Mankato/North Mankato Area Planning Organization
Technical Advisory Committee
Thursday, April 18, 2019 – 1:30 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 – January 17, 2019
V. New Business
   1. Recommendation of Long Range Transportation Plan Update consultant
   2. Recommendation of Warren Street Corridor Study consultant
   3. Resolution recognizing MnDOT Intelligent Transportation Systems (ITS) Architecture Plan
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
VII. TAC Comments
VIII. Opportunity for Public Comment
IX. Adjournment
AGENDA RECOMMENDATION

Agenda Heading: Recommendation of Long Range Transportation Plan Update consultant
No: 5.1

**Agenda Item:** Recommendation of Long Range Transportation Plan Update consultant

**Recommendation Action(s):**
Motion to recommend to MAPO Policy Board 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.

It is the recommendation of the scoring subcommittee that SRF Consulting, Inc. be contracted for services.

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

**Attachments:**
AGENDA RECOMMENDATION

Agenda Heading: Recommendation of Warren Street Corridor Study consultant
No: 5.2

Agenda Item: Recommendation of Warren Street Corridor Study consultant

Recommendation Action(s):
Motion to recommend to MAPO Policy Board 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.

Staff recommends 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.

Attachments:
**AGENDA RECOMMENDATION**

**Agenda Heading:** Resolution recognizing MnDOT Intelligent Transportation Systems (ITS) Architecture Plan

**No:** 5.3

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

**Recommendation Action(s):**
Motion to recommend to Policy Board passing of resolution recognizing MnDOT Statewide Regional ITS Architecture Plan

**Summary:**

**Federal**
The US Department of Transportation has updated its 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.

**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 (2014), 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:

**MAPO**
To fulfill requirements for 23 CFR 940, MnDOT needs to have every MPO approve the attached resolution that recognizes the Minnesota Statewide Regional ITS Architecture.

Staff recommends the TAC motion to recommend adoption by the MAPO Policy Board.

**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.

[Signature]
Chair
Date

[Signature]
Executive Director
Date
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:**
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.

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

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

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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
- Part 7 – Nicollet County

*Within and outside MAPO Boundary*
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
A Resolution Adopting Part 1 and Part ___ 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 in the southwest corner of Mankato Township to span the Le Sueur River. The bridge has significant historic value as it is currently the longest bowstring truss/arc 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 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:

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<td>2019</td>
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<td>007-599-062</td>
<td>2019</td>
<td>BLUE EARTH COUNTY</td>
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**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
LHB, Inc
21 W. Superior Street
Duluth, MN 55802

Report Date August 31, 2017
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359x36]Department of Transportation (MnDOT)
Kern Bridge Structural Analysis & Load Rating Report

Table of Contents

Executive Summary

Bridge Location

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

LHB, Inc.
21 West Superior Street, Suite 500
Duluth, MN 55811
218.727.8446
www.lhbcorp.com
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/arc 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/arc bridge in Minnesota. It holds exceptional significance as the longest bowstring truss/arc 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/arc 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.
Bridge Number: L5669

Bridge Location

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.

Bridge L5669 – T190 over LE SUEUR RIVER
Minnesota Department of Transportation (MnDOT)
Kern Bridge Structural Analysis & Load Rating Report

I – Purpose of the Study

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.

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.
II – Existing Conditions

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
II – Existing Conditions

Bridge Number: L5669

Photo 1: South elevation, looking north

Photo 2: East bridge approach, looking west
Il – Existing Conditions

Bridge Number: L5669

Photo 3: East approach, looking east

Photo 4: West approach, looking east
II – Existing Conditions

Bridge Number: L5669

Photo 5: West approach, looking west

Photo 6: Typical bottom chord configuration
II – Existing Conditions

Bridge Number: L5669

Photo 7: Bottom chord showing distortion of splice plates

Photo 8: Top chord configuration (Phoenix Column)
II – Existing Conditions

Bridge Number: L5669

Photo 9: Typical latticed vertical member

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

Bridge Number: L5669

Photo 11: End portals and sway braces

Photo 12: Floorbeams and timber stringers (note hanging X-bracing)
II – Existing Conditions

Bridge Number: L5669

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

Photo 14: Missing bolts at secondary member connection (2 of 2)
II – Existing Conditions

Bridge Number: L5669

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

Photo 16: Bearing at east abutment
II – Existing Conditions

Bridge Number: L5669

Photo 17: East abutment masonry dislocation, southeast corner

Photo 18: East abutment masonry dislocation, northeast corner
II – Existing Conditions

Bridge Number: L5669

Photo 19: West abutment

Photo 20: Truss/arch support in southwest corner
Photo 21: Typical bolted connection, vertical to bottom chord

Photo 22: Typical bolted connection, vertical to top chord
II – Existing Conditions

Bridge Number: L5669

Photo 23: Southeast slope washout

Photo 24: Southeast slope washout, exposed stone masonry abutment
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.

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

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

<table>
<thead>
<tr>
<th>Option</th>
<th>Bridge Element</th>
<th>Inventory Rating Factor</th>
<th>Operating Rating Factor</th>
<th>Controlling Limit State (Live Load Case)</th>
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<tbody>
<tr>
<td>1</td>
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<td>1.61</td>
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<tr>
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<tr>
<td>2</td>
<td>Truss/Arch Top Chord (10’ clear &amp; added bracing)</td>
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<td>1.22</td>
<td>Ultimate Compression + Bending (Pedestrian loading)</td>
</tr>
<tr>
<td>2</td>
<td>Truss/Arch Bottom Chord (10’ clear &amp; added bracing)</td>
<td>1.33</td>
<td>2.22</td>
<td>Ultimate Tension (Pedestrian loading)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Option</th>
<th>Bridge Element</th>
<th>Inventory Rating Factor</th>
<th>Operating Rating Factor</th>
<th>Controlling Limit State (Live Load Case)</th>
</tr>
</thead>
<tbody>
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<td>3</td>
<td>Truss/Arch Top Chord</td>
<td>0.93</td>
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<td>Ultimate Compression + Bending (Pedestrian loading - reduced)</td>
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<td></td>
<td>(approx. existing clear width)</td>
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</tr>
<tr>
<td>3</td>
<td>Truss/Arch Bottom Chord</td>
<td>1.47</td>
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<td></td>
<td>(approx. existing clear width)</td>
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</tr>
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</table>

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.
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.
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 washout, 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 washout 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.
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.
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)
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)
Minneapolis Department of Transportation (MnDOT)
Kern Bridge Structural Analysis & Load Rating Report

IV – Rehabilitation Opinions

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 reinstall 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 reinstall 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.
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.
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
### 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

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<th>ITEM NO.</th>
<th>ITEM</th>
<th>UNIT</th>
<th>QUANTITY</th>
<th>UNIT COST</th>
<th>TOTAL ESTIMATE</th>
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**ESTIMATED REHABILITATION COST** $1,103,550.00
KERN BRIDGE, REHABILITATION OPTION STUDY ESTIMATE (2017 DOLLARS)

OPTION 2: RELOCATE BRIDGE, REPLACE FLOORBEAMS, ADD LATERAL BRACING, AND REPLACE FLOOR SYSTEM (10 FT. CLR.)

August 31, 2017

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<td>$100,000.00</td>
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20% CONTINGENCY: LUMP SUM 1 $199,000.00 $199,000.00

ESTIMATED REHABILITATION 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)

#### Estimated Rehabilitation Cost

**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

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM</th>
<th>UNIT</th>
<th>QUANTITY</th>
<th>UNIT COST</th>
<th>TOTAL ESTIMATE</th>
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<td>380</td>
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<td>16</td>
<td>NEW RAILING AT NEW SITE (TIMBER)</td>
<td>LIN FT</td>
<td>420</td>
<td>$45.00</td>
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<td>17</td>
<td>NEW CONCRETE ABUTMENTS AT NEW SITE</td>
<td>EACH</td>
<td>2</td>
<td>$55,000.00</td>
<td>$110,000.00</td>
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<tr>
<td>18</td>
<td>TRUCKING OF COMPONENTS TO NEW SITE</td>
<td>LUMP SUM</td>
<td>1</td>
<td>$15,000.00</td>
<td>$15,000.00</td>
</tr>
<tr>
<td>19</td>
<td>REASSEMBLE/ ERECT BRIDGE SUPERSTRUCTURE</td>
<td>LUMP SUM</td>
<td>1</td>
<td>$100,000.00</td>
<td>$100,000.00</td>
</tr>
<tr>
<td>20</td>
<td>COMMON EXCAVATION</td>
<td>CU YD</td>
<td>650</td>
<td>$18.00</td>
<td>$11,700.00</td>
</tr>
<tr>
<td>21</td>
<td>SELECT GRANULAR BORROW MOD 7%</td>
<td>CU YD</td>
<td>250</td>
<td>$32.00</td>
<td>$8,000.00</td>
</tr>
<tr>
<td>22</td>
<td>CLASS V AGGREGATE BASE</td>
<td>CU YD</td>
<td>300</td>
<td>$42.00</td>
<td>$12,600.00</td>
</tr>
<tr>
<td>23</td>
<td>EROSION CONTROL ETC</td>
<td>LUMP SUM</td>
<td>1</td>
<td>$20,000.00</td>
<td>$20,000.00</td>
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<tr>
<td>24</td>
<td>NEW BRIDGE SIGNAGE</td>
<td>LUMP SUM</td>
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<td>$5,000.00</td>
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<tr>
<td>25</td>
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**ESTIMATED REHABILITATION COST** $1,243,790.00
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

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM</th>
<th>UNIT</th>
<th>QUANTITY</th>
<th>UNIT COST</th>
<th>TOTAL ESTIMATE</th>
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<tr>
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ESTIMATED DIS-ASSEMBLE & TRANSPORT COST $271,000.00
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:

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:

<table>
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<tr>
<th>LRTP REFERENCE</th>
<th>ROUTE SYSTEM</th>
<th>PROJECT NUMBER</th>
<th>YEAR</th>
<th>AGENCY</th>
<th>PROJECT DESCRIPTION</th>
<th>MILES</th>
<th>PROGRAM</th>
<th>TYPE OF WORK</th>
<th>PROPOSED FUNDS</th>
<th>TOTAL</th>
<th>FHWA</th>
<th>AC</th>
<th>FTA</th>
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<th>OTHER</th>
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<td>5-5</td>
<td>BB</td>
<td>TRF-0756-19</td>
<td>2019</td>
<td>MNDOT</td>
<td>SECTION 5310: MANKATO REHABILITATION CENTER, INC.- MANKATO; PURCHASE ONE (1) EXPANSION &lt;30FT. (CLASS 400) BUS</td>
<td>NB</td>
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<td>FTA</td>
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<td></td>
<td>64,800</td>
<td>-</td>
<td>-</td>
<td>16,200</td>
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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 circular, 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**

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<th>Activity Line Item</th>
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*Only Vehicles that have met the minimum Asset Management Useful Life (Age and Miles thresholds) are eligible for replacement.*