# 2016 ROUTINE
# BRIDGE INSPECTION REPORT


## BRIDGE # 5664
## CSAH 55(JACKSON) over BNSF RR

**DISTRICT:** Metro **COUNTY:** Ramsey **CITY/TOWNSHIP:** St Paul

**STATE:** Minnesota

**Date(s) of Inspection:** 04/29/2016

**Equipment Used:** Full Body Harness, Bucket Van, Non-destructive Testing Equipment - Panametrics Epoch XT portable flaw detector. 2.25 MHz ½" diameter normal beam transducer.

**Owner:** County Highway Agency

**Inspected By:** Ekstrand, Ron; Engel, Michael; Grau, Joe; Reimer, Dan

**Report Written By:** Ron Ekstrand

**Report Reviewed By:** Glenn Pagel

**Final Report Date:** 06/08/2016

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# Minnesota Structure Inventory Report

**Bridge ID:** 5664 CSAH 55(JACKSON) **over** BNSF RR **Date:** 06/08/2016

## GENERAL

**Agency Br. No.**
**District** Metro
**Maint. Area** **Crew**
**County** 062 - Ramsey
**City** St Paul
**Township**
**Desc. Loc.** 0.8 MI N OF JCT TH 94
**Sect., Twp., Range** 31 - 029N - 22W
**Latitude** **Deg** 44 **Min** 57 **Sec** 46.34
**Longitude** **Deg** 93 **Min** 5 **Sec** 52.52
**Custodian** 27 - Railroad
**Owner** 02 - County Highway Agency
**BMU Agreement**
**Year Built** 1939
**MN Year Reconstructed**
**FHWA Year Reconstructed**
**MN Temporary Status**
**Bridge Plan Location** 4 - MUNICIPAL
**Date Opened to Traffic**
**On-Off System** 1 - ON
**Legislative District** 65A
**ABC Suitable**

## STRUCTURE

**Service On** 5 - Highway-pedestrian
**Service Under** 2 - Railroad
**Main Span Type**
4 - Steel Continuous 01 - Beam Span
**Main Span Detail**
**Appr. Span Type**
**Appr. Span Detail**
**Skew** 13 R
**Culvert Type**
**Barrel Length** ft.
**Cantilever ID** P - Pinned Hinge

## NUMBER OF SPANS

**MAIN:** 9 **APPR:** 0 **TOTAL:** 9
**Main Span Length** 66.0 ft.
**Structure Length** 485.7 ft.
**Deck Width (Out-to-Out)** 57.0 ft.
**Deck Material** 1 - Concrete Cast-in-Place
**Wear Surf Type** 4 - Low Slump Concrete
**Wear Surf Install Year** 1982
**Wear Course/Fill Depth** 0.21 ft.
**Deck Membrane** 0 - None
**Deck Rebars** 0 - None
**Deck Rebars Install Year**
**Structure Area (Out-to-Out)** 27685 sq. ft.
**Roadway Area (Curb-to-Curb)** 19429 sq. ft.
**Sidewalk Width** **Lt** 7.50 ft. **Rt** 7.50 ft.
**Curb Height** **Lt** 1.17 ft. **Rt** 1.17 ft.
**Rail Type** **Lt** 40 **Rt** 40

## ROADWAY

**Bridge Match ID (TIS)** 0
**Roadway O/U Key** Route On Structure
**Route Sys** 04 - CSAH **Number** 55
**Roadway Name or Description**
CSAH 55
**Level of Service** 1 - MAINLINE
**Roadway Type** 2 - 2-way traffic
**Control Section (TH Only)**
**Reference Point** 000+00.110
**Detour Length** 1.0 mi
**Lanes** **On** 2 **Under** 0
**ADT** 7229 **Year** 2011
**HCADT** 0 **ADTT** 0 **%**
**Functional Class** 16 - Urban - Minor Arterial

## RDWY DIMENSIONS

| If Divided | NB-EB | SB-WB |
|---|---|---|
| Roadway Width | 40.00 ft. | ft. |
| Vertical Clearance | ft. | ft. |
| Max. Vert. Clear. | ft. | ft. |
| Horizontal Clear. | 39.9 ft. | ft. |
| Lateral Clearance | ft. | ft. |

**Appr. Surface Width** 44.0 ft.
**Bridge Roadway Width** 40.0 ft.
**Median Width On Bridge** ft.

## MISC. BRIDGE DATA

**Structure Flared** 0 - No flare
**Parallel Structure** N - No parallel structure
**Field Conn. ID** 2 - Riveted
**Abutment Foundation** 4 - MASONRY
**(Material/Type)** 1 - SPRD SOIL
**Pier Foundation** 1 - CONC
**(Material/Type)** 1 - SPRD SOIL
**Historic Status** 5 - Not eligible

## PAINT

**Year Painted** 1982
**Unsound Paint %**
**Painted Area** 3218 sq. ft.
**Primer Type** 2 - Lead, Iron Oxide - non
**Finish Type** C - Lead Silica Chromate

## BRIDGE SIGNS

**Posted Load** 2 - Vehicle & Semi (Type R12-5)
**Traffic** 0 - Not Required
**Horizontal** 0 - Not Required
**Vertical** N - Not Applicable

## INSPECTION

**Userkey** 199
**Unofficial Structurally Deficient** Y
**Unofficial Functionally Obsolete** N
**Unofficial Sufficiency Rating** 34.5
**Routine Inspection Date** 04/29/2016
**Routine Inspection Frequency** 12
**Inspector Name** CO Bridge
**Status** P - Posted for Load

## NBI CONDITION RATINGS

**Deck** 6 - Satisfactory Condition
**Unsound Deck %** 1
**Superstructure** 4 - Poor Condition
**Substructure** 4 - Poor Condition
**Channel** N - Not Applicable
**Culvert** N - Not Applicable

## NBI APPRAISAL RATINGS

**Structure Evaluation** 3
**Deck Geometry** 5
**Underclearances** 4
**Water Adequacy** N - Not Applicable
**Approach Alignment** 7 - Better than present minir

## SAFETY FEATURES

**Bridge Railing** 0 - SUBSTANDARD
**GR Transition** 0 - SUBSTANDARD
**Appr. Guardrail** 0 - SUBSTANDARD
**GR Termini** 0 - SUBSTANDARD

## IN DEPTH INSP.

| | Y/N | Freq | Date |
|---|---|---|---|
| Frac. Critical | N | | |
| Underwater | N | | |
| Pinned Asbly. | N | 60 mo. | 11/19/2012 |
| Spec. Feat. | | | |

## WATERWAY

**Drainage Area (sq. mi.)**
**Waterway Opening** sq. ft.
**Navigation Control** N - Not applicable, no waterw
**Pier Protection**
**Nav. Clr. (ft.)** **Vert.** ft. **Horiz.** ft.
**Nav. Vert. Lift Bridge Clear. (ft.)**
**MN Scour Code** A - NON WATER' **Year**

## CAPACITY RATINGS

**Design Load** 5 - HS 20
**Operating Rating** 0 - Unknown 20.5
**Inventory Rating** 0 - Unknown 8.5
**Posting VEH:** 10 **SEMI:** 20 **DBL:** 20
**Rating Date** 07/15/2014

**Minnesota Permit Codes**

**A:** N - N/A
**B:** N - N/A
**C:** N - N/A

# Minnesota Structure Inventory Report

**Bridge ID: 5664 CSAH 55(JACKSON) over BNSF RR** Date: 06/01/2016

## +GENERAL+

| | |
|---|---|
| **Agency Br. No.** | **Crew** |
| **District** | 05 **Maint. Area** |
| **County** | 062 - Ramsey |
| **City** | St Paul |
| **Township** | |
| **Desc. Loc.** | 0.8 MI N OF JCT TH 94 |
| **Sect., Twp., Range** | 31 029N 22W |
| **Latitude** | 44 ° 57 ' 46.34 " |
| **Longitude** | 93 ° 5 ' 52.52 " |
| **Custodian** | 27 - Railroad |
| **Owner** | 02 - County Highway Agency |
| **BMU Agreement** | |
| **Year Built** | 1939 |
| **MN Year Reconstructed** | |
| **FHWA Year Reconstructed** | |
| **MN Temporary Status** | |
| **Bridge Plan Location** | 4 - MUNICIPAL |
| **Date Opened to Traffic** | |
| **On - Off System** | 1 - ON |
| **Legislative District** | 65A |
| **Potential ABC** | 2 - N/A |

## +STRUCTURE+

| | |
|---|---|
| **Service On** | 5 - Highway-pedestrian |
| **Service Under** | 2 - Railroad |
| **Main Span Type** | 4 - Steel Continuous |
| **Main Span Design** | 01 - Beam Span |
| **Main Span Detail** | |
| **Appr. Span Type** | |
| **Appr. Span Design** | |
| **Appr. Span Detail** | |
| **Skew** | 13 RIGHT |
| **Culvert Type** | |
| **Barrel Length** | |
| **Cantilever ID** | P - Pinned Hinge |

**Number of Spans**

**MAIN:** 9 **APPR:** 0 **TOTAL:**

| | |
|---|---|
| **Main Span Length** | 66.0 **ft.** |
| **Structure Length** | 485.7 **ft.** |
| **Deck Width (Out-to-Out)** | 57.0 **ft.** |
| **Deck Material** | 1 - Concrete Cast-in-Place |
| **Wear Surf Type** | 4 - Low Slump Concrete |
| **Wear Surf Install Year** | 1982 |
| **Wear Course/Fill Depth** | 0.21 **ft.** |
| **Deck Membrane** | 0 - None |
| **Deck Rebars** | 0 - None |
| **Deck Rebars Install Year** | |
| **Structure Area (Out-to-Out)** | 27685 **sq. ft.** |
| **Roadway Area (Curb-to-Curb)** | 19429 **sq. ft.** |

| | | | | | |
|---|---|---|---|---|---|
| **Sidewalk Width** | **50A. Lt** | 7.50 **ft.** | **50B. Rt** | 7.50 **ft.** |
| **Curb Height** | **Lt** | 1.17 **ft.** | **Rt** | 1.17 **ft.** |
| **Rail Type** | **Lt** | 40 | **Rt** | 40 |

## +ROADWAY+

| | |
|---|---|
| **Bridge Match ID (TIS)** | 0 |
| **Roadway O/U Key** | Route On Structure |
| **Route Sys** | 04 - CSAH **Number** 55 |
| **Roadway Name or Description** | |
| | CSAH 55 |
| **Level of Service** | 1 - MAINLINE |
| **Roadway Type** | 2 - 2-way traffic |
| **Control Section (TH Only)** | |
| **Reference Point** | 000+00.110 |
| **Detour Length** | 1.0 **mi.** |
| **Lanes** | **ON** 2 **UNDER** 0 |
| | **ADT** 7229 **YEAR** 2011 |
| **HCADT** | **ADTT** **%** |
| **Functional Class** | 16 - Urban - Minor Arterial |

## +RDWY DIMENSIONS+

| **If Divided** | **NB-EB** | **SB-WB** |
|---|---|---|
| **Roadway Width** | 40.00 **ft.** | **ft.** |
| **Vertical Clearance** | **ft.** | **ft.** |
| **Max. Vert. Clear.** | **ft.** | **ft.** |
| **Horizontal Clear.** | 39.9 **ft.** | **ft.** |
| **Lateral Clearance** | **ft.** | **ft.** |

| | |
|---|---|
| **Appr. Surface Width** | 44.0 **ft.** |
| **Bridge Roadway Width** | 40.0 **ft.** |
| **Median Width On Bridge** | **ft.** |

## +MISC. BRIDGE DATA+

| | |
|---|---|
| **Structure Flared** | 0 - No flare |
| **Parallel Structure** | N - No parallel structure |
| **Field Conn. ID** | 2 - Riveted |
| **Abutment Foundation (Material/Type)** | 4 - MASONRY<br>1 - SPRD SOIL |
| **Pier Foundation (Material/Type)** | 1 - CONC<br>1 - SPRD SOIL |
| **Historic Status** | 5 - Not eligible |

## +PAINT+

| | |
|---|---|
| **Year Painted** | 1982 |
| **Unsound Paint %** | |
| **Painted Area** | 3218 **sq. ft.** |
| **Primer Type** | 2 - Lead, Iron Oxide - non |
| **Finish Type** | C - Lead Silica Chromate |

## +BRIDGE SIGNS+

| | |
|---|---|
| **Posted Load** | 2 - Vehicle & Semi (Type R12- |
| **Traffic** | 0 - Not Required |
| **Horizontal** | 0 - Not Required |
| **Vertical** | N - Not Applicable |

## +INSPECTION+

| | |
|---|---|
| **Userkey** | 199 |
| **Unofficial Structurally Deficient** | Y |
| **Unofficial Functionally Obsolete** | N |
| **Unofficial Sufficiency Rating** | 34.5 |
| **Routine Inspection Date** | |
| **Routine Inspection Frequency** | 12 |
| **Inspector Name** | Ekstrand, Ron |
| **Status** | P - Posted for Load |

## +NBI CONDITION RATINGS+

| | | | |
|---|---|---|---|
| **Deck** | 6 | **Unsound Deck %** | 1 |
| **Superstructure** | 4 | | |
| **Substructure** | 4 | | |
| **Channel** | N | | |
| **Culvert** | N | | |

## +NBI APPRAISAL RATINGS+

| | |
|---|---|
| **Structure Evaluation** | 3 |
| **Deck Geometry** | 5 |
| **Underclearances** | 4 |
| **Waterway Adequacy** | N |
| **Approach Alignment** | 7 |

## +SAFETY FEATURES+

| | |
|---|---|
| **Bridge Railing** | 0 - SUBSTANDARD |
| **GR Transition** | 0 - SUBSTANDARD |
| **Appr. Guardrail** | 0 - SUBSTANDARD |
| **GR Termini** | 0 - SUBSTANDARD |

## +IN DEPTH INSP.+

| | **Y/N** | **Freq** | **Date** |
|---|---|---|---|
| **Frac. Critical** | N | | |
| **Underwater** | N | | |
| **Pinned Asbly.** | N | 60 | 11/19/2012 |
| **Spec. Feat.** | | | |

## +WATERWAY+

| | |
|---|---|
| **Drainage Area (sq. mi.)** | |
| **Waterway Opening (sf.)** | |
| **Navigation Control** | N - Not applicable, no |
| **Pier Protection** | |
| **Nav. Clr. (ft.)** | **Vert.** 0.0 **Horiz.** |
| **Nav. Vert. Lift Bridge Clear. (ft.)** | 0.0 |
| **MN Scour Code** | A - NON **Year** |

## +CAPACITY RATINGS+

| | | |
|---|---|---|
| **Design Load** | 5 - HS 20 | |
| **Operating Rating** | 2 - HS TRUCK | 20.5 |
| **Inventory Rating** | 2 - HS TRUCK | 8.5 |

**Posting VEH:** 10 **SEMI:** 20 **DBL:** 20

**Rating Date** 07/15/2014

**Overweight Permit Codes**

**A** N - N/A **B** N - N/A **C** N - N/A

## BRIDGE 5664 CSAH 55(JACKSON) OVER BNSF RR — ROUTINE INSP. DATE: 04/29/2016

County: Ramsey
City: St Paul
Township:
Section: 31 Township: 029N Range: 22W
Span Type: 4 - Steel Continuous 2 - Stringer/Multi-beam or Girder
List:
NBI Deck: 6 Super: 4 Sub: 4 Chan: N Culv: N

Location: 0.8 MI N OF JCT TH 94
Route: 04 - CSAH 55 Ref. Pt.: 000+00.110
Control Section:
Maint. Area:
Local Agency Bridge Nbr.:
Open, Posted, Closed: P - Posted for Load
MN Scour Code: A - NON WATERWAY

Length: 485.7 ft.
Deck Width: 57.0 ft.
Rdwy. Area/ Pct. Unsnd: 19429 sq. ft. / 1%
Paint Area/ Pct. Unsnd: 3218 sq. ft. / %
Culvert: N/A
Postings: 10 20 20

Appraisal Ratings - Approach: 7 Waterway: N
Required Bridge Signs - Load Posting: 2 - Vehicle & Semi (Type R12-5) Traffic: 0 - Not Required
Horizntal: 0 - Not Required Vertical: N - Not Applicable

Unofficial Structurally Deficient Y
Unofficial Functionally Obsolete N
Unofficial Sufficiency Rating 34.5

| ELEM NBR | ELEMENT NAME | ENV | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 | QTY CS 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| 022 | Low Slump O/L (Concrete Deck with Uncoated Rebar) | 2 | Routine | 04/29/2016 | 27685 SF | 0 | 27685 | 0 | 0 | 0 |
| | | | Routine | 04/29/2015 | 27685 SF | 0 | 27685 | 0 | 0 | 0 |

Notes: 500 + feet of transverse cracks in the LS concrete overlay. 06-15
Combined area of unsound wear surface is 2% or less than total deck area. 2011-15
Recommend resealing of cracks. 2011-15
Need LS overlay photos-2012

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 107 | Painted Steel Girder or Beam | 2 | Routine | 04/29/2016 | 4839 LF | 3808 | 823 | 35 | 50 | 123 |
| | | | Routine | 04/29/2015 | 4839 LF | 3808 | 823 | 35 | 50 | 123 |

Notes: Facia beams and several spans over the railroad tracks are gunite covered. 1995-2015
Gunite has fallen off the east facia girder. 2004
Verify that the bottom angle iron there is 80% section loss in the north facia beams at the north bearing. 2001
The bridge crew removed the gunite from the bottom of the facia beams on the 2, 3rd & 4th spans from the south end. 2005
Bay West uses some of the land under some of the south spans for their equipment and strorage.
They reported they have no problems with loose concrete from the bridge. 2008
(2009) Facia beams actively sheding gunnite and pack rust. Removed at 3rd bay. 2010
Paint system failure over 20% of all beams. 2011-15
Severe corrosion with extensive flaking rust present. 2011-15
Extensive to severe deterioration of identified beam ends. 2015
Load-carrying capacity has been reduced. 2014-15
Section loss has been identified at various beam ends. 2015

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 161 | Pin & Hanger (or Hinge Pin) Assembly (Painted) | 2 | Routine | 04/29/2016 | 24 EA | 0 | 0 | 0 | 24 | 0 |
| | | | Routine | 04/29/2015 | 24 EA | 0 | 0 | 0 | 24 | 0 |

Notes: [2007] Mn/DOT Bridge Office performed ultrasonic inspection of the single pin hinge connections, no significant UT indications were found. However, there is severe pack rust between the steel plates at the pinned connections.
(2012) No change.
MN DOT inspection of pins. Nov. 2012
Quantity change to ( 8 X 3 ) = 24 Total. 2015

| ELEM NBR | ELEMENT NAME | ENV | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 | QTY CS 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| 205 | Reinforced Concrete Column | 2 | Routine | 04/29/2016 | 40 EA | 12 | 16 | 9 | 3 | N/A |
| | | | Routine | 04/29/2015 | 40 EA | 12 | 16 | 9 | 3 | N/A |

Notes: Five columns of the north pier need shotcrete repair. 02-11.
One column has 3' of rusty exposed rebar at the bottom. 06-11.
There is 15 sq. ft. + of spalling and exposed rebar at one column at the 4th pier from the south end. 2013

Extensive cracking and delams at columns, CS3. 2011-13
4 columns at first set, from the north. 2013
Moderate cracking and minor delams at 12 columns, CS2. 2011-13

Severe deterioration and cracking is present at identified columns. 2014-15
Spalling and delamination of columns is severe. 2014-15
Exposed reinforcement is corroded and rusted. 2014-15

| ELEM NBR | ELEMENT NAME | ENV | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 | QTY CS 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| 217 | Masonry, Other or Combination Material Abutment | 2 | Routine | 04/29/2016 | 118 LF | 63 | 15 | 40 | 0 | N/A |
| | | | Routine | 04/29/2015 | 118 LF | 63 | 15 | 40 | 0 | N/A |

Notes: The north abutment has moderate shaling.
Several diagonal cracks at the north abutment. 92-08.
(2009) N.abut showing large diagonal cracks, settlement/ 'tipping' noted.
S. abut. cracking vertical and horizontal, gunite repairs full width. 10-15

| ELEM NBR | ELEMENT NAME | ENV | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 | QTY CS 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| 234 | Reinforced Concrete Pier Cap | 2 | Routine | 04/29/2016 | 469 LF | 447 | 6 | 16 | 0 | N/A |
| | | | Routine | 04/29/2015 | 469 LF | 447 | 6 | 16 | 0 | N/A |

Notes: Several spallls and cracks on the piers. 90-15
The north pier needs repair. 92-13
There is 8 + sq. ft. spalled of the south face of the north pier cap. 10-15

Extensive deterioration, cracking, leaching and staining. 2014-15
Delams and spalling is prevelent at pier # 2. 2014-15

| ELEM NBR | ELEMENT NAME | ENV | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 | QTY CS 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| 300 | Strip Seal Deck Joint | 2 | Routine | 04/29/2016 | 226 LF | 222 | 2 | 2 | N/A | N/A |
| | | | Routine | 04/29/2015 | 226 LF | 222 | 2 | 2 | N/A | N/A |

Notes: The strip seal at the north pier and at the fourth pier from the south end leaks. 02-08.
One foot of gland is out of the extrustion at the north expansion joint. 04.-15

| ELEM NBR | ELEMENT NAME | ENV | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 | QTY CS 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| 301 | Poured Deck Joint | 2 | Routine | 04/29/2016 | 97 LF | 15 | 0 | 82 | N/A | N/A |
| | | | Routine | 04/29/2015 | 97 LF | 15 | 0 | 82 | N/A | N/A |

Notes: Changed quantity to 97 LF in 2015.
Poured sealant is missing. Concrete repairs and joint replacement is necessary. 2015

| ELEM NBR | ELEMENT NAME | ENV | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 | QTY CS 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| 311 | Expansion Bearing | 2 | Routine | 04/29/2016 | 100 EA | 0 | 80 | 20 | N/A | N/A |
| | | | Routine | 04/29/2015 | 100 EA | 0 | 80 | 20 | N/A | N/A |

Notes: There are many anchor bolts missing. 86-15
Moderate to severe deterioration, Extensive corrosion present. 2012-15
Many bearings are no longer functioning as intended.
Frozen or severely restricted bearings are present. 2015

| ELEM NBR | ELEMENT NAME | ENV | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 | QTY CS 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| 313 | Fixed Bearing | 2 | Routine | 04/29/2016 | 80 EA | 0 | 70 | 10 | N/A | N/A |
| | | | Routine | 04/29/2015 | 80 EA | 0 | 70 | 10 | N/A | N/A |

Notes: Moderate to severe deterioration, Extensive corrosion present. 2012-15
Isolated anchor connections have rusted off completely. 2015
Many bearings are no longer functioning as intended.

| ELEM NBR | ELEMENT NAME | ENV | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 | QTY CS 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| 321 | Concrete Approach Slab-Concrete Wearing Surface | 2 | Routine | 04/29/2016 | 2 EA | 0 | 2 | 0 | 0 | N/A |
| | | | Routine | 04/29/2015 | 2 EA | 0 | 2 | 0 | 0 | N/A |
| | Notes: Moderate deterioration. 2011-15<br>Moderate cracking and settlement present. 2011-15<br>Some bituminous patching / overlay present. 2011-15 | | | | | | | | | |
| 334 | Metal Bridge Railing (Coated or Painted) | 2 | Routine | 04/29/2016 | 968 LF | 0 | 908 | 60 | 0 | 0 |
| | | | Routine | 04/29/2015 | 968 LF | 0 | 908 | 60 | 0 | 0 |
| | Notes: Moderate paint failure on railing. Heavy rusting on base plates. 06-15<br>Bent railing, sixth panel from the northwest end. 88-15<br>Some base plate welds are broken at the top of the angle iron. 08-13 Corrected 2014 | | | | | | | | | |
| 357 | Pack Rust Smart Flag | 2 | Routine | 04/29/2016 | 1 EA | 0 | 0 | 1 | 0 | N/A |
| | | | Routine | 04/29/2015 | 1 EA | 0 | 0 | 1 | 0 | N/A |
| | Notes: see element #161 pin and hanger. 2012-15<br>see bearing elements. 2015 | | | | | | | | | |
| 358 | Concrete Deck Cracking Smart Flag | 2 | Routine | 04/29/2016 | 1 EA | 0 | 1 | 0 | 0 | N/A |
| | | | Routine | 04/29/2015 | 1 EA | 0 | 1 | 0 | 0 | N/A |
| | Notes: Moderate cracking of deck present. 2011-15 | | | | | | | | | |
| 359 | Underside of Concrete Deck Smart Flag | 2 | Routine | 04/29/2016 | 1 EA | 0 | 1 | 0 | 0 | 0 |
| | | | Routine | 04/29/2015 | 1 EA | 0 | 1 | 0 | 0 | 0 |
| | Notes: Moderate cracking of deck present. 2011-15<br>Efflorescence, staining and leaching present. 2011-15<br>Distressed area on the underside of the deck is 2% or less than the total deck area. 2011-15<br>Need 555 SF to be over the 2% of total deck area. 2011-15 | | | | | | | | | |
| 362 | Traffic Impact Smart Flag | 2 | Routine | 04/29/2016 | 1 EA | 0 | 1 | 0 | N/A | N/A |
| | | | Routine | 04/29/2015 | 1 EA | 0 | 1 | 0 | N/A | N/A |
| | Notes: Impact damage at NW railing. 2011<br>Steel member has been bent. 2015 | | | | | | | | | |
| 363 | Section Loss Smart Flag | 2 | Routine | 04/29/2016 | 1 EA | 0 | 0 | 1 | 0 | N/A |
| | | | Routine | 04/29/2015 | 1 EA | 0 | 0 | 1 | 0 | N/A |
| | Notes: Steel beam element has section loss. 2015<br>All exterior beam ends have significant section loss. 2015<br>Need a percent of section loss calculated. 2013-15<br>Less than 10% section loss = CS-3<br>More than 10% section loss = CS-4<br>The bridge owner has been notified of the section loss at the beam ends. 2015 | | | | | | | | | |

| ELEM NBR | ELEMENT NAME | ENV | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 | QTY CS 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| 380 | Secondary Structural Elements | 2 | Routine | 04/29/2016 | 286 EA | 280 | 0 | 6 | 0 | N/A |
| | | | Routine | 04/29/2015 | 286 EA | 280 | 0 | 6 | 0 | N/A |
| | Notes: The exterior diaphragm at the fifth pier from the south and the center diaphragm in the south span is spalled. 92-12<br>The south center diaphragm is spalled with exposed rebar. 07-12<br>A diaphragm is cracked and spalled at the fourth span from the north abutment (at the SE. corner of the fourth span) 95-02. | | | | | | | | | |
| 387 | Reinforced Concrete Wingwall | 2 | Routine | 04/29/2016 | 4 EA | 1 | 3 | 0 | 0 | N/A |
| | | | Routine | 04/29/2015 | 4 EA | 1 | 3 | 0 | 0 | N/A |
| | Notes: The southwest wing wall is pulled away "X". Check this dimension. 02-06. 1 1/4" in 2007 - 2010.<br>SE wingwall - loose fill, sidewalk is voided. 2015<br>NE wingwall - shale stone crumbling. 2015<br>NW wingwall - shale stone cracked and crumbling. 2015 | | | | | | | | | |
| 964 | Critical Finding Smart Flag | 2 | Routine | 04/29/2016 | 1 EA | 1 | 0 | N/A | N/A | N/A |
| | | | Routine | 04/29/2015 | 1 EA | 1 | 0 | N/A | N/A | N/A |
| | Notes: Previous comments > DO NOT DELETE THIS CRITICAL FINDING SMART FLAG.<br>There is 80% section loss in some of the north facia beams at the north bearing on the bottom flange. 06-08. Kevin Nelson and Tracy Moe dicussed this element and determined that it is not a critical condition at this time.<br>Annual inspections should continue to assess this condition. 07-10. | | | | | | | | | |
| 981 | Signing | 2 | Routine | 04/29/2016 | 1 EA | 1 | 0 | 0 | 0 | 0 |
| | | | Routine | 04/29/2015 | 1 EA | 1 | 0 | 0 | 0 | 0 |
| | Notes: Added element 981 in 2014.<br>Load posting signs in place. 2014-15 | | | | | | | | | |
| 983 | Plowstraps | 2 | Routine | 04/29/2016 | 1 EA | 1 | 0 | 0 | N/A | N/A |
| | | | Routine | 04/29/2015 | 1 EA | 1 | 0 | 0 | N/A | N/A |
| | Notes: | | | | | | | | | |
| 986 | Curb & Sidewalk | 2 | Routine | 04/29/2016 | 1 EA | 0 | 1 | 0 | N/A | N/A |
| | | | Routine | 04/29/2015 | 1 EA | 0 | 1 | 0 | N/A | N/A |
| | Notes: Several transverse cracks are present. 02-15<br>Ped ramp at the SE end needs replacing. 10-15<br>Moderate damage, cracking and spalling present. 2011-15 | | | | | | | | | |
| 988 | Miscellaneous Items | 1 | Routine | 04/29/2016 | 1 EA | 1 | 0 | 0 | N/A | N/A |
| | | | Routine | 04/29/2015 | 1 EA | 1 | 0 | 0 | N/A | N/A |
| | Notes: Bicycle lanes 7 1/2 ft wide were added to the curb side of the deck on each side of the bridge.<br>The bridge is now a two lane bridge for motorized vehicular traffic.<br>This change was made by placing a stripe in the existing concrete deck. 2008-11. | | | | | | | | | |

General Notes: Have Excel Energy check gas main that is very rusty at the S. Abt.05-06. Mr. Garth at N.S.P. was notified on December 4, 2006. On December 5, 2006 it was requested that N.S.P. mark the gas main as abandoned. He said he will inquier if it can be removed or marked. If it is removed it would be capped at the abutments. 06. The gas main is capped. 08-12

58. Deck NBI: Moderate cracking, leaching and wear. 2011
Minor delams / spalling. 2011

36A. Brdg Railings NBI:

36B. Transitions NBI: Posted speed does NOT exceed 40 MPH. 2014

36C. Appr Guardrail NBI:

| ELEM NBR | ELEMENT NAME | ENV | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 | QTY CS 5 |
|---|---|---|---|---|---|---|---|---|---|---|

36D. Appr Guardrail Terminal NBI:

59. Superstructure NBI:
Advanced deterioration is present. 2015-16
Extensive to severe corrosion at bearing areas. 2015-16
Bearing function is restricted 2015-16
Steel beams have section loss at the critical stress areas. 2015-16
Fascia beam ends have significant to severe section loss. 2015

60. Substructure NBI:
Advanced deterioration of identified columns. 2014-16
Advanced scaling, cracking and leaching is present. 2014-16
Significant cracking is present. 2014-16
Extensive delamination and spalling of identified columns. 2014-16

61. Channel NBI:

62. Culvert NBI:

71. Waterway Adeq NBI:

72. Appr Roadway Alignment NBI:

Inventory Notes: BNSF contacts:

| | | | |
|---|---|---|---|
| Michael Anderson | bridges and structures supervisor | (763) 782-3310 | cell (612) 749-3401 |
| | | michael.anderson5@bnsf.com | |
| Lane Gilliland | bridge inspector | | cell (612) 219-4219 |

Bridge owner contacts
Ramsey County - Bret Wieman - 651-266-7126
- Kathy Jaschke - 651-266-7192

Ron Ekstrand
Inspector's Signature

Glenn Pagel
Reviewer's Signature

# MINNESOTA BRIDGE INSPECTION REPORT

06/08/2016

Inspector: CO Bridge

## BRIDGE 5664 CSAH 55(JACKSON) OVER BNSF RR

County: Ramsey
City: St Paul
Township:
Section: 31 Township: 029N Range: 22W
Span Type: 4 - Steel Continuous 2 - Stringer/Multi-beam or Girder
List:
NBI Deck: 6 Super: 4 Sub: 4 Chan: N Culv: N

Location: 0.8 MI N OF JCT TH 94
Route: 04 - CSAH 55 Ref. Pt.: 000+00.110
Control Section:
Maint. Area:
Local Agency Bridge Nbr.:
Open, Posted, Closed: P - Posted for Load
MN Scour Code: A - NON WATERWAY

Length: 485.7 ft.
Deck Width: 57.0 ft.
Rdwy. Area/ Pct. Unsnd: 19429 sq. ft. / 1%
Paint Area/ Pct. Unsnd: 3218 sq. ft. / %
Culvert: N/A
Postings: 10 20 20

Appraisal Ratings - Approach: 7 Waterway: N
Required Bridge Signs - Load Posting: 2 - Vehicle & Semi (Type R12-5) Traffic: 0 - Not Required
Horizntal: 0 - Not Required Vertical: N - Not Applicable

Unofficial Structurally Deficient Y
Unofficial Functionally Obsolete N
Unofficial Sufficiency Rating 34.5

| ELEM NBR | ELEMENT NAME | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 |
|---|---|---|---|---|---|---|---|---|
| 12 | Reinforced Concrete Deck | Routine | 04/29/2016 | 27685 SF | 26631 | 500 | 554 | 0 |
| | | Migrated Values | 06/08/2016 | 27685 SF | 26631 | 500 | 554 | 0 |

Notes: Moderate cracking of the under deck is present. 2011-16 CS2
Efflorescence / light leaching, minor staining present. 2011-16 CS2

Heavy leaching with some build up. 2016 CS3
Water / salt saturation with rust staining in various areas. 2016 CS3

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 510 - Wearing Surfaces | Routine | 04/29/2016 | 19429 SF | 13601 | 3885 | 1943 | 0 |
| | | Migrated Values | 06/08/2016 | 19429 SF | 13601 | 3885 | 1943 | 0 |

Notes: Low Slump Overlay with Uncoated Rebar deck.
500 + feet of transverse cracks in the LS concrete overlay. 2006-16
Unsealed cracks 1/8" and less are present. CS2 2016
Unsealed cracks 1/8" and more are present. CS3 2016
Various spalls and some plow damage at the joints. 2016
1' X 10' bituminous patch at the CL of the deck. 2016

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 107 | Steel Open Girder/Beam | Routine | 04/29/2016 | 4839 LF | 3808 | 858 | 50 | 123 |
| | | Migrated Values | 06/08/2016 | 4839 LF | 3808 | 858 | 50 | 123 |

Notes: Fascia beams and beams over the railroad tracks are gunite covered. 2016
At the bottom angle iron there is section loss at the facia beams at the bearings. 2001-16
The bridge crew removed the gunite from the bottom of the facia beams on the 2, 3rd & 4th spans from the south end. 2005
(2009) Facia beams actively sheding gunnite and pack rust. Removed at 3rd bay. 2010
Severe corrosion with extensive flaking rust present. 2011-16
Load-carrying capacity has been reduced. 2014-16
Corrosion and section loss has been identified at various beam ends. 2015-16
Pack Rust Notes: see element #161 pin and hanger. 2012-15

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 515 - Steel Protective Coating | Routine | 04/29/2016 | 16144 SF | 12916 | 807 | 1614 | 807 |
| | | Migrated Values | 06/08/2016 | 16144 SF | 12916 | 807 | 1614 | 807 |

Notes: Quantity changed to 16,144 SF. 2016
Paint system failure over 20% of all beams. 2011-16

**BRIDGE 5664 CSAH 55(JACKSON) OVER BNSF RR**

| ELEM NBR | ELEMENT NAME | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 |
|---|---|---|---|---|---|---|---|---|
| 161 | Steel Pin and Pin & Hanger Assembly or both | Routine | 04/29/2016 | 24 EA | 0 | 0 | 24 | 0 |
| | | Migrated Values | 06/08/2016 | 24 EA | 0 | 0 | 24 | 0 |
| | Notes: [2007] Mn/DOT Bridge Office performed ultrasonic inspection of the single pin hinge connections, no significant UT indications were found. However, there is severe pack rust between the steel plates at the pinned connections.<br>(2012) No change.<br>MN DOT inspection of pins. Nov. 2012<br>Quantity change to ( 8 X 3 ) = 24 Total. 2015<br>Corrosion of pins and pack rust is present. 2016<br>Movement is restricted from the presence of flaking / pack rust. 2016 | | | | | | | |
| | 515 - Steel Protective Coating | Routine | 04/29/2016 | 164 SF | 0 | 0 | 0 | 164 |
| | | Migrated Values | 06/08/2016 | 164 SF | 0 | 0 | 0 | 164 |
| | Notes: Quantity changed to 164 sf. 2016<br>Paint system is failing. More than 16% rusting steel. 2016 | | | | | | | |
| 205 | Reinforced Concrete Column | Routine | 04/29/2016 | 40 EA | 11 | 17 | 9 | 3 |
| | | Migrated Values | 06/08/2016 | 40 EA | 11 | 17 | 9 | 3 |
| | Notes: Extensive cracking and delams at columns, CS3. 2011-16<br>Moderate cracking and minor delams at 12 columns, CS2. 2011-16<br>Severe deterioration and cracking is present at identified columns. 2014-16<br>Exposed reinforcement is corroded and rusted. 2014-16<br>PIR structural review was done in 2014. Strength of the element has been reduced. 2016 | | | | | | | |
| 215 | Reinforced Concrete Abutment | Routine | 04/29/2016 | 90 LF | 10 | 10 | 70 | 0 |
| | | Migrated Values | 06/08/2016 | 90 LF | 10 | 10 | 70 | 0 |
| | Notes: Repaired areas are unsound. 2016<br>Quantity changed to 90 LF. 2016<br>S. abut. cracking vertical and horizontal, gunite repairs full width. 10-15<br>Leaching, staining, scaling and cracking is present. 2016 | | | | | | | |
| 217 | Masonry Abutment | Routine | 04/29/2016 | 118 LF | 63 | 15 | 40 | 0 |
| | | Migrated Values | 06/08/2016 | 118 LF | 63 | 15 | 40 | 0 |
| | Notes: The masonry abutment has a concrete cap and seat on top of the stone. 2016<br>The north abutment has moderate cracking of the concrete cap/seat. 2016<br>Diagonal cracks at the north abutment (at the sides). 2016<br>Weathering / abrasion / delamination is present. 2016<br>10% to 25% loss of block thickness in isolated areas. 2016<br>Blocks are split at isolated areas. 2016<br>Cracking or voids are present in the mortar. 2016 | | | | | | | |
| 234 | Reinforced Concrete Pier Cap | Routine | 04/29/2016 | 469 LF | 447 | 6 | 16 | 0 |
| | | Migrated Values | 06/08/2016 | 469 LF | 447 | 6 | 16 | 0 |
| | Notes: Several spallls and cracks on the piers. 1990-2016<br>There is 8 + sq. ft. spalled of the south face of the north pier cap. 10-16<br>Extensive deterioration, cracking, leaching and staining. 2014-16<br>Delams and spalling is prevelent at pier # 2. 2014-16 | | | | | | | |
| 300 | Strip Seal Expansion Joint | Routine | 04/29/2016 | 226 LF | 222 | 2 | 0 | 2 |
| | | Migrated Values | 06/08/2016 | 226 LF | 222 | 2 | 0 | 2 |
| | Notes: The strip seal at the north pier and at the fourth pier from the south end leaks. 2002-16<br>One foot of gland is out of the extrustion at the north expansion joint. 2004-16 | | | | | | | |
| 301 | Pourable Joint Seal | Routine | 04/29/2016 | 97 LF | 15 | 0 | 0 | 82 |
| | | Migrated Values | 06/08/2016 | 97 LF | 15 | 0 | 0 | 82 |
| | Notes: Changed quantity to 97 LF in 2015.<br>Poured sealant is missing. Concrete repairs and joint replacement is necessary. 2015-16 | | | | | | | |

**BRIDGE 5664 CSAH 55(JACKSON) OVER BNSF RR**

| ELEM NBR | ELEMENT NAME | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 |
|---|---|---|---|---|---|---|---|---|
| 311 | Movable Bearing | Routine | 04/29/2016 | 100 EA | 0 | 80 | 0 | 20 |
| | | Migrated Values | 06/08/2016 | 100 EA | 0 | 80 | 0 | 20 |
| | Notes: There are many anchor bolts missing. 86-16<br>Moderate to severe deterioration, Extensive corrosion present. 2012-16<br>Many bearings are no longer functioning as intended.<br>Frozen or severely restricted bearings are present. 2015-16 | | | | | | | |
| 313 | Fixed Bearing | Routine | 04/29/2016 | 80 EA | 0 | 70 | 0 | 10 |
| | | Migrated Values | 06/08/2016 | 80 EA | 0 | 70 | 0 | 10 |
| | Notes: Moderate to severe deterioration, Extensive corrosion present. 2012-16<br>Isolated anchor connections have rusted off completely. 2015-16<br>Many bearings are no longer functioning as intended. 2015-16 | | | | | | | |
| 321 | Reinforced Concrete Approach Slab | Routine | 04/29/2016 | 1507 SF | 1417 | 80 | 10 | 0 |
| | | Migrated Values | 06/08/2016 | 1507 SF | 1417 | 80 | 10 | 0 |
| | Notes: Moderate deterioration - spalls / delams. present. No exposed rebar. 2011-16<br>Unsealed moderate cracking and settlement present. 2016<br>Various width cracks are present. All sealant ( if present) has failed. 2016<br>Bituminous patching / overlay present. 2011-16 | | | | | | | |
| 330 | Metal Bridge Railing | Routine | 04/29/2016 | 1936 LF | 968 | 964 | 4 | 0 |
| | | Migrated Values | 06/08/2016 | 1936 LF | 968 | 964 | 4 | 0 |
| | Notes: Moderate paint failure on railing. Heavy rusting on base plates. 2006-16<br>Bent railing, sixth panel from the northwest end. 1988-2015<br>Some base plate welds are broken at the top of the angle iron. 08-13 Corrected 2014<br>Quantity changed to 1,936 LF. chain link fence included. 2016 | | | | | | | |
| | 515 - Steel Protective Coating | Routine | 04/29/2016 | 2904 SF | 0 | 01742 | 872 | 290 |
| | | Migrated Values | 06/08/2016 | 2904 SF | 0 | 01742 | 872 | 290 |
| | Notes: 2,904 SF total. 2016 | | | | | | | |
| 800 | Critical Deficiencies or Safety Hazards | Routine | 04/29/2016 | 1 EA | 1 | 0 | 0 | 0 |
| | | Migrated Values | 06/08/2016 | 1 EA | 1 | 0 | 0 | 0 |
| | Notes: NO CRITICAL FINDINGS OBSERVED DURING THE LAST INSPECTION.<br>There is 80% section loss in some of the north facia beams at the north bearing on the bottom flange. 06-08. Kevin Nelson and Tracy Moe dicussed this element and determined that it is not a critical condition.<br>Annual inspections should continue to assess this condition. 07-10. | | | | | | | |
| 810 | Concrete Decks - Cracking & Sealing | Routine | 04/29/2016 | 1311 LF | 0 | 1000 | 300 | 11 |
| | | Migrated Values | 06/08/2016 | 1311 LF | 0 | 1000 | 300 | 11 |
| | Notes: Moderate cracking of deck present. 2011-16<br>Quantity changed to 1,311 LF. 2016<br>Unsealed cracks from .012 to over 1/8". 2016 | | | | | | | |
| 815 | Plow Fingers | Routine | 04/29/2016 | 1 EA | 1 | 0 | 0 | 0 |
| | | Migrated Values | 06/08/2016 | 1 EA | 1 | 0 | 0 | 0 |
| 855 | Secondary Members (Superstructure) | Routine | 04/29/2016 | 286 EA | 280 | 0 | 6 | 0 |
| | | Migrated Values | 06/08/2016 | 286 EA | 280 | 0 | 6 | 0 |
| | Notes: The exterior diaphragm at the fifth pier from the south and the center diaphragm in the south span is spalled. 92-12<br>The south center diaphragm is spalled with exposed rebar. 07-16<br>A diaphragm is cracked and spalled at the fourth span from the north abutment (at the SE. corner of the fourth span) 95-02. | | | | | | | |
| 880 | Impact Damage | Routine | 04/29/2016 | 1 EA | 0 | 1 | 0 | 0 |
| | | Migrated Values | 06/08/2016 | 1 EA | 0 | 1 | 0 | 0 |
| | Notes: Impact damage at NW railing. 2011<br>Steel member has been bent. 2015 no change 2016 | | | | | | | |

**BRIDGE 5664 CSAH 55(JACKSON) OVER BNSF RR**

| ELEM NBR | ELEMENT NAME | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 |
|---|---|---|---|---|---|---|---|---|
| 881 | Steel Section Loss | Routine | 04/29/2016 | 1 EA | 0 | 0 | 1 | 0 |
| | | Migrated Values | 06/08/2016 | 1 EA | 0 | 0 | 1 | 0 |
| | Notes: Steel beam element has section loss. 2015-16<br>All exterior beam ends have significant section loss. 2015-16<br>Need a percent of section loss calculated. 2013-16<br>Less than 10% section loss = CS-3<br>More than 10% section loss = CS-4<br>The bridge owner has been notified of the section loss at the beam ends. 2015-16 | | | | | | | |
| 883 | Concrete Shear Cracking | Routine | 04/29/2016 | 1 EA | 1 | 0 | 0 | 0 |
| | | Migrated Values | 06/08/2016 | 1 EA | 1 | 0 | 0 | 0 |
| | Notes: Use this element to monitor the presence of shear cracking on concrete elements. Pay particular attention to the concrete pier caps. | | | | | | | |
| 890 | Load Posting or Vertical Clearance Signing | Routine | 04/29/2016 | 1 EA | 1 | 0 | 0 | 0 |
| | | Migrated Values | 06/08/2016 | 1 EA | 1 | 0 | 0 | 0 |
| | Notes: [2016] Structure requires a vertical clearance sign or load posting sign.<br>Required load posting signs are present. 2014-16 | | | | | | | |
| 892 | Slopes & Slope Protection | Routine | 04/29/2016 | 1 EA | 1 | 0 | 0 | 0 |
| | | Migrated Values | 06/08/2016 | 1 EA | 1 | 0 | 0 | 0 |
| | Notes: Use this element to rate the condition of slopes and slope protection. | | | | | | | |
| 894 | Deck & Approach Drainage | Routine | 04/29/2016 | 1 EA | 1 | 0 | 0 | 0 |
| | | Migrated Values | 06/08/2016 | 1 EA | 1 | 0 | 0 | 0 |
| | Notes: Use this element to rate the condition, function, and adequacy of the drainage system. | | | | | | | |
| 895 | Sidewalk, Curb, & Median | Routine | 04/29/2016 | 1 EA | 0 | 1 | 0 | 0 |
| | | Migrated Values | 06/08/2016 | 1 EA | 0 | 1 | 0 | 0 |
| | Notes: Several transverse cracks are present. 02-16<br>Ped ramp at the SE end is heaved upward. 10-16<br>Moderate damage, cracking and spalling present. SW has sunken panels. 2011-16 | | | | | | | |
| 899 | Miscellaneous Items | Routine | 04/29/2016 | 1 EA | 1 | 0 | 0 | 0 |
| | | Migrated Values | 06/08/2016 | 1 EA | 1 | 0 | 0 | 0 |
| | Notes: Bicycle lanes 7 1/2 ft wide were added to the curb side of the deck on each side of the bridge.<br>The bridge is now a two lane bridge for motorized vehicular traffic.<br>This change was made by placing a stripe on the existing concrete deck. 2008-11 | | | | | | | |
| 900 | Protected Species | Routine | 04/29/2016 | 1 EA | 1 | 0 | 0 | 0 |
| | | Migrated Values | 06/08/2016 | 1 EA | 1 | 0 | 0 | 0 |
| | Notes: Use this element to track the presence of protected species living on this structure.<br>None found. 2016 | | | | | | | |

General Notes: Have Excel Energy check gas main that is very rusty at the S. Abt.05-06. Mr. Garth at N.S.P. was notified on December 4, 2006. On December 5, 2006 it was requested that N.S.P. mark the gas main as abandoned. He said he will inquier if it can be removed or marked. If it is removed it would be capped at the abutments. 06. The gas main is capped. 08-12

58. Deck NBI: Moderate cracking, leaching and wear. 2011
Minor delams / spalling. 2011

36A. Brdg Railings NBI:

36B. Transitions NBI: Posted speed does NOT exceed 40 MPH. 2014

36C. Appr Guardrail NBI:

36D. Appr Guardrail Terminal NBI:

59. Superstructure NBI: Advanced deterioration is present. 2015-16
Extensive to severe corrosion at bearing areas. 2015-16
Bearing function is restricted 2015-16

**BRIDGE 5664 CSAH 55(JACKSON) OVER BNSF RR**

| ELEM NBR | ELEMENT NAME | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 |
|---|---|---|---|---|---|---|---|---|

Steel beams have section loss at the critical stress areas. 2015-16
Fascia beam ends have significant to severe section loss. 2015

60. Substructure NBI: Advanced deterioration of identified columns. 2014-16
Advanced scaling, cracking and leaching is present. 2014-16
Significant cracking is present. 2014-16
Extensive delamination and spalling of identified columns. 2014-16

61. Channel NBI:

62. Culvert NBI:

71. Waterway Adeq NBI:

72. Appr Roadway Alignment NBI:

Inventory Notes: BNSF contacts:

| | | | |
|---|---|---|---|
| Michael Anderson | bridges and structures supervisor | (763) 782-3310 | cell (612) 749-3401 |
| | | michael.anderson5@bnsf.com | |
| Lane Gilliland | bridge inspector | | cell (612) 219-4219 |

Bridge owner contacts
Ramsey County - Bret Wieman - 651-266-7126
- Kathy Jaschke - 651-266-7192

Ron Ekstrand
Inspector's Signature

Glenn Pagel
Reviewer's Signature

# Pictures


Photo 1 - NB Jackson - 5664_001

Photo 2 - 2013 Side view_1

# Pictures


Photo 3 - SB Jackson - 5664_002


Photo 4 - 2015 google deckview

# Pictures


Photo 5 - abut beam - NW.end

Photo 6 - abut NE bearing

# Pictures

Photo 7 - abut NE fascia beam

Photo 8 - abut NE fascia beam (2)

# Pictures

Photo 9 - abut NE fascia beam

Photo 10 - abut SW fascia b mapcracking

# Pictures

Photo 11 - pier 2 - column E.inner.side


Photo 12 - pier 2 - column E.side

# Pictures


Photo 13 - pier 2 - column W.inner.side

Photo 14 - pier 2 - column W.side

# Pictures

Photo 15 - pier 2 - columns East view

Photo 16 - pier 2 - columns N.side

# Pictures

Photo 17 - wing NE_4

Photo 18 - wing NE_5

# Pictures

Photo 19 - wing NW_3

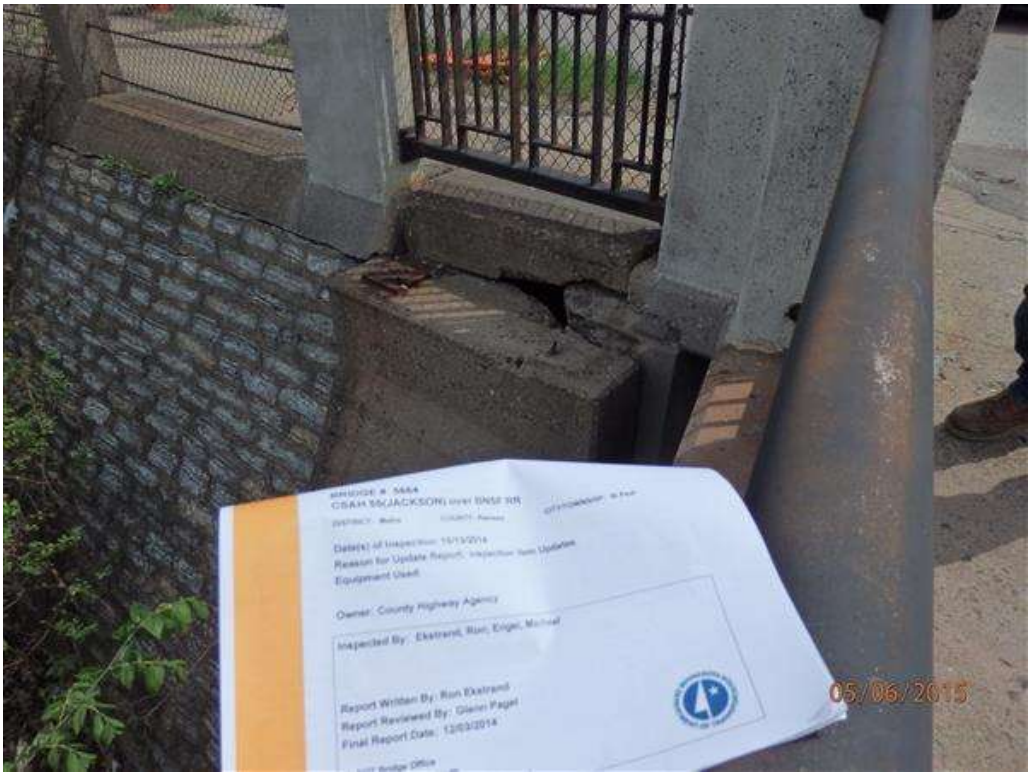



Photo 20 - wing SE_1

1. NB Jackson - 5664_001.JPG

2. 2013 Side view_1.JPG

3. SB Jackson - 5664_002.JPG

4. 2015 google deckview.PNG

5. abut beam - NW.end.JPG

6. abut NE bearing.JPG

7. abut NE fascia beam.JPG

8. abut NE fascia beam (2).JPG

9. abut NE fascia beam.JPG

10. abut SW fascia b mapcracking.JPG

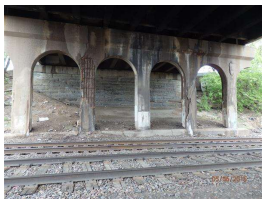
11. pier 2 - column E.inner.side.JPG

12. pier 2 - column E.side.JPG

13. pier 2 - column W.inner.side.JPG

14. pier 2 - column W.side.JPG

15. pier 2 - columns East view.JPG



16. pier 2 - columns N.side.JPG

17. wing NE_4.JPG

18. wing NE_5.JPG

19. wing NW_3.JPG

20. wing SE_1.JPG

# Culvert

**Bridge No.:** 5664

## Culvert

| *Item* | *Description* | *Condition* | *Comments* |
|---|---|---|---|
| **Culvert Overall:** | **NBI Item 62** | N | |

**Minnesota Scour Code:** A - NON WATERWAY

## Waterway Inspection

| Item No. | Yes, No, NA or Not Visible | Description |
|---|---|---|
| 1. | | Is there a significant build-up of debris? |
| 2. | | Is there erosion of the embankment around the headwalls? |
| 3. | | Is there any indication of cracking or settlement of the culvert barrel or headwalls? |
| 4. | | Is there shifting of the channel alignment or erosion of the stream banks? Also are there cracks in the soil of the banks parallel to the stream? |
| 5. | | Do scour measurements indicate that the streambed is below the bottom of the cutoff walls at the ends of the culvert? |
| 6. | | Is there evidence of distress in the roadway or approaches such as cracks in the pavement and sags in the guardrail or roadway? Also, is there cracking, erosion, or failure of the side slopes at or adjacent to the culvert? |
| 7. | | Is there an indication of "piping" of water along the outside of the culvert such as cavities adjacent to the barrel? |
| 8. | | Is the culvert without a bottom and scour measurements indicate that the streambed is below the plan streambed elevations? |
| 9. | | Has the riprap or other scour protection been damaged or otherwise made ineffective? |
| 10. | | If the culvert was designed to be buried (fill inside the culvert), is the material still in the barrel? |

### Notes:

- Streambed sounding data is to be documented.

- Soundings of the streambed should be done at each end of the culvert. If Items #5 or #8 are "Yes", then a streambed profile of the scoured area should be done.

- If "Yes" is the answer to any items on the checklist, notify the Program Administrator for further instructions.

Comments:

Completed On _____ By _____

## Channel

**Bridge No.:** 5664

### Channel

| *Item* | *Description* | *Condition* | *Comments* |
|---|---|---|---|
| **Channel Overall:** | **NBI Item 61** | N | |

### Bank Protection/Revetment

| *Item* | *Description* | *Condition* | *Comments* |
|---|---|---|---|
| **Upstream Bank Protection:** | | | |
| **Downstream Bank Protection:** | | | |
| **Bridge Revetment:** | | | |
| **Minnesota Scour Code:** | A - NON WATERWAY | | |

### Underwater Inspection

**Underwater Inspection By Divers:**

**No. of Piers To Be Inspected:**

### Waterway Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Reference Point:** | | **High Water Elev.:** | | **Current Water Elev.:** | |
| **Pile Tip Elev.:** | | **Low Water Elev.:** | | **Current Streambed Elev.:** | |
| | | **Scour Hole Elev.:** | | **Current Scour Hole Elev.:** | |

### Waterway Inspection: (Not applicable for culverts)

| Item No. | Yes, No, NA or Not Visible | Description |
|---|---|---|
| 1. | | Is there a significant build-up of debris? |
| 2. | | Is there a change in the horizontal alignment of the handrail or structure members such as beams? |
| 3. | | Is there any indication of vertical movement of the superstructure? |
| 4. | | Is there shifting of the channel alignment or erosion of the stream banks? Also are there cracks in the soil of the banks parallel to the stream? |
| 5. | | Is there a significant change in the alignment of hte exterior bearings? |
| 6. | | Are there cracks or other signs of distress in the approach pavement? |
| 7. | | Is the water currently on the superstructure? |
| 8. | | Are the slopes unstable? |
| 9. | | Do scour measurements indicate: (place a check by all that apply.) |
| | | ☐ A. that the streamed is two or more feet below the bottom of pier footings which are supported on piles? |
| | | ☐ B. scour below the bottom of spread footings? |
| | | ☐ C. scour below the bottom of high abutment footings? |
| | | ☐ D. that the streambed has scoured five feet or more below the original streambed elevation at pier bents? |

10. _____ Have the scour countermeasures been damaged or otherwise made ineffective?

**Notes:**

- Streambed sounding data is to be documented.

- Per Minnesota Bridge Inspection Manual Section 2.2.5, at bridges that require x-sections, take channel x-sections, along the upstream and/or downstream face of the bridge.

- If "Yes" is the answer to any items on the checklist, notify the Program Administrator for further instructions.

Comments:

Completed On _____ By _____

# Scour POA

**Bridge No.:** 5664

## Scour POA

1. Is POA on File? _____
2. Date of most recent POA: _____
3. Here is a link to Minnesota's Bridge Scour website for other
   - *http://www.dot.state.mn.us/bridge/hydraulics/scour.html*
   - The Scour POA should be kept in the bridge file and/or uploaded to SIMS using the "Inspection Files" tab.

### Implementation

Scour POAs are required to be implemented by FHWA.

1. Is this POA being implemented? _____

# Maintenance

| Element | Source Code | Work Code | Description | P/R | Priority | Work Order # | Year Due | Last Viewed | Entered | Start Date | Completed |
|---|---|---|---|---|---|---|---|---|---|---|---|

# BRIDGE STRUCTURAL ASSESSMENT REPORT

**PURPOSE:**

This report is a structural assessment of the structure and its ability to carry loads based on conditions identified in the attached bridge inspection report. The assessment is only a cursory review intended to provide guidance as to the relative hazards for structural conditions and deficiencies identified. This report is mandatory for all fracture critical bridges and is completed by the Minnesota Bridge Office upon receipt of the 7 Day FC Report; however, it is an OPTIONAL tool for agencies to utilize at their discretion for all other inspection types.

BRIDGE NO.: 5664

BRIDGE OWNER: County Highway Agency

DATE INSPECTED: 04/29/2016

STRUCTURE TYPE: Steel Continuous tringer/Multi-beam or Girder

FACILITY CARRIED: CSAH 55(JACKSON)

FEATURES INTERSECTED: BNSF RR

TYPE OF INSPECTION:
- ☑ ROUTINE
- ☐ FRACTURE CRITICAL
- ☐ PINNED ASSEMBLY:
- ☐ SPECIAL:
- ☐ DAMAGE:
- ☐ COMPLEX:

Check all that apply:

Redundancy:
- ☐ Load Path
- ☐ Structural
- ☐ Internal

Connection Type:
- ☐ Riveted
- ☐ Bolted
- ☐ Welded
- ☐ Other:

1. Was a critical finding identified during this inspection or upon structural review? ☐ Yes ☐ No

   a) If selected "**Yes**" above, state briefly the finding(s):

2. If a critical finding was identified, what is the current status?
   - ☐ Pending
   - ☐ Resolved
   - ☐ N/A

   a) Briefly state actions taken:

3. Does the condition of any bridge component indicate impaired function? Examples of bridge components with impaired function include elements that are: frozen or immoveable, out-of-plumb or misaligned, distorted or structurally deformed, excessively deteriorated, cracked, broken, eroded or scoured. ☐ Yes ☐ No

a) If selected "**Yes**" above, state briefly the component(s) and condition(s):

4. Does the overall condition of the bridge, or any of its components mentioned in Question 3, suggest the need for detailed structural analysis and/or a revised load rating? ☐ Yes ☐ No

   a) If selected "**Yes**", state the reason for this recommendation and indicate a proposed timeframe in accordance with State of Minnesota Rule 8810.9500 (Subpart 2):

5. Based on the structural assessment of these findings, recommendations include:

   ☐ Repair/Maintenance ☐ Monitoring Plan
   ☐ Complex ☐ Increased Inspection Frequency

   Explain recommended actions:

6. Other comments:

**Bridge Office Reviewer**