

**Mankato/North Mankato Area Planning Organization
Policy Board**

Thursday, May 2, 2019 – 6:00 p.m.

Intergovernmental Center,
Minnesota River Room

10 Civic Center Plaza, Mankato, MN 56001

- I. Call to Order
- II. Introductions
- III. Approval of Agenda
- IV. Approval of Minutes – December 6, 2018
- V. New Business
 1. Election of Policy Board Chair and Vice Chair
 2. Long Range Transportation Plan Update consultant
 3. Warren Street Corridor Study consultant
 4. Resolution recognizing MnDOT Intelligent Transportation Systems (ITS) Architecture Plan
 5. Surface Transportation Program (STP) ranking sheet
- VI. Other Business, Discussion & Updates
 1. Discuss Americans with Disabilities Act (ADA) municipality Adopting Resolution and ADA Transition Plan update
 2. Update: TIP Administrative Modification - Kern Bridge
 3. Update: TIP Administrative Modification - MRCI Bus Purchase
 4. Update: South Victory Drive (CSAH 82) at Hoffman Road Intersection Control Evaluation (ICE)
- VII. MAPO Technical Advisory Committee meeting minutes – April 18, 2019 (informational)
- VIII. Policy Board Comments
- IX. Opportunity for Public Comment
- X. Adjournment



Meeting Minutes of the Mankato/North Mankato Area Planning Organization (MAPO) Policy Board

December 6, 2018 | 6:00PM | Intergovernmental Center, MN River Room, 10 Civic Center Plaza, Mankato MN

Policy Board members present: Tim Auringer – City of Eagle Lake, Dennis Dieken – City of Mankato, Bob Freyberg – City of North Mankato, Mark Piepho – Blue Earth County, Dan Rotchadl – MAPO Townships

Others Present: Paul Vogel - MAPO, Courtney Kramlinger – City of Mankato, Michael Fischer – North Mankato, Adrian Potter – SRF, Craig Vaughn – SRF.

I. Call to Order

Mr. Piepho called the meeting to order at 6:00p.m.

II. Introductions

Introductions were made.

III. Approval of Agenda

Mr. Rotchadl moved and Mr. Auringer seconded a motion to amend the agenda by beginning with items 5.3 through 5.8, then moving to items 5.1 and 5.2. With all voting in favor, the amended agenda was approved.

IV. Approval of Minutes – September 6, 2018

Mr. Rotchadl moved and Mr. Auringer seconded a motion to approve the minutes. With all voting in favor, the minutes were approved.

V. New Business

5.1 Final Report: Trunk Highway 22 Corridor Study

Mr. Vaughn of SRF presented the final report on the Trunk Highway 22 Corridor Study. It was reported that traffic through the corridor is primarily local traffic and Augusta and Basset have a higher accident rate. Mr. Vaughn presented four corridor alternatives.

Mr. Auringer inquired about the nature of project feedback regarding potential installation of roundabouts (RAB). Mr. Vaughn recalled the majority of feedback was generally in favor of RABs as they effectively manage access, speed, and lead to less severe crashes. Staff clarified the majority of traffic through the corridor is local traffic compared to visitor traffic. The Policy Board discussed pedestrian crossing difficulties within the corridor.

Mr. Freyberg asked if there were discussions with Public Safety on RABs. It was reported that safety personnel had been provided notification opportunities for study input and safety was a primary weighting component of the study. It was anticipated RABs would result in a higher overall crash incident rate, but the crashes would be less severe.

Mr. Dieken inquired to the viability of a right-in right-out off of Highway 22 by the former Gander Mountain/Gordman's property (1940 Adams Street). It was noted it would be anticipated that MnDOT would not approve this proposition due to the proximity of the RAB and intersection of Highway 22 and Highway 14 traffic controls. Staff noted in the future, it could be looked at potentially revising access from Adams Street to help with the reuse or redevelopment of the property.

5.2 Final Report: South Victory Drive / Hoffman Road Intersection Control Evaluation Study

Mr. Potter of SRF presented the report of the ICE study for South Victory Drive and Hoffman Road. Mr. Potter highlighted safety issues with this intersection noting crash rates are higher than the state average. Many of the crashes are due to poor judgement of traffic gaps when turning left. Mr. Potter presented three alternatives to the intersection design. A decision matrix was presented and it was noted that some columns may have more weight than others due to situational factors. For example, it is known there are a lot of teenaged and less experienced drivers moving through the intersection due to the proximity of East High School. As a result, some may struggle with a RAB multi-lane design.

The ICE report is being finalized. Mr. Potter will provide information on how many of the crashes at this intersection were severe.

Staff noted there was an incidence of community feedback on a lack of public engagement. It was noted the ICE study is a technical report that is meant to show what is possible and to provide background information, and data for next steps.

5.3 Release of Request for Proposal (RFP) for Long Range Transportation Plan (LRTP) Update

Staff reported the RFP for the MAPO's Long Range Transportation Plan Update had been generated with input from a variety of local, state, and federal entities.

Mr. Rotchadl made a motion and Mr. Dieken seconded to approve the Release of Request for Proposal (RFP) for Long Range Transportation Plan (LRTP) Update. Motion carried.

5.4 Resolution Supporting MnDOT 2019 Safety Performance Measure Targets (PM1)

Staff reported that MnDOT has issued Safety Performance Targets for 2019. MAPO had previously approved MnDOT's targets for 2018.

Mr. Rotchadl made a motion and Mr. Freyberg seconded to approve the Resolution Supporting MnDOT 2019 Safety Performance Measure Targets (PM1). Motion carried.

5.5 Resolution Adopting Updated MAPO Public Participation Plan

Staff presented the updated MAPO Public Participation Plan. The update employs new tools for public participation, including use of Twitter, MAPO website, and an expanded stakeholder email list. The update also includes implementation of metrics to measure efficacy of MAPO public engagement efforts.

Mr. Rotchadl made a motion and Mr. Auringer seconded to approve the MAPO Public Participation Plan. Motion carried.

5.6 Re-designation of MAPO Representative to MnDOT Area Transportation Partnership (ATP-7)

Staff presented the MAPO TAC's recommendation to designate Seth Greenwood to serve as the MAPO representative to the ATP-7 and designate Paul Vogel or his designee as an alternate representative, unless the Board had interest in serving.

Mr. Rotchadl made a motion and Mr. Freyberg seconded to approve the Re-Designation of MAPO Representative to MnDOT Area Transportation Partnership (ATP-7). Motion carried.

5.7 Approval of 2019 Area Transportation Partnership (ATP-7) Solicitation Flowchart

Mr. Auringer made a motion and Mr. Rotchadl seconded to approve the 2019 Area Transportation Partnership (ATP-7) Solicitation Flowchart. Motion carried.

5.8 Resolution Authorizing Submission of Regional Transportation Coordinating Council (RTCC) Phase 1 Planning Grant Application

Mr. Freyberg made a motion and Mr. Rotchadl seconded to approve the Resolution Authorizing Submission of Regional Transportation Coordinating Council (RTCC). Motion carried.

VI. Other Business, Discussion & Updates

6.1 Update: ADA Transition Plan

VII. TAC Comments (November 15, 2018 meeting minutes)

The minutes from the November 15, 2018 MAPO TAC meeting were distributed.

VIII. Policy Board Comments

Mr. Piepho opened the floor for Policy Board Comments. The Policy Board recognized Mr. Freyberg for his longstanding service and thanked him for his expertise, time, and guidance.

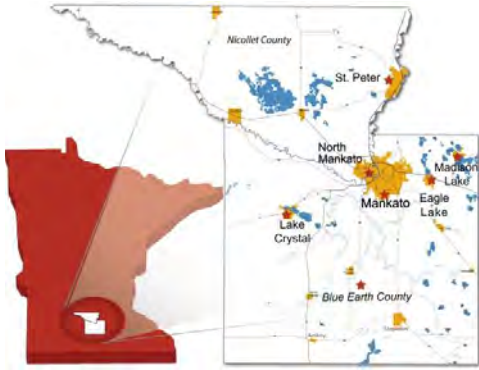
IX. Opportunity for Public Comment

Mr. Piepho opened the floor for Public Comment. There were no comments.

X. Adjournment

At approximately 7:25 p.m. Mr. Rotchadl moved and Mr. Auringer seconded to adjourn. Motion carried.

Chair, Mr. Piepho



AGENDA RECOMMENDATION

Agenda Heading: Election of Policy Board Chair and Vice Chair No: 5.1

Agenda Item:

Election of Policy Board Chair and Vice Chair

Recommendation Action(s):

Election of MAPO Policy Board Chair and Vice Chair

Summary:

The MAPO Policy Board bylaws state: “The officers of MAPO shall be a Chair and Vice Chair. The officers, who shall be elected by the General Membership, shall take office upon election on a biennial basis...” (Article VI. Sec. 1)

The MAPO Policy Board’s current Chair is Mr. Mark Piepho and the Vice Chair is Mr. Mike Laven. The Policy Board’s last election was held February 2, 2017.

Staff recommends the MAPO Policy Board hold elections for Chair and Vice Chair.

Attachments:

MAPO Policy Board bylaws

**MANKATO/NORTH MANKATO AREA PLANNING
ORGANIZATION (MAPO)**

**Policy Board
By-Laws**

Originally Approved by the Policy Board
March 7, 2013

Reviewed and Updated by the Policy Board
July 2, 2015

Review by the Policy Board
May 4, 2017

ARTICLE I. MISSION STATEMENT

The Mankato/North Mankato Area Planning Organization (MAPO) is committed to coordinated long-range planning, a Unified Planning Work Program (UPWP), and a Transportation Improvements Program (TIP), in a fair and mutually beneficial manner, on selected issues transcending jurisdictional boundaries, for the betterment of the entire Mankato/North Mankato Area. The Mankato/North Mankato Area Planning Organization will promote coordinate, implement and encourage the planning of infrastructure systems embracing all modes in a manner that efficiently maximizes the safety and mobility of people and goods through the urbanized area.

ARTICLE II. PURPOSE

The MAPO is responsible for preparing, updating and maintaining three primary transportation planning documents; a Long Range Transportation Plan (LRTP), a Transportation Improvement Program (TIP), and Unified Planning Work Program (UPWP). In addition, the MAPO is responsible for developing and maintaining a public involvement process. The MAPO is also responsible for a variety of supporting work products such as traffic/transportation data collection analysis, analysis of pertinent socioeconomic data, analysis to assure nondiscrimination in the delivery of transportation services, and other technical studies and needs analysis.

The Technical Advisory Committee (TAC), which was established under the Joint Powers Agreement shall review, evaluate, comment upon, and make recommendations to the Policy Board for the required plans and programs. The MAPO Policy Board shall also review evaluate, comment upon, make recommendations and ultimately endorse the required plans and programs such that federal and state funding eligibility is maintained.

Prior to adoption of the Long Range Transportation Plan (LRTP), a Transportation Improvement Program (TIP), and Unified Planning Work Program (UPWP), the local units of government represented on the Policy Board shall provide formal consent to the adoption of the plans.

Article III. MEMBERSHIP AND DUES

SECTION 1. Membership: The Mankato/North Mankato Area Planning Organization will consist of 6 Policy Board members. Each member (or their appointed alternate) will be entitled to one full vote. No eligible voting member will have more than one vote. All of the membership will be local elected officials or their alternates.

Membership will be as follows:

<u>City of Eagle Lake</u>	<u>1 Representative</u>
<u>City of Mankato</u>	<u>1 Representative</u>
<u>City of North Mankato</u>	<u>1 Representative</u>
<u>Blue Earth County</u>	<u>1 Representative</u>
<u>Nicollet County</u>	<u>1 Representative</u>
<u>Townships</u>	<u>1 Representative</u>

SECTION 2. Attendance: Two or more unexcused absences by a delegate during a period of twelve consecutive months shall constitute reason for MAPO to request a replacement for that delegate by the unit or units of government appointment said delegate.

ARTICLE IV. AUTHORITY

The MAPO is authorized under a Joint Powers Agreement and by Section 134, Title 23, United States Code (23 USC 134), as amended.

The Joint Powers Agreement authorizes the MAPO to appoint and maintain such technical advisory, citizen and/or other committees as deemed appropriate and effective to carry out a comprehensive, cooperative, and continuing urban transportation process in the planning area.

MAPO activities will be governed by a Policy Board and attendant bylaws. The Bylaws herein have been adopted by the MAPO Policy Board, and made effective on March 7, 2013 and updated July 2, 2015.

ARTICLE V. ADMINISTRATION

The administrative agency shall be the City of Mankato. The administrative agency shall keep and distribute minutes of all meetings of the MAPO, countersign all documents as necessary to be executed, publish open meeting requirements, keep and preserve all resolutions, transactions, findings and determinations of the MAPO. The administrative agency shall accept and keep all the funds, deposits, records of all payments, transactions, disbursements, and receipts of the MAPO in a dedicated account, follow all local, federal and state requirements for administering those funds and supervise the MAPO staff. The administrative agency shall be responsible for the appointment of the MAPO Executive Director, who shall be under the supervision of the City of Mankato City Manager. The administrative agency shall also be responsible for the hiring of all MAPO staff.

ARTICLE VI. OFFICERS

SECTION 1. Officers: The officers of MAPO shall be a Chair and Vice-Chair. The officers, who shall be elected by the General Membership, shall take office upon election on a biennial basis during the fall Policy Board meeting in the appropriate year.

SECTION 2. Terms: The Chair and Vice-Chair shall serve for a two-year term. No officer's term can extend beyond his or her office terms. If for any reason the Policy Board Chair or Vice-Chair resigns from their position, the Policy Board shall elect a new Chair or Vice-Chair by majority vote of the members present.

ARTICLE VII. OFFICER'S DUTIES

SECTION 1. Chair: It shall be the duty of the Chair to preside at all meetings of the MAPO. The Chair shall have general responsibility for the affairs of the MAPO including signatory authority on all contracts, documents and other official instruments of the MAPO.

SECTION 2. Vice-Chair: The Vice-Chair shall perform the duties of the Chair the absence or incapacity of the Chair. In case of the resignation or death of the Chair, the Vice-Chair shall perform such duties as are imposed on the Chair until such time as the MAPO shall select a new Chair. The Vice-Chair shall have signatory authority on all contracts, documents and other official instruments of the MAPO.

SECTION 3. Executive Director: The Executive Director shall be appointed by the administrative agency and fall under the supervision of the City Manager. The Executive Director of the MAPO shall be responsible for the general supervision, management and administration of the business and affairs of the Organization. He/She shall have the care and custody of all funds of the MAPO and shall deposit the same in the name of the Organization in such bank or banks as the administrative agency may select. He/She shall have signatory authority for the disbursement of all monies under the direction of the Organization shall countersign all such disbursements. He/She shall keep all official records and financial accounts of the Organization. The administrative agency shall be responsible for the appointment of the MAPO Executive Director.

The Executive Director shall also serve as the Secretary for the MAPO Policy Board.

SECTION 4. Additional Personnel: The MAPO may employ such personnel, as it deems necessary to exercise its powers, duties and functions. The Policy Board shall be subject to the laws of the State of Minnesota shall determine the selection and compensation of such personnel.

ARTICLE VIII. MEETINGS

SECTION 1. Regular Meetings: Regular MAPO Policy Board meetings are scheduled on an as-needed basis and are open to the public with comments welcomed at all meetings. At a minimum, the MAPO Policy Board will meet quarterly to approve the Unified Planning Work Program and the Transportation Improvement Program (TIP). A Public Notice will be provided as defined in the Public Participation Plan.

SECTION 2. Special Meetings: In consultation with the MAPO Policy Board Chair, the Executive Director shall call meetings of the Policy Board. All members of the Policy Board shall be notified 10 days prior to the date of the meeting. An exception to the 10 day notice may be granted by the chairs of the Policy Board. A Public Notice shall be printed in the officially designated local newspaper. The notice shall state the purpose, time, and location of the meeting as well as staff contact information. The public notice shall be printed in the local newspaper at least 5 days prior to the meeting.

SECTION 3. Rules of Order: All meetings shall operate under “Roberts Rules of Order” and any other special rules that are specifically adopted by the Policy Board. Such special rules for the MAPO shall govern and supersede “Roberts Rules of Order,” insofar as they do not conflict with or are inconsistent with the provisions of these By-Laws. All meetings of the MAPO shall be open to the public.

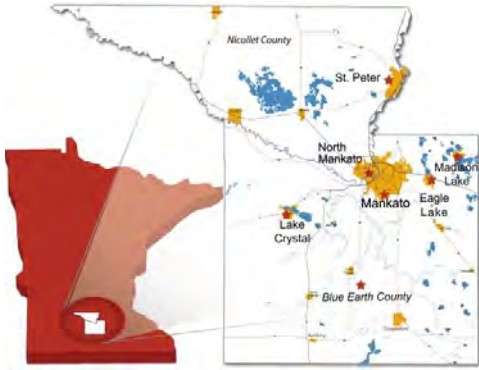
SECTION 4. Agenda: In consultation with the chair of the Policy Board, the MAPO administrative agency shall prepare an agenda for the Policy Board meetings. A copy of the proposed agenda, together with the copies of reports, recommendations, documents, and the like will be furnished to each Policy Board member one week prior to the regular Policy Board meetings.

The Policy Board shall have the option of deleting any item from the agenda or deferring an item on the agenda to a subsequent Policy Board meeting. Deleting or deferring agenda items is subject to a majority vote by the Policy Board members.

SECTION 5. Quorum: At all meetings of the Policy Board, four members who are present and eligible to vote shall constitute a quorum. A simple majority vote of a quorum present at any meeting shall suffice to adopt motions, adopt resolutions and other transactions of business.

SECTION 6. Voting: Any act or other business of the Council may be enacted, constituted or approved by a majority of the votes of this Council present at any duly called meeting.

SECTION 7. Amendments: These bylaws may be amended by majority vote of the Policy Board. The amended bylaws must note the version number and date of approval.



AGENDA RECOMMENDATION

Agenda Heading: Long Range Transportation Plan Update consultant No: 5.2

Agenda Item:

Long Range Transportation Plan Update consultant

Recommendation Action(s):

Motion to approve of consultant for services in development of Long Range Transportation Plan (LRTP) Update

Summary:

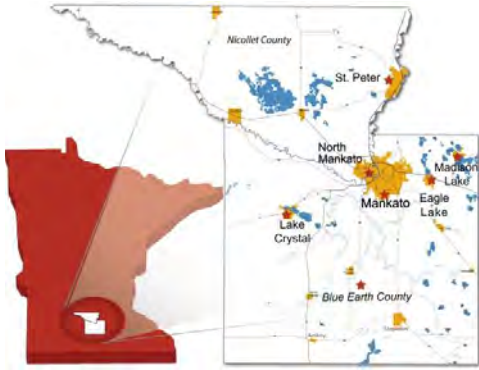
The Request for Proposal (RFP) period for the MAPO's LRTP Update ran January 2, 2019 to February 19, 2019. The MAPO TAC ranking and scoring subcommittee met April 3. The subcommittee was comprised of representatives from MnDOT District 7, MAPO staff, the cities of Mankato and North Mankato, and the counties of Blue Earth and Nicollet.

The scoring subcommittee recommended that SRF Consulting, Inc. be contracted for services.

This item was brought before the MAPO TAC at their April 18, 2019 meeting and recommended for approval.

Staff recommends the MAPO Policy Board motion to approve contracting with SRF Consulting, Inc. for development of the MAPO LRTP Update.

Attachments:



AGENDA RECOMMENDATION

Agenda Heading: Warren Street Corridor Study consultant No: 5.3

Agenda Item:

Warren Street Corridor Study consultant

Recommendation Action(s):

Motion to approve of consultant for services in development of Warren Street Corridor Study

Summary:

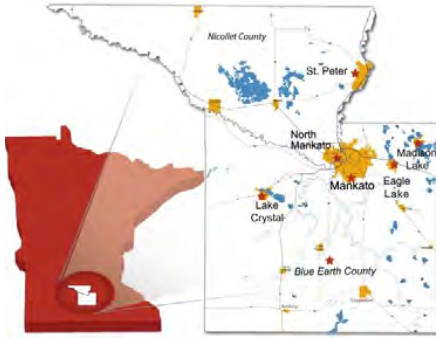
The Request for Proposal (RFP) solicitation period for the MAPO's Warren Street Corridor Study ran February 26, 2019 to March 29, 2019. The MAPO TAC ranking and scoring subcommittee met April 11. The subcommittee consisted of representatives from the City of Mankato, Mankato Transit System, and MAPO staff.

It is the recommendation of the scoring subcommittee that Bolton and Menk, Inc. be contracted for services.

This item was brought before the MAPO TAC at their April 18, 2019 meeting and recommended for approval.

Staff recommends the MAPO Policy Board motion to approve contracting with Bolton and Menk, Inc. for development of the MAPO Warren Street Corridor Study.

Attachments:



AGENDA RECOMMENDATION

Agenda Heading: Resolution recognizing MnDOT Intelligent Transportation Systems (ITS) Architecture Plan No: 5.4

Agenda Item: Resolution recognizing updated MnDOT Intelligent Transportation Systems (ITS) Architecture Plan

Recommendation Action(s):

Motion to approve resolution recognizing MnDOT Statewide ITS Architecture Plan

Summary:

Federal

The US Department of Transportation has updated its national intelligent transportation systems (ITS) architecture, which specifies the relationships, such as information exchanges, among the components of ITS projects implemented with federal funds.

State

The implementation of the Minnesota Statewide Regional ITS Architecture supports FHWA's planning. The purpose is to foster integration of the deployment of regional ITS systems. In 2018 MnDOT updated its Statewide Regional ITS Architecture Plan, with the goal of updating the state's plan in conformance with the latest version of the National ITS Architecture. MnDOT defines ITS as *"the development or application of technology (electronics, communications, or information processing) to improve the efficiency and safety of surface transportation systems."*

The update is available for review at the following link:

<http://www.dot.state.mn.us/its/projects/2016-2020/itsarchitecture/implementation-volume.pdf>

MAPO

To fulfill requirements for 23 CFR 940, MnDOT has requested that each MPO approve the attached resolution that recognizes the Minnesota Statewide Regional ITS Architecture.

This item was brought before the MAPO TAC at their April 18, 2019 meeting and recommended for approval. Staff recommends the MAPO Policy Board motion to approve the attached resolution.

Attachments:

Resolution recognizing updated MnDOT Statewide Regional ITS Architecture Plan

RESOLUTION OF THE MANKATO/NORTH MANKATO AREA PLANNING ORGANIZATION RECOGNIZING THE MINNESOTA DEPARTMENT OF TRANSPORTATION STATEWIDE REGIONAL ITS ARCHITECTURE

Whereas, the US Department of Transportation has an adopted national intelligent transportation systems (ITS) architecture which specifies the proper relationships, such as information exchanges, among the components of all ITS projects implemented (in whole or in part) with federal funds; and

Whereas, the development of a Regional Intelligent Transportation Systems (ITS) Architecture has been mandated in national transportation legislation in an effort to integrate technological solutions into the transportation network to alleviate congestion and improve safety and efficiency; and

Whereas, the Minnesota Department of Transportation has updated the Minnesota Statewide Regional ITS Architecture to address changes statewide relating to ITS Systems, Stakeholders, Interconnections, Service Packages, and Project Inventory; and in conformance with the National ITS Architecture and Standards in accordance with 23 CFR 940 (FHWA Final Rule 940); and

Whereas, the FHWA Final Rule 940 ("Intelligent Transportation System Architecture and Standards") and Federal Transit Administration's "National Architecture Policy on Transit Projects" require each metropolitan planning organization (MPO) to adopt or recognize a regional ITS architecture that is consistent with its Long-Range Transportation Plan; and

Whereas, ITS projects in a metropolitan transportation planning area must be consistent with a Regional ITS Architecture to be eligible to receive federal funds for implementation; and

Whereas, the Mankato/North Mankato Area Planning Organization recognizes the Minnesota Statewide Regional ITS Architecture as the regional architecture that shall govern all ITS improvements statewide and within its metropolitan transportation planning area;

Now, therefore, be it resolved by the Mankato/North Mankato Area Planning Organization that it **hereby recognizes the Updated Minnesota Department of Transportation's Statewide Regional ITS Architecture** and any subsequent minor updates will be incorporated as the regional ITS architecture that shall identify and guide all ITS improvements within its metropolitan transportation planning area.

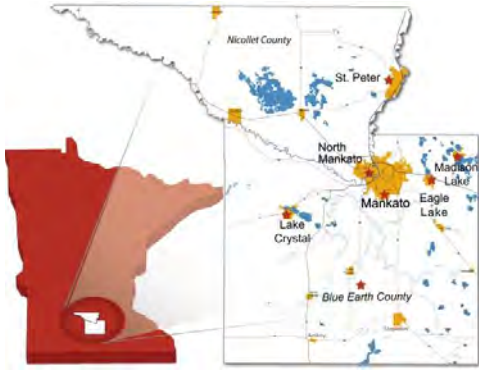
CERTIFICATION

State of Minnesota

I hereby certify that the foregoing Resolution is a true and correct copy of the resolution presented to and adopted by the Mankato/North Mankato Area Planning Organization at a duly authorized meeting thereof, held on the second day of May, 2019, as shown by the minutes of said meeting in my possession.

Chair Date

Executive Director Date



AGENDA RECOMMENDATION

Agenda Heading: Surface Transportation Program (STP) ranking sheet No: 5.5

Agenda Item:

Surface Transportation Program (STP) ranking sheet

Recommendation Action(s):

Approve Surface Transportation Program (STP) ranking sheet

Summary:

At its January 17, 2019 meeting the MAPO TAC approved the attached ranking sheet for two applications for the Surface Transportation Program (STP) submitted within the MAPO planning boundary. The ranking sheet was requested and submitted to MnDOT District 7 on February 6, 2019.

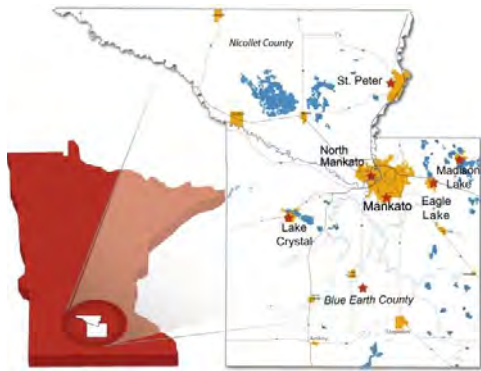
The North Mankato application was approved by MnDOT. Discussion between Mankato and MnDOT District 7 led to the Mankato application being withdrawn with the expectation it would be resubmitted in 2020. This was done based on information from MnDOT that a 2020 submission would better coordinate the project with MnDOT's project schedule.

Staff recommends the MAPO Policy Board approve the attached STP application ranking sheet.

Attachments:

STP ranking sheet

2020-2023 Surface Transportation Program - Small Urban (STP - SU) applications within MAPO boundary			City of North Mankato - Lor Ray Drive at Howard Drive Roundabout	City of Mankato - TH22 at Augusta Drive Roundabout
Criteria	Points	Evaluation Question	Score	Score
a. Regional Benefit	30	What are the project's merits/benefits and intended effect upon the regional transportation network?	29	29
b. Mobility	30	How will the project improve the mobility of people and goods?	29	29
c. Planning Support	15	Is the project identified in the MAPO's Long Range Transportation Plan or other transportation study/document?	15	15
d. Multi-modalism	10	How does the project encompass multiple modes of travel?	8	8
e. Environmental Impacts	10	How will the project respond to environmental impacts and mitigation measures?	10	10
f. Public Participation	5	What public participation has been undertaken or will take place with this project?	5	5
Total			96	96
Comment:				



AGENDA RECOMMENDATION

Agenda Heading: Discuss Americans with Disabilities Act (ADA) Municipality Adopting Resolution and ADA Transition Plan Update No: 6.1

Agenda Item:

Discuss Americans with Disabilities Act (ADA) Municipality Adopting Resolution and ADA Transition Plan Update

Recommendation Action(s):

Informational and discussion

Summary:

Matt Lassonde of Bolton & Menk, Inc. will deliver a short presentation describing final project outcomes, document organization, and next steps.

The MAPO's ADA Transition Plan includes sections tailored to MAPO partner municipalities that will serve as their respective adopted ADA Transition Plans and inventories. As a federal requirement, applicable MAPO municipalities must pass a resolution to formally adopt their individual plans. Applicable partners include Eagle Lake, Mankato, North Mankato, and Skyline as well as Nicollet County and Blue Earth County. The attached draft resolution will be supplied to those partners as a template for adjustment and adoption.

The MAPO held the final open house for the ADA Transition Plan in North Mankato on March 6, 2019. Stakeholder input was integrated as appropriate. The final draft Plan is included as a linked attachment.

Staff recommends discussion of the draft resolution before it is disbursed to partner municipalities for adjustment and adoption.

Attachments:

Presentation slides

Draft municipality adopting resolution

Final draft ADA Transition Plan full plan hosted at:

https://mnmapo.files.wordpress.com/2019/04/3-mapo_ada-tp_full-document-draft_04112019.pdf

MAPO ADA Transition Plan and Inventory

- **Project Outcomes**
- **Document Organization**
- **Data Integration**
- **Next Steps**



Project Outcomes

- A publicly vetted **MAPO ADA Transition Plan and Inventory** documenting:
 - **Self-Evaluation Results**
 - **Implementation Plan and Schedule**

MAPO Partner Agencies

- Eagle Lake
- Mankato
- North Mankato
- Skyline
- Blue Earth County
- Nicollet County



Project Outcomes

- **Stakeholder Outreach:**
 - Nearly 40 groups contacted
 - Public made Aware



Document Organization

Document Parts:

Part 1 – MAPO Overarching Document

Part 2 – City of Eagle Lake

Part 3 – City of Mankato

Part 4 – City of North Mankato

Part 5 – City of Skyline

Part 6 – Blue Earth County } *Within and outside MAPO Boundary*

Part 7 – Nicollet County



Data Integration

- Data Management Application
- Integration with existing, hosted WebGIS Applications
- Data Delivery



Next Steps

- **Receive Final Plan Draft – Today**
- **MAPO Partner Agency Adoption – Dates TBD**
- **Data Delivery**
- **MAPO Partner Agency Implementation**



Proposed Resolution _____

Resolution NO. _____

A Resolution Adopting Part 1 and Part [redacted] of the Mankato/North Mankato Area Planning Organization (MAPO) Americans with Disabilities Act (ADA) Transition Plan and Inventory for Public Rights-of-Way

WHEREAS, the Federal government enacted the Americans with Disabilities Act (ADA) of 1990 to prevent discrimination of individuals with disabilities relating to employment and access to public programs, services and facilities; and

WHEREAS, Title II of the ADA requires applicable public agencies who have responsibility or authority over streets, roads, or walkways to develop and adopt a Transition Plan which reports the findings of a Self-Evaluation process, identifies a Title II ADA Coordinator, describes a plan and schedule for the removal of accessibility barriers, and defines a grievance procedure for the public to submit grievances; and

WHEREAS, the Mankato/North Mankato Area Planning Organization (MAPO), under directive from the Federal Highway Administration (FHWA) and the Minnesota Department of Transportation (MnDOT), has initiated and partially funded the development of ADA Transition Plans for partner agencies included within its jurisdiction; and

WHEREAS, [City/County] is committed to constructing pedestrian facilities designed in accordance with ADA Design Standards and Procedures defined in the Public Rights-of-Way Accessibility Guidelines (PROWAG), and the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Rights-of-Way developed by the Access Board; and

WHEREAS, [City/County] is committed to constructing pedestrian facilities designed in accordance with ADA Design Standards and Procedures defined by the Minnesota Department of Transportation (MnDOT); and

WHEREAS, [City/County] performed a Self-Evaluation of current services, policies, and practices, and the effects thereof, to identify and document barriers to ADA accessibility and needed modifications; and

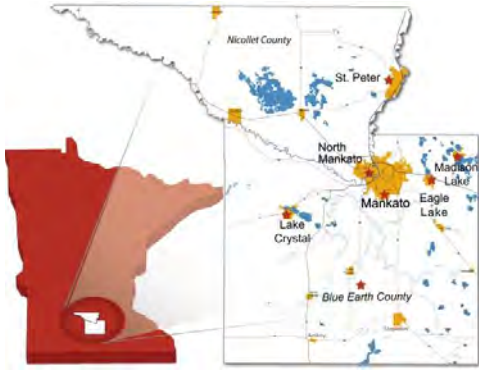
WHEREAS, [City/County] completed Part __ of the MAPO ADA Transition Plan and Inventory for Public Rights-of-Way which reports the findings of the Self-Evaluation process, identifies a Title II ADA Coordinator, describes a plan and schedule for the removal of accessibility barriers, and defines a grievance procedure for the public to submit grievances; and

WHEREAS, [City/County] provided an opportunity to interested persons, including individuals with disabilities or organizations representing individuals with disabilities, to participate in the Self-Evaluation process and development of the ADA Transition Plan by submitting comments;

NOW, THEREFORE, BE IT RESOLVED that [City/County] hereby adopts Part 1 – MAPO Partner Agency Requirements and Project Purpose concurrently with Part __ [City/County] ADA Transition Plan and Inventory of the over-arching MAPO ADA Transition Plan and Inventory for Public Rights-of-Way document, a copy of which shall be filed with and maintained by [City/County] Clerk.

NOW, THEREFORE, BE IT FURTHER RESOLVED, that the City/County will pursue the removal of barriers identified in the Self-Evaluation during reconstructions and as part of the capital improvements approved by the governing body provided said improvements are within the fiscal budgetary constraints of the jurisdiction.

PASSED, APPROVED, AND ADOPTED this __ day of _____, 2019.



AGENDA RECOMMENDATION

Agenda Heading: Update: TIP Administrative Modification – Kern Bridge No: 6.2

Agenda Item:

TIP Administrative Modification – Kern Bridge

Recommendation Action(s):

Informational and discussion

Summary:

History

The Kern Bridge (also known as former MnDOT Bridge L5669) was constructed in 1873 to span the Le Sueur River and connect the townships of Mankato and South Bend. The bridge has significant historic value as it is currently the longest bowstring truss/arch bridge in North America, as well as listed on the National Register of Historic Places.

Disrepair & Local Action

The bridge is located on a township road that has been abandoned for over 30 years and has fallen into disrepair. While the structure is in salvageable condition, the bridge sits atop failing substructure and will soon fall into the underlying river.

Local agencies including Mankato Township, Blue Earth County (BEC), and MnDOT District 7 have coordinated to secure funds for dismantling and storage. Project costs for dismantling and storage are estimated at \$349,000. BEC is entering an agreement for 80% federal funding for engineering and salvaging. The remaining 20% match will be paid via the Statewide Town Bridge Account. MnDOT has agreed to take possession of and store the disassembled bridge until a new location is determined.

If a new owner is identified, MnDOT will pay for 80 percent of the design, rehabilitation, and relocation using a portion of its FHWA funding, and the new owner will be responsible for providing the 20 percent match. A new location for the bridge has yet to be determined.

MAPO Action

As the bridge is located within the MAPO planning boundary and the upcoming work involves federal funds, the project must be added to the MAPO's Transportation Improvement Program (TIP). Per MAPO policy, staff have conferred with District 7 and jointly determined the project represents an Administrative Modification, as it is a

Meeting Date: May 2, 2019

reallocation of funds already programmed within the State Transportation Improvement Program (STIP). Administrative Modifications to the MAPO TIP do not require formal public involvement actions, but the MAPO's practice is to describe these changes in the 'Project Updates' section of the TAC and MAPO meeting materials and to update the online TIP project tables as these revisions occur.

The draft revisions of the 2019-2022 TIP are below:

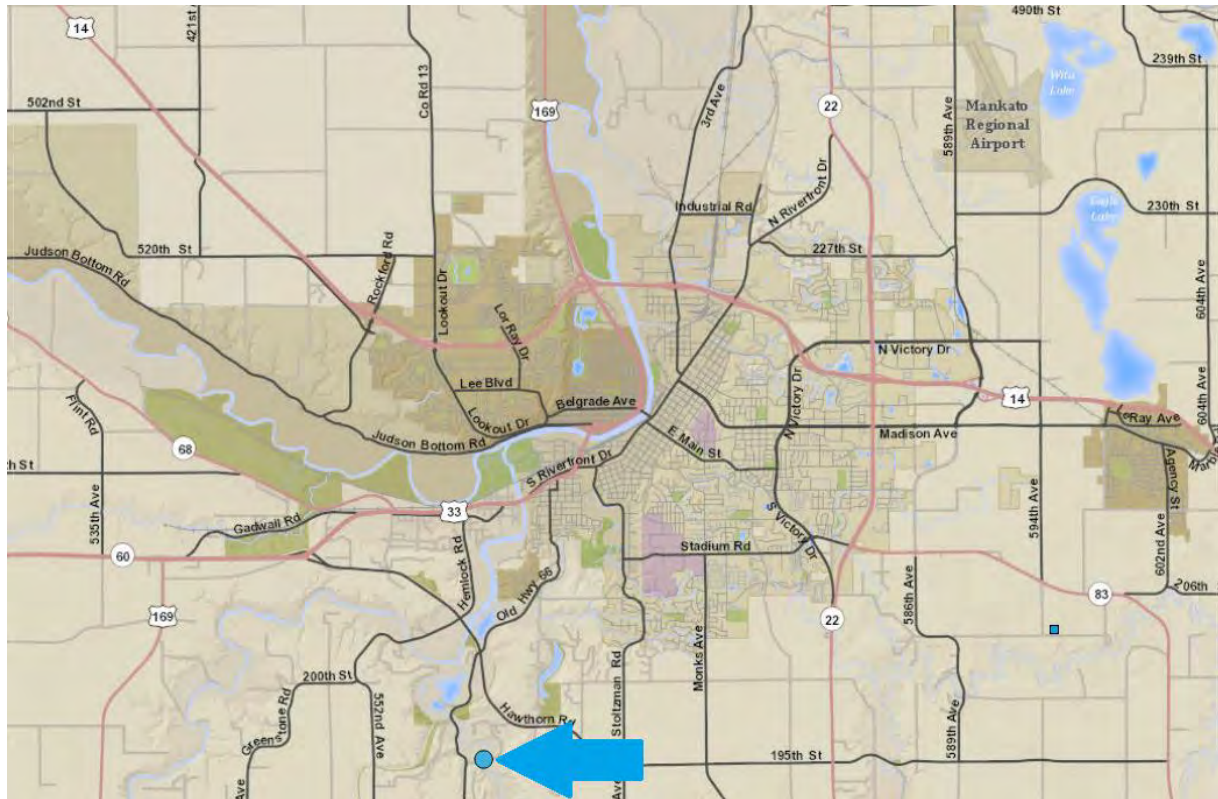
L RTP Reference	Route System	Project Number	Year	Agency	Project Description	Miles	Program	Type of Work	Proposed Funds	Total	FHWA	AC	FTA	TH	Bond	Other
5-6	TWP 190	007-599-063	2019	BLUE EARTH COUNTY	TWP RD 190 (IVYWOOD LANE), BRIDGE OVER LE SUEUR RIVER, PRELIMINARY ENGINEERING FOR REMOVAL AND STORAGE OF BRIDGE	0	BR	BRIDGE REMOVAL	STBGP	\$49,000	\$39,200					\$9,800
5-6	TWP 190	007-599-062	2019	BLUE EARTH COUNTY	TWP RD 190 (IVYWOOD LANE), BRIDGE OVER LE SUEUR RIVER, REMOVAL AND STORAGE OF BRIDGE, INCLUDES CONSTRUCTION ENGINEERING	0	BR	BRIDGE REMOVAL	STBGP	\$300,000	\$240,000					\$60,000

Attachments:

Kern Bridge Location Map & Photo

Kern Bridge Structural Analysis & Bridge Load Rating Report

Kern Bridge Location Map



Kern Bridge photo, 2017



Structural Analysis & Bridge Load Rating Report

for

Kern Bridge

(formerly MnDOT Bridge No. L5669)



Report Prepared by Kyle D. Marynik, PE
Joseph D. Litman, PE

Report Date August 31, 2017

LHB, Inc
21 W. Superior Street
Duluth, MN 55802



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DRIVEN DESIGN.**
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Minnesota Department of Transportation (MnDOT)

Kern Bridge Structural Analysis & Load Rating Report

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- I. Purpose of the Study
- II. Existing Conditions
- III. Structural Analysis & Load Rating
- IV. Rehabilitation Opinions
- V. Projected Rehabilitation Costs

Appendices

- A. Guidelines for Bridge Maintenance and Rehabilitation based on the Secretary of the Interior's Standards

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of Minnesota.


Signature

Joseph D. Litman
Printed Name

21833
License No.

August 31, 2017
Date

DESIGN FIRM

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Minnesota Department of Transportation (MnDOT)

Kern Bridge Structural Analysis & Load Rating Report

Executive Summary

Bridge Number: L5669

The Kern Bridge (also known as former MnDOT Bridge L5669), is located in the southeast corner of South Bend Township and the southwest corner of Mankato Township in Blue Earth County. The bridge spans the Le Sueur River and is closed to vehicular and pedestrian traffic. Mankato Township owns the bridge. The Kern Bridge is unusual in that its 188-foot span length exceeds the standard lengths of 50 to 130 feet for bowstring truss/arch spans nationally. Constructed in 1873, the bridge is listed in the National Register of Historic Places (National Register) as the only example of a bowstring through-truss/arch bridge in Minnesota. It holds exceptional significance as the longest bowstring truss/arch in the United States and the second longest in North America.

The Kern Bridge formerly carried Ivywood Lane (Township Road 190) over the Le Sueur River in Blue Earth County. The out-to-out width of the timber deck is 15 feet 10-inches and the clear width is 14 feet 9 inches between the timber curbs. The deck is about 30 feet above the riverbed. The abutments are stone masonry.

The Kern Bridge superstructure is in fair condition overall, its substructures (abutments) are in poor condition and it is currently closed to pedestrian and vehicular traffic. The rehabilitation opinions contained herein outline a process to disassemble the bridge and correct identified structural deficiencies to preserve the truss/arch once relocated to a new site.

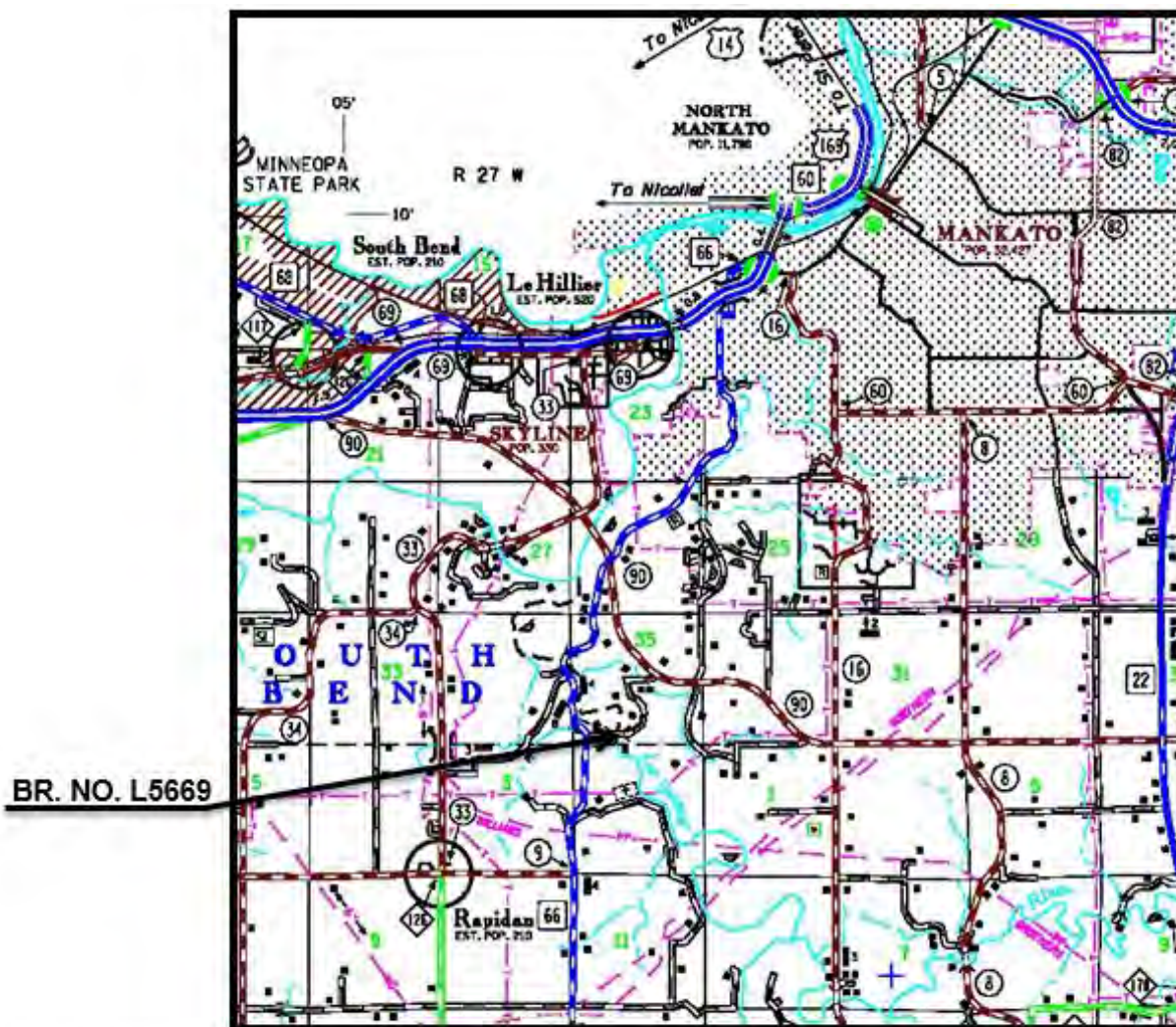
As a Historic, National Register Listed structure and in order to maintain and preserve this status, work on The Kern Bridge would be required to proceed according to the Secretary of the Interior's Standards for the Treatment of Historic Properties (Standards) [36 CFR part 67] and *The Secretary's Standards with Regard to Repair, Rehabilitation, and Replacement Situations*, as adapted by the Virginia Transportation Research Council (Guidelines). This report contemplates relocating the structure to a new site which may be considered to not comply with the Standards. However, relocation may be the only alternative to preserve any portion of the structure if its remaining in place results in its total loss/collapse into the river.



Minnesota Department of Transportation (MnDOT) Kern Bridge Structural Analysis & Load Rating Report

Bridge Location

Bridge Number: L5669



Bridge L5669 – T190 over LE SUEUR RIVER



PROJECT LOCATION

BLUE EARTH COUNTY

SEC. 35, TO 107NN, R 27W

UTM ZONE: 15

NAD: 27

USGS QUAD NAME: GOOD THUNDER

EASTING: 1366819 ft.

NORTHING: 16025539 ft.

Minnesota Department of Transportation (MnDOT)

Kern Bridge Structural Analysis & Load Rating Report

I – Purpose of the Study

Bridge Number: L5669

LHB was retained by the Minnesota Department of Transportation (MnDOT) to assist with structural analysis, load capacity rating, and relocation/rehabilitation opinion for the Kern Bridge in Blue Earth County, Minnesota.

The principal goals of this study are to assess the current condition of the Kern Bridge historic bowstring truss/arch superstructure elements, analyze the current bridge elements' structural capacities, calculate a bridge load rating based on pedestrian and maintenance vehicle use, and to provide an opinion of feasibility and preliminary cost estimates for relocation and rehabilitation of the bridge. It should also be noted that although the Kern Bridge is classified as a bowstring truss its structural geometrics and load paths function as a tied arch and for that reason it has been analyzed herein as a tied arch.

Rehabilitation opinions within this Report are intended to be consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (Standards). The Standards are basic principles created to help preserve the distinct character of a historic property, while allowing for reasonable change to meet new engineering standards and codes. The Standards recommend repairing, rather than replacing deteriorated features whenever possible. The Standards apply to historic properties of all periods, styles, types, materials and sizes and encompass the property's location and surrounding environment.

The Standards were developed with historic buildings in mind and cannot be easily applied to historic bridges. The Virginia Transportation Research Council (Council) adapted the Standards to address the special requirements of historic bridges. They were published in the Council's 2001 Final Report: A Management Plan for Historic Bridges in Virginia, *The Secretary's Standards with Regard to Repair, Rehabilitation, and Replacement Situations*, provide useful direction for undertaking maintenance, repair, rehabilitation, and replacement of historic bridges and are included in the Appendix of this report.



Minnesota Department of Transportation (MnDOT)

Kern Bridge Structural Analysis & Load Rating Report

II – Existing Conditions

Bridge Number: L5669

Existing Conditions

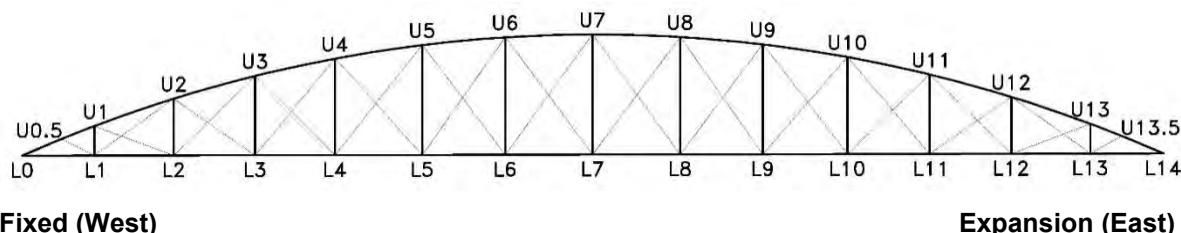
A site visit was conducted to establish the following:

1. General condition of structure
2. Bridge geometry, clearances and notable site issues
3. Geometrics for structural analysis

Superstructure

Wrought Iron Truss/Arch-Primary Members

The bottom chord tension members are in fair condition. Impact damage to the bottom chord members was noted in four locations on the south (upstream) truss/arch. The bottom chord splice plates are distorted from minor pack rust. The built-up top chord configuration is commonly referred to as a Phoenix Column (see Photo 8). The Phoenix Columns appeared in good condition with no significant defects noted. The built-up vertical members are in fair condition with minor pitting noted, especially near the connection to the lower chord. Some loss of section was noted at these locations, amounting to 5 percent or less loss of original section. The round stock diagonal members are in good to fair condition.



Sketch 1: South Truss/Arch Elevation Looking North

Wrought Iron Truss/Arch-Portals and Secondary Members

Two of the portals on the west end of the truss/arch are damaged from impacts. Bolts are missing from the connections between the bottom chord and bracing members at several locations along the length of the bridge. The upper sway brace connection in the southeast corner of the bridge is broken. The X-bracing in the plane of the floor system is currently ineffective with the members mostly disconnected and hanging off the bridge.

Truss/Arch Floorbeams and Timber Stringers

The truss/arch floorbeams appeared to be in good to fair condition, though close examination was only possible at either end of the truss/arch (L1 and L13). The timber stringers that were accessible also appeared to be in good to fair condition.

Bridge Railings

A previous bridge railing appears to have been removed, as evidenced by hardware and brackets that remain on the structure. The two lines of wire rope that have been installed on each truss/arch to function as railings are in good condition, though the railing geometry and configuration does not meet current standards for either pedestrian/bikeway or vehicular traffic.

Minnesota Department of Transportation (MnDOT)

Kern Bridge Structural Analysis & Load Rating Report

II – Existing Conditions

Bridge Number: L5669

Paint System

The paint system has failed 100 percent on all metal portions of the bridge.

Timber Deck, Curbs, and Running Planks

The transverse timber deck planks are in fair condition, with approximately 30 individual planks requiring replacement due to damage and/or decay. The timber curbs are in fair condition with an estimated 30 linear feet of damaged or decayed curb requiring replacement. The longitudinal timber running planks are in poor condition and require 100 percent replacement. The existing broken and decayed running planks along with exposed nails and hardware present a serious tripping hazard that, coupled with the non-conforming railings, present a serious safety risk.

Bearings

Truss/arch bearings are non-functioning and mostly buried in earth. Movement of the truss/arch independent of the bearings has caused cracks and dislocation of the stone masonry at the east abutment.

Substructures

Abutments

The stone masonry abutments are in poor condition, especially the east abutment. The masonry at the east abutment is cracked and some of the stones are dislodged from their original position, particularly near the truss/arch supports where non-functioning expansion bearings have transmitted unintended lateral forces to the masonry. In addition, the foundation of the east abutment at the south end has settled, causing vertical translation of the bottom chord at this location. This condition may also be responsible for the broken sway brace connection in the southeast corner discussed in the “Wrought Iron Truss/Arch-Portal and Secondary Members” section above. The southeast slope has washed out, resulting in exposure of the stone masonry abutment back face. The west abutment has been underpinned in the past to correct undermining.

An independent support of the bottom chord consisting of a steel H-pile section supported on a concrete pad poured on the bedrock is present in the southwest corner. While it is unclear whether or not this rough shoring apparatus is actually supporting the truss/arch, it should be removed prior to subjecting the truss/arch to any significant live or dead loading. The location of the temporary support is far enough from the bearing location that it will introduce loading directions and magnitudes that the truss/arch is not designed to accommodate. Crippling of the bottom chord and collapse of the bridge is a likely scenario if the bridge is subjected to vehicular live loads with this support in place.

Date of Engineering Site Visit by LHB

April 29, 2014 & June 12, 2017



Minnesota Department of Transportation (MnDOT) Kern Bridge Structural Analysis & Load Rating Report

II – Existing Conditions

Bridge Number: L5669



Photo 1: South elevation, looking north



Photo 2: East bridge approach, looking west

Minnesota Department of Transportation (MnDOT) Kern Bridge Structural Analysis & Load Rating Report

II – Existing Conditions

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Photo 3: East approach, looking east



Photo 4: West approach, looking east

Minnesota Department of Transportation (MnDOT) Kern Bridge Structural Analysis & Load Rating Report

II – Existing Conditions

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Photo 5: West approach, looking west

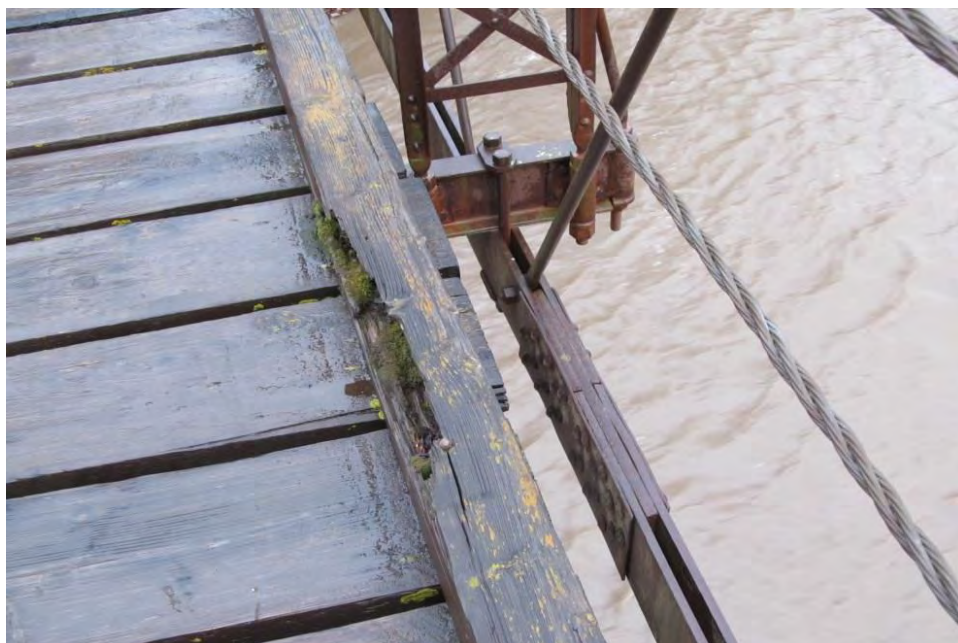


Photo 6: Typical bottom chord configuration

Minnesota Department of Transportation (MnDOT) Kern Bridge Structural Analysis & Load Rating Report

II – Existing Conditions

Bridge Number: L5669



Photo 7: Bottom chord showing distortion of splice plates



Photo 8: Top chord configuration (Phoenix Column)

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II – Existing Conditions

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Photo 9: Typical latticed vertical member



Photo 10: Typical built-up vertical member (note previous railing hardware remaining)

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II – Existing Conditions

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Photo 11: End portals and sway braces



Photo 12: Floorbeams and timber stringers (note hanging X-bracing)

Minnesota Department of Transportation (MnDOT) Kern Bridge Structural Analysis & Load Rating Report

II – Existing Conditions

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Photo 13: Missing bolt at secondary member connection (1 of 2)



Photo 14: Missing bolts at secondary member connection (2 of 2)

Minnesota Department of Transportation (MnDOT) Kern Bridge Structural Analysis & Load Rating Report

II – Existing Conditions

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Photo 15: Timber deck (note uneven surface, potential tripping hazard)



Photo 16: Bearing at east abutment

Minnesota Department of Transportation (MnDOT) Kern Bridge Structural Analysis & Load Rating Report

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Photo 17: East abutment masonry dislocation, southeast corner



Photo 18: East abutment masonry dislocation, northeast corner

Minnesota Department of Transportation (MnDOT) Kern Bridge Structural Analysis & Load Rating Report

II – Existing Conditions

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Photo 19: West abutment



Photo 20: Truss/arch support in southwest corner

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II – Existing Conditions

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Photo 21: Typical bolted connection, vertical to bottom chord



Photo 22: Typical bolted connection, vertical to top chord

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Photo 23: Southeast slope washout



Photo 24: Southeast slope washout, exposed stone masonry abutment

Minnesota Department of Transportation (MnDOT)

Kern Bridge Structural Analysis & Load Rating Report

III – Structural Analysis & Load Rating

Bridge Number: L5669

The Kern Bridge truss/arch and floor beams were analyzed and rated for safe load carrying capacity in conformance with The Manual for Bridge Evaluation, 2nd Edition, 2011, and Standard Specifications for Bridges, 17th Edition, 2002, published by AASHTO. The analysis concentrated on the truss/arch top chord, bottom chord and transverse floor beams using Load Factor Rating (LFR) methodology. The timber deck and timber stringers were not analyzed for capacity and rating purposes as it is assumed the entire system will need to be replaced if the structure is relocated. If relocated, a more detailed analysis/design of the timber deck and timber stringers would need to be completed.

All truss/arch elements were analyzed utilizing AASHTO pedestrian and maintenance vehicle loading with 5 percent overall loss of section to account for rust and other noted deficiencies. Per AASHTO the pedestrian (85 PSF) and H10 maintenance vehicle live loads are not analyzed as a combined load case unless an existing traffic barrier is in place between designated vehicular and pedestrian travel ways. The bridge does not include a barrier separating pedestrian and vehicular travel ways, therefore two different live load cases were used to determine whether pedestrian or vehicular live loading controlled the analysis. It was assumed that the future use of the bridge is to be a pedestrian structure, therefore impact was not applied to the live loads. The dead load of the bridge was calculated from field measurements of the current bridge structure.

One side of the truss/arch (south side) was modeled using structural analysis software (RISA-3D Version 15.0.2) to aid in determining stress levels for the structure. The top chord was modeled for compression only and the bottom chord as tension only members due to the nature of the bowstring truss/arch design. Bending induced in the top chord from the applied loads, of the vertical and diagonal members, was also considered in the analysis. The floorbeams were analyzed as a simply supported beam.

The table below (Figure 1) reflects analysis of the bridge in its current state, using pedestrian and H10 maintenance vehicle live loading. Based on our knowledge of the bridge's history and the date it was built, we assumed all floorbeams and truss/arch elements of the bridge to be wrought iron, therefore yield and ultimate stresses of 26 KSI and 48 KSI respectively were used for all floorbeams and truss/arch members in our analysis. Note that a rating factor of 1.0 means the design live load capacity is equivalent to the applied design load.

Bridge Element	Inventory Rating Factor	Operating Rating Factor	Controlling Limit State (Live Load Case)
Truss/Arch Top Chord	0.32	0.53	Ultimate Compression + Bending (Pedestrian loading)
Truss/Arch Bottom Chord	0.78	1.30	Ultimate Tension (Pedestrian loading)
Floorbeam	0.05	0.08	Ultimate Bending (H10 loading)

Figure 1: Rating factor summary of all analyzed bridge elements for current state

Minnesota Department of Transportation (MnDOT)

Kern Bridge Structural Analysis & Load Rating Report

III – Structural Analysis & Load Rating

Bridge Number: L5669

With the bridge in its current state, the analysis indicates that it is not capable of supporting the applied pedestrian or H10 maintenance vehicle live loads. Based on the era of when the bridge was designed, it is assumed that the maximum load it was designed to carry was a horse and buggy type vehicle, which is much lighter when compared to the applied live loads used in this analysis. It is also assumed that the top chord was originally designed for pure axial compression only (a simplification, though unconservative) and that the effects of combined axial load and bending would not have been considered. The floorbeam rating factors are very low compared to the truss/arch chord members, as summarized in Figure 1, thus controlling the bridge load rating. Options for rehabilitation/ renovation were explored to determine if the structure could be modified to safely carry the applied loads. For rehabilitation purposes, a minimum inventory rating factor of 0.90 was assumed for any bridge element to be considered adequate for carrying the applied loads.

The truss/arch top and bottom chord rating factors were controlled by the pedestrian live load case. The first option (Option 1) explored for improving the top and bottom chord rating factors, was to reduce the timber deck clear width in order to lessen the applied pedestrian live load. The current clear width is 14 feet 9 inches. The analysis concluded that the timber deck clear roadway width between railings would need to reduce to approximately 7 feet, centered on the floor beams, to achieve a minimum 0.90 inventory rating factor. The second option (Option 2), included reducing the timber deck clear width in combination with adding lateral bracing members at upper panel points U1, U2, U12 and U13 to minimize the top chord unbraced length. Lateral bracing could potentially be added to these panel points by framing to the floorbeams on the interior side of the bridge. For this option, the analysis allowed for the timber deck to be reduced to approximately 10 feet clear width between railings. Due to the reduced clear roadway widths of 7 to 10 feet, H5 maintenance vehicle live loading was used instead of the H10 maintenance vehicle per the AASHTO: LRFD Guide Specifications for the Design of Pedestrian Bridges, 2009 with 2015 Interim Revisions. However, even if H10 maintenance vehicle loading were used, pedestrian loading would remain the controlling limit state for all cases in Figure 2. A summary of the top and bottom chord rating factors for each reduced timber deck width (Options 1 and 2) can be found in Figure 2, floorbeam not included.

Rating Factor Summary: pedestrian (85 PSF) or H5 or H10 maintenance vehicle loading				
Option	Bridge Element	Inventory Rating Factor	Operating Rating Factor	Controlling Limit State (Live Load Case)
1	Truss/Arch Top Chord (7' clear width)	0.97	1.61	Ultimate Compression + Bending (Pedestrian loading)
1	Truss/Arch Bottom Chord (7' clear width)	1.98	3.31	Ultimate Tension (Pedestrian loading)
2	Truss/Arch Top Chord (10' clear & added bracing)	0.92	1.22	Ultimate Compression + Bending (Pedestrian loading)
2	Truss/Arch Bottom Chord (10' clear & added bracing)	1.33	2.22	Ultimate Tension (Pedestrian loading)

Figure 2: Rating factor summary of top and bottom chord rehabilitation for Options 1 and 2

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Kern Bridge Structural Analysis & Load Rating Report

III – Structural Analysis & Load Rating

Bridge Number: L5669

A third option explored (Option 3) sought to maintain existing bridge width to the greatest extent practical with an acknowledgement that doing so would require a design exception to allow for a reduction in the design pedestrian live load. This has been done on previous historic bridge projects where it is determined known use of the bridge combined with load posting can achieve safe usage of the structure. For this option, a reduced design pedestrian load of 45 PSF was used. Note that for this option lateral bracing members will also be required at upper panel points U1, U2, U12 and U13 to minimize the top chord unbraced length. Lateral bracing could potentially be added to these panel points by framing to the floorbeams on the interior or exterior side of the bridge.

Rating Factor Summary: pedestrian (45 PSF - <i>reduced</i>) or H5 or H10 maintenance vehicle loading				
Option	Bridge Element	Inventory Rating Factor	Operating Rating Factor	Controlling Limit State (Live Load Case)
3	Truss/Arch Top Chord (<i>approx. existing clear width</i>)	0.93	1.55	Ultimate Compression + Bending (<i>Pedestrian loading - reduced</i>)
3	Truss/Arch Bottom Chord (<i>approx. existing clear width</i>)	1.47	2.45	Ultimate Tension (<i>Pedestrian loading - reduced</i>)

Figure 3: Rating factor summary of top and bottom chord rehabilitation for Option 3

Due to the very low rating factor values of the existing floor beams, two options for replacing the existing floorbeams were considered. The reduced timber deck widths used in the top and bottom chord analysis were used when determining applied loading to the proposed floorbeams. The first option considered was to determine a similar steel rolled shape section that could be used instead of the current section. W- or S-shapes were chosen due to their similar proportionality of depth-to-width ratio when compared to the current beam shape, measured at 8-inches deep with a 3-3/8-inch-wide flange. Steel yield stress of 36 KSI was used for S-shapes and 50 KSI was used for W-shapes for analysis. The second option explored was to fabricate built-up steel I-shaped sections, using the same criteria of proportionality to preserve the look and feel of the existing beams. Due to a wide variety of options for built-up section geometrics, it was determined that if using a built-up shape was the preferred option, the geometrics should be determined at the time of design in collaboration with a historic review and would not be further considered in this study. For the purposes of this study, only W- or S-shape sections were considered when analyzing rating factor results for the proposed floorbeams options. A summary of the proposed floorbeams and their respective rating factors can be found in Figure 4. In all floorbeam cases pedestrian live loading controls in the ultimate bending limit state when compared to the H5 maintenance vehicle live loading.

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Kern Bridge Structural Analysis & Load Rating Report

III – Structural Analysis & Load Rating

Bridge Number: L5669

Rating Factor Summary: pedestrian or H5 maintenance vehicle loading				
Option	Reduced Timber Deck Width Configuration	Floorbeam Shape	Inventory Rating Factor	Operating Rating Factor
1	7' clear bridge deck width (Pedestrian loading – 85 PSF)	W8X28	1.05	1.76
		S10X35	0.98	1.64
2	10' clear bridge deck width (Pedestrian loading – 85 PSF)	W12X35	1.19	1.99
		S12X40.8	1.21	2.03
3	Existing bridge deck width (Pedestrian loading – 45 PSF)	W8X28	1.11	1.85
		S10X35	1.02	1.70

Figure 4: Rating factor summary of proposed floorbeams for rehabilitation

If the H10 maintenance vehicle live load is considered in the rating factor analysis for the 10-foot clear bridge deck width option, the rating factors decrease due to the increased maintenance vehicle loading when compared to the H5 maintenance vehicle live loading. A summary of the proposed floorbeams and their respective rating factors for the H10 maintenance vehicle can be found in Figure 5.

Rating Factor Summary: H10 maintenance vehicle loading				
Option	Reduced Timber Deck Width Configuration	Floorbeam Shape	Inventory Rating Factor	Operating Rating Factor
2	10' clear bridge deck width (H10 loading)	W12X35	0.94	1.57
		S12X40.8	0.96	1.59
3	Existing bridge deck width (H10 loading)	W12X35	0.90	1.50
		S12X40.8	0.92	1.53

Figure 5: Rating factor summary of proposed floorbeams for rehabilitation

Minnesota Department of Transportation (MnDOT)

Kern Bridge Structural Analysis & Load Rating Report

IV – Rehabilitation Opinions

Bridge Number: L5669

Overall Rehabilitation Opinion

The bridge is currently closed to vehicular and pedestrian traffic due to its deteriorated condition, low load carrying capacity, deficient geometry and closure of the township road the bridge previously carried. The east approach is heavily vegetated. An earth berm, together with a plate beam traffic barrier are in place to prevent vehicular use. The west approach has been removed altogether and is now residential private property. A failed wooden fence is present at the west approach, leaving the west end of the bridge un-barricaded. Signs of use of the bridge by pedestrians was observed at the time of the site visit and signs prohibiting such use were not evident. The bridge owner has indicated that there are no plans to reopen the bridge to vehicular or pedestrian traffic.

The southeast slope wash out, poses concern to the stability of the bridge substructure and possible failure or collapse of the bowstring truss/arch superstructure. The approximate timing of the wash out is believed to have occurred in September of 2016; based on LHB site visits within recent years and historical water level and flow data obtained from the United States Geological Survey (USGS) National Water Information System, per measuring instrument located on the Kern Bridge. Though, the bridge and abutment appeared to be stable at the time of LHB's most recent site visit, June 12, 2017, it is highly unpredictable to know when the next rain or flood event may occur, possibly resulting in further erosion of the bridge slopes. Thus, the susceptibility to further erosion at the east abutment during high flow events and unknown depth and footing bearing condition for the abutment makes the continued stability of the bridge from collapse unpredictable. One option to help stabilize the slopes could be to place riprap along the southeast slope to help protect from further erosion. For purposes of this study, no cost has been associated with placing riprap at the current bridge location.

The rehabilitation opinions that follow assume the bridge will be dismantled and reassembled at a different location and used for pedestrian purposes. The nature of the original bridge construction, with mainly bolted connections, lends itself well to disassembly and relocation although the sheer size and remote setting/location would make for a difficult task. Should this course of action be considered, the historic impacts (adverse effect of relocation) of such a move would have to be weighed with potential outcomes should the bridge remain in place and be unable to be preserved or maintained or even collapse due to abutment failure.

Three potential rehabilitative options have been considered for the bridge to allow for safe load carrying capacity under pedestrian and maintenance vehicle live loading once dismantled and reassembled at a different location. Options 1 and 2 propose to modify the clear width of the deck. See Sketch 2 below for the existing deck section. The proposed deck sections for Options 1 and 2 are represented by Sketches 3 and 4, respectively. Option 3 proposes using design exceptions reducing the magnitude of the applied pedestrian loading to maintain the existing clear width of the deck. See Sketches 5 and 6 for details. Any reduction of pedestrian design loading should be determined through a collaboration between the bridge engineer, bridge owner and project funding entity.

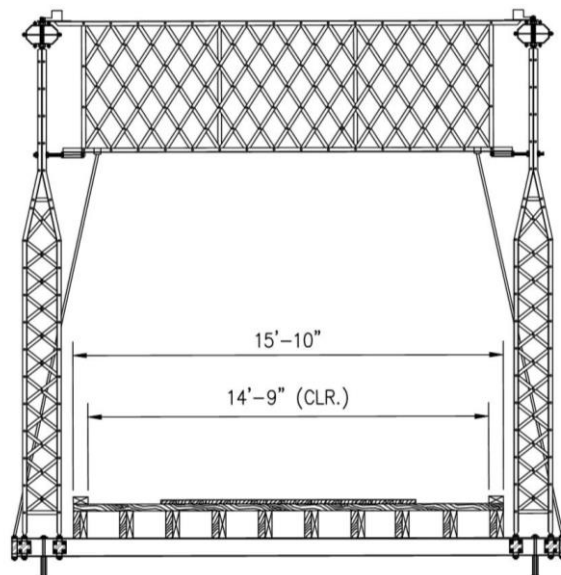
A fourth "interim" option has been considered allowing for the bowstring arch/truss superstructure to be dismantled and stored until a project for relocation and reuse may be established.



Minnesota Department of Transportation (MnDOT) Kern Bridge Structural Analysis & Load Rating Report

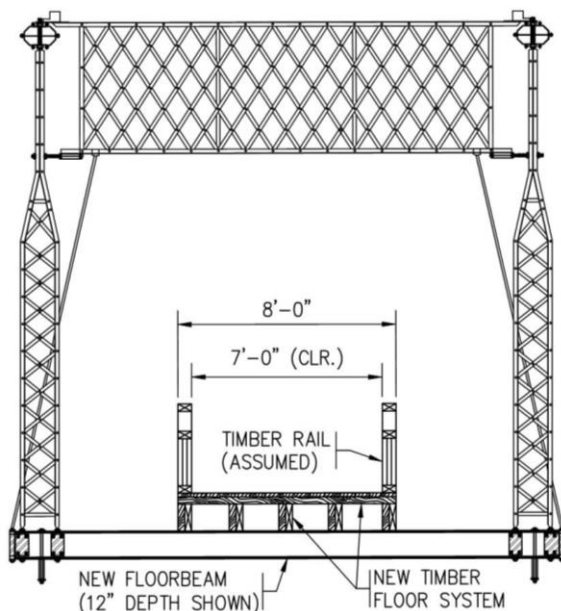
IV – Rehabilitation Opinions

Bridge Number: L5669



Sketch 2: Existing deck section (shown at panel points L6-U6)

Option 1: Dismantle, straighten, blast/paint and reassemble structure at different location as detailed/ discussed in the Structure Relocation section on page 23. Replace existing floorbeams with new steel rolled section or built-up shape. Remove and replace timber floor system (i.e. stringers, transverse deck planks, running planks and curbs) in their entirety. Replaced timber floor system to include a reduced clear bridge deck width of approximately 7 feet with an added railing system conforming with future intended use. Additional work to complete the preservation is further discussed in the Option 1 discussion on page 23.



Sketch 3: Proposed deck section for Option 1 (shown at panel points L6-U6)

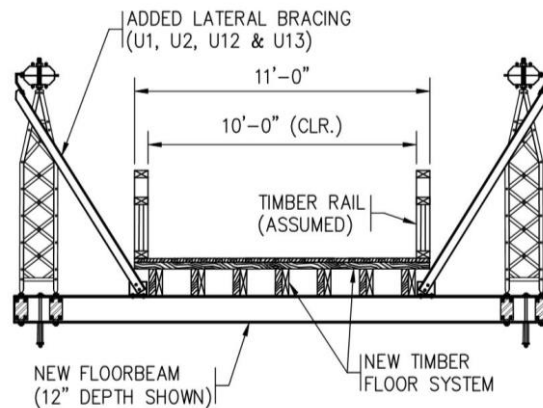
Minnesota Department of Transportation (MnDOT)

Kern Bridge Structural Analysis & Load Rating Report

IV – Rehabilitation Opinions

Bridge Number: L5669

Option 2: Dismantle, straighten, blast/paint and reassemble structure at different location as detailed/ discussed in the Structure Relocation section on page 23. Add lateral bracing members to unbraced panel points at beginning and end of top chord. Replace existing floorbeams as detailed/discussed for Option 1. Remove and replace timber floor system (i.e. beams, transverse deck planks, running boards and curbs) in their entirety. Replaced timber floor system to include a reduced clear bridge deck width of approximately 10 feet with an added railing system conforming with future intended use. Additional work to complete the preservation is further discussed in the Option 2 discussion on page 23.



*Sketch 4: Proposed deck section for Option 2
(shown at panel points L2-U2; L1-U1, L12-U12 and L13-U13 similar)*

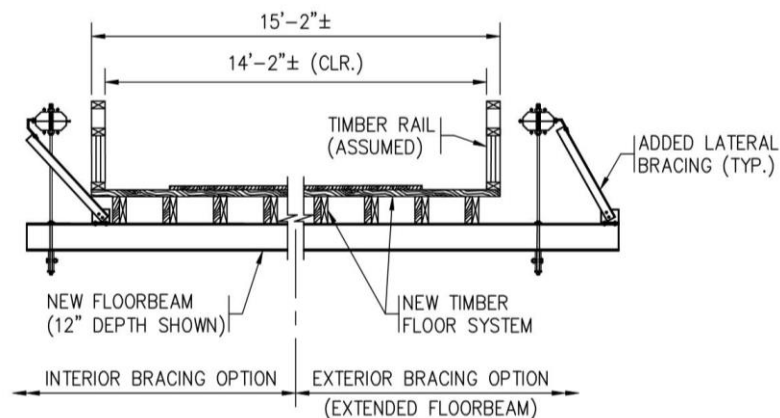
Minnesota Department of Transportation (MnDOT)

Kern Bridge Structural Analysis & Load Rating Report

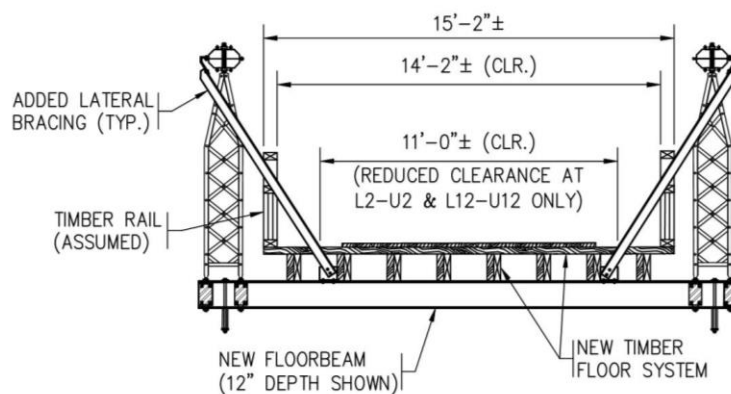
IV – Rehabilitation Opinions

Bridge Number: L5669

Option 3: Dismantle, straighten, blast/paint and reassemble structure at different location as detailed/ discussed in the Structure Relocation section on page 23, including gaining a design exception for reduced pedestrian live loading. Add lateral bracing members to unbraced panel points at beginning and end of top chord. Replace existing floorbeams as detailed/discussed for Option 1. Remove and replace timber floor system (i.e. beams, transverse deck planks, running boards and curbs) in their entirety. Replaced timber floor system to include a similar clear bridge deck width to the existing deck section, and an added railing system conforming with future intended use. Additional work to complete the preservation is further discussed in the Option 3 discussion on page 24.



*Sketch 5: Proposed deck section for Option 3
(shown at panel points L1-U1; L13-U13 similar)*



*Sketch 6: Proposed deck section for Option 3
(shown at panel points L2-U2; L12-U12 similar)*

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IV – Rehabilitation Opinions

Bridge Number: L5669

Structure Relocation

For each option discussed below, the bridge should be partially dismantled on site and shipped to a steel fabrication/paint shop for straightening/repair, blasting and painting. The nature of the truss/arch construction should permit sufficient disassembly to allow for transportation without having to separate the individual components of the riveted built up members (channels, lacing, batten plates, etc.). Prior to disassembly, all truss/arch members must be carefully match-marked to ensure the reassembly exactly matches the original.

Option 1: Relocate bridge, replace floorbeams, and replace floor system (7-foot bridge deck clear width)

Discussion: For this option, complete dismantling, repair and relocation of the bridge as discussed in the Structure Relocation section above is assumed. It replaces the existing floorbeams with new steel rolled sections. As a result of using new floorbeams, it is assumed that existing wrought iron plates, and pins and hanger assemblies connecting the current floorbeams to the bottom chord will need to be replaced in order to accommodate the new beam shape. Replacement plates, and pin and hanger assemblies should be provided with new steel elements that match the geometry of the original elements. The timber floor system replacement would include similar size beams, transverse deck planks and running boards as the current system. Based on analysis of the existing structure, the new deck clear width is to be constructed to approximately 7 feet. This decreased width should allow for the existing truss/arch top and bottom chords to be reinstalled without structural capacity modifications.

Additional work items with this rehabilitation option would include: new reinforced concrete abutments (reinforced concrete assumed versus in-place stone masonry), approach grading, erosion control (i.e. granular filter, fabric, riprap), replace damaged sway braces, replace floor system cross bracing, replace fixed and expansion bearings (with new components of like material and geometry) and new timber railings along both sides of the new timber floor system.

Option 2: Relocate bridge, replace floorbeams, add lateral bracing, and replace floor system (10-foot bridge deck clear width)

Discussion: For this option, complete dismantling, repair and relocation of the bridge as discussed in the Structure Relocation section above is assumed. It replaces the existing floorbeams and bottom chord connection components as discussed in Option 1 above. It includes the addition of lateral bracing members at upper panel points U1, U2, U12 and U13. It is assumed that the added lateral bracing could be connected from the designated upper panel points to the new floorbeams (reduced width floor system allows for floorbeam exposure between trusses/arches and new deck edges). Thus, providing adequate bracing to increase the load rating of the element to an acceptable level. The timber floor system replacement would include similar size beams, transverse deck planks and running boards as the current system. Based on analysis of the existing structure, the new deck clear width is to be constructed to approximately 10 feet. This decreased width should allow for the existing truss/arch top and bottom chords to be reinstalled in conjunction with the added lateral bracing without structural capacity modifications to the chord.

Additional work for this option would be the same as additional work discussed for Option 1.



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IV – Rehabilitation Opinions

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Option 3: Relocate bridge, replace floorbeams, add lateral bracing, replace floor system, and gain design exception for reduced pedestrian live loading (bridge deck clear width similar to existing except for reduction to 11-foot at panel points L2-U2 and L12-U12)

Discussion: For this option, complete dismantling, repair and relocation of the bridge as discussed in the Structure Relocation section is assumed. It replaces the existing floorbeams and bottom chord connection components as discussed in Option 1. It includes the addition of lateral bracing members at upper panel points U1, U2, U12 and U13. It is assumed that the added lateral bracing could be connected from the upper panel points to the new floorbeams by either extending the floorbeams beyond the exterior truss/arch face and connecting to the exterior side of the bridge, or by connecting to the floorbeams on the interior side of the bridge by penetrating the deck (see Sketches 5 and 6). Note that the new bracing as shown in Sketch 6 will require a localized bridge deck width decrease at panel points U2 and U12 to facilitate an efficient angle for the top chord braces. An additional option at this location could be to provide a structural steel railing system to brace to, in lieu of a timber railing system. For purposes of this study, a structural steel railing system has not been considered. The timber floor system replacement would include similar size beams, transverse deck planks, running boards and overall clear width dimension as the current system. Based on analysis of the existing structure, design exceptions would need to be considered to reduce the magnitude of the applied pedestrian loading to allow for the existing bridge width to be used. The decreased applied pedestrian loading should allow for the existing truss/arch top and bottom chords to be reinstalled in conjunction with the added lateral and sway bracing without structural capacity modifications to the chord.

Additional work for this option would be the same as additional work discussed for Option 1.

Option 4: Remove/ disassemble bridge from existing location and ship to off-site location for storage.

Discussion: Prior to disassembly, all truss/arch members must be carefully match-marked to ensure the reassembly exactly matches the original. The nature of the truss/arch construction should permit sufficient disassembly to allow for transportation without having to separate the individual components of the riveted built up members (channels, lacing, batten plates, etc.). One method for disassembly is to utilize the use of backstays erected at each end of the bridge to allow for the bridge to be dismantled beginning at the center of the bridge and progressing towards each abutment, and maintain bridge stability during disassembly. A second method to dismantle the bridge is to utilize an adequate crane(s) with the aid of engineered rigging to move the bridge onto temporary supports, and disassembling the bridge on land. For estimating purposes, the second option stated above, with use of two cranes, is to be considered. Once disassembled, all members are to be shipped to an off-site location for storage. All truss/arch members shall be stored in a manner such that no further damage or deformation will be sustained to the members including protection from further corrosion.

Minnesota Department of Transportation (MnDOT)

Kern Bridge Structural Analysis & Load Rating Report

V – Projected Rehabilitation Costs

Bridge Number: L5669

Option Cost Estimate Summary:

Itemized cost estimates for the rehabilitation options have been prepared and follow this discussion. The estimated construction costs as detailed within the estimates are as follows:

Option 1: Relocate Bridge, Replace Floorbeams, and Replace Floor System

(7-foot bridge deck clear width):

Est. Cost: \$ 1,103,550.00

Option 2: Relocate Bridge, Replace Floorbeams, add Lateral Bracing, and Replace Floor System

(10-foot bridge deck clear width):

Est Cost: \$ 1,191,400.00

Option 3: Relocate Bridge, Replace Floorbeams, add Lateral Bracing, and Replace Floor System

(bridge deck clear width similar to existing except for reduction to 11-foot at panel points L2-U2 and L12-U12) (Reduced Pedestrian Live Load):

Est Cost: \$ 1,243,790.00

Option 4: Remove/ disassemble bridge from existing location and ship to off-site location for storage:

Est Cost: \$ 271,000.00



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Kern Bridge Structural Analysis & Load Rating Report

V – Projected Rehabilitation Costs

Bridge Number: L5669

Option 1: Relocate Bridge, Replace Floorbeams, and Replace Floor System (7-foot bridge deck clear width)

KERN BRIDGE, REHABILITATION OPTION STUDY ESTIMATE (2017 DOLLARS)					
OPTION 1: RELOCATE BRIDGE, REPLACE FLOORBEAMS, AND REPLACE FLOOR SYSTEM (7-FOOT BRIDGE DECK CLEAR WIDTH)					
August 31, 2017					
			ESTIMATED QUANTITIES AND COST		
ITEM NO.	ITEM	UNIT	QUANTITY	UNIT COST	TOTAL ESTIMATE
OPTION 1: RELOCATE BRIDGE, REPLACE FLOORBEAMS, AND REPLACE FLOOR SYSTEM (7 FT. CLR.)					
1	MOBILIZATION	LUMP SUM	1	\$75,000.00	\$75,000.00
2	DISMANTLE TRUSS/ARCH AND SHIP TO FAB SHOP	LUMP SUM	1	\$165,000.00	\$165,000.00
3	STRAIGHTEN LOWER CHORD MEMBERS	EACH	4	\$5,250.00	\$21,000.00
4	STRAIGHTEN SWAY BRACES	EACH	2	\$2,750.00	\$5,500.00
5	REPLACE IN PLACE FLOOR X-BRACING	LUMP SUM	1	\$40,000.00	\$40,000.00
6	REPLACE SWAY BRACES	EACH	2	\$11,000.00	\$22,000.00
7	REPLACE STEEL FLOORBEAMS	LIN FT	260	\$110.00	\$28,600.00
8	BLAST AND PAINT (SHOP)	SQ FT	7700	\$15.00	\$115,500.00
9	REPLACE BEARINGS IN KIND	EACH	4	\$5,500.00	\$22,000.00
10	REPLACE TIMBER STRINGERS	EACH	70	\$500.00	\$35,000.00
11	REPLACE TIMBER DECK PLANKS	SQ FT	1520	\$25.00	\$38,000.00
12	REPLACE TIMBER RUNNING PLANKS (2X6 NOM.)	LIN FT	2470	\$8.00	\$19,760.00
13	REPLACE TIMBER CURBS	LIN FT	380	\$10.50	\$3,990.00
14	NEW RAILING AT NEW SITE (TIMBER ASSUMED)	LIN FT	420	\$45.00	\$18,900.00
15	NEW CONCRETE ABUTMENTS AT NEW SITE	EACH	2	\$55,000.00	\$110,000.00
16	TRUCKING OF COMPONENTS TO NEW SITE	LUMP SUM	1	\$15,000.00	\$15,000.00
17	REASSEMBLE/ ERECT BRIDGE SUPERSTRUCTURE	LUMP SUM	1	\$100,000.00	\$100,000.00
18	COMMON EXCAVATION	CU YD	650	\$18.00	\$11,700.00
19	SELECT GRANULAR BORROW MOD 7%	CU YD	250	\$32.00	\$8,000.00
20	CLASS V AGGREGATE BASE	CU YD	300	\$42.00	\$12,600.00
21	EROSION CONTROL ETC	LUMP SUM	1	\$20,000.00	\$20,000.00
22	NEW BRIDGE SIGNAGE	LUMP SUM	1	\$2,000.00	\$2,000.00
23	SITE WORK AND RESTORATION AT OLD LOCATION	LUMP SUM	1	\$30,000.00	\$30,000.00
	20% CONTINGENCY	LUMP SUM	1	\$184,000.00	\$184,000.00
ESTIMATED REHABILITATION COST					\$1,103,550.00



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Kern Bridge Structural Analysis & Load Rating Report

V – Projected Rehabilitation Costs

Bridge Number: L5669

Option 2: Relocate Bridge, Replace Floorbeams, add Lateral Bracing, and Replace Floor System (10-foot bridge deck clear width)

KERN BRIDGE, REHABILITATION OPTION STUDY ESTIMATE (2017 DOLLARS)					
OPTION 2: RELOCATE BRIDGE, REPLACE FLOORBEAMS, ADD LATERAL BRACING, AND REPLACE FLOOR SYSTEM (10-FOOT BRIDGE DECK CLEAR WIDTH)					
August 31, 2017					
			ESTIMATED QUANTITIES AND COST		
ITEM NO.	ITEM	UNIT	QUANTITY	UNIT COST	TOTAL ESTIMATE
OPTION 2:					
RELOCATE BRIDGE, REPLACE FLOORBEAMS, ADD LATERAL BRACING, AND REPLACE FLOOR SYSTEM (10 FT. CLR.)					
1	MOBILIZATION	LUMP SUM	1	\$75,000.00	\$75,000.00
2	DISMANTLE TRUSS/ARCH AND SHIP TO FAB SHOP	LUMP SUM	1	\$165,000.00	\$165,000.00
3	STRAIGHTEN LOWER CHORD MEMBERS	EACH	4	\$5,250.00	\$21,000.00
4	STRAIGHTEN SWAY BRACES	EACH	2	\$2,750.00	\$5,500.00
5	REPLACE IN PLACE FLOOR X-BRACING	LUMP SUM	1	\$40,000.00	\$40,000.00
6	REPLACE SWAY BRACES	EACH	2	\$11,000.00	\$22,000.00
7	REPLACE STEEL FLOORBEAMS	LIN FT	260	\$110.00	\$28,600.00
8	CONSTRUCT LATERAL BRACING MEMBERS (U1, U2, U12 & U13)	EACH	8	\$4,500.00	\$36,000.00
9	BLAST AND PAINT (SHOP)	SQ FT	7700	\$15.00	\$115,500.00
10	REPLACE BEARINGS IN KIND	EACH	4	\$5,500.00	\$22,000.00
11	REPLACE TIMBER STRINGERS	EACH	100	\$500.00	\$50,000.00
12	REPLACE TIMBER DECK PLANKS	SQ FT	2090	\$25.00	\$52,250.00
13	REPLACE TIMBER RUNNING PLANKS (2X6 NOM.)	LIN FT	3420	\$8.00	\$27,360.00
14	REPLACE TIMBER CURBS	LIN FT	380	\$10.50	\$3,990.00
15	NEW RAILING AT NEW SITE (TIMBER)	LIN FT	420	\$45.00	\$18,900.00
16	NEW CONCRETE ABUTMENTS AT NEW SITE	EACH	2	\$55,000.00	\$110,000.00
17	TRUCKING OF COMPONENTS TO NEW SITE	LUMP SUM	1	\$15,000.00	\$15,000.00
18	REASSEMBLE/ ERECT BRIDGE SUPERSTRUCTURE	LUMP SUM	1	\$100,000.00	\$100,000.00
19	COMMON EXCAVATION	CU YD	650	\$18.00	\$11,700.00
20	SELECT GRANULAR BORROW MOD 7%	CU YD	250	\$32.00	\$8,000.00
21	CLASS V AGGREGATE BASE	CU YD	300	\$42.00	\$12,600.00
22	EROSION CONTROL ETC	LUMP SUM	1	\$20,000.00	\$20,000.00
23	NEW BRIDGE SIGNAGE	LUMP SUM	1	\$2,000.00	\$2,000.00
24	SITE WORK AND RESTORATION AT OLD LOCATION	LUMP SUM	1	\$30,000.00	\$30,000.00
	20% CONTINGENCY	LUMP SUM	1	\$199,000.00	\$199,000.00
ESTIMATED REHABILITATION COST					\$1,191,400.00



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Option 3: Relocate Bridge, Replace Floorbeams, add Lateral Bracing, and Replace Floor System (bridge deck clear width similar to existing except for reduction to 11-foot at panel points L2-U2 and L12-U12) (Reduced Pedestrian Live Load)

KERN BRIDGE, REHABILITATION OPTION STUDY ESTIMATE (2017 DOLLARS)					
OPTION 3: RELOCATE BRIDGE, REPLACE FLOORBEAMS, ADD LATERAL BRACING, AND REPLACE FLOOR SYSTEM (BRIDGE DECK CLEAR WIDTH SIMILAR TO EXISTING)					
August 31, 2017					
			ESTIMATED QUANTITIES AND COST		
ITEM NO.	ITEM	UNIT	QUANTITY	UNIT COST	TOTAL ESTIMATE
OPTION 3: RELOCATE BRIDGE, REPLACE FLOORBEAMS, ADD LATERAL BRACING, AND REPLACE FLOOR SYSTEM (EXIST'G WIDTH)					
1	MOBILIZATION	LUMP SUM	1	\$75,000.00	\$75,000.00
2	DISMANTLE TRUSS/ARCH AND SHIP TO FAB SHOP	LUMP SUM	1	\$165,000.00	\$165,000.00
3	STRAIGHTEN LOWER CHORD MEMBERS	EACH	4	\$5,250.00	\$21,000.00
4	STRAIGHTEN SWAY BRACES	EACH	2	\$2,750.00	\$5,500.00
5	REPLACE IN PLACE FLOOR X-BRACING	LUMP SUM	1	\$40,000.00	\$40,000.00
6	REPLACE SWAY BRACES	EACH	2	\$11,000.00	\$22,000.00
7	REPLACE STEEL FLOORBEAMS	LIN FT	270	\$110.00	\$29,700.00
8	CONSTRUCT LATERAL BRACING MEMBERS (U1 & U13)	EACH	4	\$3,500.00	\$14,000.00
9	CONSTRUCT LATERAL BRACING MEMBERS (U2 & U12)	EACH	4	\$5,500.00	\$22,000.00
10	BLAST AND PAINT (SHOP)	SQ FT	7900	\$15.00	\$118,500.00
11	REPLACE BEARINGS IN KIND	EACH	4	\$5,500.00	\$22,000.00
12	REPLACE TIMBER STRINGERS	EACH	126	\$500.00	\$63,000.00
13	REPLACE TIMBER DECK PLANKS	SQ FT	2900	\$25.00	\$72,500.00
14	REPLACE TIMBER RUNNING PLANKS (2X6 NOM.)	LIN FT	3800	\$8.00	\$30,400.00
15	REPLACE TIMBER CURBS	LIN FT	380	\$10.50	\$3,990.00
16	NEW RAILING AT NEW SITE (TIMBER)	LIN FT	420	\$45.00	\$18,900.00
17	NEW CONCRETE ABUTMENTS AT NEW SITE	EACH	2	\$55,000.00	\$110,000.00
18	TRUCKING OF COMPONENTS TO NEW SITE	LUMP SUM	1	\$15,000.00	\$15,000.00
19	REASSEMBLE/ ERECT BRIDGE SUPERSTRUCTURE	LUMP SUM	1	\$100,000.00	\$100,000.00
20	COMMON EXCAVATION	CU YD	650	\$18.00	\$11,700.00
21	SELECT GRANULAR BORROW MOD 7%	CU YD	250	\$32.00	\$8,000.00
22	CLASS V AGGREGATE BASE	CU YD	300	\$42.00	\$12,600.00
23	EROSION CONTROL ETC	LUMP SUM	1	\$20,000.00	\$20,000.00
24	NEW BRIDGE SIGNAGE	LUMP SUM	1	\$5,000.00	\$5,000.00
25	SITE WORK AND RESTORATION AT OLD LOCATION	LUMP SUM	1	\$30,000.00	\$30,000.00
	20% CONTINGENCY	LUMP SUM	1	\$208,000.00	\$208,000.00
ESTIMATED REHABILITATION COST					\$1,243,790.00



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Bridge Number: L5669

Option 4: Remove/ dis-assemble bridge from existing location and ship to off-site location for storage

KERN BRIDGE, REHABILITATION OPTION STUDY ESTIMATE (2017 DOLLARS)					
OPTION 4: REMOVE/ DIS-ASSEMBLE BRIDGE FROM EXISTING LOCATION AND SHIP TO OFF-SITE LOCATION FOR STORAGE					
August 31, 2017					
			ESTIMATED QUANTITIES AND COST		
ITEM NO.	ITEM	UNIT	QUANTITY	UNIT COST	TOTAL ESTIMATE
OPTION 4: REMOVE/ DIS-ASSEMBLE BRIDGE FROM EXISTING LOCATION AND SHIP FOR STORAGE AT OFF-SITE LOCATION					
1	MOBILIZATION	LUMP SUM	1	\$30,000.00	\$30,000.00
2	DISMANTLE TRUSS/ARCH SUPERSTRUCTURE	LUMP SUM	1	\$160,000.00	\$160,000.00
3	TRUCKING OF STEEL COMPONENTS TO STORAGE FACILITY	LUMP SUM	1	\$15,000.00	\$15,000.00
4	SITE WORK AND RESTORATION AT OLD LOCATION	LUMP SUM	1	\$30,000.00	\$30,000.00
	15% CONTINGENCY	LUMP SUM	1	\$36,000.00	\$36,000.00
ESTIMATED DIS-ASSEMBLE & TRANSPORT COST					\$271,000.00



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Appendices

Bridge Number: L5669

**Appendix A. Guidelines for Bridge Maintenance and
Rehabilitation based on the Secretary of the
Interior's Standards**



The Secretary's Standards with Regard to Repair, Rehabilitation, and Replacement Situations

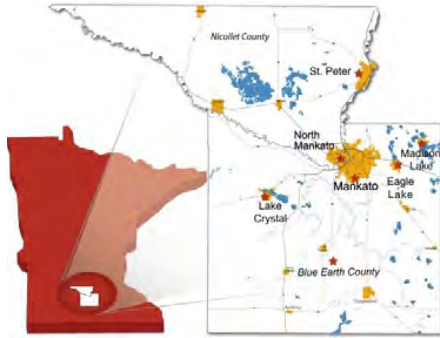
Adapted from:

Clark, Kenneth M., Grimes, Mathew C., and Ann B. Miller, *Final Report, A Management Plan for Historic Bridges in Virginia*, Virginia Transportation Research Council, 2001.

The Secretary of the Interior's Standards for the Treatment of Historic Properties, first codified in 1979 and revised in 1992, have been interpreted and applied largely to buildings rather than engineering structures. In this document, the differences between buildings and structures are recognized and the language of the Standards has been adapted to the special requirements of historic bridges.

1. Every reasonable effort shall be made to continue an historic bridge in useful transportation service. Primary consideration shall be given to rehabilitation of the bridge on site. Only when this option has been fully exhausted shall other alternatives be explored.
2. The original character-defining qualities or elements of a bridge, its site, and its environment should be respected. The removal, concealment, or alteration of any historic material or distinctive engineering or architectural feature should be avoided.
3. All bridges shall be recognized as products of their own time. Alterations that have no historic basis and that seek to create a false historic appearance shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive engineering and stylistic features, finishes, and construction techniques or examples of craftsmanship that characterize an historic property shall be preserved.
6. Deteriorated structural members and architectural features shall be retained and repaired, rather than replaced. Where the severity of deterioration requires replacement of a distinctive element, the new element should match the old in design, texture, and other visual qualities and where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical and physical treatments that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the most environmentally sensitive means possible.

8. Significant archaeological and cultural resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, structural reinforcements, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.



AGENDA RECOMMENDATION

Agenda Heading: Update: TIP Administrative Modification – MRCI Bus Purchase No: 6.3

Agenda Item:

TIP Administrative Modification – MRCI Bus Purchase

Recommendation Action(s):

Informational and discussion

Summary:

MAPO staff have been informed that MnDOT's Office of Transit and Active Transportation (OTAT) has revised their Section 5310 project award to Managed Resource Connections, Inc. (MRCI) in Mankato. The revised award is for the purchase of one (1) <30 Ft. Expansion Bus to assist in the transportation of individuals with disabilities and the elderly in the MAPO planning area.

MnDOT has submitted a request to the MAPO to facilitate the project by adding the project to the 2019-2022 TIP. OTAT is not considering the project a STIP amendment, as the funding has already been set aside in the STIP and is being reallocated. Total cost is \$81,000. \$64,800 will be provided by the Federal Transit Administration (FTA) and the remaining \$16,200 will be provided by MRCI.

Per MAPO policy, MAPO staff have conferred with MnDOT District 7 and jointly determined that this project constitutes a TIP Administrative Modification. Administrative Modifications do not require formal public involvement actions, but the MAPO's practice is to briefly describe these changes in the 'Project Updates' section of the TAC and MAPO meeting materials and to update the online TIP project tables as these revisions occur. The TIP entry is described below:

L RTP REFERENCE	ROUTE SYSTEM	PROJECT NUMBER	YEAR	AGENCY	PROJECT DESCRIPTION	MILES	PROGRAM	TYPE OF WORK	PROPOSED FUNDS	TOTAL	FHWA	AC	FTA	TH	BOND	OTHER
5-5	BB	TRF-0756-19	2019	MNDOT	SECTION 5310: MANKATO REHABILITATION CENTER, INC.- MANKATO; PURCHASE ONE (1) EXPANSION <30FT. (CLASS 400) BUS		NB	PURCHASE BUS	FTA	81,000			64,800	-	-	16,200

Attachments:

Award letter from MnDOT OTAT to MRCI



February 22, 2019

Office of Transit and Active Transportation

395 John Ireland Boulevard, MS 430 Saint
Paul, MN 55155

Kari Loe
Transit Manager
MRCI Worksource (Mankato)
15 Map Drive
Mankato, MN 56001

Dear Ms. Loe

On December 5, 2018 the Minnesota Department of Transportation - Office of Transit and Active Transportation (OTAT) issued a notice of award to MRCI Worksource (MRCI) of Mankato in support of your application for financial assistance via the Section 5310 program which provides *Transportation for Seniors and Individuals with Disabilities*. The award indicated MRCI would receive:

- one class 500 bus with total costs of up to \$142,000 offset by a local share of \$28,400 to cover a project deficit (federal share) of \$142,000 or 80% of total costs. The application and award identified this project as a replacement vehicle.

Prior to submission of Minnesota's grant request to the Federal Transit Authority (FTA), OTAT was asked to document which assets (vehicles) in the statewide fleet would be replaced upon disbursement of grant funds in 2019. To satisfy FTA's request, I sought documentation supporting your application in December. Your response indicated plans to replace a 2013 Class 500 vehicle (bus #43) which you anticipate will reach 116,000 miles by June 2019. MnDOT records indicate this vehicle entered service on March 27, 2013.

According to FTA regulations and the federal program circular², all federally funded rolling stock must meet useful life standards to become eligible for replacement. A class 500 vehicle is subject to a useful life threshold of 7 years/200,000 miles of service (whichever comes first), or a useful life ceiling of 9 years regardless of mileage. At just under 6 years of service, the vehicle does not meet FTA useful life standards for either age or mileage, nor does it meet the State of Minnesota's useful life standard for a Class 500 vehicle of at least 200,000 miles AND 7 years of service. After review, it has been determined that the vehicle you plan to replace does not comply with the useful life standards and the project is ineligible for replacement. **In light of these circumstances, I regret to inform you that MnDOT is unable to proceed with your 2019 grant request as it relates to the class 500 vehicle identified in your original award.**

However, your award also included funds for a class 400 expansion that was misidentified as a replacement vehicle project. **MnDOT has determined it will honor this request and fund total**

costs of up to \$81,000 for this project. Consistent with your application information, the total costs will be offset by a local share of \$16,200 to cover a project deficit (federal share) of \$64,800 or 80% of total costs. A revised Schedule 1 has been completed and attached to this message regarding the change in the total amount of the award.

While this development may be somewhat disappointing, I certainly hope you will continue to participate in the Section 5310 program in the future. Currently, we are exploring modifications to the program that could result in a two year solicitation beginning as early as May 2019. Please be aware that you are welcome to reapply, and strongly encouraged to consult with MnDOT staff to discuss future program needs so as to ensure your next application meets state and FTA requirements

If you have any questions about the content of this award letter or any other questions about programs funded by the Office of Transit and Active Transportation, please contact Robert Clarksen, Section 5310 Program Manager at (651) 366-4182.

Sincerely,

Victoria Nill,
Director, Office of Transit and Active Transportation

cc:
Robert Clarksen, Section 5310 Program Coordinator
Tim Mitchell, Transit Programs Director
Michael Johnson, Transit Programs Coordinator
Ronda Allis, District 7 Planning Director
Deborah Ellis, OTAT STIP Coordinator
Paul Vogel, Executive Director

- 1) "Revenue Service Begin date" derived from Vehicle Acceptance and New Vehicle inventory forms in MnDOT records
- 2) See attached: FTA 5010.1 Grant Management Requirements, Revised 8-27-2012

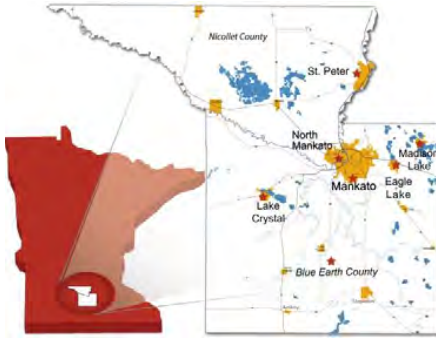
Project Award Schedule I

FTA Section 5310 Project Award

REVISED Date: February 22, 2019

Mankato Rehabilitation Center, Inc. - Mankato							
Project Description	State Project Number	BlackCat UPIN	Activity Line Item	Total Project Cost	Federal Funds Awarded	State Funds Awarded	Local Share
Purchase one (1) expansion <30' (Class 400)	TRF-0756-19	BCG0004608	11.12.04	\$81,000	\$64,800	\$0	\$16,200
				\$81,000	\$64,800	\$0	\$16,200

*Only Vehicles that have met the minimum Asset Management Useful Life (Age and Miles thresholds) are eligible for replacement.



AGENDA RECOMMENDATION

Agenda Heading: Update: South Victory Drive (CSAH 82) at Hoffman Road Intersection Control Evaluation (ICE) No: 6.4

Agenda Item:

Update: South Victory Drive (CSAH 82) at Hoffman Road Intersection Control Evaluation (ICE)

Recommendation Action(s):

Informational and discussion

Summary:

Since the previous Policy Board meeting the MAPO has completed its Intersection Control Evaluation (ICE) of South Victory Drive at Hoffman Road in Mankato and Blue Earth County. The ICE was reviewed and accepted by Mankato's City Engineer and Blue Earth County's Public Works Director.

The final report is available for review and download at the following web address:

<https://mnmapo.files.wordpress.com/2019/01/final-south-victory-drive-at-hoffman-road-intersection-control-evaluation-2019-01-17-final.pdf>

Attachments:



Meeting Minutes of the Mankato/North Mankato Area Planning Organization (MAPO) Technical Advisory Committee (TAC)

April 18, 2019 | 1:30 p.m. | Intergovernmental Center, MN River Room, 10 Civic Center Plaza, Mankato, MN

TAC members present: Jennifer Bromeland – City of Eagle Lake, Peter Bode– Region Nine Development Commission, Paul Corcoran - Minnesota State University, David Cowan - Minnesota State University, Mankato, Stefan Gantert (for Ryan Thilges) - Blue Earth County, Michael Fischer - City of North Mankato, Karl Friedrichs – Lime Township, Seth Greenwood - Nicollet County, Jeff Johnson - City of Mankato, Mark Konz (for Paul Vogel) – City of Mankato, Scott Hogen - Mankato Public Schools, Leroy McClelland – South Bend Township, Sam Parker – MnDOT District 7, Craig Rempp- Mankato Transit System, Bobbi Retzlaff - MnDOT Central Office, Dan Sarff – City of North Mankato

Others Present: Charles Androsky – MAPO staff, Matt Lassonde – Bolton & Menk, Inc.

I. Call to Order

Mr. Greenwood called the meeting to order at 1:30 p.m.

II. Introductions

Introductions were made.

III. Approval of Agenda

Mr. Johnson motioned and Mr. Fischer seconded to approve the agenda. Motion carried.

IV. Approval of Minutes – January 17, 2019

Mr. Parker motioned and Mr. Bode seconded to approve the minutes. Motion carried.

V. New Business

5.1 Recommendation of Long Range Transportation plan Update consultant

Staff reported that the Request for Proposal (RFP) period for the MAPO's LRTP Update ran January 2, 2019 to February 19, 2019. The MAPO TAC ranking and scoring subcommittee met April 3. The subcommittee was comprised of representatives from MnDOT District 7, MAPO staff, the cities of Mankato and North Mankato, and the counties of Blue Earth and Nicollet. It was the recommendation of the scoring subcommittee that SRF Consulting, Inc. be contracted for services.

Staff recommended the MAPO TAC motion to recommend to the MAPO Policy Board contracting with SRF Consulting, Inc. for development of the MAPO LRTP Update.

Mr. Greenwood stated that he had served on the scoring and ranking subcommittee and he believed the consultant choice had been unanimous.

Mr. Friedrichs motioned and Mr. Johnson seconded to approve. Motion carried.

5.2 Recommendation of Warren Street Corridor Study consultant

Staff reported that the RFP solicitation period for the MAPO's Warren Street Corridor Study ran February 26, 2019 to March 29, 2019. The MAPO TAC ranking and scoring subcommittee met April 11. The subcommittee consisted of representatives from the City of Mankato, Mankato Transit System, and MAPO staff. It was the recommendation of the scoring subcommittee that Bolton and Menk, Inc. be contracted for services.

Staff recommended the MAPO TAC motion to recommend to the MAPO Policy Board contracting with Bolton and Menk, Inc. for development of the MAPO Warren Street Corridor Study.

Mr. Konz stated that he had served on the scoring and ranking subcommittee and he believed the Bolton and Menk proposal included strong multimodal elements that increased its appeal.

Mr. Sarff recused himself from voting on the agenda item.

Mr. Hogen motioned and Mr. Corcoran seconded to approve. Motion carried.

5.3 Resolution recognizing MnDOT Intelligent Transportation Systems (ITS) Architecture Plan

Staff reported that the US Department of Transportation had updated its national intelligent transportation systems (ITS) architecture, which specifies the proper relationships, among the components of all ITS projects implemented (in whole or in part) with federal funds.

In 2018 MnDOT updated its Statewide Regional ITS Architecture Plan, with the goal of updating the state's plan in conformance with the National ITS Architecture. The MnDOT plan defined ITS as "the development or application of technology (electronics, communications, or information processing) to improve the efficiency and safety of surface transportation systems."

Staff clarified that in order to fulfill requirements for 23 CFR 940, MnDOT had requested that each MPO approve the attached resolution that recognized the Minnesota Statewide Regional ITS Architecture.

Mr. Friedrichs inquired if certain federal funds were dependent on MPOs passing the resolution. Mrs. Retzlaff clarified that MPOs which did not adopt the state architecture would be required to develop their own architectures.

Mr. Friedrichs motioned and Mr. Sarff seconded to approve. Motion carried.

VI. Other Business, Discussion & Updates

6.1 Discuss Americans with Disabilities Act (ADA) Municipality Adopting Resolution and ADA Transition Plan Update

Staff reported that the MAPO's ADA Transition Plan includes sections tailored to MAPO partner municipalities that will serve as their respective adopted ADA Transition Plans and inventories.

As a federal requirement, applicable MAPO municipalities will be asked to pass a resolution to formally adopt their individual plans. Applicable partners include Eagle Lake, Mankato, North Mankato, and Skyline as well as Nicollet County and Blue Earth County.

Matt Lassonde of Bolton & Menk, Inc. delivered a short presentation describing final project outcomes, document organization, and next steps.

Mr. Corcoran inquired if there had been conversations regarding improvements to incidents of non-compliance in areas located within MSU and City of Mankato service areas. Mr. Johnson clarified that this item had been considered as part of the planning and the City and University would continue to coordinate moving forward.

Mr. Cowan inquired if the findings of the ADA Transition Plan inventory would affect bus stop and bus shelter improvements for sites located within the MSU service area. Mr. Rempp clarified that the ADA Transition Plan findings would be taken into consideration.

6.2 Update: TIP Modification – Kern Bridge

Staff reported that the Kern Bridge was constructed in 1873 in the southwest corner of Mankato Township to span the Le Sueur River. While the structure is in salvageable condition, the bridge sits atop failing substructure and would soon fall into the underlying river.

Local agencies including Mankato Township, Blue Earth County (BEC), and MnDOT District 7 have coordinated to secure funds for dismantling and storage. MnDOT has agreed to take possession of and store the disassembled bridge until a new location is determined.

As the bridge is located within the MAPO planning boundary and the upcoming work involves federal funds, the project must be added to the MAPO's Transportation Improvement Program (TIP). Per MAPO policy, MAPO staff conferred with District 7 and jointly determined the project represents an Administrative Modification, as it is a reallocation of funds already programmed within the State Transportation Improvement Program (STIP). Administrative Modifications to the MAPO TIP do not require formal public involvement actions, but the MAPO's practice is to describe these changes in the 'Project Updates' section of the TAC and MAPO meeting materials and to update the online TIP project tables as these revisions occur.

Mr. Cowan inquired if a new owner for the bridge had been located. Mr. Gantert clarified that a new owner was currently being sought.

6.3 Update: TIP Administrative Modification –MRCI Bus Purchase

Staff reported that MnDOT's Office of Transit and Active Transportation (OTAT) has revised their Section 5310 project award to Managed Resource Connections, Inc. (MRCI) in Mankato. The revised award is for the purchase of one (1) <30 Ft. Expansion Bus to assist in the transportation of individuals with disabilities and the elderly in the MAPO planning area.

Per MAPO policy, MAPO staff conferred with MnDOT District 7 and jointly determined that this project constitutes a TIP Administrative Modification.

VII. TAC Comments

Mr. Cowan, Mr. Rempp, and MAPO staff demonstrated MSU's new live bus location tool. As the culmination of an ongoing project between MSU, the City of Mankato, and Mankato Transit, riders are now able to track the locations of buses servicing MSU through a live online tracking tool.

Mr. McClelland inquired on the progress of the MAPO's 169 Corridor Study. MAPO staff clarified that the RFP was still in the development and approval stages.

VIII. Opportunity for Public Comment

There were no public comments.

IX. Adjournment

At approximately 2:45 Mr. Johnson moved and Mr. Hogen seconded a motion to adjourn. With all voting in favor, the motion carried.

Chair, Mr. Thilges