

**2016 ROUTINE
BRIDGE INSPECTION REPORT**



**BRIDGE # 6600
CSAH 31(EB MRYLD) over BNSF RR; ST**

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

STATE: Minnesota

Date of Inspection: 09/16/2016

Equipment Used:

Owner: County Highway Agency

Inspected By: Engel, Michael; Grau, Joe; Reimer, Dan; Sanders, Rick

**Report Written By: Dan Reimer
Report Reviewed By: Glenn Pagel
Final Report Date: 11/29/2016**

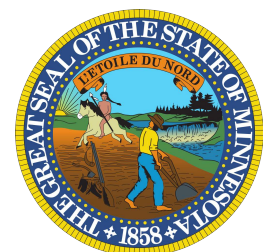


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Minnesota Structure Inventory Report

Bridge ID: 6600

CSAH 31(EB MRYLD) over BNSF RR; ST

Date: 11/22/2016

+ GENERAL +	+ ROADWAY +	+ INSPECTION +																				
Agency Br. No. Crew District 05 Maint. Area County 062 - Ramsey City St Paul Township Desc. Loc. 0.2 MI W OF JCT TH 35E Sect., Twp., Range 30 - 029N - 22W Latitude 44 ° 58 ' 36.39 " Longitude 93 ° 5 ' 31.21 " Custodian 27 - Railroad Owner 02 - County Highway Agency BMU Agreement Year Built 1953 MN Year Reconstructed 1974 FHWA Year Reconstructed MN Temporary Status Bridge Plan Location 4 - MUNICIPAL Date Opened to Traffic On - Off System 1 - ON Legislative District 66A Potential ABC 2 - N/A	Bridge Match ID (TIS) 1 Roadway O/U Key Route On Structure Route Sys 04 - CSAH Number 31 Roadway Name or Description CSAH 31 Level of Service 1 - MAINLINE Roadway Type 1 - 1-way traffic Control Section (TH Only) Reference Point 003+00.780 Detour Length 2.0 mi. Lanes ON 2 UNDER 2 ADT 11250 YEAR 2005 HCA DT ADTT % Functional Class 16 - Urban - Minor Arterial	Userkey 199 Structurally Deficient N Functionally Obsolete Y Sufficiency Rating 79.0 Routine Inspection Date 09/16/2016 Routine Inspection Frequency 24 Inspector Name Reimer, Dan Status A - Open																				
		+ NBI CONDITION RATINGS +																				
		Deck 8 Unsound Deck % Superstructure 8 Substructure 8 Channel N Culvert N																				
	+ RDWY DIMENSIONS +	+ NBI APPRAISAL RATINGS +																				
	If Divided NB-EB SB-WB Roadway Width 28.00 ft. ft. Vertical Clearance ft. ft. Max. Vert. Clear. ft. ft. Horizontal Clear. 27.9 ft. ft. Lateral Clearance ft. ft. Appr. Surface Width 28.0 ft. Bridge Roadway Width 28.0 ft. Median Width On Bridge ft.	Structure Evaluation 8 Deck Geometry 3 Underclearances 9 Waterway Adequacy N Approach Alignment 7																				
+ STRUCTURE +	+ MISC. BRIDGE DATA +	+ SAFETY FEATURES +																				
Service On 5 - Highway-pedestrian Service Under 4 - Highway - 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 12 LEFT Culvert Type Barrel Length Cantilever ID S - Pin and Hanger Number of Spans MAIN: 3 APPR: 0 TOTAL: Main Span Length 109.0 ft. Structure Length 226.6 ft. Deck Width (Out-to-Out) 39.1 ft. Deck Material 1 - Concrete Cast-in-Place Wear Surf Type 3 - Latex Concrete or similar Wear Surf Install Year 2009 Wear Course/Fill Depth 0.17 ft. Deck Membrane 0 - None Deck Rebars 0 - None Deck Rebars Install Year Structure Area (Out-to-Out) 8860 sq. ft. Roadway Area (Curb-to-Curb) 8848 sq. ft. Sidewalk Width 50A. Lt 0.00 ft. 50B. Rt 6.00 ft. Curb Height Lt 0.75 ft. Rt 0.75 ft. Rail Type Lt NN Rt 28	Structure Flared 0 - No flare Parallel Structure R - Right structure (North or East) Field Conn. ID 2 - Riveted Abutment Foundation (Material/Type) 3 - FTG PILE Pier Foundation (Material/Type) 3 - FTG PILE Historic Status 5 - Not eligible	Bridge Railing 1 - MEETS STANDARDS GR Transition N - NOT REQUIRED Appr. Guardrail N - NOT REQUIRED GR Termini N - NOT REQUIRED																				
	+ PAINT +	+ IN DEPTH INSP. +																				
	Year Painted 2009 Unsound Paint % 0 Painted Area 5400 sq. ft. Primer Type D - Organic Zinc - 3309 Finish Type D - Alkyd Iron Oxide	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Y/N</th> <th style="text-align: center;">Freq</th> <th style="text-align: center;">Date</th> </tr> </thead> <tbody> <tr> <td>Frac. Critical</td> <td style="text-align: center;">N</td> <td></td> <td></td> </tr> <tr> <td>Underwater</td> <td style="text-align: center;">N</td> <td></td> <td></td> </tr> <tr> <td>Pinned Asbly.</td> <td style="text-align: center;">N</td> <td style="text-align: center;">60</td> <td style="text-align: center;">10/01/2007</td> </tr> <tr> <td>Spec. Feat.</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Y/N	Freq	Date	Frac. Critical	N			Underwater	N			Pinned Asbly.	N	60	10/01/2007	Spec. Feat.			
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Frac. Critical	N																					
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Pinned Asbly.	N	60	10/01/2007																			
Spec. Feat.																						
	+ BRIDGE SIGNS +	+ WATERWAY +																				
	Posted Load 0 - Not Required Traffic 0 - Not Required Horizontal 0 - Not Required Vertical N - Not Applicable	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																				
		+ CAPACITY RATINGS +																				
		Design Load 9 - HS 25 (OR GREATER) Operating Rating 2 - HS TRUCK 40.0 Inventory Rating 2 - HS TRUCK 25.0 Posting VEH: SEMI: DBL: Rating Date 05/27/2011 Overweight Permit Codes A N - N/A B N - N/A C N - N/A																				

MINNESOTA BRIDGE INSPECTION REPORT

11/29/2016

Inspector: CO Bridge

BRIDGE 6600 CSAH 31(EB MRYLD) OVER BNSF RR; ST

County: Ramsey	Location: 0.2 MI W OF JCT TH 35E	Length: 226.6 ft.
City: St Paul	Route: 04 - CSAH 31 Ref. Pt.: 003+00.780	Deck Width: 39.1 ft.
Township:	Control Section:	Rdwy. Area/ Pct. Unsnd: 8848 sq. ft. / %
Section: 30 Township: 029N Range: 22W Maint. Area:		Paint Area/ Pct. Unsnd: 5400 sq. ft. / 0%
Span Type: 4 - Steel Continuous 2 -	Local Agency Bridge Nbr.:	Culvert: N/A
List: Stringer/Multi-beam or Girder		Postings:
NBI Deck: 8 Super: 8 Sub: 8 Chan: N Culv: N		
	Open, Posted, Closed: A - Open	
	MN Scour Code: A - NON WATERWAY	

Appraisal Ratings - Approach: 7 Waterway: N	Unofficial Structurally Deficient N
Required Bridge Signs - Load Posting: 0 - Not Required	Unofficial Functionally Obsolete Y
Horizontal: 0 - Not Required	Unofficial Sufficiency Rating 79.0
Traffic: 0 - Not Required	
Vertical: N - Not Applicable	

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	09/16/2016	8820 SF	8562	258	0	0
		Migrated Values		8820 SF	8562	258	0	0
	Notes: Bridge deck and superstructure replaced in 2009. Efflorescence at the under deck cracks. see photos 2010 Minor cracking with light leaching. No build up. 2013-16							
510	- Wearing Surfaces	Routine	09/16/2016	6174 SF	6174	0	0	0
		Migrated Values		6174 SF	6174	0	0	0
	Notes: New bridge deck and superstructure in 2009. Roadway width 28' x length 220.5' = 6,174 SF. 2016 Minor cracking - see photos 2011-16 Transverse cracking present. 2012-16 Cracks are not sealed. 2014-16 No spalls, delams or patches. 2013-16							
107	Steel Open Girder/Beam	Routine	09/16/2016	1513 LF	1513	0	0	0
		Migrated Values		1513 LF	1513	0	0	0
	Notes: 7 rows of beams x 216 ft. long - 2011 High corrosive areas painted, fascia beams and 8' of beam ends. 2011 4 rows of beam splices - bolted. 2011 MNDOT 3309 steel - ASTM A709 GR.50W. 2011 The S. side fascia beam has a noticable sag at the center span over the railroad. 2014							
515	- Steel Protective Coating	Routine	09/16/2016	15933 SF	15933	0	0	0
		Migrated Values		15933 SF	15933	0	0	0
	Notes: MNDOT 3309 weathering steel beams; 8' of beam ends painted. 2011 Fascia beams painted. 2011 No unsound paint at the beam ends. 2013-16 Painted weathering steel beam areas = fascia beams and beam ends. 2016 Fascia beams 2,276 sf x 2 = 4,552 sf + Beam ends 843 sf. = 5,395 SF of painted beams. 2016							
205	Reinforced Concrete Column	Routine	09/16/2016	4 EA	4	0	0	0
		Migrated Values		4 EA	4	0	0	0

BRIDGE 6600 CSAH 31(EB MRYLD) OVER BNSF RR; ST

ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
215	Reinforced Concrete Abutment	Routine	09/16/2016	105 LF	104	1	0	0
		Migrated Values		105 LF	104	1	0	0
Notes: Bridge deck, superstructure and abut stems were replaced in 2009. New abuts placed on existing footings in 2009. (2011) E. side joint - spall at CL under deck. Spall is less than 1" deep smaller than 6" in diameter. 2012-16 CL joint leaks at abuts. 2013-14 New wings placed with abuts. in 2009.								
234	Reinforced Concrete Pier Cap	Routine	09/16/2016	85 LF	84	0	1	0
		Migrated Values		85 LF	84	0	1	0
Notes: NE end of the N. pier cap has 1 LF of leaching with rust staining. 2016								
300	Strip Seal Expansion Joint	Routine	09/16/2016	80 LF	80	0	0	0
		Migrated Values		80 LF	80	0	0	0
Notes: Joint leaks at abuts. 2013-16								
301	Pourable Joint Seal	Routine	09/16/2016	55 LF	54	0	1	0
		Migrated Values		55 LF	54	0	1	0
Notes: Missing sealant at the W. joint. 2016								
311	Movable Bearing	Routine	09/16/2016	14 EA	14	0	0	0
		Migrated Values		14 EA	14	0	0	0
Notes: Expansion bearings located at the abuts. 2013 Expansion bearings are in good condition. 2014								
313	Fixed Bearing	Routine	09/16/2016	14 EA	14	0	0	0
		Migrated Values		14 EA	14	0	0	0
Notes: Fixed bearings located at the piers. 2013 Fixed bearings are in good condition. 2014								
321	Reinforced Concrete Approach Slab	Routine	09/16/2016	1623 SF	1618	5	0	0
		Migrated Values		1623 SF	1618	5	0	0
Notes: Minor cracks - less than .012" wide. 2016 Transverse moderate cracks are present on the E. approach. - .012" to .050" wide. 2012-16 No spalls or delams. 2012-16								
330	Metal Bridge Railing	Routine	09/16/2016	221 LF	221	0	0	0
		Migrated Values		221 LF	221	0	0	0
	515 - Steel Protective Coating	Routine	09/16/2016	1820 SF	1820	0	0	0
		Migrated Values		1820 SF	1820	0	0	0
331	Reinforced Concrete Bridge Railing	Routine	09/16/2016	221 LF	189	32	0	0
		Migrated Values		221 LF	189	32	0	0
Notes: Vertical cracking present. 2012-16 Cracks have leaching without build up. 2016								
800	Critical Deficiencies or Safety Hazards	Routine	09/16/2016	1 EA	1	0	0	0
		Migrated Values		1 EA	1	0	0	0
Notes: NO CRITICAL FINDINGS OBSERVED DURING THE LAST INSPECTION. 2016								

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ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
810	Concrete Decks - Cracking & Sealing	Routine	09/16/2016	602 LF	562	40	0	0
		Migrated Values		602 LF	562	40	0	0
	Notes: Minor cracking - see photos -2011 Transverse cracking present. 2012-16 Sidewalk and E. approach have some unsealed cracks. - .012" to .050" wide. 2016							
816	Approach Relief Joint	Routine	09/16/2016	38 LF	0	38	0	0
		Migrated Values		38 LF	0	38	0	0
	Notes: Located at the E. approach. 2016 Minor deterioration of the rubber seal. 2016							
855	Secondary Members (Superstructure)	Routine	09/16/2016	1 EA	1	0	0	0
		Migrated Values		1 EA	1	0	0	0
	Notes: 13 rows of diaphragms x 6 spaces. 2011 Abut. diaphragms painted. 2011 No deterioration present. 2013-16							
883	Concrete Shear Cracking	Routine	09/16/2016	1 EA	1	0	0	0
		Migrated Values		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.							
892	Slopes & Slope Protection	Routine	09/16/2016	1 EA	0	1	0	0
		Migrated Values		1 EA	0	1	0	0
	Notes: Many hair line cracks. Mostly on the E. side. 2016 1-3/8" settlement of panel on the E. slope, Towards the top at the S. end. 2016 Slightly starting to undermine. 2016 Toe wall and lower 6' of slope paving was replaced by DNR. 1996							
893	Guardrail	Routine	09/16/2016	1 EA	1	0	0	0
		Migrated Values		1 EA	1	0	0	0
	Notes: Located at the SW end of the bridge. 2016							
894	Deck & Approach Drainage	Routine	09/16/2016	1 EA	1	0	0	0
		Migrated Values		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	09/16/2016	1 EA	0	1	0	0
		Migrated Values		1 EA	0	1	0	0
	Notes: Minor cracking is present. 2011 Cracks are not sealed. 2014-16 Some of the cracks are of moderate size. Spalling of walks present. 2 sq ft at the SW corner and on SW approach walk. 2012-16							
899	Miscellaneous Items	Routine	09/16/2016	1 EA	1	0	0	0
		Migrated Values		1 EA	1	0	0	0
	Notes: 2 light standards mounted on the S. side of the bridge. 2016							
900	Protected Species	Routine	09/16/2016	1 EA	1	0	0	0
		Migrated Values		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.							

General Notes: Old structure removed and new structure completed 2009

58. Deck NBI: Bridge deck and superstructure replaced in 2009.

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ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
	Minor cracking present. 2013 No delams or spalls of LS overlay. 2013							
36A.	Brdg Railings NBI:							
36B.	Transitions NBI:	Posted speed does NOT exceed 40 MPH.	2016					
36C.	Appr Guardrail NBI:							
36D.	Appr Guardrail Terminal NBI:							
59.	Superstructure NBI:	Bridge deck and superstructure replaced in 2009.						
60.	Substructure NBI:	New abuts. and wings placed on existing footings in 2009 Added 1'+ to existing pier caps. 2009						
61.	Channel NBI:							
62.	Culvert NBI:							
71.	Waterway Adeq NBI:							
72.	Appr Roadway Alignment NBI:							
	Inventory Notes:							

Dan Reimer
Inspector's Signature

Glenn Pagel
Reviewer's Signature



1. 2011 deckview_2.jpg



2. beam ends and diaphragm painted_2.jpg



3. beams and diaphragm weathering steel.jpg



4. elevation view_2.jpg



5. fascia beam painted.jpg



6. joint median_1.jpg



7. joint median_2.jpg



8. underdeck efflorescence_1.jpg



9. underdeck efflorescence_2.jpg



10. underdeck efflorescence_3.jpg



11. underdeck efflorescence_5.jpg



12. CL joint leaking_01.jpg



13. CL joint leaking_02.jpg



14. CL joint leaking_03.jpg



15. parapet rail cracking.jpg



16. walk spalls_01.jpg



17. walk spalls_02.jpg



18. walk spalls_03.jpg



19. Approach relief joint at W end.JPG



20. E Approach, N side.JPG



21. E Slope, S end.JPG



22. NE side of W cap.JPG



23. Poured joint at W end.JPG



24. S side, mid span.JPG



25. Sidewalk at W end.JPG