

**2018 ROUTINE
BRIDGE INSPECTION REPORT**



**BRIDGE # 5560
BNSF RR over CSAH 53(DALE ST)**

DISTRICT: Metro

COUNTY: Ramsey

CITY/TOWNSHIP: St Paul

STATE: Minnesota

Date of Inspection: 05/14/2018

Equipment Used:

Owner: Railroad

Inspected By: Engel, Michael; Sanders, Rick

Report Written By: Michael Engel

Report Reviewed By: Glenn Pagel

Final Report Date: 08/28/2018

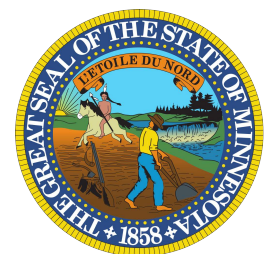


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Minnesota Structure Inventory Report

Bridge ID: 5560

BNSF RR over CSAH 53(DALE ST)

Date: 05/14/2018

| + GENERAL + | + ROADWAY + | + INSPECTION + |
|---|---|--|
| Agency Br. No. District 05 Crew Maint. Area County 062 - Ramsey City St Paul Township Desc. Loc. 0.1 MI S OF JCT CSAH 31 Sect., Twp., Range 25 - 029N - 23W Latitude 44 ° 58 ' 33.73 " Longitude -93 ° 07 ' 34.86 " Custodian 27 - Railroad Owner 27 - Railroad Year Built 1908 MN Year Reconstructed 1936 FHWA Year Reconstructed MN Temporary Status Bridge Plan Location 5 - OTHER Date Opened to Traffic On - Off System 0 - OFF Legislative District 65A Potential ABC 2 - N/A | Bridge Match ID (TIS) Roadway O/U Key Route Sys Number Roadway Name or Description Railroad over Level of Service Roadway Type Control Section (TH Only) Reference Point Detour Length mi. Lanes ON UNDER 2 ADT YEAR HCA DT ADTT % Functional Class | Userkey 199 Structurally Deficient N Functionally Obsolete N Sufficiency Rating Routine Inspection Date 05/14/2018 Routine Inspection Frequency 12 Inspector Name Engel, Michael Status A - Open Deck 5 Superstructure 5 Substructure 6 Channel N Culvert N |
| | + R D W Y | + N B I A P P R A I S A L |
| | If Divided NB-EB SB-WB Roadway Width ft. ft. Vertical Clearance ft. ft. Max. Vert. Clear. ft. ft. Horizontal Clear. ft. ft. Lateral Clearance ft. ft. Appr. Surface Width ft. Bridge Roadway Width ft. Median Width On Bridge ft. | Structure Evaluation 3 Deck Geometry N Underclearances N Waterway Adequacy N Approach Alignment N |
| + S T R U C T U R E + | + M I S C. B R I D G E D A T A + | + S A F E T Y |
| Service On 2 - Railroad Service Under 1 - Highway, w/ or w/out ped. Main Span Type 3 - Steel Main Span Design 05 - Thru Girder Main Span Detail Appr. Span Type Appr. Span Design Appr. Span Detail Skew 26 RIGHT Culvert Type Barrel Length Cantilever ID Number of Spans MAIN: 1 APPR: 0 TOTAL: Main Span Length 83.6 ft. Structure Length 101.0 ft. Deck Width (Out-to-Out) 35.0 ft. Deck Material N - Not Applicable Wear Surf Type N - Not Applicable (applies Wear Surf Install Year Wear Course/Fill Depth 0.00 ft. Deck Membrane 0 - None Deck Rebars N - Not Applicable (no deck) Deck Rebars Install Year Structure Area (Out-to-Out) 3535 sq. ft. Roadway Area (Curb-to-Curb) sq. ft. Sidewalk Width 50A. Lt 0.00 ft. 50B. Rt 0.00 ft. Curb Height Lt 0.00 ft. Rt 0.00 ft. Rail Type Lt NN Rt NN | Structure Flared 0 - No flare Parallel Structure N - No parallel structure Field Conn. ID Abutment Foundation (Material/Type) 4 - MASONRY 3 - FTG PILE Pier Foundation (Material/Type) N - N/A N - N/A Historic Status 5 - Not eligible | Bridge Railing N - NOT REQUIRED GR Transition N - NOT REQUIRED Appr. Guardrail N - NOT REQUIRED GR Termini N - NOT REQUIRED Y/N Freq Date Frac. Critical Underwater Pinned Asbly. |
| | + P A I N T + | + W A T E R W A Y + |
| | Year Painted 1936 Painted Area 8000 sq. ft. Primer Type 1 - Lead - non 3309 Finish Type A - Red Lead | Drainage Area (sq. mi.) Waterway Opening (sf.) Navigation Control N - Not applicable, no Pier Protection Nav. Clr. (ft.) Vert. 0.0 Horiz. 0.0 Nav. Vert. Lift Bridge Clear. (ft.) MN Scour Code A - NON Year |
| | Posted Load 0 - Not Required Traffic 0 - Not Required Horizontal 0 - Not Required Vertical 0 - Not Required | + C A P A C I T Y R A T I N G S + |
| | | Design Load 8 - RAILROAD Operating Rating 7 - RAILROAD 65.0 Inventory Rating 7 - RAILROAD 65.0 Posting VEH: SEMI: DBL: Rating Date Overweight Permit Codes A N - N/A B N - N/A C N - N/A |

Minnesota Structure Inventory Report

Additional Roadways

Bridge ID: 5560

BNSF RR over CSAH 53(DALE ST)

Date: 08/28/2018

| ROADWAY | | |
|-----------------------------------|-----------------------------------|-------|
| Bridge Match ID (TIS): | 0 | |
| 5A. Roadway On/Under: | 2 - UNDERRECORD 2 TYPE (IF ONLY 1 | |
| Bridge Route System: | 4 - COUNTY HIGHWAY | |
| 5D. Route Number: | 53 | |
| Roadway Name or Description | | |
| CSAH 53 | | |
| 5C. Level of Service: | 1 - MAINLINE | |
| 102. Direction of Traffic: | 2 - 2-way traffic | |
| Control Section (TH Only): | 62 | |
| Reference Point: | | |
| 19. Detour Length (mi): | 1 | |
| Lanes: | 2 | |
| 29. ADT: | 15438 | |
| 30. Year: | 2008 | |
| 26. Functional Class: | 16 | |
| Traffic Sequence Number: | 42443 | |
| InterRegional Corridor (TH Only): | | |
| ROADWAY DIMENSIONS | | |
| | NB-EB | SB-WB |
| Roadway Width (ft): | 46.0 | |
| Vertical Clearance (ft): | 13.6 | |
| Max. Vert. Clear. (ft): | 14.6 | |
| Horizontal Clear. (ft): | 65.9 | |
| | Left | Right |
| Lateral Clearance (ft): | 0.00 | 0.00 |
| 32. Appr. Roadway Width (ft): | 46.0 | |
| 51. Brdg Roadway Width (ft): | | |
| Median Width (ft): | | |
| 10. Vertical Clearance (ft): | 13.6 | |
| 47. Horizontal Clearance | 65.9 | |

MINNESOTA BRIDGE INSPECTION REPORT

08/28/2018

BRIDGE 5560 BNSF RR OVER CSAH 53(DALE ST)

| | | |
|---|-----------------------------------|--|
| County: Ramsey | Location: 0.1 MI S OF JCT CSAH 31 | Length: 101.0 ft. |
| City: St Paul | Route: Ref. Pt.: | Deck Width: 35.0 ft. |
| Township: | Control Section: | Rdwy. Area/ Pct. Unsnd: sq. ft. / % |
| Section: 25 Township: 029N Range: 23W Maint. Area: | | Paint Area/ Pct. Unsnd: 8000 sq. ft. / 60% |
| Span Type: 3 - Steel 3 - Girder and Floorbeam Local Agency Bridge Nbr.: | | Culvert: N/A |
| List: System | | Postings: |
| NBI Deck: 5 Super: 5 Sub: 6 Chan: N Culv: N | | |
| | Open, Posted, Closed: A - Open | |
| | MN Scour Code: A - NON WATERWAY | |

| | |
|--|-------------------------------------|
| Appraisal Ratings - Approach: N Waterway: N | Unofficial Structurally Deficient N |
| Required Bridge Signs - Load Posting: 0 - Not Required | Unofficial Functionally Obsolete N |
| Horizontal: 0 - Not Required | Unofficial Sufficiency Rating |
| Traffic: 0 - Not Required | |
| Vertical: 0 - Not Required | |

| ELEM NBR | ELEMENT NAME | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 |
|--|--|-------------|------------|----------|----------|----------|----------|----------|
| 30 | Steel Deck Corrugated/Orthotropic/Etc. | Routine | 05/14/2018 | 3535 SF | 2000 | 651 | 884 | 0 |
| | | Routine | 05/14/2017 | 3535 SF | 2651 | 0 | 884 | 0 |
| Notes: Quantity = 35' width X 101' length = 3535 SF Ties, track and ballast on deck. 2013 Extensive paint failure and surface corrosion is prevalent. 2013-18 Two active track lines on the bridge. 2018 | | | | | | | | |
| | 515 - Steel Protective Coating | Routine | 05/14/2018 | 3535 SF | 0 | 0 | 0 | 3535 |
| Notes: Under deck areas. 2018 | | | | | | | | |
| 107 | Steel Open Girder/Beam | Routine | 05/14/2018 | 196 LF | 0 | 196 | 0 | 0 |
| | | Routine | 05/14/2017 | 196 LF | 0 | 196 | 0 | 0 |
| Notes: Three stiffeners are bent from impact damage above the S.B. outside lane, two above the northbound lane and the N. face of the N. Girder. 2005-17 Quantity change = 98LF each girder X 2 = 196 LF total Missing rivet heads at the bottom flange, NB lane. 2016-18 | | | | | | | | |
| | 515 - Steel Protective Coating | Routine | 05/14/2018 | 8000 SF | 0 | 0 | 0 | 8000 |
| | | Routine | 05/14/2017 | 8000 SF | 0 | 0 | 0 | 8000 |
| Notes: Paint system has extensive deterioration. 2013-18 Surface corrosion / rust is prevalent. 2013-18 CS-4 Paint system failure - steel is exposed. 2017-18 CS-4 Rusting steel percentage is more than 16%. 2016-18 | | | | | | | | |
| 113 | Steel Stringer | Routine | 05/14/2018 | 1176 LF | 0 | 1176 | 0 | 0 |
| | | Routine | 05/14/2017 | 1176 LF | 0 | 1176 | 0 | 0 |
| Notes: Quantity change = 98LF X 12 rows = 1,176 LF total. 2015 | | | | | | | | |
| | 515 - Steel Protective Coating | Routine | 05/14/2018 | 999 SF | 0 | 0 | 422 | 577 |
| | | Routine | 05/14/2017 | 999 SF | 0 | 0 | 422 | 577 |
| Notes: CS-3 Paint finish coat is cracked and peeling, primer is in tact. 2016-18 CS-4 Paint system failure - steel is exposed. 2016-18 CS-4 Rusting steel percentage is more than 16%. 2016 Paint system has extensive deterioration. 2013-18 Surface corrosion / rust is prevalent. 2013-18 | | | | | | | | |

BRIDGE 5560 BNSF RR OVER CSAH 53(DALE ST)

| ELEM NBR | ELEMENT NAME | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 |
|--|---|-------------|------------|----------|----------|----------|----------|----------|
| 152 | Steel Floor Beam | Routine | 05/14/2018 | 578 LF | 0 | 578 | 0 | 0 |
| | | Routine | 05/14/2017 | 578 LF | 0 | 578 | 0 | 0 |
| Notes: Quantity change = 34 LF X 17 rows = 578 LF total 2013 | | | | | | | | |
| 515 - | Steel Protective Coating | Routine | 05/14/2018 | 5180 SF | 0 | 0 | 1554 | 3626 |
| | | Routine | 05/14/2017 | 5180 SF | 0 | 0 | 1554 | 3626 |
| Notes: CS-3 Paint finish coat is cracked and peeling, primer is in tact. 2016-18 CS-4 Paint system failure - steel is exposed. 2016-18 CS-4 Rusting steel percentage is more than 16%. 2016 Paint system has extensive deterioration. 2013-18 Surface corrosion / rust is prevalent. 2013-18 | | | | | | | | |
| 215 | Reinforced Concrete Abutment | Routine | 05/14/2018 | 98 LF | 90 | 7 | 1 | 0 |
| | | Routine | 05/14/2017 | 98 LF | 97 | 0 | 1 | 0 |
| Notes: RC abutment behind stone façade. 2016 1' diagonal crack at the E. abut back wall. 2016-18 Also, a vertical crack at the E. abut back wall. 2017-18 Wing wall notes: Moderate cracking, leaching or staining. Minor delams or spalls. 2013-18 Slight tipping of the E. side wing walls. 2015-18 | | | | | | | | |
| 217 | Masonry Abutment | Routine | 05/14/2018 | 158 LF | 1 | 130 | 27 | 0 |
| | | Routine | 05/14/2017 | 158 LF | 1 | 130 | 27 | 0 |
| Notes: Both masonry abutments have moderate cracking and scaling. 2015-18 Moderate deterioration and weathering. 2013-18 Recommend tuck-pointing at the abutments. 2015-18 Delamination or spall with 10% to 25% loss of block thickness. 15LF on the E. side. 12 LF on the W. side. 2016 4 areas of split through at W. abut. 2017-18 Mortar cracking is less than 10%. 2016-18 The masonry wall is in front of the concrete abut. 2018 | | | | | | | | |
| 311 | Movable Bearing | Routine | 05/14/2018 | 2 EA | 2 | 0 | 0 | 0 |
| | | Routine | 05/14/2017 | 2 EA | 2 | 0 | 0 | 0 |
| Notes: E. side is expansion. 2016 | | | | | | | | |
| 313 | Fixed Bearing | Routine | 05/14/2018 | 2 EA | 2 | 0 | 0 | 0 |
| | | Routine | 05/14/2017 | 2 EA | 2 | 0 | 0 | 0 |
| Notes: W. side is fixed. 2016 | | | | | | | | |
| 800 | Critical Deficiencies or Safety Hazards | Routine | 05/14/2018 | 1 EA | 1 | 0 | 0 | 0 |
| | | Routine | 05/14/2017 | 1 EA | 1 | 0 | 0 | 0 |
| Notes: NO CRITICAL FINDINGS OBSERVED DURING THE LAST INSPECTION. 2016-18 | | | | | | | | |
| 880 | Impact Damage | Routine | 05/14/2018 | 1 EA | 0 | 1 | 0 | 0 |
| | | Routine | 05/14/2017 | 1 EA | 0 | 1 | 0 | 0 |
| Notes: Two diagonal braces are bent by high loads above the northbound lanes. 1985-12 The south brace has the bolt (one of two) sheared off about 5 feet from the south end. 2000-12 The angle is a damaged repair angle and it's bent 5 inches north. 2008-12 7 rivet heads sheared off at the bottom of the flange. 2016 No changes in 2017-18. | | | | | | | | |
| 881 | Steel Section Loss | Routine | 05/14/2018 | 1 EA | 0 | 1 | 0 | 0 |
| | | Routine | 05/14/2017 | 1 EA | 0 | 1 | 0 | 0 |
| Notes: Minor to moderate section loss. 2015 Section loss located at East abutment anchor bolt and center span anchor bolt. 2015 No changes in 2017-18 | | | | | | | | |

BRIDGE 5560 BNSF RR OVER CSAH 53(DALE ST)

| ELEM NBR | ELEMENT NAME | REPORT TYPE | INSP. DATE | QUANTITY | QTY CS 1 | QTY CS 2 | QTY CS 3 | QTY CS 4 |
|---|--|-------------|------------|----------|----------|----------|----------|----------|
| 890 | Load Posting or Vertical Clearance Signing | Routine | 05/14/2018 | 1 EA | 1 | 0 | 0 | 0 |
| | | Routine | 05/14/2017 | 1 EA | 1 | 0 | 0 | 0 |
| Notes: Low clearance signage is present. 13'- 9" 1983-2018 All signage is in good condition. 2016-18 2 signs in SB lanes, 2 signs in the NB lane. 2018 | | | | | | | | |
| 892 | Slopes & Slope Protection | Routine | 05/14/2018 | 1 EA | 0 | 1 | 0 | 0 |
| | | Routine | 05/14/2017 | 1 EA | 1 | 0 | 0 | 0 |
| Notes: Recommend tree trimming and brushing of the slopes. 2018 | | | | | | | | |
| 894 | Deck & Approach Drainage | Routine | 05/14/2018 | 1 EA | 0 | 0 | 0 | 1 |
| | | Routine | 05/14/2017 | 1 EA | 0 | 0 | 0 | 1 |
| Notes: Drain trough joints leak over west and east walks and curb area. 1985-2018 Three brackets for drain trough are broken and hanging down above the west curb. 1996-2018 E. side down pipe rusted through and split. CS-4 2010-18 Water runs across sidewalk. 2010-18 Drainage system not functioning properly. CS-3 2013-18 Debris in drain trough. Recommend cleaning. 2015-18 | | | | | | | | |
| 900 | Protected Species | Routine | 05/14/2018 | 1 EA | 0 | 1 | 0 | 0 |
| | | Routine | 05/14/2017 | 1 EA | 1 | 0 | 0 | 0 |
| Notes: Use this element to track the presence of protected species living on this structure. None found in 2016-18. | | | | | | | | |

General Notes: BNSF contacts:

Michael Anderson bridges and structures supervisor (763) 782-3310 cell (612) 749-3401
michael.anderson5@bnsf.com

Kyle Kirberger bridge inspector cell (612) 219-4219
Kyle.Kirberger@BNSF.com

58. Deck NBI: Extensive paint failure and surface corrosion. 2013-16

36A. Brdg Railings NBI:

36B. Transitions NBI:

36C. Appr Guardrail NBI:

36D. Appr Guardrail Terminal NBI:

59. Superstructure NBI: Extensive paint failure and surface corrosion. 2013-16

60. Substructure NBI: Moderate weathering and cracking. 2013-16

61. Channel NBI:

62. Culvert NBI:

71. Waterway Adeq NBI:

72. Appr Roadway Alignment NBI:

Michael Engel
Inspector's Signature

Glenn Pagel
Reviewer's Signature



1. anchor bolt corrosion east abut center span.JPG



2. E abut drain pipe.jpg



3. E abut, N end.jpg



4. E abut, S end.jpg



5. E concrete abut back wall.jpg



6. N girder over SB lane.jpg



7. N girder sheared rivets.jpg



8. NE bearing.jpg



9. north east bearing east abut.JPG



10. north west bearing west abut.JPG



11. south east bearing east abut.JPG



12. south west bearing west abutment.JPG



13. W abut, N end.jpg



14. W abut, S end (1).jpg



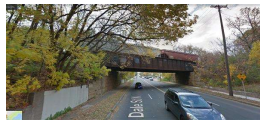
15. W abut, S end (2).jpg



16. 2016 google abutment East view.PNG



17. 2016 google abutment West view.PNG



18. 2016 google elevation view.PNG



19. 2016 google elevation view2.PNG



20. E abut back wall.JPG



21. rain gutter brackets.JPG



22. 2018 aerial google view.PNG



23. NB elevation warning signage.PNG



24. NB pre-warning signage.PNG



25. SB elevation warning signage.PNG



26. SB pre-warning signage.PNG