Introduction

During Phase II of the Local Historic Bridge Study, completed in 2014, Local Historic Bridge Reports were prepared for all known locally-owned historic bridges in the State, and included both “full reports” and “abridged reports.” The bridge reports detailed the historic background of the structures, described the character-defining features, detailed planned/recently completed work (abridged reports) or existing conditions, recommended stabilization and recommended preservation efforts (full reports), and recommended maintenance activities (full reports and most abridged reports). The Local Historic Bridge Report and other historic reports for this bridge can be found at http://www.dot.state.mn.us/historicbridges/browse.html.

This Addendum to the original Local Historic Bridge Report for Bridge L5853 describes the preservation work completed since preparation of the original report, provides a description and photographs of the current condition, and details recommended maintenance, stabilization and preservation activities as well as their associated costs.

Bridge L5853 spans pedestrian trail (former street railway right-of-way) located within the boundaries of Como Park, northwest of downtown St. Paul, Minnesota. The bridge is owned by the City of St. Paul. Built in 1904, along with nearby Bridge 92247, it is significant as the second oldest documented extant reinforced-concrete arch bridge in the state, and for utilizing the patented Melan concrete reinforcing system. The Melan system is a structural steel system encased in concrete. This bridge is also significant as the work of noted Minneapolis bridge builder, William S. Hewett.

Rehabilitation of Bridge L5853 was completed in 2015. All work was planned and completed in accordance with the Secretary of the Interior’s Standards. Therefore, the bridge retains its historic integrity. Any future work on Bridge L5853 should proceed according to the 2014 Local Historic Bridge Report, this Addendum, and 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).
Introduction

I. Work Completed
II. Rehabilitated Conditions
III. Recommendations
IV. Projected Costs

Appendices

A. SOI Standards Compliance Correspondence
B. Current MnDOT Inspection Report & Structure Inventory Report
Background

Bridge L5853 is historically significant as an outstanding, early example of a reinforced-concrete arch bridge in Minnesota. Built in 1904 along with Bridge 92247, which carries Lexington Avenue over the street railway right of way nearby, it is the second oldest known extant reinforced-concrete arch bridge with documented construction dates in Minnesota. This bridge is significant for employing the patented Melan reinforcing system. It is also significant as the work of noted Minneapolis bridge builder William S. Hewett. The bridge was nominated and listed on the National Register of Historic Places in 1989.

Bridge L5853 is located within the boundaries of Como Park, northwest of downtown St. Paul, Minnesota. The bridge is a short distance north of east-west Horton Avenue, which is the southern boundary of the south-central part of the park. Como Park is the City's major urban park and was designed in the nineteenth century to encompass the wooded and grassy rolling hills around Como Lake.

Bridge L5853 was constructed to provide grade separation between pedestrian traffic and streetcar tracks below. When the streetcar lines were abandoned in the 1950s, there was no longer a need for the bridge and it fell into disrepair. In the early 1960s, barricades were installed to prohibit pedestrian traffic due to the poor condition of the structure and the safety hazard posed to the public.

The City of St. Paul Division of Parks and Recreation began planning to complete additional bicycle paths in Como Park and to provide access to the nearby renovated Streetcar Depot using the alignment of the old streetcar lines that passed below Bridge L5853. Funding was secured and preservation recommendations went through many iterations before the scope of the rehabilitation project was finalized.

Work Completed

The rehabilitation was funded with a combination of federal and local funds. The project was completed in 2015. The site plans for the rehabilitation were prepared by Westwood Professional Services, Inc. for the City of St. Paul Park and Recreation Department and dated June 2014. The bridge rehabilitation plans, combined with the site plan, were prepared by Clark Engineering Corporation. All work was planned in accordance with the Secretary of the Interior's (SOI) Standards and was closely coordinated with the MnDOT Cultural Resources Unit (CRU), MnDOT State Aid Bridge Unit and the State Historic Preservation Office (SHPO). Correspondence with SHPO confirming that the planned work was in conformance with SOI Standards can be found in Appendix A of this report.

Construction for the project began in the fall of 2014 and was concluded in the spring of 2015 to address the structure’s deficiencies (MnDOT S.P. 091-070-015). The General Contractor was LS Black Constructors of St. Paul, Minnesota. The precast concrete railings were supplied by American Artstone of New Ulm, Minnesota. The rehabilitation included the following:

- Concrete and reinforcing repairs to the deck, arches, piers and abutments:
  - The existing structure was shored, as required to ensure structural stability while deteriorated concrete was removed to the depth of sound concrete.
I - Work Completed

- The exposed reinforcing steel and the exposed surfaces of the steel arches on the face of the arch were sandblasted clean and painted with a rust inhibitor.
- Reinforcing pins were installed in the slab edges and the arch face to provide anchor to the concrete repair mortar which was placed.
- Underside and vertical areas were repaired using a combination of hand applied repair mortar and form-and-pour methods.
  - In areas where the concrete repairs are thin, such as on undersides of arch ribs, mesh was embedded to help the new concrete adhere to the existing concrete.
- Slab edges and curved curbing were repaired.

- Railing repairs:
  - Failed bottom rail pieces were repaired in-kind using form-and-pour methods.
  - A new precast concrete ornamental railing was installed
    - The railing was recreated according to historic plans with the modification of added balusters to provide safe spacing distances (reduced opening spacing between vertical railing members).

- Deck repairs:
  - Vegetation was removed from the cracks in the deck.
  - The wear course was removed and a waterproofing membrane was installed on the upper surface of concrete deck.
  - The wear course was reconstructed to match the original surface.
  - The bridge is currently load posted/signed with a 150-person limit on the bridge.

- Trails, signs and plantings:
  - The bridge was restored to pedestrian use and connected to a pedestrian path from the old streetcar station nearby.
    - Existing trails were repaved.
    - New trails were constructed to and under the bridge.
  - Enhancement lighting was added on both sides of the bridge to provide improved nighttime views of the bridge structure.
  - Interpretive signs were installed to give historic context for the Melan arch design elements of the bridge, the Twin City Rapid Transit Company, and Como Park.
Existing Conditions

Available information concerning Bridge L5853, including bridge rehabilitation plans and bridge inspection reports, were reviewed prior to visiting the bridge site. The current MnDOT Bridge Inspection Report and Structure Inventory Report can be found in Appendix B of this Addendum. A site visit was conducted by LHB, Inc. on October 12, 2017. The site visit was conducted to establish the following:

1. General condition of structure
2. Conformation to available rehabilitation plans
3. Bridge geometry, clearances and notable site issues

General Description

Bridge L5853 is a three-span, open-spandrel, reinforced-concrete, barrel-arch bridge. It has an overall structure length of 88 feet, with a main-span arch of 50 feet and slab spans of 12 feet each on each end. The out-out width is 17 feet 6 inches, carrying a pedestrian walkway of 15 feet. Ornamental concrete railings line the bridge deck at a height of approximately 3 feet 8 inches.

General Condition

Bridge L5853 is in generally good to fair condition. The newly placed concrete repairs, precast concrete railings, and concrete deck surface are in good condition. The remaining original concrete substructure elements are in fair condition. However, the deck underside condition is fair to poor with heavy cracking, leaching and minor delamination.

Bridge L5853 appears to adequately serve its purpose of carrying pedestrian traffic. The bridge is currently open and is posted with a pedestrian restriction of a maximum of 150 people allowed on the bridge at any time.

Condition by Element

Reinforced-Concrete Arch Thrust Blocks

The arch thrust blocks are located at the bottom of the arch. The south thrust block appears to have been 100 percent repaired and is in good condition with no cracking or other defects observed. The north thrust block is in fair condition with minor vertical and horizontal cracking throughout, however no delaminations were observed on the concrete surface.

Reinforced-Concrete Arch

The concrete around the fascia Melan steel arches was removed and replaced in its entirety. For the three center Melan steel arches, the concrete was selectively removed and surface repairs were conducted. The original concrete between the steel arches remains in place. There is moderate cracking in the original concrete of the arch underside and minor cracking in the new concrete patches. Leaching is occurring evidenced by wet areas of the arch underside where cracking is present. The exposed areas along the top side of the arch are in good condition and required less repair patching during the 2015 rehabilitation compared to the underside arch surface.
Reinforced-Concrete Piers
The north pier is in good condition with minor patching and minor cracking on the surface, but no delamination identified. The south pier has heavy efflorescence on the northwest corner of the bridge. The upper portion of the south pier has been repaired. The lower portion of the south pier has minor cracking, but no delamination identified.

Reinforced-Concrete Abutments
The north abutment is in good condition with no cracking or delaminations observed. The south abutment is partially patched with minor cracking of the original (un-patched) concrete observed, but no delaminations were identified.

Bridge Slopes
All bridge slopes are stable and protected with vegetation.

Reinforced-Concrete Deck
The exposed areas of the deck underside are heavily cracked with leaching of water observed during the field investigation. There was one small area of delamination, approximately 2 square feet, observed on the north end of the bridge.

The top of the deck appears in good condition. The surfacing (wear course) was replaced in 2015 and according to the plan, a waterproof membrane was placed between the original concrete and the new wear course surfacing. The sealant joints in the deck appear to be in tact with no cracking or separation from the concrete observed.

Reinforced-Concrete Railing
The original four concrete end posts remain in place. They are all cracked with areas of concrete repair. These are the only original elements of the rail remaining. The concrete curb and precast concrete ornamental railing were placed in 2015. There were no deficiencies noted in the new elements of the railing.

Approach Trails
The approach trails are paved and topped with an aggregate seal coat. They are set at steep grades of approximately 8 percent and 4 percent leading to and from the ends of the bridge. No significant deficiencies were observed in the approaches.
Photo 1: Pre-Rehabilitation Condition (2007 photo of east elevation)

Photo 2: East Elevation
II - Rehabilitated Conditions

Bridge Number: L5853

Photo 3: West Elevation

Photo 4: Interpretive Sign
Minnesota Department of Transportation (MnDOT)
Local Historic Bridge Report - Addendum after Rehabilitation

II - Rehabilitated Conditions

Bridge Number: L5853

Photo 5: North Abutment

Photo 6: Northeast Deck Edge and North Pier
II - Rehabilitated Conditions

Bridge Number: L5853

Photo 7: Top of Arch (north)

Photo 8: Slab Underside (above north end of arch)
Photo 9: North Arch Underside and Thrust Block

Photo 10: Slab Underside (above south end of arch)
Photo 11: South Pier

Photo 12: South Pier
Photo 13: South Abutment

Photo 14: North Approach Trail
Photo 15: Northeast Corner Post

Photo 16: North Approach, Bridge Deck, and Railing (looking south)
Photo 17: East Railing

Photo 18: South Bridge Deck, Approach, and Railing (looking south)
II - Rehabilitated Conditions

Bridge Number: L5853

Photo 19: Southwest Corner Post

Photo 20: South Approach Trail
Overall Recommendations

This bridge report Addendum assesses the maintenance, stabilization and preservation needs of this structure. The maintenance activities, along with regular structural inspections and anticipated bridge component replacements, are routine practices directed toward continued structure serviceability and asset preservation. Stabilization activities address immediate needs identified as necessary to maintain a bridge’s structural and historic integrity and serviceability and should be performed as soon as possible. Preservation activities are near-term or long-term steps that need to be taken to preserve, and in some cases, restore a bridge’s structural and historic integrity and serviceability. In assessing preservation activities, a design life of 20 years or longer is typically considered.

Bridge L5853 is currently open to pedestrian traffic. The recommendations that follow assume the structure’s use will remain the same.

Recommended Inspections

The rehabilitation of Bridge L5853 was completed in the spring of 2015. In addition to standard inspection protocol and procedures which should be undertaken for a bridge of this type, the following inspections should be performed to more acutely monitor the condition of the bridge’s historic elements. Inspections should be performed in accordance with recommendations found in this Local Historic Bridge Report Addendum and current MnDOT requirements in the most recent version of MnDOT’s Bridge Inspection Field Manual.

Prior to conducting the inspection, the Bridge Inspection Team Leader (BITL) should review the Local Historic Bridge Report and this Addendum to become familiar with the significance of the bridge, its character-defining features, and details of the recent rehabilitation. Specific elements of the historic bridge to pay close attention to are described below.

After completing the inspection, the inspector should note any condition issues that pertain to the bridge’s historic features within the inspection report. If repairs are recommended to the bridge’s character-defining features or historic fabric, the BITL should consult with the MnDOT Cultural Resources Unit (CRU) for advice on repair methods that meet the Secretary of the Interior’s (SOI) Standards by emailing CulturalResources.dot@state.mn.us.

Historic Concrete Element Conditions

Many elements of the original reinforced concrete structure remain in place and are deemed in fair condition. Almost all of these elements have anywhere from minor to heavy cracking but very little delamination. The top of the original concrete deck was repaired and then waterproofed in 2015 to protect the elements below the deck from damage caused by freeze-thaw of trapped moisture. Areas of efflorescence or moisture, newly formed cracks and/or delaminated regions may indicate that the waterproofing is not properly protecting the elements below the concrete deck or may be a sign that movement/differential settlement stress is imparting excessive loading to the structure. Monitoring for these signs or changes in condition of the concrete elements would be beneficial so potential issues can be identified early.
It should be noted that there are currently areas of moisture on the deck and arch undersides that displayed areas of trapped moisture where cracking of original concrete exists. These should be closely monitored and investigated to determine the source and potential solutions before further damage to the original concrete occurs.

Any repairs required to the historic concrete elements should be performed in the same manner as required in the 2015 rehabilitation and the repair material should match the historic and the 2015 material in mix design, color and finish. Any repair to the historic structure should be done by a qualified professional experienced with repair of historic concrete.

**Sealant Joint Condition**

There is a sealant joint located on the deck surface at a longitudinal control joint along the centerline of the bridge and at the lateral control joint along the center or peak of the bridge deck. This sealant provides a flexible joint that allows minor movement of the deck surfacing while preventing water from entering the concrete deck and the concrete elements below the deck (arch, piers, and abutments). The sealant at these locations should be inspected to ensure it maintains its elasticity and bond to the adjacent concrete and that it remains free of splits or other imperfections that would lead to water intrusion. Typical sealant life is approximately 5 to 10 years. It is recommended that upon replacement of the sealant the color be chosen to match the color of the concrete surface.

**Recommended Annual Maintenance Activities**

1. There are sealant joints located on the concrete deck surface. It is recommended to remove and replace this sealant as it fails. It is anticipated that this item will be required on approximately a ten-year cycle and therefore the cost has been pro-rated for an annual estimation. A colored sealant that matches the concrete surface is to be used.

2. It is assumed that de-icing salts are not used on this bridge deck during the winter months, therefore no costs for bridge flushing are assumed this report. Should salts be used now or in the future, the bridge deck, curbs, railing, arches and piers should be flushed with water each spring to remove the deicing salts the structure is exposed to when the bridge is open through the winter months. Low pressure spray, less than 400 psi, should be used to ensure there is no damage to surface finishes. The flushing method and water pressure are to be tested to ensure they do not damage or abrade the bridge surfaces.

**Recommended Stabilization Activities**

There are no stabilization items recommended for this bridge.

**Recommended Preservation Activities**

There are no preservation items recommended for this bridge.
Summarized Maintenance, Stabilization and Preservation Construction Cost Estimate

It is important to recognize that the work scope and cost estimates presented herein are based on a limited level assessment of the existing structure. In moving forward with future project planning, it will be essential to undertake a detailed structure assessment addressing the proposed work for the structure. It is also important that any future preservation work follow applicable preservation standards, prioritizing rehabilitation and repair of in-place structure elements in lieu of replacement. This includes any elements which may be preliminarily estimated for replacement within the work scope of this report. Only through a thorough review of rehabilitation and repair options and comprehensive structural and historic assessment can a definitive conclusion for replacement of historic fabric be formed.

The opinions of probable construction and administrative costs provided below are presented in 2017 dollars. These costs were developed without benefit of a detailed, thorough bridge inspection, bridge survey or completion of preliminary design for the estimated improvements. The estimated costs represent an opinion based on background knowledge of historic unit prices and comparable work performed on other structures. The opinions of cost are intended to provide a programming level of estimated cost. These costs will require refinement and may require significant adjustments as further analysis is completed in determining the course of action for future structure improvements. A 20 percent contingency allowance has been included in the annual maintenance cost estimate. A 20 percent contingency and 7 percent mobilization allowance have been included in the construction cost estimates.

- **Opinion of Annual Cost- Maintenance Activities:** $300
- **Opinion of Construction Cost- Stabilization Activities:** $0
- **Opinion of Construction Cost- Preservation Activities:** $0
### MAINTENANCE, STABILIZATION & PRESERVATION COST ESTIMATE (2017 DOLLARS)

**Bridge No. L5853**  
**January 18, 2018**

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Appendix A. SOI Standards Compliance Correspondence
July 2, 2014

Sarah Beimers, Government Programs & Compliance Officer
State Historic Preservation Office, Minnesota Historical Society
345 Kellogg Blvd. W., St. Paul, MN 55101

RE: S.P. 91-070-15 (Bridge L5853 in Como Park, St. Paul, Ramsey County)
SHPO Number 2012-1095

Dear Ms. Beimers:

We have reviewed the above-referenced undertaking pursuant to our FHWA-delegated responsibilities for compliance with Section 106 of the National Historic Preservation Act, as amended (36 CFR 800), and as per the terms of the Programmatic Agreement (PA) between the FHWA and the Minnesota State Historic Preservation Office (SHPO) (June 2005) and the Historic Bridge PA (2008).

Our office previously wrote to yours on February 3, 2012 and March 18, 2013 regarding this project. In the first letter, the project scope was to stabilize Bridge L5853, which was listed on the National Register of Historic Places in 1989, and is located in Como Park, which is also a historic resource. The original scope of work included removing loose concrete but not repairing it, leaving the Melan arch ribs exposed, removing the deck and constructing interpretive viewing platforms on either end of the bridge that would contain details from the original bridge railing and deck and provide interpretive signage to inform the public on the bridge’s significance. Your office concurred with our finding, and requested review at the 60 and 95 percent stage of plan development.

By the time of the 60 percent plans, the scope of work had expanded to a full rehabilitation of the bridge, including in-kind replacement of missing features, specifically the railings. Testing on the bridge revealed that the concrete retained substantial strength, enough to support pedestrian loading. Our March 18, 2013 findings letter detailed the proposed rehabilitation scope.

Subsequent to the 60 percent plans, the engineering firm doing the work went out of business, and the City had to re-contract in order to finalize the plans. The City also hired an engineering peer reviewer to ensure the full rehabilitation was possible within the existing budget. Based on this further engineering analysis, the rehabilitation scope has been modified somewhat, and is detailed below and in the enclosed final plans and special provisions (difference between the 60 percent and final plans are noted).

- Shore the existing structure, as required to remove deteriorated concrete to sound concrete. Remove the displaced section of curved curbing and re-construct. Sandblast clean exposed reinforcing steel and the exposed surfaces of the steel arches on the face of the arch.
- While the 60 percent plans included installation of sacrificial anodes to help protect the steel arches, the anodes will not be included in the project. Based on further analysis, it is not believed that the anodes will provide much protection. Instead, the remaining steel will be painted with a rust-inhibitor.
- Install reinforcing pins in slab edges and the arch face to help hold the thicker sections of new concrete in place.
- Repair underside and vertical areas using a combination of hand applied repair concrete and form and pour methods. At the 60 percent stage, it was proposed to leave the three interior Melan metal arch ribs exposed to help interpret the construction technique used on this bridge. However, based on concerns expressed by your office and further engineering analysis, it is now proposed that all exposed ribs will be covered with concrete. A mesh will be installed over the ribs to help the new concrete (which will only be approximately 3/8 inch thick) adhere to the existing concrete. This mesh will be internal (i.e., not be visible once the concrete has been patched).
- Repair slab edges and curved curbing using form and pour methods.
• All historic concrete work will meet the historic concrete methods outlined in Preservation Brief 15.

• All of the extant bottom rail pieces fell off the bridge over this last winter, except for a small portion on the southeast corner. **All the bottom rail pieces will now be replaced in-kind.**

• Install new railings – **this item is now an Add Alternative**, meaning they will be constructed and installed if the contractor can perform the work within the overall project budget.

• Remove vegetation from the cracks in the deck. Remove wear course and install waterproofing membrane. Reconstruct wear course to match original. This detail was included in the 60 percent plans; however, my letter did not highlight it.

• Repave existing trails, and install interpretive signs and plantings. The interpretive panels, created by Hess Roise, are enclosed.

• Construct new trails to the bridge.

Our office has determined that the rehabilitation approach presented in the enclosed 95 percent plans meets the SHS Standards for Rehabilitation for Bridge L5853 and Como Park. **It is the finding of this office, therefore, that the proposed plan will have No Adverse Effect on Bridge L5853 or Como Park.**

I would like to thank you, Kelly Gragg-Johnson, and Natascha Weiner for all of your help and assistance in figuring out the right repair methods on this bridge. We look forward to receiving your final comments within 30 days of receipt of this letter.

Sincerely,

Kristen Zschomler, Historian and RPA-Registered Archaeologist
Cultural Resources Unit Supervisor

Enc.

cc: Don Varney, City of St. Paul Parks and Recreation Division
    Amy Spong, City of St. Paul HPC
    Angel Staples, MnDOT Historic Bridge Expert
    Dave Conkel, MnDOT State Aid Bridge Engineer
    Lisa Daniels, MnDOT State Aid
    Kurt Berglund, Clark Engineering Services
    Jeff Westendorf, Westwood Professional Services
    Charlene Roise, Hess Roise
    Steve Olson, ONE
    MnDOT CRU Project File
August 5, 2014

Ms. Kristen Zschomler
Cultural Resources Unit
MN Dept of Transportation
Transportation Building, MS 620
395 John Ireland Boulevard
St. Paul, MN 55155-1899

Re: S.P. 91-070-15, Bridge L5853 Rehabilitation Project, Como Park
St. Paul, Ramsey County
SHPO Number: 2012-1095

Dear Ms. Zschomler:

Thank you for continuing consultation on the above referenced project. It has been reviewed pursuant to the responsibilities given the State Historic Preservation Officer by the National Historic Preservation Act of 1966 and implementing federal regulations at 36 CFR 800 and per the terms of the Programmatic Agreements negotiated between the FHWA and the Minnesota SHPO.

We have reviewed the final plans and special provisions included with your letter of 2 July 2014 and we concur with your determination that the proposed work meets the Secretary of the Interior’s Standards for Rehabilitation and will have no adverse effect on Bridge L5853 provided that:

1. the mesh is installed in a way that is reversible and not permanently adhered to the historic reinforcement, and

2. all concrete patches match the historic concrete in color, texture and profile.

If for any reason you cannot meet these conditions, please consult with us further. Thank you for your efforts in coming up with a viable solution for the rehabilitation of this historic bridge.

Please contact our Compliance Section at (651) 259-3455 if you have any questions regarding our review of this project.

Sincerely,

Sarah J. Beimers, Manager
Government Programs and Compliance
Appendix B. Current MnDOT Inspection Report & Structure Inventory Report
## MINNESOTA BRIDGE INSPECTION REPORT

### Bridge: L5853  FED OVER LEXINGTON AVE (CSAH 51)

- **County:** RAMSEY  
- **Location:** 0.4 MI N OF JCT CSAH 31  
- **Length:** 77.9 ft  
- **City:** ST PAUL  
- **Route:** CSAH 51  
- **Ref. Pl:** 904+00.820  
- **Deck Width:** 15.3 ft  
- **Township:** Control Section:  
- **Milepost:** Maint. Area:  
- **Section:** 23  
- **Range:** 23W  
- **Span Type:** CCONC SLAB SPAN  
- **NBI Deck:** 8  
- **Super:** 6  
- **Sub:** 7  
- **Chan:** N  
- **Culv:** N  
- **Open, Posted, Closed:** OPEN  
- **Appraisal Ratings - Approach:** N  
- **Waterway:** N  
- **Def. Stat:** ADEO  
- **Traffic:** NOT REQUIRED  
- **Horiz:** NOT REQUIRED  
- **Vert:** NOT REQUIRED  
- **MIN Scour Code:** A-NON-WATERWAY  

### ELEM NBR | ELEMENT NAME | INSPE. DATE | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4
---|---|---|---|---|---|---
800 | CRITICAL DEF'S OR SAFETY HAZARDS | 04-17-2017 | 1 EA | 1 | 0 | 0 | 0  
  | | 09-30-2015 | 1 EA | 1 | 0 | 0 | 0  
  | Notes: None found in 2017. | | | | | | |
38 | REINFORCED CONCRETE SLAB | 04-17-2017 | 1,350 SF | 1,300 | 50 | 0 | 0 | 0  
  | | 09-30-2015 | 1,350 SF | 1,350 | 0 | 0 | 0 | 0  
  | Notes: Minor map cracking is present. 2017  
  | Transverse and longitudinal cracking with light weathering is present. 2017 | | | | | | |
510 | WEARING SURFACE | 04-17-2017 | 1,380 SF | 1,380 | 0 | 0 | 0 | 0  
  | Notes: 15.5' x 69' = 1,380 SF total wear area. 2017  
  | Little to no deterioration is present. 2017  
  | Some minor transverse cracks are present on the East side. 2017 | | | | | | |
301 | Poured Seal Joint | 04-17-2017 | 187 LF | 187 | 0 | 0 | 0 | 0  
  | Notes: 1-89.0 LF  
  | 5-10.5 LF All sealant is in CS1. 2017 | | | | | | |
331 | REINFORCED CONC BRIDGE RAILING | 04-17-2017 | 178 LF | 178 | 0 | 0 | 0 | 0  
  | | 09-30-2015 | 170 LF | 170 | 0 | 0 | 0 | 0  
144 | REINFORCED CONCRETE ARCH | 04-17-2017 | 54 LF | 54 | 18 | 0 | 0 | 0  
  | | 09-30-2015 | 54 LF | 54 | 0 | 0 | 0 | 0  
  | Notes: 10 LF of moderate width unscaled cracks at the S. end. 2017  
  | Leaking without buildup is present. 2017  
  | Minor map cracking is present at the under deck. 2017 | | | | | | |
210 | REINFORCED CONCRETE PIER WALL | 04-17-2017 | 35 LF | 35 | 19 | 1 | 0 | 0  
  | | 09-30-2015 | 35 LF | 35 | 0 | 0 | 0 | 0  
  | Notes: 2 LF moderate width crack on the S. pier wall, NE. end. 2017  
  | 17 LF moderate width crack on the N. pier wall, N. end. 2017  
  | Spall deeper than 1" and greater than 6" in diameter. At the N. pier wall, SW. corner. 2017 | | | | | | |
215 | REINFORCED CONCRETE ABUTMENT | 04-17-2017 | 35 LF | 35 | 0 | 0 | 0 | 0  
  | | 09-30-2015 | 35 LF | 35 | 0 | 0 | 0 | 0  
  | Notes: Minor map cracking at the S. abutment. 2017 | | | | | | |
890 | LOAD PST OR VERTICAL CLIR SIGNING | 04-17-2017 | 1 EA | 1 | 0 | 0 | 0 | 0  
  | Notes: Pedestrian load limit signs are posted at each end of the bridge. 2017  
  | 150 Person Limit - signs are in place. 2017 | | | | | | |
892 | SLOPES & SLOPE PROTECTION | 04-17-2017 | 1 EA | 1 | 0 | 0 | 0 | 0  
  | | 09-30-2015 | 1 EA | 1 | 0 | 0 | 0 | 0  
  | Notes: Slopes are vegetated with - Grass - Bushes - Mulch. 2017 | | | | | | |
894 | DECK & APPROACH DRAINAGE | 04-17-2017 | 1 EA | 1 | 0 | 0 | 0 | 0  
  | | 09-30-2015 | 1 EA | 1 | 0 | 0 | 0 | 0  
<p>| Notes: | | | | | | |</p>
<table>
<thead>
<tr>
<th>Item</th>
<th>Date</th>
<th>Quantity</th>
<th>Condition 1</th>
<th>Condition 2</th>
<th>Condition 3</th>
<th>Condition 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>MISCELLANEOUS ITEMS</td>
<td>04-17-2017</td>
<td>1 EA</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Notes: There are 6 old fixtures on the bottom of the slab. No longer in use. 2017</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROTECTED SPECIES</td>
<td>04-17-2017</td>
<td>1 EA</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>09-30-2015</td>
<td>1 EA</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Notes: None found in 2017.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

General: The January 1st, "dummy" inspection was created by the MnDOT Bridge Office — 2017

Notes:

Bridg: [N] Only pedestrian traffic on the bridge. 2017
Railings: No vehicles allowed. 2017
## MINNESOTA STRUCTURE INVENTORY REPORT

<table>
<thead>
<tr>
<th><strong>GENERAL</strong></th>
<th><strong>ROADWAY</strong></th>
<th><strong>INSPECTION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bridge ID:</strong> L5853</td>
<td><strong>Bridge Match ID (TIS):</strong> PED</td>
<td><strong>Deficient Status:</strong> ADEQ</td>
</tr>
<tr>
<td><strong>Agency Br. No.:</strong></td>
<td><strong>Roadway O/U Key:</strong> 1-ON</td>
<td>** Sufficiency Rating:**</td>
</tr>
<tr>
<td><strong>District:</strong> METRO</td>
<td><strong>Route Sys/No:</strong></td>
<td><strong>Last Inspection Date:</strong> 04-17-2017</td>
</tr>
<tr>
<td><strong>Maint. Area:</strong></td>
<td><strong>Road Name:</strong> PED - TRAIL</td>
<td><strong>Inspection Frequency:</strong> 12</td>
</tr>
<tr>
<td><strong>City:</strong> ST PAUL</td>
<td><strong>National Highway System:</strong></td>
<td><strong>Inspector Name:</strong> CITY OF ST PAUL</td>
</tr>
<tr>
<td><strong>County:</strong> 62 - RAMSEY</td>
<td><strong>Roadway Function:</strong></td>
<td><strong>Status:</strong> A-OPEN</td>
</tr>
<tr>
<td><strong>Towship:</strong></td>
<td><strong>Roadway Type:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Desc. Loc.:</strong> 0.4 Ml N OF JCT CSAH 31</td>
<td><strong>Control Section (TH Only):</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Sect., Twp., Range:</strong> 23 - 029N - 23W</td>
<td><strong>Ref. Point:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Latitude:</strong> 44° 56' 42.38&quot;</td>
<td><strong>Date Opened to Traffic:</strong> 08-30-2015</td>
<td></td>
</tr>
<tr>
<td><strong>Longitude:</strong> 93° 06' 46.06&quot;</td>
<td><strong>Detour Length:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Custodian:</strong> CITY</td>
<td><strong>Lanes:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Owner:</strong> CITY</td>
<td><strong>ADT (YEAR):</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Inspection By:</strong> CITY OF ST PAUL</td>
<td><strong>HCADT:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Year Built:</strong> 2015</td>
<td><strong>Functional Class:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MN Year Remodeled:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FHWA Year Reconstructed:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bridge Plan Location:</strong> MUNICIPAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Potential ABC:</strong> N.A.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### STRUCTURE

| **Service On:** PED-BICYCLE | **Deck:** 8 |
| **Service Under:** OTHER | **Superstructure:** 8 |
| **Main Span Type:** CCONC SLAB SPAN | **Substructure:** 7 |
| **Main Span Detail:** | **Channel:** N |
| **Appr. Span Type:** CCONC SLAB SPAN | **Culvert:** N |
| **Appr. Span Detail:** | | |
| **Skew:** | | |
| **Culvert Type:** | | |
| **Barrel Length:** | | |

| **Number of Spans:** MAIN: 1 APPR: 2 TOTAL: 3 | **Structure Flared:** NO |
| **Main Span Length:** 53.1 ft | **Parallel Structure:** NONE |
| **Structure Length:** 77.9 ft | **Field Conn. ID:** |
| **Deck Width:** 15.3 ft | **Centiliever ID:** |
| **Deck Material:** C-I-CONCRETE | **Foundations:** |
| **Wear Surf Type:** N/A | **Abut:** CONC - SPRD SOIL |
| **Wear Surf Install Year:** 2015 | **Pier:** CONC - SPRD SOIL |
| **Wear Course/Fill Depth:** 0.50 ft | **Historic Status:** NOT ELIGIBLE |
| **Deck Membrane:** NONE | **On - Off System:** OFF |
| **Deck Rebars:** EPOXY COATED REBAR | | |
| **Deck Rebars Install Year:** | | |
| **Structure Area:** 1,350 sq ft | | |
| **Roadway Area:** 972 sq ft | | |
| **Sidewalk Width - L/R:** | | |
| **Curb Height - L/R:** | | |
| **Rail Codes - L/R:** NN NN | | |

### ROADWAY DIMENSIONS

In Divided NS-EB SB-WB

| **Roadway Width:** | **Median Width on Bridge:** |
| **Vertical Clearance:** | | |
| Max. Vert. Clear.: | | |
| Horizontal Clear.: | | |
| Lateral Clr. - L/Rt: | | |
| Appr. Surface Width: | | |
| Bridge Roadway Width: | | |

### MISCELLANEOUS BRIDGE DATA

| **Structure Flared:** NO | **Bridge Railings:** N-NOT REQUIRED |
| **Parallel Structure:** NONE | **GR Transition:** N-NOT REQUIRED |
| **Field Conn. ID:** | **Appr. Guardrail:** N-NOT REQUIRED |
| **Centiliever ID:** | **GR Terminal:** N-NOT REQUIRED |
| | | |

### SAFETY FEATURES

| **Bridge Railing:** N-NOT REQUIRED | **In Depth Inspe.:** |
| **GR Transition:** N-NOT REQUIRED | | |
| **Appr. Guardrail:** N-NOT REQUIRED | | |
| **GR Terminal:** N-NOT REQUIRED | | |

### WATERWAY

| **Drainage Area:** | **Scour Evaluation Year:** |
| **Waterway Opening:** | | |
| **Navigation Control:** NOT APPL | | |
| **Pier Protection:** | | |
| **Nav. Vert./Horz. Clr:** | | |
| **Nav. Vert. Lift Bridge Clear:** | | |
| **MN Scour Code:** A-NON WATERWAY | | |

### COUNTRY CODES

| **Design Load:** PED | **Operating Rating:** PED |
| **Inventory Rating:** PED | | |
| **Posting:** | | |
| **Rating Date:** | | |

**Overweight Permit Codes**