

**TO: Honorable Mayor and City Council**

**FROM: City Administrator Ron Johnson**

**SUBJECT: Approve Proposal for Third Street Bridge: Pre-development Construction Plans and Specifications Project**

**DATE: March 2, 2017**

**BACKGROUND**

The city received a MN Historical & Cultural Heritage grant for the “Third Street Bridge: Pre-development Construction Plans and Specifications Project.”

At its December 20 regular meeting, City Council approved calling for proposals for the project. Proposals were received from Olson & Nesvold and SRF.

A meeting was conducted to review the proposals. The review team consisted of, in addition to Public Works Director Tom Bergeson and City Administrator Ron Johnson, Goodhue County Engineer Greg Isakson, and three representatives from the State of MN as follows: Mao Yang (State Aid office that programs County and City Federal Projects), Kristen Zschomler (MnDOT’s Cultural Resource Office and main contact with FHWA, Corps of Engineers and State Historical Preservation Office ) and David Conkel (State Aid Bridge Engineer- specifically works with County and City bridge projects).

Based on a rating system that consisted of such factors as personnel qualifications, project understanding, project schedule and cost to value, the committee unanimously selected SRF as the firm to recommend for approval.

County Engineer Isakson and Administrator Johnson subsequently conducted a phone interview with SRF to review their proposal. City Attorney Knutson drafted an agreement based on the proposal. SRF will agree to the terms of the agreement.

**REQUESTED COUNCIL ACTION**

Accept the proposal of SRF for the Third Street Bridge: Pre-development Construction Plans and Specifications Project for a not-to-exceed fee of \$160,780, and authorize execution of related agreement.

Attachment(s): SRF proposal



# City of Cannon Falls | Bridge L5391 Rehabilitation Plans & Specifications



in collaboration with **Braun Intertec** and **Gemini Research**

February 15, 2017





February 15, 2017

Mr. Ron Johnson, City Administrator  
Cannon Falls City Hall  
918 River Road  
Cannon Falls, MN 55009

**Subject: Proposal for Bridge L5391 Rehabilitation Design**

Dear Mr. Johnson and Members of the Selection Committee:

The Third Street Bridge (Bridge L5391) is a 180-foot long, single-span, steel through truss that was built in 1910 and carries vehicular and pedestrian traffic over the Cannon River. The bridge is listed on the National Register of Historic Places as an unusual and rare Pennsylvania truss. In October 2016, the Minnesota Historical Society approved a grant in the amount of \$161,000 to fund the development of rehabilitation plans and specifications.

**SRF Consulting Group** has assembled a highly skilled team to address the rehabilitation of this historical bridge. Our partners include **Gemini Research** as our bridge historian and **Braun Intertec** as our geotechnical engineer (if required). In addition to delivering rehabilitation plans and specifications, our team will address the challenges associated with 1) navigating the historic review process (Section 106), 2) ensuring that rehabilitation strategies are compatible with potential future pedestrian use, and 3) avoiding construction delay costs.

The SRF team offers the City of Cannon Falls several key strengths for this project:

- » **Historic Steel Truss Rehabilitation Experience:** In the past three years, SRF has led three successful historic truss rehabilitation projects. The City of Bloomington's historic **Old Cedar Avenue Bridge Rehabilitation** project recently received the City Engineers Association of Minnesota award for 2016 Municipal Project of the Year. The historic **John F. Kennedy Bridge Rehabilitation** in East Grand Forks is currently under construction, and the historic **Velva Park Bridge** in Velva, ND has recently achieved a finding of No Adverse Effect from the North Dakota State Historic Preservation Office.
- » **Past Working Relationship with our Bridge Historian:** SRF and Gemini Research have a successful working relationship and have guided several projects through the Section 106 process. Currently, the SRF/Gemini team is working closely on alternatives analysis and plan development for the Cedar and Portland Avenue bridges located over the Historic Midtown Greenway Corridor in Minneapolis. Also, the SRF/Gemini team recently delivered the rehabilitation plans for the Kennedy Bridge.
- » **Familiarity with Bridge L5391:** In 2009, SRF performed a field investigation and subsequent load rating of Bridge L5391 as part of MnDOT's Local Truss and Gusset Plate Load Rating contract. This evaluation has provided the SRF team with a unique understanding of Bridge L5391.

Thank you for the opportunity to present this proposal. We look forward to continuing our relationship with the City of Cannon Falls. If you need additional information, please contact either Matt Cramer or Jamison Beisswenger at (763) 475-0010 or mcramer@srfconsulting.com or jbeisswenger@srfconsulting.com. Please note: SRF confirms receipt of the Questions and Answers document (dated February 7, 2017).

Sincerely,

Matthew J. Cramer, PE  
Principal

Jamison Beisswenger, PE  
Senior Associate

James R. Dvorak, PE  
Vice President

SRF Proposal #10325.PP

[www.srfconsulting.com](http://www.srfconsulting.com)

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# Executive Summary

## Project Overview

The Third Street Bridge over the Cannon River, (Bridge L5391) is a 180-foot long truss bridge built in 1910. The bridge is listed on the National Register of Historic Places as an example of a Pennsylvania through truss. The bridge is also significant through its associations with bridge builder A.Y. Bayne of Minneapolis and the engineering firm of Loweth and Wolff in St. Paul.

In May of 2016, the Goodhue County Board of Commissioners added Bridge L5391 to its Bridge Replacement Program so that it would be eligible to receive Federal and State funds. MnDOT's State Transportation Improvement Program (STIP) lists funding of approximately \$2,150,000 for the rehabilitation of Bridge L5391 in 2019 (or possibly 2020 as stated in the RFP). In October of 2016, the Minnesota Historical Society approved a grant in the amount of \$161,000 to fund the development of rehabilitation plans and specifications.

## Summary of Proposed Services

Based on the Request for Proposal (RFP), we understand the project consists of the following major work tasks:

- » Project Management
- » Cultural Resource (Historic) Coordination
- » Public/Agency Involvement
- » Historical Society Presentation
- » Environmental Documents (Project Memorandum)
- » Field Investigations (Historic Investigations and Structural Inspections)
- » Load Ratings (Vehicular and Pedestrian)
- » Development of Repair Criteria, Design Exceptions, Rehabilitation Options
- » Final Bridge Plans and Special Provision Specifications
- » Permits
- » Utility Coordination
- » Construction Support

## Contact Information

Matt Cramer, PE | SRF Project Manager  
One Carlson Parkway North, Suite 150 | Minneapolis, MN 55447  
(763) 475-0010 or mcramer@srfconsulting.com

## Project Goals and Objectives

The focus of this project will be to identify and implement solutions that achieve the project goals and provide a large return on investment. Accomplishing the project goals will require a committed and technically skilled team. This team must also have experience with rehabilitating historic truss bridges.

In 2009, SRF performed a field investigation and subsequent load rating of Bridge L5391 as part of MnDOT's Local Truss & Gusset Plate Load Rating Contract. This evaluation has provided the SRF team with a unique understanding of Bridge L5391.

Based on our experience, the SRF team has identified key project challenges. (Refer to page 15 for additional discussion.)

- » **Challenge #1** – Navigating the Historic (106) Review Process
- » **Challenge #2** – Ensuring Rehabilitation Strategies are Compatible with Potential Future Pedestrian Use
- » **Challenge #3** – Avoiding Construction Delay Costs



## Project Overview

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## Proposed Project Team

SRF Team members have the proven creativity and innovation to successfully deliver the Rehabilitation Plans, Special Provisions, Estimates, Environmental Documents, and Permits for Bridge L5391. In December 2016, SRF and Gemini Research Cultural Resource Consultants completed the final design plans and specifications for the rehabilitation of the Historic John F. Kennedy Memorial Truss Bridge in East Grand Forks, Minnesota.

Currently, Gemini is also working closely with SRF on alternatives analysis, plan development, and construction oversight (construction beginning summer 2017) for the Cedar and Portland Avenue Bridges located over the Historic Midtown Greenway Corridor in Minneapolis. SRF and Gemini have also worked with SRF on rehabilitation management plans for more than two dozen other bridges over the Midtown Greenway.

### SRF Consulting Group, Inc.

SRF is a full-service transportation consulting firm with more than 50 years of experience serving cities, counties and agencies across the Midwest. Our structural engineering department is prequalified for MnDOT Level I bridge design. SRF's award-winning projects include designing bridges and highways and completing complex environmental reviews/documentation. Our reputation for excellence is based on developing creative solutions for the most challenging projects. Our structural engineers have successfully met the challenges associated with the design and rehabilitation of more than 300 bridges in the past 25 years. Comprised of 25 talented structural engineers and technicians, our structures department is available and able to handle projects of any size, including the rehabilitation of Bridge L5391.

**In 2009, SRF performed a field investigation and subsequent load rating for Bridge L5391 as part of contract with MnDOT's Bridge Office to complete the load rating analysis of truss bridges on the local and trunk highway systems.**

More recently, SRF received a 2017 Engineering Excellence Grand Award from The American Council of Engineering Companies of Minnesota (ACEC/MN) for our work on the Historic Old Cedar Avenue Truss Bridge Rehabilitation in Bloomington, MN. This project also received the City Engineers Association of Minnesota (CEAM) award for 2016 Municipal Project of the Year.



SRF received a 2017 Engineering Excellence Grand Award from The American Council of Engineering Companies of Minnesota (ACEC/MN) for our work on the Historic Old Cedar Avenue Truss Bridge Rehabilitation in Bloomington, MN.

### Subconsultants

#### Gemini Research

Sue Granger cofounded Gemini Research with partner Scott Kelly in 1985. Gemini has been serving as a cultural resource consultant for more than 30 years. In the past 12 years Gemini has been paired with 9 different engineering and architectural firms to develop rehabilitation strategies for numerous historic bridges, including through truss structures. For all projects Gemini helped develop strategies and methods that meet the Secretary of the Interior's Standards and Guidelines for the Treatment of Historic Properties and preserve the historic property's character-defining features.

Gemini is a co-recipient of 2007 and 2001 Minnesota Preservation Awards, a 2007 honor award from the National Barn Alliance, and a 2006 David Gebhard Award from the Minnesota Chapter of the Society of Architectural Historians.

Gemini worked in Cannon Falls in 2000 and 2002 to prepare a National Register nomination for the downtown Cannon Falls Commercial Historic District (for the Minnesota Historical Society) and to evaluate the National Register eligibility of the Little Cannon River Dam (for the City of Cannon Falls).

#### Braun Intertec

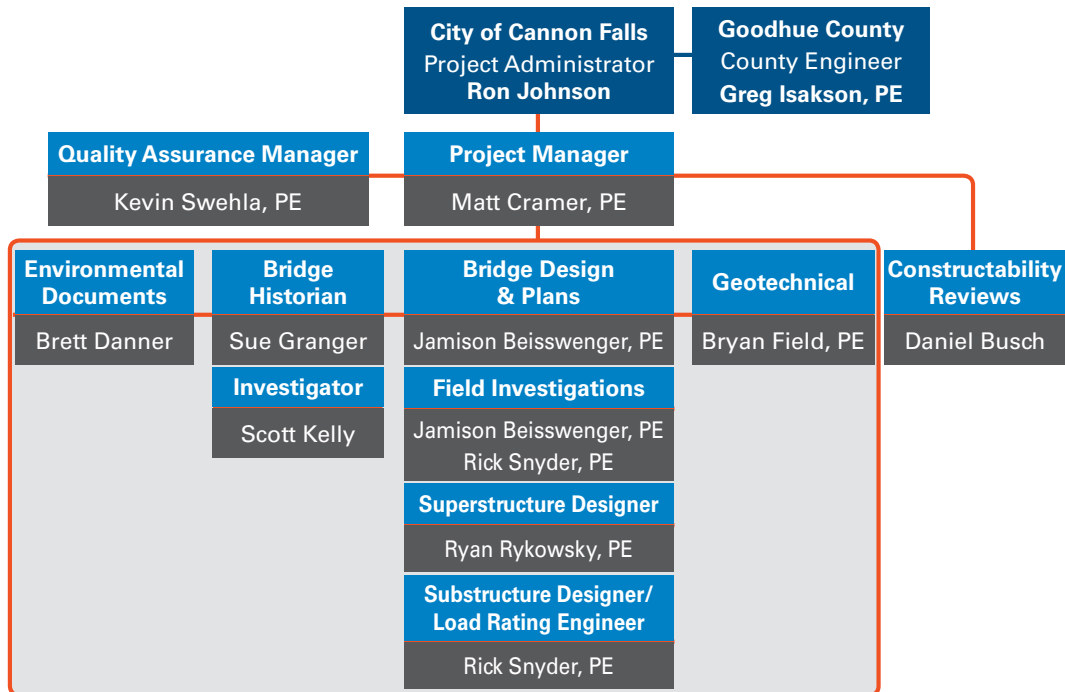
Braun Intertec is a highly regarded local geotechnical/environmental firm capable of providing geotechnical/foundation evaluations.

# Key Personnel



## A Proven Project Team

SRF has assembled a qualified team of professionals to deliver the rehabilitation of Bridge L5391. Together, we have completed several comparable projects throughout the state. In addition to our technical expertise, the SRF team has established relationships with all agencies expected to be involved with this project. Please refer to the organizational chart below and the attached Appendix for team member resumes.



### Matt Cramer, PE – Project Manager



Matt has extensive project management and structural design experience on a variety of projects, including truss and curved steel bridge projects. Matt has led some of SRF's most difficult and complex projects.

As Project Manager, Matt will lead the SRF team and coordinate and oversee all work on the project including schedule, budget, and deliverables. He will also collaborate with other team resources as needed to help resolve difficult issues.

**Matt has completed Minnesota's Historic Bridge training and has excellent relationships with MnDOT CRU and the State-Aid Bridge Office, which provides the basis for a successful project.**

- » Matt served as the project manager of the historic John F. Kennedy Truss Bridge Rehabilitation project. He coordinated the work of geotechnical, civil, structural, electrical engineers and environmental planners to deliver the rehabilitation plans and environmental documents on a highly aggressive schedule.
- » Matt recently served as the project manager on the Old Cedar Truss Bridge Rehabilitation project, one of the most difficult and challenging truss rehabilitation projects in Minnesota. Matt delivered this project on schedule and on budget.
- » Matt is currently the Project Principal for the Velva Park Truss Bridge in Velva, North Dakota.

## Jamison Beisswenger

*Lead Bridge Engineer*



Jamison has 16 years of bridge engineering experience. He recently performed a field investigation and load rating for Bridge L5391 for MnDOT in 2009. As an expert in LRFD bridge design, he was the lead structural engineer on 11 truss load ratings that consisted of field investigation, structural analysis, and truss/gusset plate load rating. Most recently, Jamison was the lead bridge design engineer for the historic Old Cedar Truss Bridge and John F. Kennedy Memorial Truss Bridge rehabilitation projects. **Jamison has completed Minnesota's Historic Bridge training.**

## Ryan Rykowsky, PE

*Superstructure Designer*



Ryan has 17 years of experience designing and managing structural engineering projects. His responsibilities included performing engineering analysis and designing bridge structures, calculating quantities and preparing cost estimates, supervising drafters in plan preparation, and providing construction engineering support to the Department's field forces. Ryan has been involved in the plan production for the replacement, rehabilitation or repair of more than 100 structures throughout the Midwest. Most recently, he served as the lead bridge engineer for the historic Velva Truss Bridge.

## Rick Snyder, PE

*Substructure Designer & Load Rating Engineer*



Rick has six years of bridge design & load rating experience. He has performed the load rating for over 250 bridges in the state of Minnesota. Recently, Rick completed substructure stabilization plans and superstructure repair plans for the Old Cedar Avenue Bridge Rehabilitation project. Most recently, he served as the lead load rating engineer for the truss spans on the John F. Kennedy Memorial Bridge.

## Bryan Field, PE (Braun Intertec)

*Geotechnical Engineer*



Bryan is a principal engineer with Braun Intertec who specializes in transportation and design-build projects. He specializes in bridge foundation design and stabilization. Bryan works thoroughly and efficiently while adhering to project guidelines. Bryan worked closely with SRF on the stabilization of the abutment on the Old Cedar Avenue Bridge rehabilitation project.

## Brett Danner

*Environmental Documents*



Brett has 16 years of experience in environmental science. He has managed the preparation of numerous federal environmental documents for county, state, and interstate highways and state EAWs for development and transportation projects. Brett has been the lead author for more than 100 NEPA documents at all levels including EISs, Environmental Assessments, and Categorical Exclusion documents. Brett completed the Categorical Exclusion (CatEX) document for the Historic Kennedy Bridge rehabilitation project.

## Daniel Busch

*Constructability Reviews*



Daniel has more than 35 years of experience in the construction and inspection field. During his career Dan has served as Senior Inspector on the I-494 Design-Build, St. Anthony Falls/I-35W Bridge Design-Build, and Plaza Bridges over I-394 for the new Minnesota Ballpark. Daniel was also a long-time employee of the Minnesota Department of Transportation Daniel also served as the construction inspector on the Old Cedar Avenue Bridge rehabilitation project. He also worked with final design squads to prepare final plans.

## Kevin Swehla, PE

*Quality Assurance Manager*



Kevin's vast range of experience includes minor rehabilitation to large-span river bridges, grade-separated crossings, pedestrian crossings, and retaining walls. This experience has strengthened his ability to evaluate plans and ensure they are accurate and construction ready. **Kevin has completed Minnesota's Historic Bridge training.**

## Sue Granger (Gemini Research)

*Bridge Historian*



Sue has decades of experience coordinating with the State Historic Preservation Office of the Minnesota Historical Society and the MnDOT Cultural Resources Unit. **Sue meets the Secretary of the Interior's Professional Qualification Standards for both Historian and Architectural Historian and has completed Minnesota's Historic Bridge training.**

## Key Staff Availability

The following table includes the current projects/workload for each identified key team member as well as the expected completion dates of those projects. Key staff with minimal hours have been omitted for clarity. All key staff are 100 percent available when necessary for work tasks.

Key Staff	Current Projects	Dedicated Hours/Week (Average)	Project Completion Date (Estimated)	Cannon Falls Bridge Project Availability	
				Hours/Wk	%
<b>Matt Cramer</b> Project Manager	Orange Line BRT Bridges	10	9/17	20	50%
	Oak Grove Lift Bridge	5	3/17		
	U of IA Pedestrian Bridge	10	7/17		
<b>Jamison Beisswenger</b> Lead Bridge Engineer	Kennedy Bridge Rehabilitation	0-5	Summer/19	38	95%
	I-35W Retaining Walls	40	3/16		
	MnDOT Shear Rating Project	2	9/17		
<b>Ryan Rykowsky</b> Superstructure Designer	Velva Truss Rehab	0-8	7/17	20	50%
	10th St. Underpass	0-8	7/17		
	Blue Line LRT Extension	5-20	12/17		
<b>Rick Snyder</b> Substructure Designer & Load Rating Engineer	Water Gremlin	0-10	2/17	20	50%
	MnDOT Shear Rating Project	0-24	9/17		
	Orange Line BRT	2	11/17		
<b>Brett Danner</b> Environmental Documents	I-94 St. Michael/Albertville	15	6/17	10	25%
	I-35W Minnesota River Bridge	10	12/17		
	Wright CSAH 38	5	3/18		
<b>Sue Grainer (Gemini Research)</b> Historian	Kennedy Bridge Rehab	5	6/18	10	25%
	Whitewater State Park Bridges	5	9/18		
	Various Small Projects	15	Varies		

Key Staff	Commitment to Project			Proposed Location
	Percent of time during design	Percent of time during construction	Percent to other projects	
<b>Matt Cramer</b> Project Manager	50%	5%	50%	Minneapolis, MN
<b>Jamison Beisswenger</b> Lead Bridge Engineer	95%	5%	5%	Minneapolis, MN
<b>Ryan Rykowsky</b> Superstructure Designerr	50%	0%	50%	Bismark, ND
<b>Rick Snyder</b> Substructure Designer & Load Rating Engineer	50%	5%	50%	Minneapolis, MN
<b>Brett Danner</b> Environmental Documents	25%	0%	75%	Minneapolis, MN
<b>Sue Grainer (Gemini Research)</b> Historian	25%	5%	75%	Morris, MN



# Background and Related Experience

## Old Cedar Avenue Truss Bridge Rehabilitation

*Bloomington, Minnesota*

Built in 1920, the Old Cedar Bridge is a five-span, 865-foot-long Pratt-Camelback Truss that crosses over Long Meadow Lake in Bloomington. The bridge was closed to vehicle traffic in 1993 and to pedestrian traffic in 2002 due to significant deterioration of the steel stringers, floor beams, and bottom lateral gusset plates. The trusses are supported on concrete piers that are in poor condition above the mud line and are tilting. The bridge was listed on the National Register of Historic Places in 2013. Key project goals are to provide a structure that meets the Secretary of the Interior's standards for rehabilitations of historic structures, meets current pedestrian loading standards, and minimizes future maintenance costs for the City.

### Project Goals and Objectives

- » Using rehabilitation strategies to extend the bridge's useful life by 50 years while minimizing future maintenance costs
- » Meeting the Secretary of the Interior's standards for the Treatment of Historic Properties guidelines for the rehabilitation of historic structures
- » Evaluating options to upgrade bridge railing to meet current height and safety standards compatible with the historic bridge
- » Meeting current pedestrian loading standards within the context of SOI guidelines for historic structures
- » Keeping all stakeholders informed and engaging stakeholders to provide constructive input at key milestones
- » Building consensus among FHWA, MnDOT CRU, and SHPO on the rehabilitation strategies to satisfy Section 106

The project scope includes the following activities:

- » **Truss Rehabilitation:** Remove deck stringers, remove and replace floor beams and lower lateral gusset plates, and repair or replace gusset plates as necessary. Remove and replace lower cord for span five and repaint the entire truss.
- » **Substructure Stabilization:** Stabilize tilting abutments using tie-back soil anchors.
- » **Deck Replacement:** Evaluate several lightweight concrete deck options to minimize loads to truss and gusset plates.
- » **Railings:** Provide new railing (that is compatible with the structure's historic character) to meet current safety standards.
- » **Construction Support:** Reviewed shop drawings. Responded to Requests for Information (RFIs) Inspected contractor's work.



*Photo of existing bridge*



*Construction*



*Completed Old Cedar Avenue Bridge*

### Relevance to Bridge L5391

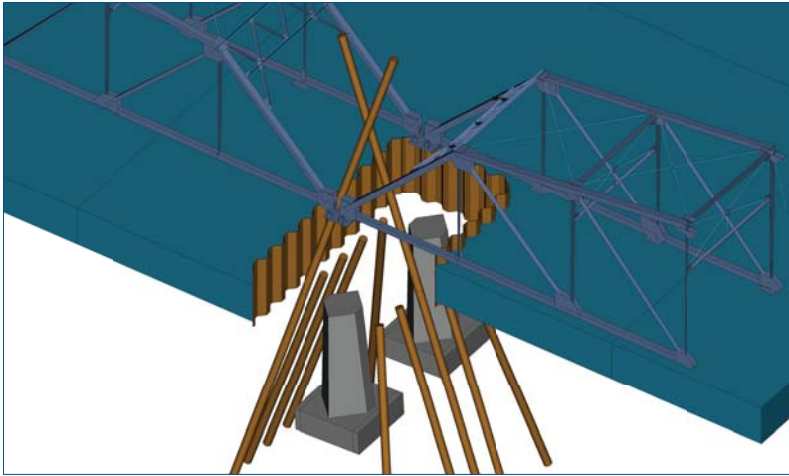
- Field investigation
- Truss analysis/load rating
- Truss rehabilitation/repainting
- Abatement stabilization

### Key Personnel

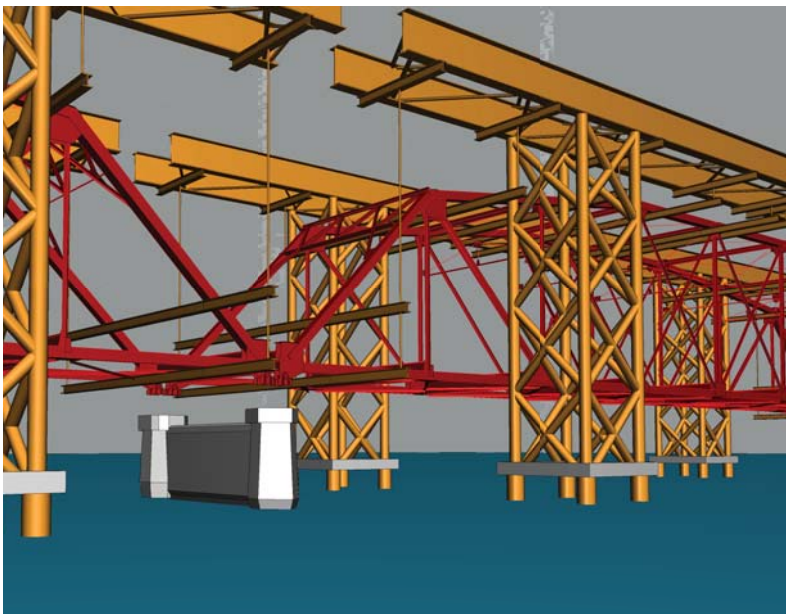
*Matt Cramer (Project Manager), Jamison Beisswenger (Lead Structural Engineer), Rick Snyder (Superstructure and Substructure Design Engineer), Brett Danner (Permits/Environmental Compliance)*

## Old Cedar Avenue Truss Bridge Rehabilitation (continued)

As part of the Old Cedar Truss Rehabilitation project, SRF developed a construction sequence process to remove and replace all of the deteriorated lower floor beams and stringers and to reconstruct the tilted piers. This included a complex shoring tower system to lift the trusses so all the lower gusset plates, floor beams and stringers could effectively be removed and replaced. This method also allows for the piers to be reconstructed with new piling and concrete. SRF developed 3D drawings to assist our structural engineers to evaluate potential conflicts.



*Schematic of tilted piers that will be reconstructed below existing truss. A 3D drawing was developed to identify construction conflicts and constructability issues.*



*Rendering of temporary shoring tower/support system to lift truss for repair/rehabilitation activities to occur. A 3D drawing was developed to identify constructability issues.*

### Project Information

SRF is proud to have partnered with the City of Bloomington on the award-winning Old Cedar Truss Bridge Rehabilitation.

#### Firm

SRF Consulting Group, Inc.

#### Owner

City of Bloomington, Minnesota

#### Reference

Julie Long, PE

City of Bloomington Engineer

(952) 563-4865

[jlong@bloomingtonMN.gov](mailto:jlong@bloomingtonMN.gov)

#### Beginning/End Dates

February 2014 – October 2016

#### % of Overall Project Performed

SRF – 90%

Braun Intertec – 5%

#### Services Provided

- » Field investigations
- » Truss load rating/analysis
- » Permits
- » Final rehabilitation plans and specifications
- » Design criteria development
- » Construction support

#### Awards

- » City Engineers Association of Minnesota (CEAM) Municipal Project of the Year Award, 2016
- » American Council of Engineering Companies – Minnesota Engineering Excellence Grand Award, 2017

# Kennedy Bridge Rehabilitation over the Red River

East Grand Forks, Minnesota and Grand Forks, North Dakota



Located on US 2 between East Grand Forks and Grand Forks, the Kennedy Bridge is a vital regional transportation corridor with more than 23,000 vehicles crossing the bridge each day. Built in 1963, the Kennedy Bridge is a 1,261-foot-long, 13-span structure consisting of five steel girder spans on the west approach, six steel girder spans on each approach, and two 279-foot steel Parker Truss main spans over the Red River.

The Minnesota Department of Transportation, in partnership with the North Dakota Department of Transportation, determined that this bridge should be rehabilitated rather than replaced as the bridge is eligible for listing on the National Register of Historic Places.

SRF worked closely with Gemini Research Cultural Resource Consultants to ensure that all elements of the rehabilitated bridge were consistent with the Secretary of Interior's Standards for Historic Properties.

## Project Goals and Objectives

- » Provide a structurally sound bridge.
- » Provide accommodations for pedestrians and cyclists while maintaining for lanes of traffic within the given bridge width.
- » Provide staging alternatives to keep the at least one lane of traffic each way open during construction.
- » Achieve a finding of no adverse effect to historic resources by ensuring rehabilitated elements meet the Secretary of the Interior's Standards for the Treatment of Historic Properties.

## Relevance to Bridge L5391

- Field investigation
- Truss analysis/load rating
- Truss rehabilitation/repainting
- Abutment stabilization

## Key Personnel

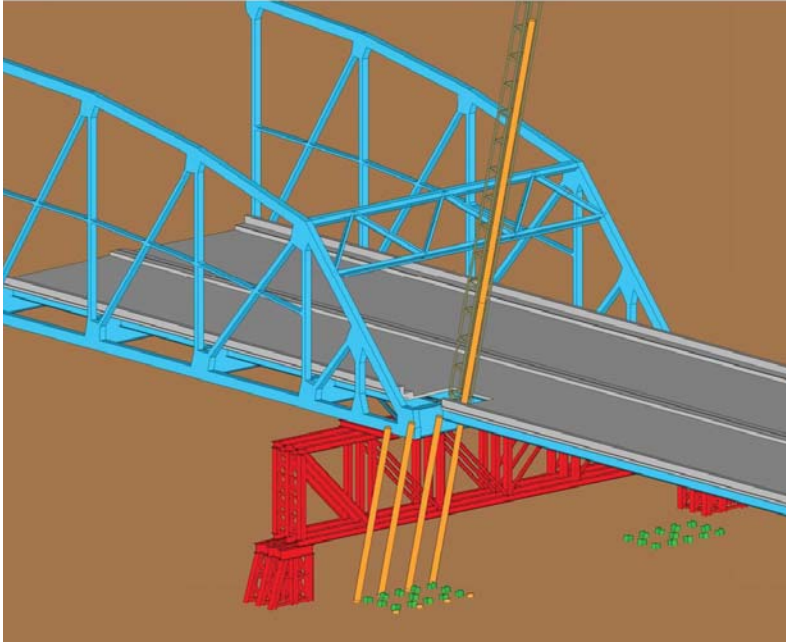
*Matt Cramer (Project Manager), Jamison Beisswenger (Lead Bridge Engineer), Richard Snyder (Load Rating Engineer), Sue Grainger (Bridge Historian), Brett Danner (Permits/Environmental Compliance)*

The project scope included the following activities:

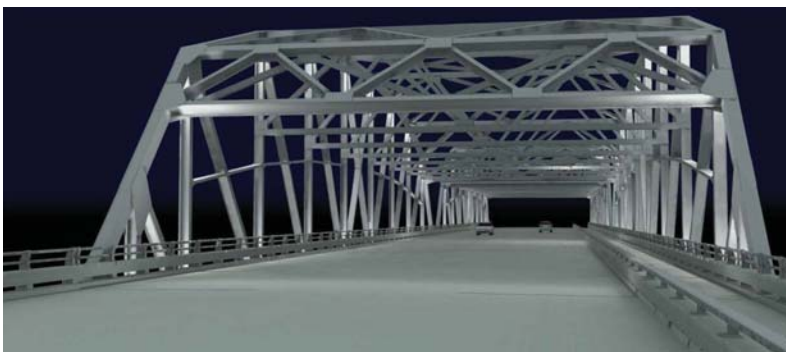
- » **Pier Replacement:** Replace a tilting pier that supports nearly 335 feet of superstructure.
- » **Temporary Pier Design:** Design a temporary pier structure that will support the existing bridge under traffic and that will facilitate installation of piling for the new pier.
- » **Truss & Superstructure Rehabilitation:** Strengthen truss span floor beams and stringers, repaint steel elements, replace pin and hanger connection assemblies, reinforce abutment bearing assemblies.
- » **Deck Replacement:** Replace the existing deck in stages to maintain at least one lane of traffic in each direction during construction. Replace strip seal and finger type expansion joints.
- » **Utilize Existing Rail Components:** Maintain historic integrity by utilizing existing aluminum railing components installed atop a new, crash-tested, concrete traffic railing.
- » **Create Visualizations:** Created 3D renderings of the truss spans to evaluate different aesthetic lighting concepts.
- » **Construction Support:** Provide support during construction for contractor questions and shop drawing reviews.

## Kennedy Bridge Rehabilitation over the Red River (continued)

As part of the Kennedy Bridge Rehabilitation project, SRF developed a method to replace the existing pier using a temporary shoring truss while driving pile through the in-place deck. This method involved careful placement of all structural elements to ensure that conflicts would not occur in the field. A 3D model of the bridge was created to check conflicts between the proposed piling and the existing piling, temporary shoring elements, and in-place steel floor system elements.



The 3D models were further refined to create visualizations that allowed bridge historians to evaluate the placement of new features including bridge railing and aesthetic lighting.



### Project Information

SRF is proud to have partnered with MnDOT and NDDOT on this important project.

#### Firm

SRF Consulting Group, Inc.  
Gemini Research

#### Owner

Minnesota Department of Transportation  
North Dakota Department of Transportation

#### Reference

Angel Staples, PE  
MnDOT Bridge Office  
651-366-4546  
Angel.staples@state.mn.us

#### Beginning/End Dates

March 2015 – October 2016 (Design)  
December 2016 – Ongoing (Construction)

#### % of Overall Project Performed

SRF – 90%  
Gemini Research – 100% (Historic Consultation)  
Braun Intertec – 10%

#### Services Provided

- » Field Investigations
- » Historic (Section 106) Process Review & Coordination
- » Environmental Documents
- » Permits
- » Design Criteria Development
- » Final Rehabilitation Design Plans
- » Load Ratings

# Truss Load Rating Projects

Various Locations, Minnesota

The following projects completed for MnDOT's Bridge Office consisted of the Load Rating Analysis of the gusset plates and members of truss bridges on the local and trunk highway system. SRF undertook the analysis and load rating for 11 truss bridges in Kittson, Fillmore, Polk, Goodhue, Washington, Lac Qui Parle counties, and the city of Cottage Grove. Bridge types ranged from small 70-foot long pony trusses spans to 550-foot long cantilever high trusses.

Due to a lack of available constructions plans and a need to verify current structure conditions, SRF's work included field investigations and surveys for nine bridges. These investigations were conducted to determine pertinent dimensions and members sizes required for load rating. SRF developed a unique approach involving photos, inspection notes, and drafting software to verify all required gusset dimensions. An investigation of member condition, including section loss, was also performed during the field investigation and implemented in the Load Rating Analyses.

After performing all relevant inspections SRF created detailed sketches of each member connection. A computer model, including all relevant loads, was created for each structure to determine the loads in each member and connection. SRF used these loads to compute a rating factor for each member and its connections. SRF also prepared plans for gusset plate strengthening for the Cottage Grove Truss.



Township Road 127 over Belle Creek



CSAH 7 over the Red River



CSAH 1 over the Red River



CSAH 9 over the Red River



3rd Street over the Cannon River



Drayton Bridge (TH 11 over the Red River)

## Project Information

### Firm

SRF Consulting Group, Inc.

### Owner

MnDOT Bridge State-Aid, MnDOT Bridge (Kittson, Fillmore, Polk, Goodhue, Washington, Lac Qui Parle Counties), City of Cottage Grove

### Reference

Dave Conkel, PE  
MnDOT Bridge State-Aid  
(651) 366-4493  
dave.conkel@state.mn.us

### Beginning/End Dates

Contract 1: April 2008 – July 2009  
Contract 2: September 2008 – August 2009  
Contract 3: August 2009 – April 2010

### % of Overall Project Performed

SRF – 100%

### Services Provided

- » Data Collection
- » Field Investigation
- » Structural Analysis
- » Truss and Gusset Plate Load Rating Report
- » Plate Repairs

### Relevance to Bridge L5391

- Field Investigations
- Load Rating Members and Gussets
- Historic Bridges
- Aggressive Schedule

### Key Personnel

Jamison Beisswenger (Field Investigation, Structural Analysis, Load Rating), Kevin Swehla (Q/C Reviews/Check)

# Velva Park Bridge

Velva, North Dakota



The Velva Park Bridge is a 102' long, single-span, steel, 6-panel, pin-connected through truss that was built in 1921. As one of only three Pratt trusses remaining in the state, the bridge is eligible for listing on the National Register of Historic Places. The bridge was originally located on ND Highway 41 on the north edge of Velva, ND. In 1968, to keep pace with increased roadway demand, the structure was moved into town because it was deemed too narrow for two-lane highway traffic. In its current location, the Velva Park Bridge carries 2nd Avenue West over a cutoff meander of the Mouse (Souris) River, providing the only access to the City Park and the Sports Complex that includes the football, track, and baseball fields.

SRF was selected by the NDDOT Historic Bridge Rehabilitation Program to provide environmental documentation, preliminary and final design services for the rehabilitation of this historic truss span. Due to the lack of availability of existing bridge plans, SRF's preliminary work included a field investigation of the structure which involved identifying all the truss member sizes and dimensions required for the load rating. Member condition including collision damage and section loss was also recorded during the investigation. Nondestructive ultrasonic field testing was performed on all pin connections to assess their condition. SRF prepared a Bridge Rehabilitation Report which outlined the repair strategy for the structure. The Rehabilitation report was combined with the Class III Cultural Resource Report for the project which ensured an efficient coordination process with the State Historic Preservation Office. SRF also handled Section 4(f) and Section 6(f) documentation for the historic bridge and the adjacent city park. The project is currently moving into the plan development phase with as the SHPO has found that the proposed rehabilitation will achieve a finding of No Adverse Effect. The project is scheduled for the October, 2017 bid letting with Construction starting in the Spring of 2018.



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## Project Information

### Firm

SRF Consulting Group, Inc.

### Owner

City of Velva, North Dakota

### Reference

Pam Wenger  
NDDOT Local Government  
(701) 328.4787  
pwenger@nd.gov

### Beginning/End Dates

February 2016 – January 2017 (Rehabilitation  
Concept Development)  
February 2017 – Ongoing (Final Design)

### % of Overall Project Performed

SRF – 100%

### Services Provided

- » Historic Coordination
- » Field Investigation
- » Rehabilitation Report
- » Section 6(f) Documentation
- » Section 4(f) Documentation
- » Section 106 Cultural Resource Clearance
- » NEPA Documentation
- » Final Design

### Relevance to Bridge L5391

- Historic Coordination
- Field Investigation
- Environmental Documents
- Timber Deck
- Bearing Replacement
- Truss Rehabilitation
- Substructure Rehabilitation

### Key Personnel

*Matt Cramer (Principal), Ryan Rykowski (Project Manager) and Jamison Beisswenger (Bridge Inspector)*

# Project Understanding and Work Plan

## Project Understanding

Bridge L5391, also known as the Third Street Bridge, was built in 1910 and is listed on the National Register of Historic Places under Criterion C (design and construction), as an example of a Pennsylvania through truss. The bridge is also significant under Criterion B (significant persons) through its associations with bridge builder A.Y. Bayne of Minneapolis and the engineering firm of Loweth and Wolff in St. Paul.

The 180-foot long truss supports steel floor beams and stringers which, in turn, support a 17.1-foot wide roadway and an 8-foot wide sidewalk. In 2002, a 5.5-inch thick timber deck replaced the original cast-in-place concrete deck.

In 2009 an updated load rating was performed by SRF, and the Inventory Rating was reduced from HS15 down to HS6 and the posting level was calculated to be 12 Tons. In order to prevent heavy truck traffic from entering the residential streets on the south end of the bridge, the City has posted the bridge at 5 Tons and a metal pipe has been installed over the roadway surface, limiting the vertical clearance to 8 feet.

In May of 2016, the Goodhue County Board of Commissioners added Bridge L5391 to its Bridge Replacement Program so that it would be eligible to receive Federal and State funds. MnDOT's State Transportation Improvement Program (STIP) lists funding of approximately \$2,150,000 (\$1,720,000 in federal funds with a local match of \$430,000) for the rehabilitation of Bridge L5391 in 2019 or 2020. In October of 2016, the Minnesota Historical Society approved a grant in the amount of \$161,000 to fund the development of rehabilitation plans and specifications.

## Previously Identified Rehabilitation Elements

The SRF Team reviewed the existing information and documentation provided including MnDOT's Local Historic Bridge Report, the Fracture Critical Bridge Inspection Report, and the Routine Bridge Safety Inspection Reports. Based on the review of these documents, our team understands that, in order for the bridge to remain in operation, the following should be addressed:

- » Remove the existing lead based paint.
- » Repaint all steel components with a zinc-rich paint system (primer & overcoat).
- » Remove & repair, or strengthen deteriorated floor members (stringers & floor beams).
- » Replace locked-up expansion bearings.
- » Rehabilitate existing fixed bearings.
- » Replace rotted or deteriorated sidewalk and roadway timber planks.
- » Repair, reinforce, or reconstruct the cracked, southwest wingwall.
- » Remove and replace the original railing on the north approach.
- » Repair spalled and delaminated surfaces of the concrete abutments & wingwalls
- » Add riprap to abutment slopes.



Bearing Reconstruction – Old Cedar Bridge



### Additional Rehabilitation Considerations

Through our visit to the site and from our previous load rating evaluation work SRF has gained a comprehensive knowledge of Bridge L5391. Through this knowledge, we have identified additional elements whose rehabilitation should be considered to maximize the functional life of the bridge. While these additional items are not included in the scope of this project, it is recommended that these elements should be considered for rehabilitation. SRF understands that the City has a finite pool of funds for this project as programmed in the STIP. SRF will not propose to include any item without ensuring that adequate funding is available for design and construction.

**Bridge Joint Replacement:** The joints between the bridge approach slab and the bridge deck have failed and are allowing water to leak onto the abutment faces and steel floor members. The life of any abutment or floor system repair will be reduced if this leakage is allowed to continue.

**Abutment Tilting:** The fact that the bridge has pushed up against the north abutment and the anchor rods on the south bearings have bent indicates that one or both of the abutments has tilted. The extreme cracking evident in the southwest wingwall indicates that the south abutment has moved towards the river. It is likely that undermining of the south abutment during flooding has caused this movement.

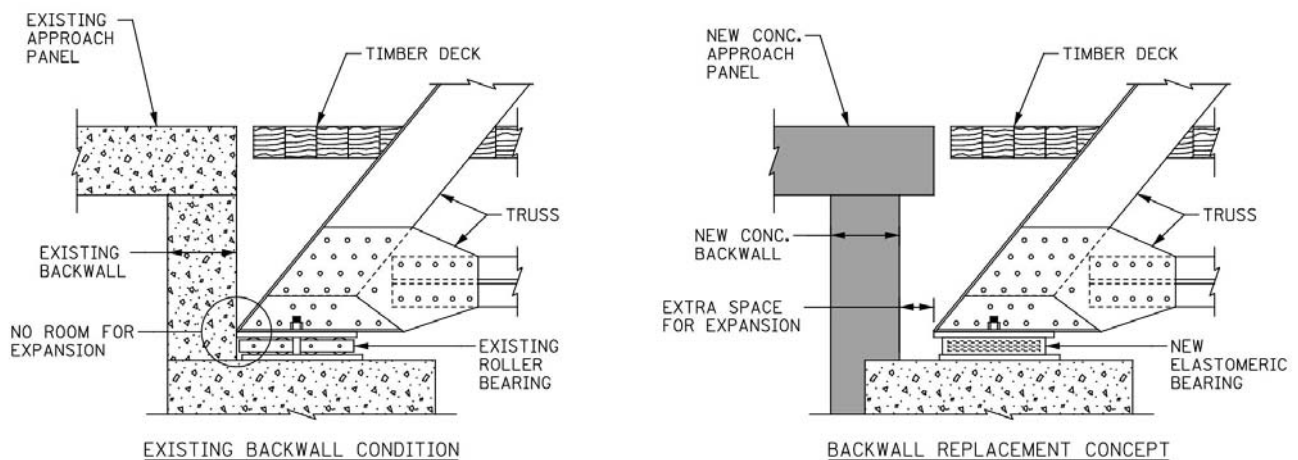
While it is anticipated that installation of countermeasures (i.e. rip rap) around the abutment footing will mitigate any future movements. If the City wishes to investigate any other sources of movement, we have included Braun Intertec on our team to provide geotechnical sampling (borings), soil testing, and recommendations.



Abutment Stabilization Anchor Installation – Old Cedar Bridge

SRF and Braun Intertec worked together utilizing foundation underpinning techniques and tieback anchors to stabilize moving substructures. On the Old Cedar Avenue Bridge, SRF and Braun formulated a repair to stabilize abutments that had tilted by over 2-feet using ground anchors installed horizontally through cored holes in the abutments.

**North Abutment Backwall Replacement:** The function of the abutment backwall is to retain the approach fill while allowing room for the bridge to thermally expand and contract. Currently, the expansion bearings are pressing up against the existing backwall and are not allowing the bridge to move and are inducing thermal forces into the truss members. If expansion is restrained, thermal stress can become significant and reduce the life of the bridge. Replacement of the existing backwall on the north abutment will allow new bearing assemblies to function properly. The figure below illustrates one option to allow new bearings to function properly.



North Abutment Backwall Replacement Concept for Bridge L5391



**Vehicle Impacted Truss Members:** Several truss members have been impacted by vehicles. While this may not significantly reduce the strength of the bridge, bent steel members can be a source of concern to the public. Our team has developed procedures and specifications for the heat straightening of impacted members. This process can be done under existing loading conditions and would likely not require temporary shoring for the bridge.



Vehicle Impact Damage on Bridge L5391 (Noted during SRF's 2009 investigation)

**Compression Buckling in Truss Members:** Several truss members were originally designed to always be in tension. However, the 2002 replacement of the original concrete deck with a lighter timber deck reduced the tension load in these members and has caused them to buckle under vehicle induced compression loads. The overall strength of the bridge is governed by the compression capacity of these truss members. The addition of small, unobtrusive reinforcement plates, would greatly increase the capacity of these truss members.

**Ornamental Railing Impact Damage:** While in good condition for its age, the ornamental railing on the east side of the bridge has suffered isolated areas of vehicular damage.

**Bridge Deck Wear:** While only 15 years old, the timber deck is showing signs of significant wear, especially in the wheel path of vehicles.

## Project Goals and Objectives

The purpose of the current project is to rehabilitate the current bridge. Key goals for the project include:

- » Utilizing rehabilitation strategies to extend its useful life by 50 years while ensuring that proposed repairs meet the allotted construction budget and minimize future maintenance costs.
- » Meeting Secretary of Interior's Standards for the Treatment of Historic Properties Guidelines for Rehabilitation of historic structures.
- » Keeping all stakeholders informed and engaging stakeholders to provide constructive input at key milestones
- » Building consensus among FHWA, MnDOT CRU, MN Historical Society, and SHPO on the rehabilitation strategies to satisfy Section 106.

## Unique Challenges & Proposed Strategies

The focus of this project will be to identify and implement solutions that achieve the goals of the project and provide a large return on investment. Accomplishing the project goals will require a committed team that is technically skilled, experienced with rehabilitating historic structures, and understands the process. The following section identifies key project challenges and requirements as well as our response to addressing each challenge.



Deterioration Measurements on the Old Cedar Avenue Bridge (Refer to Challenge #3 on the following page.)

## Challenges and Opportunities

### Challenge #1 – Navigating the Historic Review Process (Section 106)

**Challenge:** Building consensus between historic review agencies (MnDOT CRU, SHPO, and the MN Historical Society) and engineers is crucial to ensure that federal funding is secured. While keeping historic fabric in place is a preservationist's preference, it is oftentimes not feasible due to deterioration or safety concerns. When replacement is required, historic review agencies often want elements to be rehabilitated using original types of material or out-of-date construction techniques, which can lead to inflated project costs.

**SRF Strategy to Mitigate Challenge:** The team of SRF and Gemini Research will work collaboratively to find rehabilitation solutions that comply with the SOI's Standards prior to historic agency reviews. Visualizations will be utilized give review agencies an understanding how an element constructed with modern materials and techniques will not detract from the bridge's historic integrity.

On the recent Kennedy Bridge Rehabilitation Project a cost prohibitive integrally colored concrete was proposed by SHPO to more closely match the existing concrete. SRF and Gemini Research prepared a memo for agency review showing the cost increases that would be incurred by the State if the colored concrete was used. The SRF/Gemini team demonstrated that a similar look could be achieved using simple, less costly, staining techniques. Ultimately, the stain was approved by the historic review agencies which saved the state up to 20% on concrete costs.

### Challenge #2 – Ensuring Rehabilitation Strategies are Compatible with Potential Future Pedestrian Use

**Challenge:** The City of Cannon Falls has indicated that they would like to keep the bridge open to vehicular traffic at least until Goodhue County constructs a new crossing nearby. If a new crossing is built, vehicular traffic could be rerouted and the bridge may become a pedestrian facility. AASHTO's LRFD Guide Specifications for the Design of Pedestrian Bridges specifies a design loading of 90psf over the entire width of the structure. This specified loading can cause stresses in truss members that exceed the current HS12 load rating. Additionally, pedestrian facilities are generally required to comply with the requirements of the American's with Disabilities Act (ADA).

**SRF Strategy to Mitigate Challenge:** Through SRF's previous load rating work, we have identified that the diagonal members that are currently showing signs of compression buckling are the most susceptible to pedestrian loadings. Preliminary analysis indicates that the addition of simple reinforcement plates to some diagonal truss members would significantly increase the compression capacity of these members. In addition to an updated vehicular load rating, SRF will perform a pedestrian load rating to determine the safe load carrying capacity.

Additionally, SRF would develop roadway bridge joints that are easily changeable to a type that is more ADA and pedestrian friendly (i.e. reduces the tripping hazard that occurs with roadway joints).

### Challenge #3 – Avoiding Construction Delay Costs

**Challenge:** Historic bridge rehabilitation projects are known for being extremely difficult. When elements are disassembled, previously unknown deterioration can be found leading to the need for on-site evaluation by a structural engineer. Having a structural engineer on-site at all times during construction is cost-prohibitive. However, not responding quickly to contractor concerns can be even more costly by increasing the chance for delay claims.

**SRF Strategy to Mitigate Challenge:** On the recent Old Cedar Bridge project, SRF developed a method whereby our engineers instructed on-site staff how to record measurements of deterioration directly onto structural members. (Refer to photo on page 14.) The field staff would then email pictures of the measurements to engineers for quick evaluation. Multiple engineers with knowledge of the project were made available so that someone was always available address field issues.

SRF also developed specifications that required the Contractor to have small quantities of extra repair material on-site. In the rare case that additional repair work was required, pre-prepared engineering details were developed which allowed the Contractor to make the additional repairs quickly with very minimal cost or delay. This method minimized on-site engineering costs while eliminating any delay required to have an engineer come out to the site.

# Work Plan and Approach

## Cultural Resource Coordination

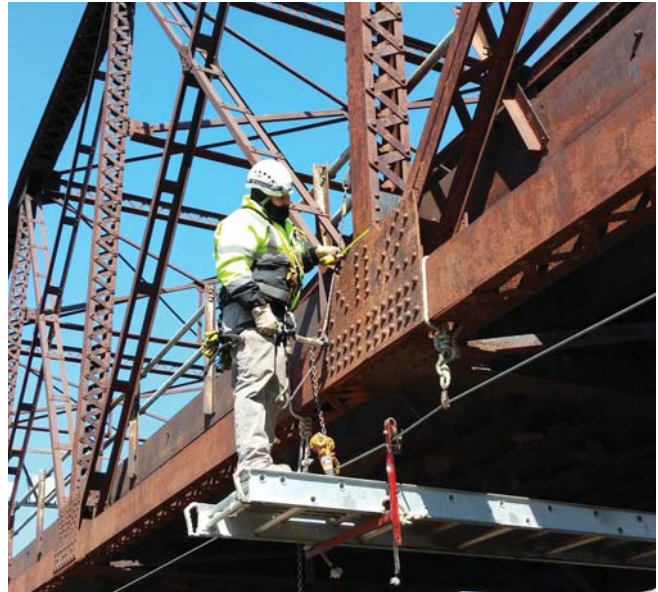
Early and frequent coordination with MnDOT CRU, SHPO, and the bridge historian throughout the entire project will be necessary to achieve a finding of no adverse effect and to ensure federal funding. SRF and Gemini have extensive experience with visualizations and can provide them to facilitate coordination. We used visualization frequently on both the Old Cedar Avenue Bridge and Kennedy Bridge project.

Planning and implementing the successful rehabilitation of the Bridge L5391 will require the skills of professionals who understand and have experience with the historic bridge preservation process in Minnesota. Collaboration will be a hallmark of this process. Only a limited number of repair options will meet the Secretary of the Interior's Standards for Rehabilitation. The SRF team will develop alternatives that retain the structure's character-defining features while providing a good value for the substantial investment that is being made. The goal will be to target rehabilitation work that facilitates the bridge's long-term preservation, minimizing maintenance expense in the foreseeable future. Decisions will be informed by relevant guidance from the MnDOT's Management Plan for Historic Bridges in Minnesota

## Project Memorandum

The project includes federal-aid funding through the Federal Highway Administration (FHWA) for fiscal year 2019. Therefore, an environmental review under the National Environmental Policy Act (NEPA) is required. Based on the scope of work, the project has been identified as a Class II action under NEPA (Categorical Exclusion). The NEPA document for Bridge L5391 will consist of preparing a MnDOT State Aid Project Memorandum (PM). The Project Memorandum will serve to document that the project has non-significant social, economic, and environmental impacts qualifying it as a Categorical Exclusion under 23 CFR 771.117.

Because Bridge L5391 is listed on the National Register of Historic Places, it is also considered a Section 4(f) property. Section 4(f) of the Department of Transportation Act of 1966 stipulates that FHWA cannot approve the use of land from publicly-owned parks, recreation areas, wildlife and waterfowl refuges, or public or private historic sites unless there is no feasible and prudent alternative and the proposed action includes all possible planning to minimize harm. FHWA maintains a Programmatic Section 4(f) Evaluation for historic bridges. Under this Programmatic Section 4(f) Evaluation,



SRF staff inspecting the Old Cedar Bridge using platform rigging

the Section 4(f) use of a historic bridge can be avoided if the bridge can be rehabilitated without affecting the historic integrity of the structure. It is assumed that the proposed action would not affect the historic integrity of Bridge L5391, that a "no effect" determination will be provided by MnDOT Cultural Resources Unit under the Section 106 process, and that Section 4(f) involvement is not required as part of the NEPA process for Bridge L5391.

## Field Inspection

A quality, hands-on inspection is crucial to verify the findings of previous fracture critical and routine inspections, identify any new areas of deterioration, and to ensure all safety concerns are addressed. The field investigation will be led by Jamison Beisswenger, who is a **MnDOT certified Bridge Safety Inspection Team Leader** and has been performing bridge inspections for over 10 years. In 2009, Jamison performed a field investigation of Bridge L5391 as part of MnDOT's Local Truss & Gusset Plate Load Rating Analysis contract.

With sections of the steel floor system in advanced states of deterioration and the low load rating, access by underbridge inspection vehicles (snoopers) is not advisable. While newer technological techniques such as 3D laser scanning or drones may allow easier access, they can be cost prohibitive. Additionally, these techniques are not well suited to identifying areas of corrosion that may be obstructed by utilities, other

structural members, dirt, or debris. A full, hands-on, inspection is required to identify areas of critical deterioration that may be hidden from view.

Members of the truss above the deck will be inspected with the use of a combination of ladders or mechanical lifts. The truss span bottom chords and all floor system members, including the floorbeams and stringers, will be inspected using platform rigging. Longitudinal cables (including a safety cable) will be installed under each span, which will carry a pick to support inspection personnel. This access system will allow full hands-on access to the entire length and width of the structure for evaluation of condition, and measurements of section loss. All inspectors will maintain fall protection during this work and have received SRF's in-house fall protection training.

The structural steel of the bridge will be examined for deterioration or overstress in the form of cracks, bends, misalignment, local buckling, section loss, or signs of fatigue damage. Connections will be examined for section loss or missing fasteners and cracked or bowed connection material. Areas of significant section loss or deterioration on truss member components and bracing that may affect the load capacity will be documented by sketches and measurement.

Concrete abutments and wingwalls will be sounded using hammers to identify areas of distress. Spalled, cracked, or delaminated areas will be identified using pre-prepared inspection forms to ensure the quantities are accurately measured and the potential for cost over-runs during construction is minimized. SRF utilized a similar technique during the inspection of the historic 10th Avenue Bridge to accurately develop a cost estimate for concrete surface repairs.

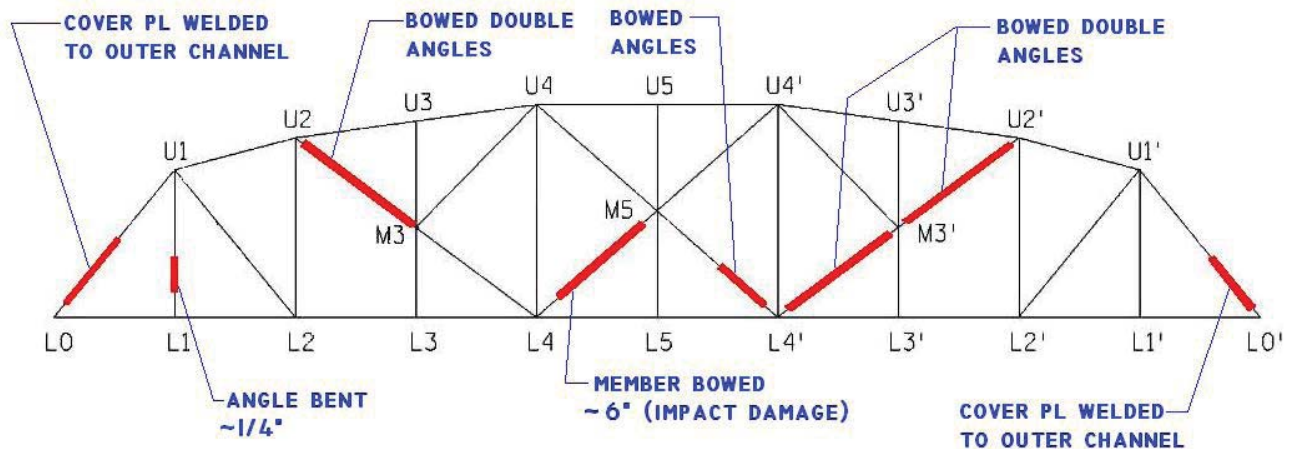
### Cost Savings Opportunity

While a hands-on inspection is part of the project scope, the costs associated with rigging and rope access required to perform these inspections is significant. MnDOT performed an in-depth, fracture critical inspection of the bridge in August of 2016. If design funds are limited, we can utilize the detailed findings of MnDOT's Fracture Critical Inspection Report to prepare rehabilitation plans and to eliminate costs associated with bridge access. SRF will inspect the substructure elements and superstructure elements that are visible with ladders and are accessible from the bridge deck or shore line.

### Load Ratings

Performing the Truss and Gusset Plate Connection System Rating Analysis work requires not only extensive experience in structural engineering, but also experience in several other areas of expertise, such as truss analysis, bridge load rating, methods and codes, bridge design, and bridge inspection. Rick Snyder, PE will perform the load rating of the bridge for this project using the most current provisions of AASHTO's Manual for Bridge Evaluation. Rick has performed load ratings for over 250 bridges in the state of Minnesota. He recently completed the load rating of the truss spans for the historic Kennedy Bridge in East Grand Forks, MN.

We will perform rating of Bridge L5391 in two phases. An initial 'as-is' load rating taking into account any member deterioration found during the field investigation will be performed. This initial rating will identify any structural members in need

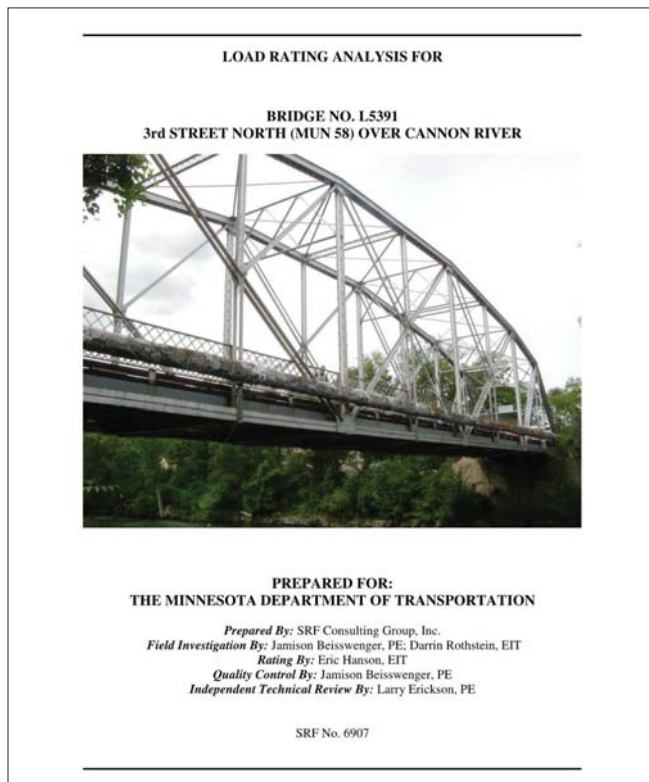


Inspection notes from SRF's 2009 investigation of Bridge L5391

of strengthening or replacement and help with the development of repair criteria. A supplemental 'as-repaired' rating will be performed based on the condition of the bridge after rehabilitation activities.

Rick will create new computer models, rating spreadsheets, and calculation documents using the latest rating codes independently of SRF's previous rating work. Rick will also evaluate the bridge for pedestrian loads in case it will become a walking bridge in the future. Jamison Beisswenger, PE will then perform a line-by-line quality control (QC) check of the rating calculations in accordance with SRF's in-house Quality Management Plan.

SRF's previous load rating work on Bridge L5391 affords us the opportunity to ensure that two, independent, yet cost effective, truss evaluations are performed. Following the QC check of the rating documents, calculated loads and member capacities will be compared to SRF's 2009 rating of Bridge L5391. This will ensure that an accurate and safe rating is computed for Bridge L5391.



SRF's 2009 Load Rating Report for Bridge L5391

## Repair Criteria & Design Exceptions

SRF will combine findings of MnDOT's Local Historic Bridge Report, MnDOT's Fracture Critical Bridge Inspection Reports, and Routine Bridge Safety Inspection Reports with the findings of our field investigation and load rating to develop

recommended options for bridge rehabilitation. Each repair option will be developed in conjunction with the Bridge Historian and will be evaluated based on the following criteria:

- » Construction cost & ability to meet programed STIP funding sources.
- » Structural capacity & safety to the traveling public.
- » Impact to historic resources.
- » Ability to accommodate future usage changes.
- » Ability to minimize future maintenance.

We will present all recommended options to the City along with a preliminary cost estimates for each item in the form of a memorandum prior to developing 30% bridge plans. This will ensure the project moves forward in a manner that meets the City's construction budget. The memorandum will also detail design exceptions that we will seek in order to meet historic requirements as well as cost constraints.

On the recent Kennedy Bridge project, SRF and Gemini research sought, and obtained, a design exception from FHWA to use a non-standard railing type that matched the bridge's historic integrity and was more cost effective than other railing types.

## Bridge Plans & Specifications

For historic bridge projects, predefined plan reviews are critical for obtaining approvals from all review agencies. SRF and Gemini Research will work collaboratively at every plan submittal stage to ensure that agency review requirements are met. For every submittal, Gemini will develop a memorandum describing the key project elements for understating by MnDOT CRU, SHPO, and the MN Historical Society, SRF and Gemini worked together on the historic Kennedy Bridge project to achieve a finding of no adverse effect under a similar historic (section 106) review process.

### 30% Bridge Plans (Preliminary Bridge Plans)

This submittal will concentrate primarily on what is being removed and replaced, leaving rehabilitated and specific details to the 60% and 95% plans. Coordination with the Bridge historian, MnDOT CRU, the MnDOT Bridge Office, and SHPO will focus on what elements are being removed and what will be used to replace them.

### 60% Bridge Plans & Draft Special Provisions

This plan set provides MnDOT CRU, the MnDOT Bridge Office, and SHPO with an in-progress status of the design. This plan set will be critical from the standpoint that it will provide a

fair amount of detail and specifics on how key components will be rehabilitated. Also included with this submittal will be a draft of the project special provisions. The special provisions at this level will focus elements such as concrete repair methods/finishes, steel repainting methods/colors, and less technical items that will be of concern to the historic review agencies.

### 75% Bridge Plans

While not an agency required deliverable, an electronic 75% status plan will be developed between the 60% and 95% design phases. This status plan will be used in conjunction with other materials prepared by SRF in a presentation to the Minnesota Historical Society.

### 95% Bridge Plans & Special Provisions

These plans will consist of a completed design and final plans for agency reviews. At this stage of the project all plans, specifications, and calculations will have received QC checks in accordance with SRF's Quality Management Plan.

### Final 100% Certified Plans & Specifications

The final plans and specifications will address all comments from MnDOT, the City, the County, the MN Historical Society, and any other key stakeholders.

### Constructability Review

We have identified Daniel Busch to perform an independent constructability review. Daniel will be independent of the design activities and will only report to the Project Manager. We anticipate that the constructability reviews will occur at the 60% and 95% stages and will consist of plan mark-ups and a log of all comments.

### Cost Estimates

Cost estimates will be completed in two phases. First, a planning level cost estimate will be submitted with repair recommendations memorandum to the City. This will allow the city to select a mix of repair alternatives that meets the public's functional needs, the project's construction budget, and historic preservation requirements. Upon completion of the 100% certified plans, a second, final engineer's cost estimate will be submitted.

## Design Quality Management

### Approach to Design Quality

SRF has developed a companywide Quality Management Program (QMP) along with an individual "Procedures and Practices" manual for each service area. These documents provide

guidance that cover the spectrum of project deliverables – from alternatives development, to preliminary design, to environmental documentation, to final design and through the construction phase. The primary focus of this process includes the following three steps:

1. **Document Origination:** This step involves creation of the specific work product including (but not limited to) reports, calculations, plans, specifications, and estimates by a staff member who is qualified to perform the work.
2. **Quality Control Reviews:** This step provides for proper checking of work for logic, assumptions, methodologies, inputs, outputs, math, spelling and grammar, formats, technical, regulatory, and contractual requirements. All technical documents including will be checked by an experienced staff member who did not prepare or originate the initial work item.
3. **Quality Assurance Reviews/Audits:** Quality Manager Kevin Swehla, PE will conduct audits to certify that proper quality procedures and applicable reviews have been implemented and that appropriate supervision and oversight has occurred throughout the process. At the end of each audit, a summary form will be produced and signed by Kevin, certifying the submittal documents are in compliance with the project quality procedures and has passed the audit.

The net effect of SRF's QMP will be to provide the City of Cannon Falls with the highest possible quality deliverables and design products from which the City will receive the following benefits:

- » **Reduced Risk** – Less chance of construction delays, change orders, or approval delays by reviewing agencies.
- » **Better Construction Bids** – Contractor risk is reduced and there is a lesser chance of unbalanced bids.
- » **Better Raw Material Costs** – Reduces the possibility of material orders at premium prices.
- » **Enhanced Safety Environment** – Contractor is able to efficiently plan work and minimize risk to personnel and the public.
- » **Improved Working Relationships** – Reduces the potential for disagreements or complications and improves the working relationship for all involved.

### Approach to Construction Quality

The RFP notes that the selected consultant shall design any load bypass systems and any falsework required to provide

in-field repair of truss members. However, based on MnDOT's most recent Fracture Critical Bridge Inspection Report and our 2009 load rating, it is anticipated that any repairs to the truss can be accomplished without the need for temporary shoring. However, we have experience with load bypass systems should they be needed for the rehabilitation of Bridge L5391.

## Construction Support

SRF has recent experience providing construction support on historic bridge projects. We recently provided this service to the City of Bloomington on the Old Cedar Bridge Project and we are currently providing this service to MnDOT on the Kennedy Bridge Project. At less than 1-hour away from Cannon Falls, SRF can be on-site quickly to respond to any need for site inspection services. We understand that quick responses to questions or RFI's is important to minimize the potential for Contractor delay claims. As noted in the Key Challenges section of this proposal, SRF can work with City/County inspection staff to minimize travel time and on-site engineering costs.

## Public Outreach/Agency Involvement

The fate of Bridge L5391 is of concern for many stakeholders. As the project progresses to implementation, the public, including Cannon Falls and Goodhue County citizens, history buffs, river users, and local homeowners will be eager for timely updates leading up through construction. In addition, the approval of any rehabilitation options are predicated on continued consultation with key agencies as the construction details are developed.

We will work closely with the City and County project leadership and communications staff to develop a dynamic approach for public involvement and agency consultation that will clearly lay out the who, when, what, and why of the public information activities (website and public meetings) and the agency coordination steps (individual meetings, Technical Advisory Committee meetings). While it is not a complicated plan, it is more than just a list of meetings and deliverables; it articulates the audience, purpose, and desired outcomes of each activity.

## Agency Involvement

There are many agencies that have a stake in the successful outcome of this project from the perspective of their individual missions/regulatory responsibilities. These include the City of Cannon Falls; Goodhue County; Federal Highway Administration (FHWA); Minnesota Department of Transportation (MnDOT) Bridge Office, State Aid staff and Cultural Resources Unit (CRU); Minnesota State Historic Preservation Office (SHPO); Minnesota Historical Society; U.S Fish

and Wildlife Service (USFWL); US Army Corps of Engineers (USACE); Minnesota Department of Natural Resources (DNR); and the Minnesota Pollution Control Agency (MPCA).

- » **Agency Meetings.** We will shepherd the project through the various permitting and approval processes, representing the project in face-to-face agency meetings as well as through phone and email communications. We have long-standing positive relationships with the key agencies, understand their needs and expectations, and are able to develop creative solutions to issues that arise. We will also ensure that the City is kept up-to-date on all agency interactions.
- » **Technical Advisory Committee.** The City plans up to five meetings of the Technical Advisory Committee (TAC) during the design stage and up to two meeting during the construction stage, anticipating the inclusion of many of the agencies noted above. We have managed TACs for a wide range of projects. We will ensure that meetings are fruitful with a clear purpose and outcome so that issues are surfaced, expectations clarified, and agency personnel hear one another's points of view.

## Public Involvement

- » **Project Website.** The website we create and maintain will build on typical FAQs we have received based on our previous work with historic bridges as well as any questions received by City/County staff. The site will include schedule information, public meeting announcements, materials, and ongoing status updates. We will take special care that the website content tells the project story in the way that both the general public and specific groups will appreciate. We will always be thinking ahead, with a schedule that builds in the time needed for City review to ensure that approved materials will be posted when the public will be looking for them. We have extensive experience in developing and maintaining project websites. An example of our work is the project website for the Old Cedar Avenue Bridge project which can be viewed at <http://oldcedarbridge.com/>.

### Cost Savings Opportunity

A website can be a useful tool to communicate project developments to the public, but it is not explicitly required to obtain design or construction Funding. If design funds are limited, SRF can eliminate the costs associated with procuring and maintaining a project website.

» **Public Information Meetings.** We will take care of the scheduling and meeting logistics of the two planned public involvement meetings; one at the 60% design stage and another at the 90% design stage. We will create accessible information with clear messages presented in an understandable graphic format for use at these meetings. Our knowledgeable and receptive staff listen as well as we explain, and treat all ideas and concerns with respect. We will provide timely follow up, summarizing and sharing the public's comments with the project team soon after each meeting. We will spotlight any surprises or critical issues, and recommend action/response as appropriate.

### **Historical Society Presentation**

A unique aspect of this project is that the Minnesota Historical Society has a financial interest in the design phase. A stipulation of the grant is that a progress or project summary presentation will be given to the Historical Society's Grants Office after 75% of the design work has been completed (between the 65% and 90% design phases). SRF will work with the City to schedule this presentation at least 30 days in advance to facilitate the Historical Society's Staff schedules.

The presentation will be given by our lead bridge design engineer, Jamison Beisswenger, and our Bridge Historian, Sue Granger. SRF has experience giving presentations of our historic bridge projects. We've recently given two presentations of the Old Cedar Avenue Bridge project to the MN County Engineer's Bridge Committee and to MnDOT's Bridge Office Staff.

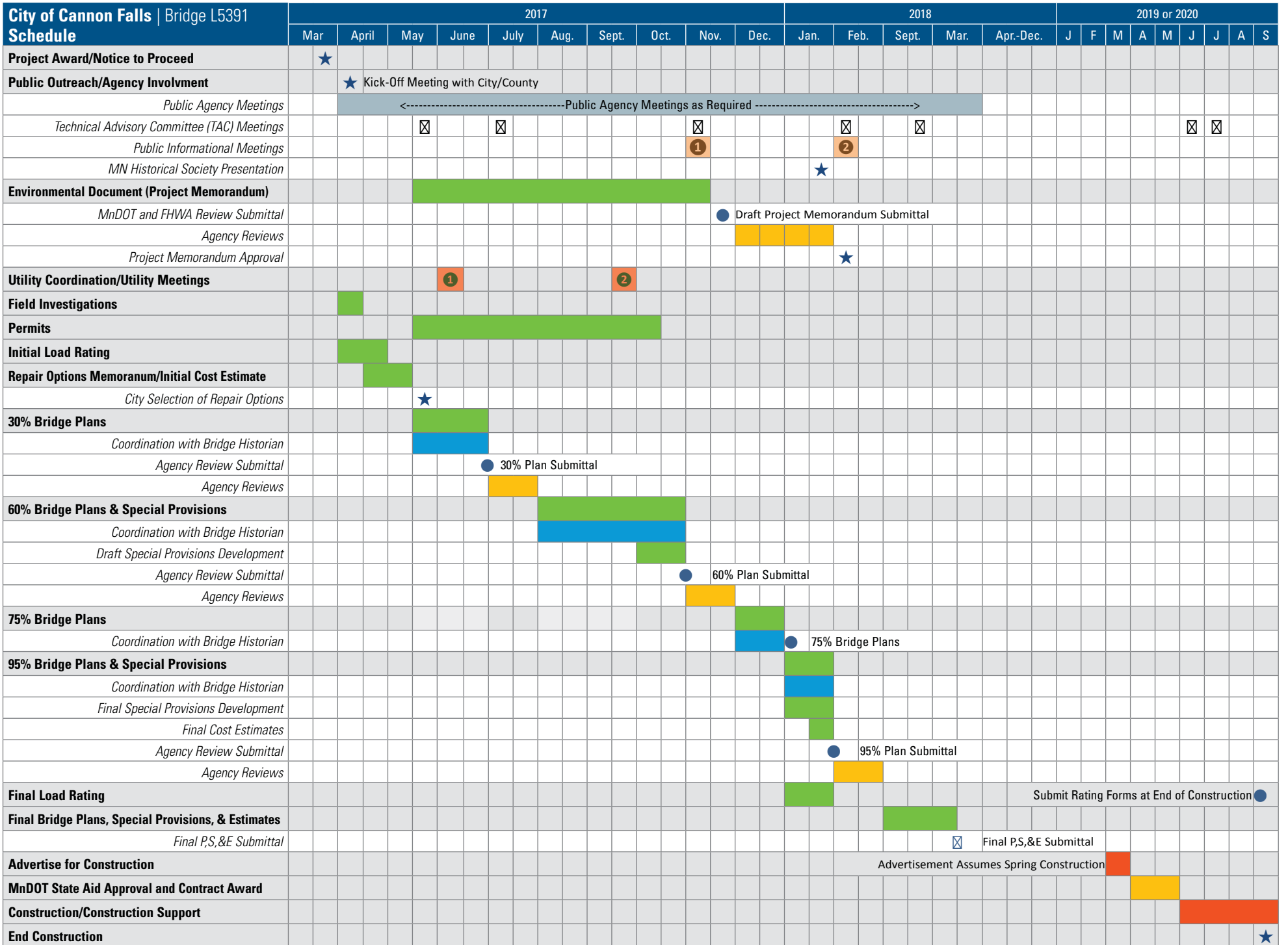
### **Public Agency Permits**

The location of this project is in a very environmentally sensitive area along the Cannon River and will require timely coordination with permitting agencies. Understanding the construction staging requirements and working with the affected agencies will be critical to keep the project moving on schedule. SRF will prepare all the necessary documents and assist the City in obtaining the necessary permits for construction of the project. Potential permits could include (depending on the extent of the rehabilitation activities): USACE- Section 10/404, DNR – Public Waters, MPCA- Section 401, MPCA – NDPES, and Wetlands Conservation Act (WCA).

### **Utility Coordination**

The key utilities involved in this project are the gas line and water main attached to the east side of the bridge. It is anticipated that these utilities are to remain in their current location. However, we will conduct both a utility information meeting and a utility design meeting with any affected utilities. These meetings will coordinate both the protection of the affected utilities and any disruptions to service required during construction activities.





★ Milestone     
 ① TAC/Public/Utility/Agency Meetings     
 ● SRF Deliverable     
 Design Activities     
 Historic Coordination     
 Agency Reviews     
 Construction Activities

# Proposed Fee

Hourly Task Breakdown by Staff Type

2/14/17

TASK	TASK DESCRIPTION	SRF Consulting Group, Inc.							GEMINI RESEARCH		Hour Subtotal	Fee Subtotal
		PRINCIPAL	SENIOR ASSOCIATE	ASSOCIATE	SENIOR PROFESSIONAL	PROFESSIONAL	TECHNICAL	CLERICAL	PRINCIPAL INVESTIGATOR	INVESTIGATOR		
1.0	Project Management	20	20	0	0	0	0	0	20	0	60	\$9,060
2.0	Public Outreach/Agency Involvement	12	74	0	8	12	0	0	22	20	148	\$20,536
3.0	Environmental Documents	0	26	0	70	4	4	2	0	0	106	\$11,820
4.0	Field Investigation	0	16	24	0	0	0	0	10	10	60	\$7,532
5.0	Rehabilitation Criteria/Options/Design Exceptions	0	32	36	0	0	0	0	30	30	128	\$15,708
6.0	Bridge Plans, Special Provisions, & Estimates	4	104	168	0	25	92	0	60	40	493	\$59,349
7.0	Load Ratings	0	12	68	0	0	0	0	0	0	80	\$10,004
8.0	Permits	0	0	0	60	12	4	0	0	0	76	\$7,120
9.0	Utility Coordination	0	16	6	0	0	0	0	0	0	22	\$3,348
10.0	Construction Support	0	40	60	0	0	0	0	20	0	120	\$15,740
Hours Subtotal <sup>1</sup>		36	340	362	138	53	100	2	162	100	1293	-
Labor Rate		\$185	\$165	\$118	\$95	\$85	\$100	\$70	\$103	\$103	-	-
Labor Subtotal <sup>1</sup>		\$6,660	\$56,100	\$42,716	\$13,110	\$4,505	\$10,000	\$140	\$16,686	\$10,300	-	\$160,217

<b>Total</b>									<b>\$133,231.00</b>	<b>\$26,986.0</b>			
<b>General Expenses</b>									<b>\$1,402.50</b>	<b>\$1,710.00</b>			
<b>Inspection Expenses (Rigging)</b>									<b>\$15,000.00</b>				
									<b>\$149,633.50</b>	<b>\$28,696.00</b>			
											<b><u>\$178,329.50</u></b>		
												<b>TOTAL ESTIMATED FEE (no website)</b>	\$175,779.50
												<b>TOTAL ESTIMATED FEE (no rigging or rope access)</b>	\$163,329.50
												<b>TOTAL ESTIMATED FEE (no website, rigging, or rope access)</b>	<b><u>\$160,779.50</u></b>

**Notes:**

<sup>1</sup>A detailed Scope of Services and breakdown of hours has been included in the Appendix.



## Matthew Cramer, PE | Project Manager



### Areas of Expertise

- Project Management
- Structural Modeling
- Bridge Design
- Building Design
- Tunnels and Underground Structures
- Walls

### Education

Bachelor of Science in Civil Engineering,  
University of Minnesota, 1999

Master of Science in Structural Engineering,  
University of Minnesota, 2008

### Registrations

Professional Engineer: Minnesota #43517,  
North Dakota #PE-7898, Wisconsin #43690-6  
and Iowa #19357

### Professional Affiliations

American Society of Civil Engineers

### Time at SRF

12 Years

Matt has 18 years of management and structural design experience on a variety of structural engineering projects. These projects have included truss rehabilitation projects, parking and truss skyway projects, and large curved-steel bridge projects. Most recently, Matt has been involved on three truss bridge projects: the Old Cedar Avenue Bridge Rehabilitation project, the Kennedy Bridge in East Grand Forks, and a one-of-a-kind pedestrian truss lift bridge over the Red River in Fargo/Moorhead.

### Project Experience

- » **MnDOT Kennedy Bridge Rehabilitation, Grand Forks, North Dakota and East Grand Forks, Minnesota.** Matt currently serves as project manager for the rehabilitation of this historic truss bridge. Tasks include project management, coordination of roadway and bridge elements, and environmental compliance.
- » **Killebrew Pedestrian Bridge, Bloomington, Minnesota.** Matt was the project manager and lead civil/structural engineer for this federally funded pedestrian skyway truss bridge over Killebrew Drive. He was responsible for coordinating design activities with the City of Bloomington, MnDOT, private businesses, and various subconsultants.
- » **Fargo/Moorhead Pedestrian Lift Bridges, North Dakota.** Matt served as the structural design engineer for two truss lift bridges over the Red River. The bridges were constructed under a federal grant to alleviate damage to the existing bridges during the yearly floods. Each site consisted of two steel-framed lift towers, which utilize 40-ton electric hoists to lift the bridges above the 500-year flood elevation.
- » **Old Cedar Avenue Bridge Rehabilitation, Bloomington, Minnesota.** Matt is serving as the project manager for the truss rehabilitation for this five-span, pratt-camelback truss. The bridge was listed on the Historic Register of Historic Places in 2013 and has required extensive truss repairs and reconstruction of tilting piers. The project is scheduled for a January 2015 letting.
- » **Southwest LRT Bridge Design – West Segment, Various Cities, Minnesota.** Matt served as lead structural engineer for the preliminary design. The project included several bridges, various retaining wall types, cut and cover tunnels, and two parking ramps for the west half of the line extending from Eden Prairie to Hopkins, Minnesota.
- » **Lindau Lane Grade Separation, Bloomington, Minnesota.** Matt served as lead structural engineer on this unique bridge adjacent to the Mall of America. Future development for the mall required a 20-foot grade separation of Lindau Lane. The bridge will serve as a pedestrian plaza in the short term and also future support for three levels of retail once the mall is expanded to the north.



## Jamison Beisswenger, PE | Lead Bridge Engineer



### Areas of Expertise

- Structural Design
- Bridge Design
- Industrial Facility Design
- Retaining Wall Design
- Bridge Inspections

### Education

B.C.E., Structural, University of Minnesota, 2001

### Registrations

Professional Engineer: North Dakota #PE-7534, Minnesota #44648

### Certification

MnDOT Bridge Inspection Team Leader

Wisconsin Bridge Inspection Team Leader and Project Manager

### Time at SRF

12 Years

Jamison has 16 years experience managing and designing structural bridge engineering projects, which include several river crossings. He has designed post-tensioned concrete boxes, curved-steel girders and prestressed concrete beams bridges; performed load ratings of steel trusses, rehabilitated fracture-critical pin and hanger bridges, and performed structural evaluation inspections. As an expert in LRFD bridge design, Jamison was the lead structural engineer on 11 truss bridges that consisted of field investigation, structural analysis, and truss/gusset plate load rating. Most recently, Jamison was the bridge design engineer for the Old Cedar Avenue Bridge Rehabilitation project.

### Project Experience

- » **MnDOT Kennedy Bridge Rehabilitation, Grand Forks, North Dakota and East Grand Forks, Minnesota.** Jamison currently serves as the lead bridge engineer for the rehabilitation of this historic truss bridge in East Grand Forks. Tasks included superstructure repairs, temporary shoring, and pier replacement.
- » **Old Cedar Avenue Bridge Rehabilitation, Bloomington, Minnesota.** Jamison is serving as the lead structural engineer for the truss rehabilitation for this five-span, pratt-camelback truss. The bridge was listed on the Historic Register of Historic Places in 2013 and has required extensive truss repairs and reconstruction of tilting piers.
- » **Load Rating of Truss Bridges on the Local & Trunk Highway Systems, Minnesota.** Jamison led load rating inspections and structural evaluations of 11 bridges in several Minnesota counties. Ratings were completed based on field investigations of all pertinent structure dimensions, member sizes, and connection configurations.
- » **Preservation of Bridge No. 27552 – West 106th over Nine Mile Creek, Bloomington.** Jamison served as project manager for the rehabilitation of this fracture critical bridge. The project included the repair of delaminated deck surfaces and deteriorated portions of the steel, rigid-frame superstructure. Load ratings were completed based on additional dead load of new concrete wearing surface.
- » **Pin-Hanger Replacement – Center/NP Avenue over the Red River and Bridge No. 14511.** Jamison served as project manager for replacement of pin and hanger system and other repairs that were necessary. The bridge is an 855-foot-long, 13-span riveted steel plate girder bridge.
- » **Lowry Avenue (CSAH 153) Bridge over the Mississippi River, Minneapolis.** Jamison served as the lead structural engineer for the Phase II approach spans, which consisted of 694', three-span cast-in-place, concrete, post-tensioned box girder.



## Ryan Rykowsky, PE | Superstructure Designer



### Areas of Expertise

- River Crossings
- Highway Bridges
- Railroad Bridges
- Buried Structures
- Construction Oversight

### Education

Bachelor of Science in Civil Engineering, North Dakota State University, 1998

### Registrations

Professional Engineer: North Dakota #PE-6691, Minnesota #51926

### Professional Affiliations

National Society of Professional Engineers

### Certifications

National Highway Institute Course - Safety Inspection of In-Service Bridges

### Time at SRF

4 Years

Ryan has 17 years of experience designing and managing structural engineering projects. Prior to joining SRF, Ryan provided 13 years of service to the North Dakota Department of Transportation's Bridge Division. His responsibilities included performing engineering analysis and designing bridge structures, calculating quantities and preparing cost estimates, supervising drafters in plan preparation, and providing construction engineering support to the Department's field forces. Ryan has been involved in the plan production for the replacement, rehabilitation or repair of more than 100 structures throughout the state of North Dakota.

### Project Experience

» **Velva Park Bridge, Velva, North Dakota.** Ryan currently serves as the lead bridge engineer for this historic truss bridge. Tasks include inspections, rehabilitation concept development, and final design plans.

Projects designed by Ryan while at the NDDOT Bridge Office:

» **Drayton Bridge Replacement (66-138.720), Drayton, North Dakota.** While at the NDDOT, Ryan served as the lead design engineer for the \$30 million, 4,090-foot, 37-span steel and concrete bridge. Due to soil instability and the history of substructure movement along the Red River, the steel units were designed for five feet of adjustment. Nine adjustable bents and an adjustable abutment were constructed to accommodate future movements.

» **Heart River Emergency Bridge Replacement (94-915.101), Mandan, North Dakota.** While at the NDDOT, Ryan served as the lead design engineer for the 335-foot-long, three-span, prestressed concrete I-girder bridge. The new bridge was built in phases on the north side of the existing bridge. Despite the challenges of staged construction, the design and plan preparation were successfully completed in two weeks.

» **Liberty Memorial Bridge Replacement, Bismarck, North Dakota.** While at the NDDOT, Ryan was a key member of the design team for the \$40 million bridge. The main unit, a 1,658-foot curved-steel box girder bridge, crosses the Missouri River and serves as an important link between the cities of Bismarck and Mandan.

» Wild Rice River Bridge (13-386.302L), Richland County, North Dakota

» Willow Creek Bridge (60-015.556), Willow City, North Dakota

» Forrest River Bridge (18-182.408), Walsh County, North Dakota

» Drainage Ditch Near Bowsmont Interchange – I-29N (29-195.513R), Pembina County, North Dakota

» Square Butte Creek (1806-084.748), Oliver County, North Dakota

» Lake Ashtabula (26-012.634), Sibley, North Dakota

» 13th Avenue South Interchange - I-29S (29-064.252L), Fargo, North Dakota

» Herrick Interchange (29-184.038), Walsh County, North Dakota



## Richard Snyder, PE | Substructure Designer & Load Rating Engineer



### Areas of Expertise

- Bridge Design
- Structure Design
- Bridge Inspection
- Load Rating
- STAAD
- CONSPAN
- MDX

### Education

M.S., Structural Engineering, Iowa State University, 2010

B.S., Civil Engineering, Iowa State University, 2008

### Registrations

Professional Engineer: Minnesota #51652

### Professional Affiliations

American Society of Civil Engineers

### Time at SRF

5 Years



Rick has seven years of experience in bridge design, load rating, and bridge inspection. He has served as a structural engineer on projects and is responsible for design and preparation of bridge and structural plans. Rick has an excellent knowledge of structural modeling software, including STAAD, CONSPAN, and MDX, as well as a working knowledge of Microstation and AutoCAD drafting software.

### Project Experience

- » **Old Cedar Truss Bridge Rehabilitation over Long Meadow Lake, Bloomington, Minnesota.** Provided design, analysis, detailing, and plan preparation for bridge railing, bridge deck and approach panels, pier reconstruction, and abutment stabilization and reconstruction. Also performed construction administration services, including shop drawing and contractor submittal review.
- » **Kennedy Bridge over Red River Rehabilitation, East Grand Forks, Minnesota and Grand Forks, North Dakota.** Assisted with the inspection of the primary steel truss and steel beam approach spans and performed a load rating analysis of the gussets and members of the primary truss.
- » **MnDOT 2014 SHV Rating Analysis of Local Bridges, Minnesota.** Assisted with the inspection of 46 bridges, rated 114 bridges, and performed a quality assurance/quality control assessment for 19 bridges. The rated bridges included reinforced concrete, prestressed concrete, steel, timber, post-tensioned concrete, curved steel, and bifurcated steel superstructures.
- » **MnDOT 2013 SHV Rating Analysis of Local Bridges, Minnesota.** Assisted with the inspection of 98 bridges and rated 139 bridges of various superstructure types, including reinforced concrete, prestressed concrete, steel, curved steel, and timber.
- » **Lindau Lane Grade Separation, City of Bloomington, Minnesota.** Provided design, analysis, and plan preparation of the two-span continuous reinforced concrete slab bridge.
- » **I-394 West Bound On-Ramp at Ridgedale Drive, Minnetonka, Minnesota.** Provided design, detailing, and plan preparation of the east and west abutment and wing walls.
- » **7th Street Ramp over I-35W, Minneapolis, Minnesota.** Provided design, analysis, and plan preparation for the reinforced concrete hammerhead piers.
- » **Kellogg Boulevard Pier Rating, Saint Paul, Minnesota.** Performed analysis and load rating of the reinforced concrete pier caps.
- » **Cayuga Street over BNSF Railroad, Saint Paul, Minnesota.** Provided design, detailing, and plan preparation for the east and west abutment and wing walls.

## Brett Danner | Environmental Documentation



### Areas of Expertise

- Environmental Impact Statements
- Environmental Assessments
- Environmental Assessment Worksheets
- Categorical Exclusion Actions/Determinations
- Traffic Noise Analysis

### Education

M.S., Biology, Kansas State University, 2001

B.A., Biology, Gustavus Adolphus College, 1998

### Continuing Education

MnDOT Noise Policy Type I Federal Aid Projects as per 23 CFR 772, May 2011

Basics of Acoustics/Noise Policy and Modeling, Minnesota Department of Transportation, June 2009

Federal Highway Administration Traffic Noise Model (TNM), October 2006

Introduction to Indirect and Cumulative Effects of Projects, Wisconsin Department of Transportation, July 2006

NEPA and Transportation Decision-making, National Highway Institute, November 2008

SRF Quality Management Training

### Time at SRF

14 Years

Brett has 16 years of experience in environmental science. He has managed the preparation of numerous federal environmental documents for county, state, and interstate highways and state EAWs for development and transportation projects. Brett has been the lead author for about 100 NEPA documents at all levels including EISs, Environmental Assessments, and Categorical Exclusion documents. Brett has strong project management skills, identifying potential schedule concerns early so that they can be resolved within the project timeframe and ensuring the environmental documents are completed within budget. He develops good agency relationships, resulting in documents that benefit from early identification of environmental concerns and strong coordination for resolution of issues. Brett is known for his ability to clearly explain environmental requirements and technical analysis to those who are not familiar with this area to clients, elected officials, and the public.

### Project Experience

- » **Tower Road Bridge and Street Project Environmental Assessment and Section 4(f) Evaluation, Fergus Falls.** Brett led the development of the EA and 4(f) documentation.
- » **St. Croix River Crossing Environmental Impact Statement (EIS), Stillwater, Minnesota and Houlton, Wisconsin.** Brett was the lead author of this very complex and controversial document. The document identified and compared environmental impacts anticipated from a new St. Croix River crossing. He completed Section 4(f) Evaluations, identifying impacts to nine Section 4(f) resources in the project area.
- » **TH 52 Lafayette Bridge Replacement Environmental Assessment (EA), Saint Paul.** Brett Completed the Environmental Assessment.
- » **TH 7/Wooddale Avenue Grade Separation, St. Louis Park, Minnesota.** Completed traffic noise analysis and evaluation of noise abatement measures for TH 7/Wooddale Avenue interchange. Assisted the City of St. Louis Park with public involvement regarding proposed noise barriers.
- » **I-94/TH 101 Overpass/Interchange Improvements, Rogers, Minnesota.** Completed traffic noise analysis and evaluation of noise abatement measures for grade-separated ramp from westbound Interstate 94 to northbound TH 101 in the City of Rogers.
- » **Rochester TH 63 South Corridor Preservation Plan, Rochester and Stewartville, Minnesota.** Conversion of TH 63 from an expressway to freeway facility, including interchange reconstruction. Completed a state EAW for TH 63 corridor preservation.
- » **US 61/Gilmore Avenue, Winona, Minnesota.** Completed Categorical Exclusion Determination for reconstruction of US 61, realignment of Gilmore Avenue, and intersection reconstruction.
- » **I-94/Brockton Lane Interchange Preliminary Design Environmental Assessment Worksheet, Dayton, Minnesota.** Completed Environmental Assessment Worksheet (EAW) for new I-94/Brockton Lane Interchange in Dayton.





## Daniel Busch | Constructability Reviews



### Areas of Expertise

- Grading and base
- Bituminous paving
- Concrete paving, curb and gutter
- Bridges, trails, railway facilities
- Traffic signal systems
- Water main and sanitary and storm sewer
- Erosion control

### Education

St. Paul Technical Institute - Highway Technologies

University of Minnesota - Science & Engineering Courses

### MnDOT Certifications

MnDOT Bituminous Street Levels I and II

MnDOT Bridge Construction Levels I and II

MnDOT Bridge Safety Inspector

MnDOT Concrete Field Levels I and II

MnDOT Erosion and Stormwater Management, Construction Site

MnDOT Grading and Base Levels I and II

MnDOT Landscape Specialist

MnDOT Signals and Lighting Level II

### Time at SRF

8 Years

Daniel has more than 35 years of experience in the construction and inspection field. During his career Dan has served as Senior Inspector on the I-494 Design-Build, St. Anthony Falls/I-35W Bridge Design-Build, and Plaza Bridges over I-394 for the new Minnesota Ballpark. He also provided bridge safety inspection services to the Cities of Brainerd, Elk River, and Litchfield as well as field testing of materials for city, county, and commercial construction projects.

Daniel was also a long-time employee of the Minnesota Department of Transportation. As a Senior Transportation Specialist, he served as the Chief Inspector on many road and bridge construction projects. He also worked with final design squads to prepare final plans.

### Project Experience

- » **Old Cedar Avenue Bridge Rehabilitation, Bloomington, Minnesota.** Dan served as the lead construction inspector for the rehabilitation of this historic truss bridge.
- » **City of Bloomington Lindau Lane Grade Separation, Minnesota.** Lead inspector for this project, which separates pedestrian and vehicular access to the Mall of America from the through traffic on the roadway and includes roadway, structural, utility, and urban design elements.
- » **MnDOT Maryland Avenue Bridge over I-35E Design-Build Project, Saint Paul, Minnesota.** Construction quality manager for this bridge replacement project, which also included reconstruction of a portion of Maryland Avenue and the ramps to I-35E.
- » **Washington County CSAH 2 (Broadway Avenue) Reconstruction, Minnesota.** Lead bridge inspector for this federally funded project and was part of a project team comprised of Washington County, SRF and Braun Intertec staff. He was responsible for the inspection and documentation of a new bridge over I-35W.
- » **Anoka County CSAH 14 Design-Build, Minnesota.** Critical activity point manager for the project, which reconstructed three miles of CSAH 14 between TH 65 and Hanson Boulevard and added a new bridge over the BNSF Railroad.
- » **Washington County CSAH 83, Minnesota.** Lead inspector on this federal aid project. He worked with a project team comprised of Washington County, SRF and Braun Intertec staff. The project includes a new bridge over I-35W, grading, bituminous paving, walks, landscaping, signals and lighting.
- » **City of Minnetonka Dominick Drive, Minnesota.** Construction observation of retaining wall construction, cast-in-place walls, wet-cast block walls, modular block walls; and soldier pile retaining walls.
- » **MnDOT TH 169 Design-Build, St. Peter, Minnesota.** Performed quality assurance inspections and documentation for MnDOT.



## Susan Granger | Historian (Gemini Research)



### Areas of Expertise

- Historic Bridge Rehabilitation
- Historic Preservation
- Cultural Resources
- Section 106 Review and Compliance

### Education

Bachelor of Arts, History, University of Minnesota-Morris, With Distinction

### Qualifications

Meets the Secretary of the Interior's Professional Qualification Standards for both History and Architectural History (36 CFR Part 61)

### Professional Affiliations

Minnesota Chapter of the Society of Architectural Historians, Vernacular Architecture Forum, Cultural Landscape Foundation, Friends of Minnesota Barns

### Continuing Education

Historic Bridge Training (National Preservation Institute 2016, MnDOT 2015)

Historic Landscapes Planning and Management (National Preservation Institute)

### Time at Gemini

32 Years



Sue is co-owner and Principal Investigator of Gemini Research, established with partner Scott Kelly in 1985. Gemini is one of the most experienced cultural resources consulting firms in Minnesota. Gemini provides historian and cultural resource consulting services to public and private clientele including Section 106 review and compliance, historic bridge rehabilitation, historic preservation planning, determinations of National Register eligibility, assessment of effect, mitigation documentation, cultural landscape studies, historic context studies, and preservation credit tax applications. Nearly all projects have included coordination with the State Historic Preservation Office and the MnDOT Cultural Resources Unit.

Gemini has worked with engineers and architects from numerous Minnesota firms, primarily to develop strategies and plans for historic bridges that meet the Secretary of the Interior's Standards for the Treatment of Historic Properties. Sue attended Minnesota Historic Bridge Training in 2015 and 2016. She has written more than 130 National Register of Historic Places nominations. She directs all Gemini projects and is principal author of all reports. With 36 years of experience, she has presented at conferences, training workshops, and planning sessions.

### Historic Bridge Experience

All projects met the Secretary of the Interior's Standards for the Treatment of Historic Properties. Sue was Gemini's principal historian on all projects.

- » **Kennedy Bridge (Br 9090), Grand Forks (MnDOT)**. Parker through truss. Rehabilitation strategy/alternatives; plan development; construction oversight. Paired with engineers from SRF and CH2MHill. 2013-2018.
- » **Cedar and Portland Ave Midtown Greenway Bridges (Br 90437 and 90494), Minneapolis (Hennepin Co)**. Concrete t-beam. MHPR mitigation documentation; strategy/alternatives for replacement of bridges in historic district; plan development. Paired with engineers from SRF and ONE. 2016-2017.
- » **Oslo Bridge (Br 9100) (MnDOT)**. Warren through truss. Rehabilitation strategy/alternatives; plan development. Paired with engineers from ONE and URS. 2011-2014.
- » **Northfield Bridge (Br 8096) (MnDOT)**. Limestone-faced concrete arch. Rehabilitation strategy/alternatives; plan development; construction oversight. Paired with LHB engineers. 2013-2016.
- » **Franklin Avenue Bridge (Br 2441), Minneapolis (Hennepin County)**. Concrete arch. Rehabilitation strategy/alternatives; plan development; construction oversight. Paired with engineers from ONE and HNTB. 2013-2016.
- » **Midtown Greenway Bridges (27 bridges), Minneapolis (Hennepin County)**. Concrete t-beam. Rehabilitation strategy plans for 27 bridges. Paired with engineers from ONE and SRF, also Braun Intertec and Wiss Janney Elstner. 2013-2014.

## Bryan Field, PE | Geotechnical Engineer (Braun Intertec)



### Areas of Expertise

- Geotechnical Engineering
- Soil Analysis
- Design Calculations

### Education

B.C.E., University of Minnesota, Twin Cities

### Registrations

Professional Engineer: Minnesota No. 49128

### Certifications

Fall Protection Trained

Confined Space Entry Trained

### Professional Affiliations

Geoprofessional Business Association  
(Committee Member)

American Society of Civil Engineers (Member)

Minnesota Society of Engineers and Surveyors  
(Member)

Minnesota Geotechnical Society (Member)

Deep Foundations Institute (Member)

### Time at Braun


3 Years

Bryan serves as a principal and senior engineer specializing in transportation and design-build projects. Bryan's work on geotechnical projects includes examining soil samples, selecting laboratory tests, performing design calculations, preparing recommendations for engineering reports, compiling reports, and monitoring project budgets. His previous work experience has included multiple road and bridge construction and reconstruction projects involving a variety of soil conditions, challenging soil and bedrock characteristics, and demanding schedules. After working on multiple bridge and roadway projects, he has developed the acumen to work independently, thoroughly and efficiently while adhering to project guidelines.


### Project Experience

- » **Old Cedar Bridge Rehabilitation (Long Meadow Lake Bridge Rehabilitation), Bloomington, Minnesota.** Geotechnical Engineer; performed geotechnical engineering analysis for the bridge rehabilitation and West Gateway Access site improvements. (2014)
- » **TH 43 Winona Bridge 85851 over the Mississippi River, Winona, Minnesota.** Project Geotechnical Engineer; under contract to design a static load test on the river piers, a static load test on the approach piers, analyze multiple foundation types and provide final foundation recommendations for support of the river piers approach piers and abutments of the bridge carrying TH 42 over the Mississippi River. (2013-2014)
- » **US Hwy 10 and CSAH 83 (Armstrong Blvd), Ramsey, Minnesota.** Geotechnical Engineer; coordinated the subsurface investigation, performed the analysis and prepared recommendations for cast-in-place shallow foundation and mechanically stabilized earth structures for support of two bridge and seven retaining wall structures constructed throughout the interchange. (2013-2014)
- » **C.P. Rail Bridge over TH 100, St. Louis Park, Minnesota.** Project Geotechnical Engineer; managed the subsurface investigation, evaluating bridge foundation support options and performing embankment analyses for preliminary and final design of C.P. Rail Bridge 27303 spanning over TH 100. (2013-2014)
- » **Lindau Lane Grade Separation, Bloomington, Minnesota.** Project Geotechnical Engineer; performed geotechnical engineering analysis provided shallow foundation design recommendations for the new bridge, retaining walls, utilities and pavements along Lindau Lane. (2012)
- » **TH 52 and CSAH 42 Interchange, Rosemount, Minnesota.** Geotechnical Engineer; oversaw the subsurface investigation and foundation analysis and recommendations (shallow and deep foundation assessment) for support of two replacement bridge structures. Also coordinated the materials design recommendations for pavement reconstructions proposed along TH 52 and CSAH 42. (2015-2016)




<b>SRF Consulting Group, Inc.</b> Client: City of Cannon Falls Project: Bridge L5391 Rehabilitation Plans & Specifications	<b>Work Tasks and Person-Hour Estimates</b>	 P10325.PP
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<u>TASK NO.</u>	<u>TASK DESCRIPTION</u>	<u>PRINCIPAL</u>	<u>SR. ASSOC.</u>	<u>ASSOCIATE</u>	<u>SR. PROF</u>	<u>PROF.</u>	<u>TECHNICAL</u>	<u>CLERICAL</u>	<u>TOTALS</u>	<u>EST. FEE</u>
<b>1.0</b>	<b>Project Management</b>									
1.1	<u>Project Management</u> SRF shall report to the designated City Project Manager/Engineer. SRF will make monthly progress reports to the Project Manager, and provide project information as requested by City staff. This work will also consist of the following:  - Update Project Schedule - Coordinate Subconsultant Activities - Prepare Montly Invoices - General Day-to-Day Project Management	20	20	0	0	0	0	0	40	\$7,000
1.2	<u>Historic Review</u> Historic review activities will be performed by Gemini Research and are included in their scope and fee.	0	0	0	0	0	0	0	0	\$0
	<b>SUBTOTAL - TASK 1</b>	<b>20</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>40</b>	<b>\$7,000</b>
<b>2.0</b>	<b>Public Outreach/Agency Involvement</b>									
2.1	<u>Kick-off Meeting with City/County Staff</u> SRF shall conduct a kick-off meeting with City/County Staff. The meeting will be held in conjunction with the field investigation.	4	6	0	0	0	0	0	10	\$1,730
2.2	<u>Public Agency Meetings</u> SRF shall facilitate meetings required to facilitate historical and agency approval.	6	8	0	0	0	0	0	14	\$2,430
2.3	<u>Technical Advisory Committee (TAC) Meetings</u> SRF shall meet with the designated Technical Advisory Committee (TAC) to be formed by the City, as needed to present progress reports, discuss plan review comments and discuss recommendations. The TAC will tentatively be composed of individuals representing agency stakeholders as defined by City staff and the selected Consultant. This committee will include staff from the City , County Staff, MnDot State Aid Bridge, and MnDot Cultural Resource Unit. Staff from the SHPO Grant Office, the Minnesota Department of Natural Resources (MnDNR), the Corp Of Engineers (COE), the U.S. Fish and Wildlife Service (USFWS) and others may be involve with the TAC. This task includes up to five (5) TAC meetings during the plan development stage of the project and up to two (2) during the construction stage of the project.	0	28	0	0	0	0	0	28	\$4,620
2.4	<u>Public Information Meetings</u>	0	16	0	0	0	0	0	16	\$2,640

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<u>TASK NO.</u>	<u>TASK DESCRIPTION</u>	<u>PRINCIPAL</u>	<u>SR. ASSOC.</u>	<u>ASSOCIATE</u>	<u>SR. PROF</u>	<u>PROF.</u>	<u>TECHNICAL</u>	<u>CLERICAL</u>	<u>TOTALS</u>	<u>EST. FEE</u>
	<p>SRF shall arrange and facilitate two public informational meetings during the course of the project. Meetings are to occur at the Cannon Falls City Hall. The first meeting shall occur at the 60% design stage, with the second meeting occurring at the 90% bridge full-scope rehabilitation design level.</p> <p>SRF shall be responsible for preparing meeting materials (poster boards, handouts, etc.), taking accurate notes, and meeting minutes. Pending review and approval by the designated City Project Manager, meeting minutes and notes for each public meeting will be published by the Consultant on the project website.</p>									
2.5	<p><u>MN Historical Society Presentation</u>                      The City is required to give a presentation of the design when it is at least 75% complete. SRF shall be responsible for preparing and assisting the City to give the presentation.</p>	0	16	0	0	0	0	0	16	\$2,640
2.6	<p><u>Project Website</u>                      SRF shall create and maintain a project website for the entirety of the project including project design and construction. The website shall contain project-related information for public viewing such as, but not limited to, renderings, meeting announcements, meeting minutes.</p>	2	0	0	8	12	0	0	22	\$2,150
<b>SUBTOTAL - TASK 2</b>		<b>12</b>	<b>74</b>	<b>0</b>	<b>8</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>106</b>	<b>\$16,210</b>
<b>3.0</b>	<p><b>Environmental Documents</b>                      The status of the National Environment Policy Act (NEPA) process for this project is incomplete. SRF shall prepare a Project Memorandum for review and approval. The rehabilitation construction shall be designed to address all special requirements in the final Project Memorandum.</p> <p><u>Assumptions:</u></p> <ul style="list-style-type: none"> <li>- Project is classified as a Class II action under NEPA (Categorical Exclusion).</li> <li>- Assumes preparation of a MnDOT State Aid Project Memorandum (PM) (long-form).</li> <li>- Assumes distribution of the PM in electronic format (Adobe PDF) only. No paper copies of the PM will be circulated.</li> <li>- The project does not meet the threshold for mandatory State Environmental Assessment Worksheet (EAW) under Minnesota Rules 4410.</li> <li>- Purpose and need to be developed using recent bridge inspection/condition reports.</li> <li>- Assumes a no effect determination under Section 106; therefore, no Section 4(f) involvement for Bridge L5391.</li> <li>- Assumes Section 4(f) temporary occupancy exception for Cannon River State Water Trail (i.e., temporary closures during construction). Temporary occupancy letter to DNR following MnDOT template.</li> <li>- Assumes no Section 4(f) involvement with other Section 4(f) resources near the project area.</li> <li>- Assumes no Section 6(f)/LAWCON involvement.</li> </ul>									

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	<ul style="list-style-type: none"> <li>- Cultural resources review to be completed by MnDOT Cultural Resources Unit (CRU). Phase I archaeology survey, if necessary, to be completed by CRU (or its consultant). Assumes no Phase II evaluation or assessment of effects required. MnDOT CRU to provide a "no effect" determination for Bridge L5931, concluding the Section 106 review process.</li> <li>- Section 7, Endangered Species Act determination to be provided by MnDOT Office of Environmental Stewardship (OES). Assumes a may affect, but will not cause an incidental prohibited take determination for northern long eared bat. Assumes a no effect determination for all other listed species in Goodhue County. Assumes no surveys and no consultation with US Fish and Wildlife Service (USFWS) required.</li> <li>- State threatened and endangered species review to be completed by DNR through Natural Heritage Inventory (NHI) database review request. Assumes no effect to state listed threatened and endangered species.</li> <li>- Assumes no in-water work in the Cannon River. No mussel survey required.</li> <li>- Assumes no right of way impacts.</li> <li>- Assumes no Phase I Environmental Site Assessment (ESA). Potentially contaminated properties to be identified using Minnesota Pollution Control Agency (MPCA) and Minnesota Department of Agriculture on-line databases (What's In My Neighborhood).</li> <li>- Form AD-1006 and Natural Resources Conservation Service (NRCS) coordination not required. Project will not affect farmland.</li> <li>- No quantitative air quality modeling required. Assumes a qualitative air quality assessment following current MnDOT and FHWA guidance (October 18, 2016 Memorandum).</li> <li>- Assumes the project does not meet the definition of a Type 1 project and is classified as a Type 3 project; therefore, a traffic noise analysis is not required.</li> <li>- Assumes no floodplain encroachment. Floodplain assessment not required.</li> <li>- See Task 8.0 for wetland delineation and permitting.</li> <li>- Assumes no low-income and/or minority populations within the project area.</li> </ul> <p><u>Client Deliverables:</u></p> <ul style="list-style-type: none"> <li>- Letterhead and signature for DNR coordination letter (temporary impacts to Cannon River State Water Trail).</li> <li>- Review and approval of draft and final Project Memorandum.</li> </ul>									
3.1	Initial Agency Coordination - Coordinate with County, MnDOT State Aid (District 6 and Central Office), and FHWA to confirm the NEPA class of action, documentation format, and environmental review process.	0	1	0	1	0	0	0	2	\$0
3.2	Data Collection - Compile and review of existing GIS data and County and City comprehensive plans to help inform NEPA document.	0	0	0	2	0	0	0	2	\$0
3.3	Prepare description of existing conditions and proposed improvements.	0	0	0	4	0	0	0	4	\$0
3.4	Prepare description of project cost, anticipated funding sources, anticipated schedule, and key contacts for environmental document.	0	0	0	2	0	0	0	2	\$0


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3.5	Prepare purpose and need statement.	0	4	0	6	0	0	0	10	\$0
3.6	Alternatives Development, Screening, and Selection of Preferred Alternative	0	2	0	2	0	0	0	4	\$0
3.7	- Describe project alternatives. Assumes PM will evaluate the No Build (do nothing) Alternative and one Build Alternative (preferred alternative). Section 4(f) involvement - Coordinate with DNR regarding temporary occupancy of Cannon River during construction. Prepare Section 4(f) temporary occupancy letter for DNR signature. Include final letter in PM. - Assumes no Section 4(f) involvement for Bridge L5391.	0	4	0	6	0	0	0	10	\$0
3.8	Section 6(f)/LAWCON involvement (assumes none).	0	0	0	0	0	0	0	0	\$0
3.9	Historic and Archaeological Resources (Section 106 review) - Prepare MnDOT State Aid request form for cultural resources review and submit to MnDOT CRU. - Assumes any necessary cultural resources studies (Phase I architectural history and/or archaeology surveys) to be completed by MnDOT CRU or its consultant.  - Hours for MnDOT CRU coordination included under Task 2.0. - Section 106 determinations to be provided by MnDOT CRU. Assumes a no effect determination for Bridge L5391. Assumes a no effect determination for other historic resources near the project area. Assumes no archaeological resources within the project area.	0	4	0	4	0	0	0	8	\$0
3.10	Threatened and Endangered Species (Federal and State) - Prepare and submit MnDOT State Aid threatened and endangered species review form to MnDOT Office of Environmental Stewardship (OES). Summarize MnDOT OES determination in PM. - Submit Natural Heritage Inventory (NHI) review request to DNR. Summarize DNR findings in PM. - Assumes no in-water work; no mussel surveys required.	0	2	0	4	0	0	0	6	\$0
3.11	Right of Way. - Summarize right of way impacts in PM (number of parcels affected, temporary easements, permanent right of way, relocations). Assumes none.	0	0	0	1	0	0	0	1	\$0
3.12	Hazardous materials. - Summarize results of MPCA and MDA "What's in my neighborhood" database reviews in PM. - Assumes no Phase I Environmental Site Assessment (ESA). If a Phase I ESA is desired, then additional scope will be prepared.	0	1	0	2	0	0	0	3	\$0
3.13	Farmland Protection Policy Act (FPPA) of 1981. - Assumes no farmland impacts. Form AD-1006 and coordination with NRCS not required.	0	0	0	0	0	0	0	0	\$0
3.14	Air Quality - Assumes no air quality impacts. Prepare discussion of mobile source air toxics (MSAT) using FHWA's "Appendix A" guidance for exempt projects.	0	1	0	1	0	0	0	2	\$0
3.15	Construction and Highway Traffic Noise - Summarize construction noise impacts following MnDOT standard language for environmental documents.	0	1	0	1	0	0	0	2	\$0


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	- Assumes no traffic noise analysis. Coordinate with MnDOT State Aid and FHWA to obtain documentation that proposed improvements meet the definition of a Type III project as per 23 CFR 772. Therefore, the project requires no analysis for highway traffic noise impacts.									
3.16	Floodplain Management.	0	0	0	1	0	0	0	1	\$0
	- Review available FEMA mapping. Assumes no floodplain encroachment.									
3.17	Wetland Protection	0	0	0	6	0	0	0	6	\$0
	- Hours for wetland delineation included under Task 8.0.									
	- Summarize potential wetland impacts.									
	- Prepare MnDOT State Aid Wetland Assessment and Two-Part Finding form. To be included as an attachment to the PM.									
3.18	Section 404 of Clean Water Act.	0	0	0	1	0	0	0	1	\$0
	- Identify type of Section 404 permit based on likely wetland impacts. Assumes no Section 404 permitting.									
3.19	Water Pollution (MPCA/NPDES)	0	0	0	4	0	0	0	4	\$0
	- Assumes no increase in impervious surfaces. No change in runoff to receiving waters. Assumes no impacts to water quality.									
	- Assumes no NPDES permit required.									
3.20	Controversial issues (assumes none).	0	0	0	0	0	0	0	0	\$0
3.21	Environmental Justice	0	0	0	4	0	0	0	4	\$0
	- Summarize results of US Census Data analysis (2010 Census data and 2011-2015 American Community Survey data). Coordinate with City regarding demographics within project area.									
	- Assumes no low income and/or minority population is located within the project area. No further environmental justice analysis required.									
3.22	Prepare PM sections addressing State Environmental Review (MEQB) and Federal Action Determination Statement.	0	0	0	1	0	0	0	1	\$0
3.23	Summarize agency coordination (including permits required) and public involvement activities.	0	0	0	1	0	0	0	1	\$0
3.24	Prepare geometric design tables for inclusion in PM, including existing and proposed typical sections.	0	0	0	2	0	2	0	4	\$0
3.25	Prepare Project Memorandum (PM).	0	6	0	14	4	2	2	28	\$0
	- Prepare graphics for PM (area location map, project location map, layout/design sheets, drainage plan, other supporting graphics).									
	- Prepare a draft PM and submit to City for review.									
	- Revise draft PM based on City comments. Submit to MnDOT State Aid (District 6 and Central Office) for review.									
	- Revise draft PM based on MnDOT State Aid comments. Submit draft PM for FHWA review. Assumes MnDOT State Aid will transmit draft PM to FHWA.									
	- Revise PM based on FHWA comments and prepare final document. Provide to City for signature. Distribute final PM to MnDOT State Aid (District 6 and Central Office) for approval. Assumes MnDOT State Aid transmittal to FHWA for final approval.									
	<u>SRF Deliverables:</u>									
	- Temporary occupancy letter for Cannon River State Water Trail.									
	- Draft and final Project Memorandum (Adobe PDF file).									




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<b>SUBTOTAL - TASK 3</b>		<b>0</b>	<b>26</b>	<b>0</b>	<b>70</b>	<b>4</b>	<b>4</b>	<b>2</b>	<b>106</b>	<b>\$11,820</b>
<b>4.0</b>	<b>Field Investigation</b>									
4.1	<u>Perform Field Investigation</u> SRF shall inspect the bridge to verify the findings in the 'Local Historic Bridge Report' prepared by LHB and Mead & Hunt, and determine if additional repairs are required.  The Consultant shall determine the extent of supplemental inspection for verification of condition and extent of section loss measurements needed for subsequent structural analysis including, but not limited to:  - Condition and flatness of gusset plate connections and measurement of section loss where section loss is evident or non-existent; - Extent of pack rust between members, especially for gusset plates and support members below the deck that were subject to exposure to de-icing chemicals;  - Extent of pack rust between members, especially for gusset plates and support members below the deck that were subject to exposure to de-icing chemicals;  - Extent of pack rust between members, especially for gusset plates and support members below the deck that were subject to exposure to de-icing chemicals;  - Condition of lower chord members, including section loss measurement where section loss is evident; - Condition of vertical and diagonal truss members and section loss; - Condition of portal and bracing members and section loss; - Condition of floor beam connections, floor beams, and section loss; - Condition of all stringer connections, stringers, and section loss; - Condition of hanger details and section loss; - Condition of pin connections on hanger spans; - Condition of bearing assemblies and assessment if bearings appear to be free, locked up, or show signs of recent movement; and	0	16	24	0	0	0	0	40	\$5,472
<b>SUBTOTAL - TASK 4</b>		<b>0</b>	<b>16</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>40</b>	<b>\$5,472</b>
<b>5.0</b>	<b>Rehabilitation Criteria/Options/Design Exceptions</b>									
5.1	Rehabilitation Options Memorandum to City	0	16	32	0	0	0	0	48	\$6,416
5.2	Design Exception Coordination with MnDOT	0	16	4	0	0	0	0	20	\$3,112
<b>SUBTOTAL - TASK 5</b>		<b>0</b>	<b>32</b>	<b>36</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>68</b>	<b>\$9,528</b>
<b>6.0</b>	<b>Bridge Plans, Special Provisions, &amp; Estimates</b>									

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	<p>SRF shall prepare plans to implement bridge rehabilitation repairs and replacements along with supporting Special Provisions specifications. The rehabilitation plan shall be designed according to the Minnesota Department of Transportation bridge standards as well as the codes, regulations, and specifications stated below.</p> <p>The bridge plan shall detail the repairs and the preservation of the historic elements of the bridge structure. All repair methods evaluated shall minimize revisions to the historic appearance or character of these items.</p> <p>The plans will be developed to repair elements of BR. L5391 as documented in the 'Local Historic Bridge Report' prepared by LHB and Mead &amp; Hunt along with findings from the load rating and field investigations.</p> <p>The final bridge rehabilitation plan and design will consider the following:</p> <ul style="list-style-type: none"> <li>- The project will be carried out in accordance with the provisions of the Minnesota Historical and Cultural Heritage Grants Manual and the Secretary of the Interior's Standards for Archeology and Historic Preservation. The project will also be carried out in accordance with the City's Minnesota Historical and Cultural Heritage Grants Program Grant Agreement.</li> </ul> <p>Compliance with the timetables and deliverables required of the Minnesota Historical Society in the document entitled "Minnesota Historical and Cultural Heritage Grant Agreement".</p> <p>Detailed bridge design will be completed in accordance with MnDOT design standards and geometric, material, and procedural requirements for the rehabilitation construction work. The 'Local Historic Bridge Report' will be reviewed and its recommendations shall be considered when determining the rehabilitation design.</p> <p>The plans and specifications shall be developed in compliance with Federal Highway Administration and MnDOT standards and guidelines practices for project development, design and construction; including but not limited to:</p>									

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	<ul style="list-style-type: none"> <li>-The current American Association of State Highway Transportation Officials (AASHTO) Load and Resistance Factor Design Bridge Design Specifications</li> <li>- Other applicable AASHTO requirements and guide specifications</li> <li>- The current AASHTO Manual for Bridge Evaluation</li> <li>- The current MnDOT LRFD Bridge Design Manual (5-392)</li> <li>- MnDOT Bridge Inspection and Field Manual</li> <li>- The current MnDOT Bridge Details Manuals Part I and Part II</li> <li>- MnDOT Bridge Preservation, Improvement and Replacement Guidelines</li> <li>- SOI Standards for the Treatment of Historic Properties, (36 CFR part 67)</li> <li>- American Disability Act requirements</li> <li>- MnDOT design manual</li> <li>- Other applicable MnDOT manuals</li> <li>- Section 106 of the National Historic Preservation Act (NHPA) of 1966;</li> <li>- AASHTO Guidelines for Historic Bridge Rehabilitation and Replacement;</li> <li>- MnDOT Management Plan for Historic Bridges in Minnesota; and,</li> <li>- The Secretary's Standards with Regard to Repair, Rehabilitation, and Replacement Situations, as adopted by the Virginia Transportation Research Council.</li> </ul> <p><u>Assumptions:</u>                      Bridge Plans &amp; Specifications will include the following content:</p> <ul style="list-style-type: none"> <li>- Removal of Existing Paint</li> <li>- Bridge Repainting</li> <li>- Floor Beam &amp; Stringer repair, replacement, and strengthening</li> <li>- Expansion Bearing Replacement</li> <li>- Fix Bearing Repair</li> <li>- Isolated timber deck repairs</li> <li>- Abutment wingwall repair or replacement</li> <li>- Abutment concrete surface repair</li> <li>- North approach railing replacement</li> <li>- Abutment slope rip rap</li> </ul>									

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6.1	30% Bridge Plans	1	8	40	0	25	40	0	114	\$12,350
6.2	60% Bridge Plans	1	24	40	0	0	40	0	105	\$12,865
6.3	75% Bridge Plans	0	0	0	0	0	0	0	0	\$0
6.4	95% Bridge Plans	1	24	40	0	0	4	0	69	\$9,265
6.5	100% Bridge Plans	0	8	8	0	0	8	0	24	\$3,064
6.6	Special Provisions	0	8	40	0	0	0	0	48	\$6,040
6.7	Constructability Review	0	24	0	0	0	0	0	24	\$3,960
6.8	Cost Estimates	1	8	0	0	0	0	0	9	\$1,505
<b>SUBTOTAL - TASK 6</b>		<b>4</b>	<b>104</b>	<b>168</b>	<b>0</b>	<b>25</b>	<b>92</b>	<b>0</b>	<b>393</b>	<b>\$49,049</b>
<b>7.0</b>	<b>Load Ratings</b> SRF shall prepare a load rating analysis of the existing structure based on the 'Local Historic Bridge Report' and the consultant's findings from the field inspection. SRF shall complete an Updated Load Rating report based on the repaired/replaced members as recommended and shown in the Final Plans.									
7.1	Initial Load Rating	0	4	60	0	0	0	0	64	\$7,740
7.2	Final Load Rating & Rating Forms	0	8	8	0	0	0	0	16	\$2,264
<u>SRF Deliverables:</u> - Certified MnDOT Bridge Rating and Load Posting Report for County and Local Agencies (Forms RC-CL and RD-CL)										
<b>SUBTOTAL - TASK 7</b>		<b>0</b>	<b>12</b>	<b>68</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>80</b>	<b>\$10,004</b>
<b>8.0</b>	<b>Permits</b> SRF shall be responsible for preparing all applications for all required permits and approvals from local, state, and federal agencies, including historical reviews and approvals from the FHWA, MnDOT, SHPO, and the MnDOT CRU. SRF shall facilitate and conduct any agency meetings in conjunction with this task.  If required, SRF will prepare a 404 permit.									
<u>Assumptions:</u> - Level 2 field wetland delineation of entire project area, to be completed in one site visit. - Wetland delineation completed during the 2017 growing season as defined by the U.S. Army Corps of Engineers (USACE) wetland delineation manual.  - Assumes wetland impacts less than 0.1 acre. Project qualifies for non-reporting RGP-MN-004. - Wetland impacts will be mitigated via wetland credit purchase from a Wetland Conservation Act (WCA) and USACE approved wetland mitigation bank.  - SRF will locate a suitable wetland mitigation bank and provide guidance for Client to secure credits and complete wetland credit purchase.										

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	<ul style="list-style-type: none"> <li>- DNR to provide Cannon River ordinary high water level (OHWL). Assumes fill below OHWL, requiring DNR public waters work permit.</li> <li>- Assumes no Section 10 permit from USACE. Cannon River is not a navigable water of the U.S. subject to Section 10 of the Rivers and Harbors Act.</li> </ul> <p><u>Client Deliverables:</u></p> <ul style="list-style-type: none"> <li>- Review and comment on the wetland delineation report.</li> <li>- Review and approve (sign) the WCA/USACE Joint Application Form for wetland boundary and type.</li> <li>- Review and approve (sign) the WCA/USACE Joint Application Form for wetland impacts.</li> <li>- If necessary, sign purchase agreement with wetland bank manager(s) to hold credits and later purchase wetland credits upon receipt of WCA and USACE permits.</li> </ul>									
8.1	Wetland Delineation	0	0	0	26	0	0	0	26	\$0
8.1.1	Data Collection / Prepare for Fieldwork									
	<ul style="list-style-type: none"> <li>- Create maps depicting hydric soils data, National Wetlands Inventory (NWI) data, MN Dept. of Natural Resources Public Water Inventory (PWI) data, parcel data, contour data, and project area.</li> <li>- Prepare wetland determination data forms, to be used to record sampling transect data.</li> </ul>									
8.1.2	Wetland Type Identification and Delineation (Fieldwork)									
	<ul style="list-style-type: none"> <li>- Complete a wetland delineation for the project area. Wetland delineations will be completed per the 1987 USACE Wetland Delineation Manual and appropriate supplement, regulatory guidance, and WCA standards.</li> <li>- Record a minimum of one sampling transect per delineated wetland providing at least one wetland plot and one upland plot. Data collection to include vegetation, soils, and hydrologic indicators.</li> <li>- Photograph each sampling transect.</li> <li>- Place boundary flags around wetlands as feasible / reasonable. Wetlands that are well defined or are likely to be disturbed will not be flagged (e.g., stormwater ponds, maintained ditches / lawns, flood prone areas).</li> <li>- Record wetland and water resource boundaries, boundary flag locations and sampling pit locations with a sub-foot accurate Trimble GPS unit.</li> <li>- Upload and post-process GPS data. Convert and export shapefiles to CAD as necessary.</li> </ul>									
8.1.3	Wetland Delineation Report									
	<ul style="list-style-type: none"> <li>- Complete a wetland delineation report per USACE and WCA standards. Delineation report to include the following sections:                             <ul style="list-style-type: none"> <li>• Cover/Title Page</li> <li>• Background/Introduction</li> <li>• Methods of Determination</li> <li>• Wetland Results/Findings</li> <li>• Conclusions/Recommendations</li> <li>• Additional Information (References Cited)</li> <li>• Maps Depicting Surveyed Wetland Boundaries</li> <li>• Wetland Determination Data Forms</li> </ul> </li> </ul>									

<p><b>SRF Consulting Group, Inc.</b>                  Client: City of Cannon Falls                  Project: Bridge L5391 Rehabilitation Plans &amp; Specifications</p>	<p><b>Work Tasks and Person-Hour Estimates</b></p>	 P10325.PP
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<u>TASK NO.</u>	<u>TASK DESCRIPTION</u>	<u>PRINCIPAL</u>	<u>SR. ASSOC.</u>	<u>ASSOCIATE</u>	<u>SR. PROF</u>	<u>PROF.</u>	<u>TECHNICAL</u>	<u>CLERICAL</u>	<u>TOTALS</u>	<u>EST. FEE</u>
	<ul style="list-style-type: none"> <li>• Photographs of Each Sampling Transect</li> <li>• Antecedent Precipitation Data</li> </ul>									
	- Complete WCA/USACE Joint Application Form for wetland boundary and type.									
	- Revise wetland delineation report per City and TEP comments (if necessary).									
8.1.4	Coordination with WCA LGU, USACE, and TEP									
	- Submit wetland delineation report and Joint Application Form for wetland boundary and type to WCA LGU and USACE. Assumes the WCA LGU will distribute the delineation and boundary/type form to members of the TEP.									
	- Attend TEP meeting in support of wetland boundary and type application approval. Assumes attendance of one (1) TEP meeting.									
8.2	WCA/USACE Wetland Permitting	0	0	0	24	0	4	0	28	\$0
8.2.1	WCA/USACE Joint Application Form for Wetland Impacts (Wetland Permit Application)									
	- Assumes wetland impacts less than 0.1 acre. Project qualifies for non-reporting RGP-MN-004. No USACE permit required.									
	- Complete Parts One through Four and Attachments C and D of Joint Application Form for wetland impacts, including the following:									
	<ul style="list-style-type: none"> <li>• Prepare figures showing wetland impacts, including aerial background, wetland name, impact type (temporary or permanent), wetland type (Eggers &amp; Reed), Cowardin Classification, and area of impact.</li> <li>• Prepare one cross section at each impacted wetland that shows the delineated wetland boundary and location of cut / fill.</li> <li>• Describe the nature and scope of the proposed activity including a description of all project elements that effect aquatic resources.</li> <li>• Describe all on-site measures considered to avoid impacts to aquatic resources and at least two project alternatives that avoid all impacts to aquatic resources on the site.</li> <li>• Describe all features of the proposed project that have been modified to minimize the impacts to water resources.</li> </ul>									
	- Revise Joint Application Form for wetland impacts per City comments (if necessary).									
8.2.2	Locate Suitable Wetland Mitigation Credits									

<b>SRF Consulting Group, Inc.</b> Client: City of Cannon Falls Project: Bridge L5391 Rehabilitation Plans & Specifications	<b>Work Tasks and Person-Hour Estimates</b>	 P10325.PP
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TASK NO.	TASK DESCRIPTION	PRINCIPAL	SR. ASSOC.	ASSOCIATE	SR. PROF	PROF.	TECHNICAL	CLERICAL	TOTALS	EST. FEE
	<ul style="list-style-type: none"> <li>- Review list of wetland mitigation banks with adequate wetland credits available for purchase in accordance with WCA.</li> <li>- Select mitigation bank(s) that best meet the needs of the project and determine cost and availability of credits. Work with the WCA LGU if needed.</li> <li>- Provide guidance to client on completing a purchase agreement to hold the wetland credits and later on completing the wetland credit purchase once permits have been issued.</li> </ul>									
8.2.3	<b>General Wetland Permit Coordination</b> <ul style="list-style-type: none"> <li>- Respond to questions from WCA LGU.</li> <li>- Revise Joint Application Form for wetland impacts per WCA LGU (if necessary).</li> </ul>									
8.3	<b>DNR Public Waters Permit</b> <ul style="list-style-type: none"> <li>- Prepare DNR Public Waters Work Permit application using MPARS for Cannon River (if necessary). Payment will be made by SRF and reimbursed by the City (assumes \$200). Fee to be determined by DNR.</li> <li>- Assumes DNR to provide OHWL elevation.</li> </ul>	0	0	0	6	8	0	0	14	\$0
8.4	<b>NPDES Permit</b> <ul style="list-style-type: none"> <li>- Prepare NPDES Construction Stormwater permit through MPCA on-line portal. Payment will be made by SRF and reimbursed by the City.</li> </ul>	0	0	0	4	4	0	0	8	\$0
	<u>SRF Deliverables:</u> <ul style="list-style-type: none"> <li>- Draft and final wetland delineation report (Adobe PDF file).</li> <li>- WCA/USACE Joint Application Form for wetland boundary and type (Adobe PDF file).</li> <li>- Wetland boundary file in CAD or GIS Format.</li> <li>- WCA/USACE Joint Application Form for wetland impacts (Adobe PDF file).</li> </ul>									
	<b>SUBTOTAL - TASK 8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>60</b>	<b>12</b>	<b>4</b>	<b>0</b>	<b>76</b>	<b>\$7,120</b>
9.0	<b>Utility Coordination</b> The selected Consultant shall determine the location of existing public water and private gas utilities. Private utilities may be required to be relocated and/or protected due to the rehabilitation construction. The Consultant is required to lead the coordination of these relocations. There shall be a minimum of one (1) Utility Information Meeting and one (1) Utility Design/Relocation Meeting. However, the Consultant will need to coordinate additional meetings, if necessary. The Consultant will be required to provide a hard copy of the plan at each utility meeting and a final plan set to all utility companies affected by the work.									
9.1	Utility Information Meeting	0	6	0	0	0	0	0	6	\$990
9.2	Utility Design/Relocation Meeting	0	6	0	0	0	0	0	6	\$990
9.3	Utility Coordination	0	4	6	0	0	0	0	10	\$1,368
	<b>SUBTOTAL - TASK 9</b>	<b>0</b>	<b>16</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>22</b>	<b>\$3,348</b>

<b>SRF Consulting Group, Inc.</b> Client: City of Cannon Falls Project: Bridge L5391 Rehabilitation Plans & Specifications	<b>Work Tasks and Person-Hour Estimates</b>	 P10325.PP
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TASK NO.	TASK DESCRIPTION	PRINCIPAL	SR. ASSOC.	ASSOCIATE	SR. PROF	PROF.	TECHNICAL	CLERICAL	TOTALS	EST. FEE
<b>10.0</b>	<b>Construction Support</b>									
	During the construction phase of the project, SRF will be available to answer design related questions at the City's request. Also provided will be calculations and revised plan sheets as necessary, as well as the check of the constructioncontractor's proposed methods, etc. during the construction phase (assume 120 hours and 6 site visits). <u>Assumptions:</u> - The 6 site visits are included in the 120 hour assumption - 100 hours for engineer and 20 hours for bridge historian									
10.1	120 Hours Construction Support	0	40	60	0	0	0	0	100	\$13,680
	<b>SUBTOTAL - TASK 10</b>	<b>0</b>	<b>40</b>	<b>60</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>\$13,680</b>
	<b>TOTAL ESTIMATED PERSON-HOURS</b>	<b>36</b>	<b>340</b>	<b>362</b>	<b>138</b>	<b>53</b>	<b>100</b>	<b>2</b>	<b>1031</b>	
	AVERAGE HOURLY BILLING RATES	\$185	\$165	\$118	\$95	\$85	\$100	\$70		
	ESTIMATED LABOR AND OVERHEAD	\$6,660	\$56,100	\$42,716	\$13,110	\$4,505	\$10,000	\$140		\$133,231
	ESTIMATED DIRECT NON-SALARY EXPENSES									\$45,099
	<b>TOTAL ESTIMATED FEE</b>									<b>\$178,330</b>
	<b>TOTAL ESTIMATED FEE (no website)</b>								\$ (2,550)	\$175,780
	<b>TOTAL ESTIMATED FEE (no rigging or rope access)</b>								\$ (15,000)	\$163,330
	<b>TOTAL ESTIMATED FEE (no website, rigging, or rope access)</b>								\$ (17,550)	<b>\$160,780</b>
ESTIMATE OF DIRECT NON-SALARY EXPENSES:										
	MILEAGE:									
	Personal Vehicles			1500	Miles @	\$0.535				\$803
	INSPECTION EQUIPMENT RENTALS & SERVICES									\$15,000
	WEBSITE DOMAIN FEE AND HOSTING COSTS									\$400
	PRINTING:									\$50
	SUPPLIES:									\$50
	COMMUNICATIONS:									\$100
	SUBCONSULTANTS:									
	Gemini Research Cultural Resource Consultants									\$28,696
	ESTIMATED DIRECT NON-SALARY EXPENSES									<u>\$45,099</u>



## Gemini Research Cultural Resource Consultants

## Work Tasks and Person-Hour Estimates

Client: City of Cannon Falls

Project: Bridge L5391 Rehabilitation Plans &amp; Specifications

P10325.PP

TASK NO.	TASK DESCRIPTION	PRINCIPAL	INVESTIGATOR	ASSOCIATE	SR. PROF.	PROF.	TECHNICAL	CLERICAL	TOTALS	EST. FEE
<b>1.0</b>	<b>Project Management</b>									
1.1	<u>Project Management</u> Includes budgeting/billing, miscellaneous communication with the engineers, miscellaneous review of text pertaining to historic issues	20	0	0	0	0	0	0	20	\$2,060
	<b>SUBTOTAL - TASK 1</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>\$2,060</b>
<b>2.0</b>	<b>Public Outreach/Agency Involvement</b>									
2.3	<u>Technical Advisory Committee (TAC) Meetings</u> Prep for and attend TAC meetings (assumes 6 in-person mtgs and attendance at others via telephone)	17	15	0	0	0	0	0	32	\$3,296
2.5	<u>MN Historical Society Presentation</u> Assist with presentation to the Minn. Historical Society (SHPO) at the 75% stage	5	5	0	0	0	0	0	10	\$1,030
	<b>SUBTOTAL - TASK 2</b>	<b>22</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>42</b>	<b>\$4,326</b>
<b>4.0</b>	<b>Field Investigation</b>									
4.1	<u>Perform Field Investigation</u> Site assessment to examine the bridge and discuss condition issues; review engineering data; collect/review historical data; confirm/refine character-defining features (assumes 1 on-site meeting with 2 people)	10	10	0	0	0	0	0	20	\$2,060
	<b>SUBTOTAL - TASK 4</b>	<b>10</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>\$2,060</b>

**Gemini Research Cultural Resource Consultants** **Work Tasks and Person-Hour Estimates**  
 Client: City of Cannon Falls  
 Project: Bridge L5391 Rehabilitation Plans & Specifications  
 P10325.PP

TASK NO.	TASK DESCRIPTION	PRINCIPAL	INVESTIGATOR	ASSOCIATE	SR. PROF	PROF.	TECHNICAL	CLERICAL	TOTALS	EST. FEE
<b>5.0</b>	<b>Rehabilitation Criteria/Options/Design Exceptions</b>									
5.1	Assist with development of rehabilitation work items and 30% rehabilitation plans, and review plan sheets, to help minimize alterations to historic character, avoid adverse effects, and follow SOI Standards and guidelines (assumes most work sessions and other coordination is by phone and email)	30	10	0	0	0	0	0	40	\$4,120
5.2	Prepare visualizations as needed so MnDOT CRU and SHPO can make informed decisions regarding specific work items and compliance with SOI standards	0	20	0	0	0	0	0	20	\$2,060
	<b>SUBTOTAL - TASK 5</b>	<b>30</b>	<b>30</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>60</b>	<b>\$6,180</b>
<b>6.0</b>	<b>Bridge Plans, Special Provisions, &amp; Estimates</b>									
6.1	Coordinate with MnDOT CRU during the project; prepare materials for SHPO/CRU including miscellaneous memos and draft findings letters at 30%, 60%, and 90% stage that explain the condition issues, rehabilitation strategy, details of work items, and compliance with SOI standards (assumes up to 1 in-person mtg, conference calls and emails)	20	10	0	0	0	0	0	30	\$3,090
6.2	Assist with development of rehabilitation work items and 60% rehabilitation plans and draft specs, and review plan sheets and specs, to help minimize alterations to historic character, avoid adverse effects, and follow SOI Standards and guidelines (assumes work sessions and other coordination is by phone and email)	20	20	0	0	0	0	0	40	\$4,120
6.3	Assist with development of rehabilitation work items and 90% rehabilitation plans and special provisions, and review plan sheets and specs, to help minimize alterations to historic character, avoid adverse effects, and follow SOI Standards and guidelines (assumes work sessions and other coordination is by phone and email)	20	10	0	0	0	0	0	30	\$3,090
6.4		0	0	0	0	0	0	0	0	\$0
6.5		0	0	0	0	0	0	0	0	\$0
6.6		0	0	0	0	0	0	0	0	\$0
6.7		0	0	0	0	0	0	0	0	\$0
6.8		0	0	0	0	0	0	0	0	\$0
	<b>SUBTOTAL - TASK 6</b>	<b>60</b>	<b>40</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>\$10,300</b>
<b>10.0</b>	<b>Construction Support</b>									
	During the construction phase of the project, SRF will be available to answer design related questions at the City's request. Also provided will be calculations and revised plan sheets as necessary, as well as the check of the construction contractor's proposed methods, etc. during the construction phase (assume 120 hours and 6 site visits). <u>Assumptions:</u> - The 6 site visits are included in the 120 hour assumption									
10.1	20 Hours Construction Support	20	0	0	0	0	0	0	20	\$2,060
	<b>SUBTOTAL - TASK 10</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>\$2,060</b>

<b>Gemini Research Cultural Resource Consultants</b>	<b>Work Tasks and Person-Hour Estimates</b>
Client: City of Cannon Falls	
Project: Bridge L5391 Rehabilitation Plans & Specifications	
	P10325.PP

TASK NO.	TASK DESCRIPTION	PRINCIPAL	INVESTIGATOR	ASSOCIATE	SR. PROF	PROF.	TECHNICAL	CLERICAL	TOTALS	EST. FEE
	<b>TOTAL ESTIMATED PERSON-HOURS</b>	<b>162</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>262</b>	
	AVERAGE HOURLY BILLING RATES	\$103	\$103	\$0	\$0	\$0	\$0	\$0		
	ESTIMATED LABOR AND OVERHEAD	\$16,686	\$10,300	\$0	\$0	\$0	\$0	\$0		\$26,986
	ESTIMATED DIRECT NON-SALARY EXPENSES									\$1,710
	<b>TOTAL ESTIMATED FEE (GEMINI ONLY)</b>									<b>\$28,696</b>

ESTIMATE OF DIRECT NON-SALARY EXPENSES:

MILEAGE:	Personal Vehicles	1800	Miles @	\$0.540		\$972
MEALS:	8 @ \$36					\$288
LODGING	5 Nights @ \$150					\$450
	ESTIMATED DIRECT NON-SALARY EXPENSES					<u>\$1,710</u>

## PROFESSIONAL SERVICES AGREEMENT

**AGREEMENT** made this \_\_\_\_\_ day of \_\_\_\_\_, 2017, by and between the **CITY OF CANNON FALLS**, a Minnesota municipal corporation ("City") and **SRF CONSULTING GROUP, INC.**, a Minnesota corporation (hereinafter referred to as "Consultant").

**IN CONSIDERATION OF THEIR MUTUAL COVENANTS, THE PARTIES AGREE AS FOLLOWS:**

**1. SCOPE OF SERVICES.** The City retains Consultant to prepare design and construction plans for the rehabilitation of the L5391 bridge in the City in accordance with the Contract Documents.

**2. CONTRACT DOCUMENTS.** The following documents shall be referred to as the "Contract Documents," all of which shall be taken together as a whole as the contract between the parties as if they were set verbatim and in full herein:

- A. This Professional Services Agreement
- B. Consultant's Proposal for Professional Services for City of Cannon Falls Bridge L5391 Rehabilitation Plans & Specifications dated February 15, 2017 excluding all website work and excluding a full hands-on bridge inspection requiring special rigging or rope access methods
- C. Consultant Hourly Rates

In the event of conflict among the provisions of the Contract Documents, the order in which they are listed above shall control in resolving any such conflicts with Contract Document "A" has the first priority and Contract Document "C" having the last priority.

**3. COMPENSATION.** Consultant shall be paid by the City for the services described in the Contract Documents based upon its hourly rates, but with a not to exceed fee inclusive of reimbursables of One Hundred Sixty Thousand Seven Hundred Eighty Dollars (\$160,780.00). The not to exceed fee shall not be adjusted unless mutually agreed upon between the City and Consultant in accordance with Section 5. Consultant shall bill the City as the work progresses. Payment shall be made by the City within thirty five (35) days of receipt of an invoice.

**4. DOCUMENT OWNERSHIP.** All reports, plans, models, diagrams, analyses, and information created by Consultant and paid for by the City in connection with performance of this Agreement shall be the property of the City. Any use except for the specific purpose intended by this Agreement will be at the City's sole risk and without liability or legal exposure to the Consultant.

The City acknowledges and agrees that Consultant is the sole and exclusive owner of all right, title, and interest in and to its services, products, software, source and object code, specifications, designs, techniques, concepts, improvements, discoveries and inventions including all intellectual property rights thereto, including without limitations any modifications, improvements, or derivative works thereof, created prior to, or independently, during the term of this Agreement. This Agreement does not affect the ownership of Consultant's pre-existing,

intellectual property. The City further acknowledges that it acquires no rights under this Agreement to Consultant's pre-existing intellectual property, other than any limited right explicitly granted in this Agreement.

**5. CHANGE ORDERS.** All change orders, regardless of amount, must be approved in advance and in writing by the City. No payment will be due or made for work done in advance of such approval.

**6. COMPLIANCE WITH LAWS AND REGULATIONS.** In providing services hereunder, Consultant shall abide by all applicable statutes, ordinances, rules and regulations pertaining to the provisions of services to be provided.

**7. STANDARD OF CARE.** Consultant shall exercise the same degree of care, skill, and diligence in the performance of the services as is ordinarily possessed and exercised by a professional consultant under similar circumstances. No other warranty, expressed or implied, is included in this Agreement. City shall not be responsible for discovering deficiencies in the accuracy of Consultant's services.

**8. INDEMNIFICATION.** To the fullest extent permitted by law, Consultant shall indemnify and hold harmless the City, its officers, and employees, from any and all claims, demands, actions, causes of action, including costs and reasonable attorney's fees (collectively, "Liability") arising out of Consultant's performance of its services of this Agreement, to the extent such Liability is caused by Consultant's negligent acts, errors or omissions or any person or organization for whom Consultant is legally liable. Nothing herein is intended to require Consultant to indemnify, defend or hold harmless the City, its officers and employees to the extent such Liability is caused, in whole or in part, by the negligent acts or fault of the City, its officers and employees or any person or organization for whom the City is legally liable.

**9. INSURANCE.** Consultant shall secure and maintain such insurance as will protect Consultant from claims under the Worker's Compensation Acts, automobile liability, and from claims for bodily injury, death, or property damage which may arise from the performance of services under this Agreement. Such insurance shall be written for amounts not less than:

Commercial General Liability	\$2,000,000 each occurrence/annual aggregate
Automobile Liability	\$2,000,000 combined single limit
Professional Liability	\$2,000,000 each claim/annual aggregate

The City shall be named as an additional insured on the general liability policy on a primary and non-contributory basis. Before commencing work, the Consultant shall provide the City a certificate of insurance evidencing the required insurance coverage in a form acceptable to City.

**10. INDEPENDENT CONTRACTOR.** The City hereby retains Consultant as an independent contractor upon the terms and conditions set forth in this Agreement. Consultant is not an employee of the City and is free to contract with other entities as provided herein. Consultant shall be responsible for selecting the means and methods of performing the work. Consultant shall furnish any and all supplies, equipment, and incidentals necessary for Consultant's performance under this Agreement. City and Consultant agree that Consultant shall not at any time or in any manner represent that Consultant or any of Consultant's agents or employees are in any manner agents or employees of the City. Consultant shall be exclusively responsible under this Agreement

for Consultant's own FICA payments, workers compensation payments, unemployment compensation payments, withholding amounts, and/or self-employment taxes if any such payments, amounts, or taxes are required to be paid by law or regulation.

**11. SUBCONTRACTORS.** Consultant shall not enter into subcontracts for services provided under this Agreement without the express written consent of the City. Consultant shall comply with Minnesota Statute § 471.425. Consultant must pay subcontractor for all undisputed services provided by subcontractor within ten days of Consultant's receipt of payment from City. Consultant must pay interest of 1.5 percent per month or any part of a month to subcontractor on any undisputed amount not paid on time to subcontractor. The minimum monthly interest penalty payment for an unpaid balance of \$100 or more is \$10.

**12. CONTROLLING LAW/VENUE.** This Agreement shall be governed by and construed in accordance with the laws of the State of Minnesota. In the event of litigation, the exclusive venue shall be in the District Court of the State of Minnesota for Goodhue County Minnesota.

**13. MINNESOTA GOVERNMENT DATA PRACTICES ACT.** Consultant must comply with the Minnesota Government Data Practices Act, Minnesota Statutes Chapter 13, as it applies to (1) all data provided by the City pursuant to this Agreement, and (2) all data, created, collected, received, stored, used, maintained, or disseminated by Consultant pursuant to this Agreement. Consultant is subject to all the provisions of the Minnesota Government Data Practices Act, including but not limited to the civil remedies of Minnesota Statutes Section 13.08, as if it were a government entity. In the event Consultant receives a request to release data, Consultant must immediately notify City. City will give Consultant instructions concerning the release of the data to the requesting party before the data is released. Consultant agrees to defend, indemnify, and hold City, its officials, officers, agents, employees, and volunteers harmless from any claims resulting from Consultant's officers', agents', city's, partners', employees', volunteers', assignees' or subcontractors' unlawful disclosure and/or use of protected data. The terms of this paragraph shall survive the cancellation or termination of this Agreement.

**14. COPYRIGHT.** **Consultant represents the documents and other such instruments of services created by Consultant under this Agreement do not and will not infringe upon any intellectual property rights of other people or entities.** Consultant shall defend and hold harmless the City from any action or claim brought against the City to the extent that is based on a claim that all or part of the Consultant's documents and instruments of services infringe upon the intellectual property rights of others.

**16. RECORDS.** Consultant shall maintain complete and accurate records of expenses involved in the performance of services.

**17. INSPECTIONS AND AUDITS.**

A. **INSPECTIONS.** Consultant's books, records, documents and accounting procedures and practices relevant to this Agreement are subject to examination by authorized representatives of the City and the City's Auditors, as appropriate, for six years from the City's final payment under this Agreement.

B. **AUDITS.** Authorized representatives of the City (and the federal government, if federal funds are involved) have the right to inspect Consultant's work under this Agreement whenever such representatives, in their sole discretion, deem such inspections necessary. Unless otherwise agreed by the parties, such inspections will be conducted during regular business hours.

**18. NOTICES.** All notices, requests, demands, and other communications related to suspension, termination, or defect in the Services shall be given to the party's representative appointed in accordance with this Agreement. Any such notice, request, demand, or other communication required to be in writing shall be addressed to the other party's representative and delivered to such representative in person or by U.S. Mail.

SRF CONSULTING GROUP, INC.  
One Carlson Parkway North, Suite 150  
Minneapolis, MN 55447  
Attn: \_\_\_\_\_

CITY OF CANNON FALLS:  
918 River Road  
Cannon Falls, MN 55009  
Attn: \_\_\_\_\_

**19. ASSIGNMENT.** Neither party shall assign this Agreement, nor any interest arising herein, without the written consent of the other party.

**20. WAIVER.** Any waiver by either party of a breach of any provisions of this Agreement shall not affect, in any respect, the validity of the remainder of this Agreement.

**21. ENTIRE AGREEMENT.** The entire agreement of the parties is contained herein. This Agreement supersedes all oral agreements and negotiations between the parties relating to the subject matter hereof as well as any previous agreements presently in effect between the parties relating to the subject matter hereof. Any alterations, amendments, deletions, or waivers of the provisions of this Agreement shall be valid only when expressed in writing and duly signed by the parties, unless otherwise provided herein.

**22. TERMINATION.** This Agreement may be terminated by the City for any reason or for convenience upon written notice to the Consultant. In the event of termination, the City shall be obligated to the Consultant for payment of amounts due and owing including payment for services performed or furnished to the date and time of termination.

Dated: \_\_\_\_\_, 2017.

**CITY OF CANNON FALLS**

BY: \_\_\_\_\_  
Lyman M. Robinson, Mayor

BY: \_\_\_\_\_  
Ronald S. Johnson, City Administrator

Dated: \_\_\_\_\_, 2017.

**SRF CONSULTING GROUP, INC.**

BY: \_\_\_\_\_  
Paul Martens, CFO