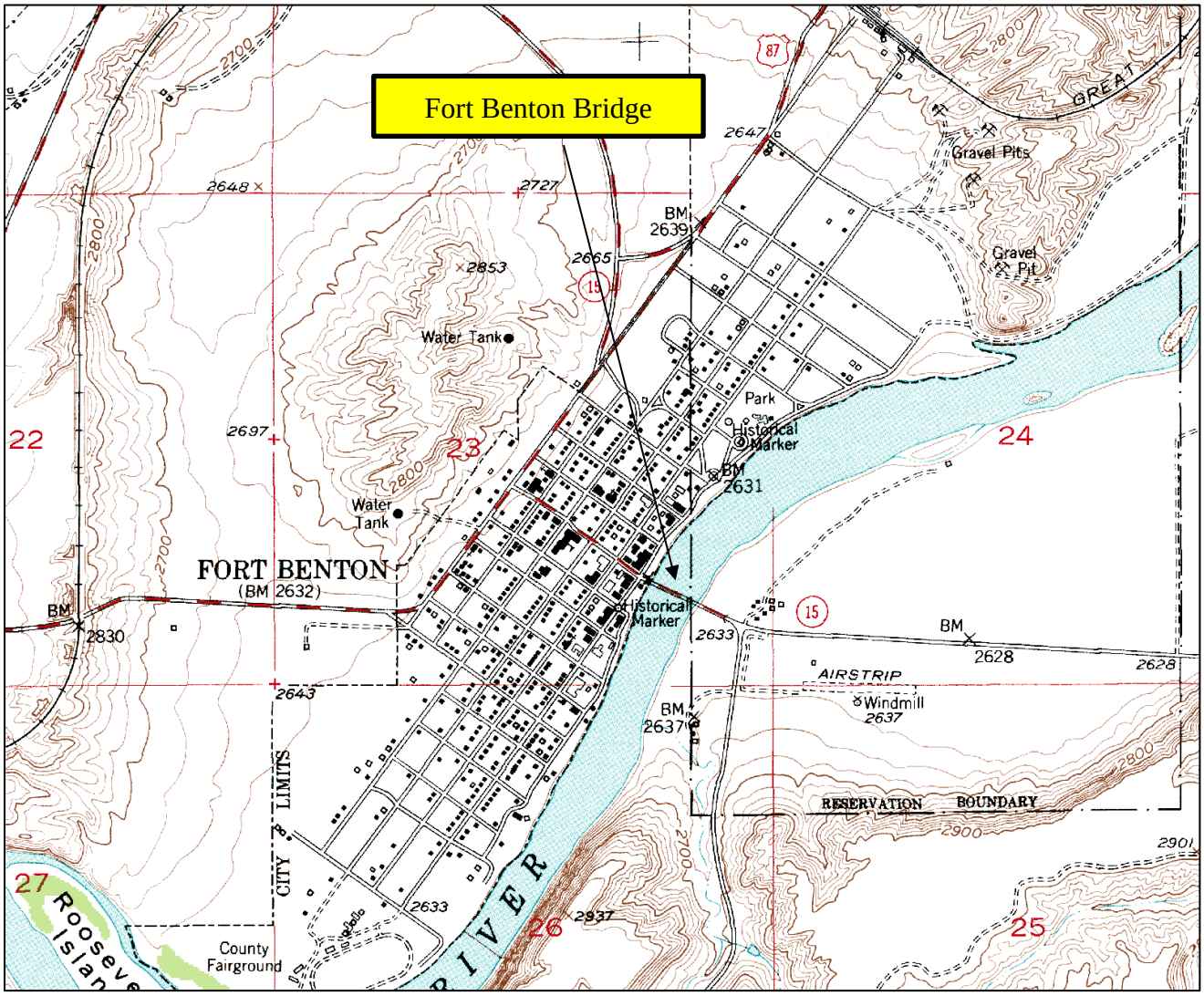
5.6 *Project design options have been considered, estimated, and a preferred design selected.* Well-designed projects reduce occurrences of budgetary overages, design changes, and additional complications. Discuss the current design phase for this project, demonstrate that the project has been well vetted, and include cost estimates.

- Design work was done by Great West Engineering in 2015. They envision replacing the entire remaining deck with treated timbers as was done in 2017. Please see the 2015 plan with updated prices attached.

5.7 *Project supports or protects other resources and is consistent with or supports resource plans in the Project Area*. Describe how this project will protect resource values (such as public access, water quality, fisheries, wildlife, habitats, and cultural resources) and support other resource and agency plans, including Project 2188 License plans and land use and land management plans in place in the Corridor. Management plans should provide justification for the project.

- This project, if funded will help preserve and protect the old Fort Benton Bridge for many years. That preservation will serve to publicly interpret the values of significance and integrity of this 1888 structure, the first bridge across the Missouri River in Montana. This project will sustain the life of this bridge not only for Fort Benton and Chouteau County, but the State of Montana and the country. Funding this project will retain public access to this historic property. It will keep it open for public access and recreation. It will keep it open for historical interpretation and education.

6. Insert map(s) showing the location of the proposed project, drawings and design work related to the project, and a reasonable number of photos (as available) here.



Location of Fort Benton Bridge on USGS 7.5' quad map, *Fort Benton, Mont.*, 1954.

View of the old Fort Benton Bridge in August of 2022. View is to the east.

View of the new (2017) decking in the first span. View is to the west.

Small pieces of plywood covering holes in the deck.

Failed decking not yet patched.

Major patching between spans.

National Register plaque describing and educating the recreating public on the significance and integrity of the old Fort Benton Bridge at the entrance to the bridge off Front Street.

Google Earth aerial photo (2014) of old Fort Benton bridge.


USDA aerial photo (2019) of old Fort Benton bridge with new decking on first span.

From: **Karl Yakawich** kyakawich@greatwesteng.com
Subject: Fort Benton Walking Bridge Decking
Date: August 12, 2022 at 10:39 AM
To: Bob Pasha CC bobccc13@gmail.com

Hi Bob,
I received an updated cost on the bridge decking, so attached is an overall estimate. At the bottom of the sheet is a breakdown per span if you need to bring the overall cost down for the grant. Give me a call with questions.

GreatWest ENGINEERING

We're Hiring!

Karl Yakawich
Business Unit Manager

d: (406) 495-6182
c: (406) 439-8302

2501 Belt View Drive
Helena, MT 59601

GreatWest ENGINEERING

OPINION OF PROBABLE COST

PROJECT	PROJECT NO.	DATE
Chouteau County - Fort Benton Pedestrian Bridge	*1-18276*	*8/12/2022*

Span Length: 620 ft Bridge Width: 18.5 ft

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
1	Mobilization	1	LS	*$44,300.00*	$44,300
2	Treated Timber Deck Planks	35,132	BF	*$6.50*	$228,355
3	Treated Timber Nailing Strips	13,020	BF	*$7.00*	$91,140
4	Site Cleanup/Restoration	1	LS	*$5,000.00*	$5,000

CONSTRUCTION SUBTOTAL		**$368,795**
CONTINGENCY	10%	$36,879
CONSTRUCTION TOTAL		**$405,674**
PRELIMINARY ENGINEERING & BIDDING		$15,000
CONSTRUCTION ADMINISTRATION		$15,000
SUBTOTAL		**$435,674**
INFLATION (2024 CONSTRUCTION)	3%/year	$37,728
GRAND TOTAL		**$473,402**
Cost per SF of Decking		**$41.27**
Cost per LF of Decking		**$763.55**

This Opinion of Probable Cost is the opinion of the engineer of the probable construction cost, and is supplied as a guide only. Since the engineer has no control over the costs of labor and materials or over competitive bidding and market conditions, the engineer does not guarantee the accuracy of such opinion as compared to contractor's bids or actual costs to the owner. Estimate is calculated in 2022 dollars.

Decking Replacment Summary		
Span	Length	Cost
1	225	complete
2	175	$133,622
3	175	$133,622
4	175	$133,622
5	75	$57,266
6	15	$11,453

December 11, 2015

Mayor Rick Morris
Town of Fort Benton
1204 Front Street
Fort Benton, MT 59442

RE: Fort Benton – Historic Missouri River Bridge – 2015 Evaluation

Dear Mr. Morris,

In accordance with your request, an inspection was conducted on the historic Missouri River Truss Bridge in Fort Benton to evaluate its current condition. National Register documents indicate the bridge was originally built in 1888 and remained in service as a vehicle bridge until 1963. After that point, a new bridge constructed upstream, accommodated vehicular traffic while this bridge has handled only pedestrian traffic.

This evaluation primarily involved a visual inspection of the bridge components that were readily accessible and visible, supplemented by basic inspection methods such as coring of wood members and hammer sounding of concrete members. Specialized inspections methods/techniques such as underwater diving, ultrasonic testing, climbing, fracture critical, or under bridge inspection truck usage were not completed. The recommendations below are intended to extend the life of the bridge as a pedestrian crossing structure.

EXISTING BRIDGE CONDITION & RECOMMENDATIONS

The site inspection was conducted on October 20th, 2015 by Karl Yakawich, PE of Great West Engineering. The bridge consists of the following span configurations:

Span #	Span Length	Span Type
1 (East)	225'	Camelback Through Tuss
2	175'	Baltimore Through Truss
3	175'	Baltimore Through Truss
4	175'	Baltimore Through Truss
5	75'	Pratt Through Tuss
6 (west)	15'	Steel stringers
Total Span: 850' (Includes additional span length for end connections)		

Deck:

The existing deck consists of untreated timber transverse deck planking. Overall, the planks are in poor to fair condition. Span #1 is in poor condition with several areas of decay and significant section loss. Public Works personnel indicated that the Town currently replaces five or six planks per year due to rot or section loss (holes). Refer to the table below for a summary of the deck condition per span.

Deck Condition Summary					
Span #	Approx. Year Installed	Deck Plank Size (depth x width x length)	% of deck planks currently requiring replacement	Condition	Recommended Replacement Time-Frame
1	1980	2.75"x11"x18'-3"	10%	Poor	0-5 years
2	1992	3"x11.5" x17'-11"	7%	Fair	5-10 years
3	1992	3"x11.5" x17'-11"	7%	Fair	5-10 years
4	2002	2.5"x12" x18'-1"	5%	Fair/Good	15-20 years
5	2002	2.5"x12" x18'-1"	5%	Fair/Good	15-20 years
6	2002	2.5"x12" x18'-1"	5%	Fair/Good	15-20 years

The deck planks are attached to the steel stringers with steel lags that are anchored to timber nailers. The timber nailers are attached to the steel stringers with bolts. The timber nailers are situated on top of the steel stringers at span #1 and along the stringer edge at the remaining spans. The timber nailers on Span #1 have decayed to a point that they are unable to adequately hold the planks in place. It is recommended the deck planking and timber nailers be replaced at the approximate time frame noted in the previous table.

Superstructure:

The existing superstructure consists of a six-span steel through truss system with steel floor beams and stringers supporting the deck. Overall the superstructure is in fair to good condition. The following is a summary of recommended superstructure work items:

- Span 1: Recommend removal of the tree on downstream side of truss at end post.
- Span 4: Recommend removal of the tree on downstream side of truss on upper chord.
- Span 6: Remove fill that is in contact with the steel stringer ends. Corrosion and significant section loss observed on stringer ends.

Substructure:

The substructure consists of concrete end abutments and intermediate concrete piers. The concrete piers are wrapped with steel plate. On several of the piers the steel plate is corroded with holes exposing voids and delaminated areas in the concrete. Poor delaminated concrete is also present on the exposed pier tops. An evaluation of scour or riverbed erosion around the piers was not completed. The following is a summary of recommended substructure work items:

- Clean debris and dirt from truss bearings.
- Add protective barrier/sealant/grout on top of concrete piers to prevent water infiltration and further concrete deterioration. This work item is intended to extend the

life of the piers. Cost for the pier protection will range widely due to surface preparation requirements. Further guidance and cost for protecting the piers can be provided if requested.

DECK COST ESTIMATES

Although several substructure and superstructure work items have been recommended, the condition of the deck creates a safety issue to pedestrians warranting replacement, which results in significant costs. It is recommended the deck be replaced with treated timber members to maximize longevity. To assist with future fiscal planning the following table presents estimated contracted cost for the deck replacement. If the Town decides to take on portions of the work themselves then the costs may be decreased.

Span #	Span Length	Contracted Opinion of Probable Cost*	Time Frame
1	225'	$115,000	2015-2020
2	175'	$90,000	2020-2025
3	175'	$90,000	2020-2025
4	175'	$90,000	2030-2035
5	75'	$40,000	2030-2035
6	15'	$8,000	2030-2035
	Total	$433,000	

** Estimate is calculated in 2016 dollars with 10% contingency. Cost assumes project is contracted out.*

These evaluations and recommendations are based on the limited scope of work authorized for this project. Great West Engineering reserves the right to amend and/or supplement this report in the event additional information or documentation becomes available. We would like to thank you for the opportunity to have been of service to you. If any additional information is required, please feel free to contact our office.

Sincerely,

Great West Engineering, Inc.

Karl F. Yakawich, PE
MT License #15133PE

Attachments:

1. Decking Cost Estimate
2. Inspection photos

OPINION OF PROBABLE COST - CONTRACTED

PROJECT	PROJECT NO.	DATE
Fort Benton Missouri River Bridge	*1-10162, TO 7*	*12/7/2015*

Span Length: 225 ft Bridge Width: 18 ft

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
1	Mobilization, Bonding, Insurance (10%)	1	LS	*$9,100.00*	$9,100
2	Remove Existing Decking	4050	SF	*$4.00*	$16,200
3	3x12 Treated Timber Deck Planks (Douglas Fir #1 w/ Penta)	12.15	MBF	*$2,500.00*	$30,375
4	Treated Timber Nailers (Douglas Fir #1 w/ Penta)	3.15	MBF	*$3,000.00*	$9,450
5	Hardware for Deck Attachment	1	LS	*$3,037.50*	$3,038
6	Installation of Nailers and Decking	4050	SF	*$5.00*	$20,250
7	Reattachment of Pedestrian Rail	1	LS	*$2,430.00*	$2,430
					$0

KFY

ESTIMATE BY:

RE

CHECKED BY:

REVISED BY:

CONSTRUCTION SUBTOTAL		**$90,843**
DESIGN & BIDDING	15%	$13,626
SUBTOTAL		**$104,469**
CONTINGENCY	10%	$10,447
GRAND TOTAL		**$114,916**
Cost per SF of Decking		**$28.37**

This Opinion of Probable Cost is the opinion of the engineer of the probable construction cost, and is supplied as a guide only. Since the engineer has no control over the costs of labor and materials or over competitive bidding and market conditions, the engineer does not guarantee the accuracy of such opinion as compared to contractor's bids or actual costs to the owner. Estimate is calculated in 2016 dollars.

Decking Replacment Summary		
Span	Length	Cost
1	225	$114,916
2	175	$89,407
3	175	$89,407
4	175	$89,407
5	75	$38,390
6	15	$7,779

Photo 1 – General view of the bridge deck.

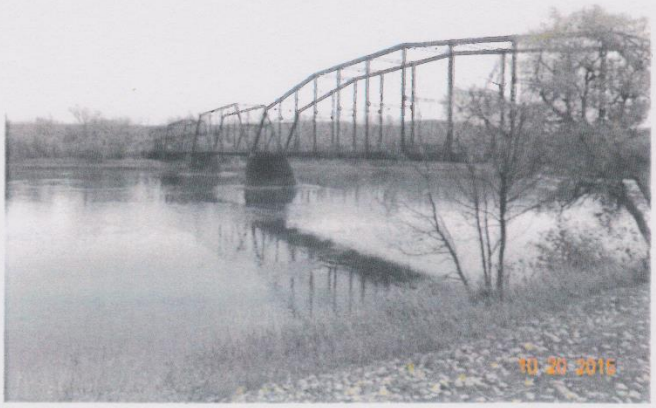


Photo 2 – Profile view.

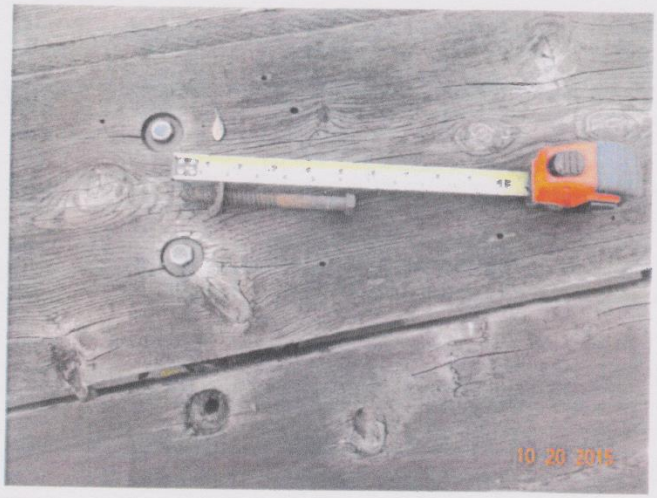


Photo 3 – View of loose deck lag at Span #1. Timber nailers which hold the transverse planks in place are rotten and unable to securely hold lags.

Photo 4 – View of the underside of Span #1 with past DECK failures evident.

Photo 5 – View of typical deck plank attachment at Span #1 with the timber nailer attached to the steel stringer top.

Photo 6 – View of typical deck plank attachment at Span #5 with the timber nailers attached to the steel stringer sides.

Photo 7 – View of rail connection at Span #1, upstream with a weld on the truss lower chord.

Photo 8 – View of the fractured retaining wall at Bent #1, downstream.

Photo 9 – View of cracked endwall at Bent #1.

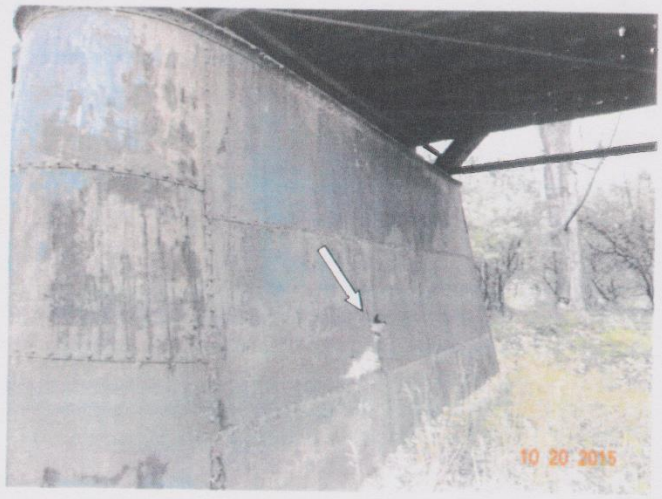


Photo 10 – View of corroded steel plate with 6" void in concrete at Bent #4.

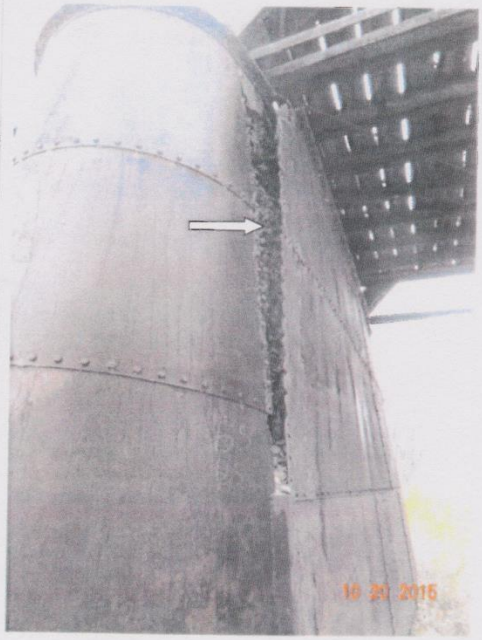


Photo 11 – View of failed steel plate Bent #5, downstream end.

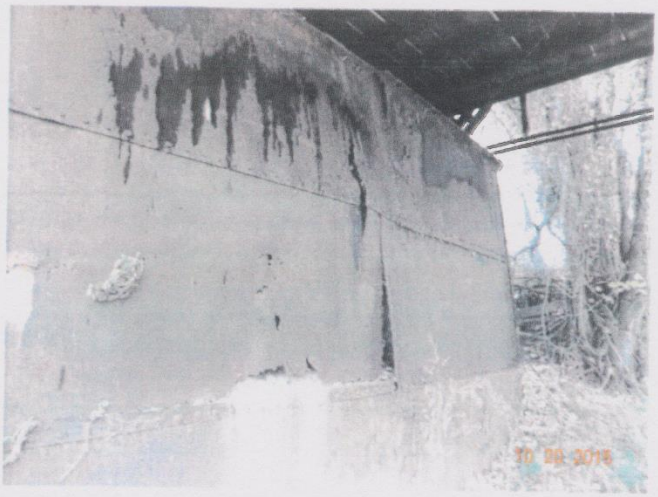


Photo 12 – View of the failed steel plate with a 12" void behind at Bent #6.

Photo 13 – Steel stinger ends at Bent #7 with corrosion and 0.25" section loss due to soil contact.

Photo 14 – View of failing steel plate at Bent #3, upstream.

Photo 15 – Additional view of Bent #3, upstream.

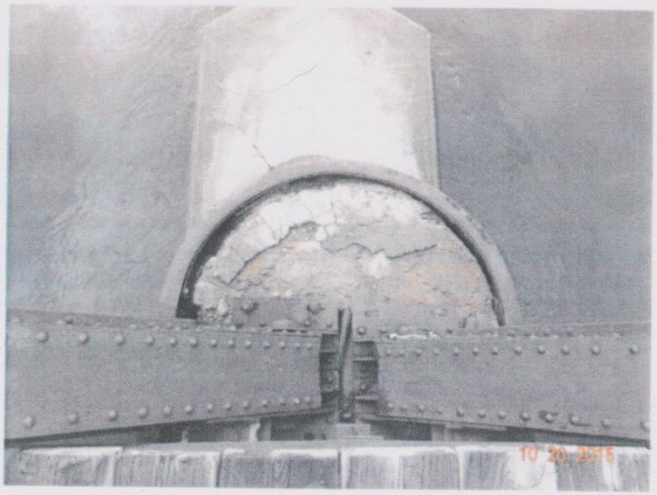


Photo 16 – View of dislodged roller bearings and poor concrete at Bent #3, upstream. Also, typical of Bent #5, upstream.

Photo 17 – Additional view of dislodged roller bearings at Bent #3, upstream.

Photo 18 –View of the Span #1 with trees in contact with the downstream truss edge.

Photo 19 –View of the Span #5 with trees in contact with the downstream truss edge.