

**2015 ROUTINE
BRIDGE INSPECTION REPORT**



**BRIDGE # 9250
MSAS 117(CEDAR) over CSAH 34(UNIVERSITY AVE)**

DISTRICT: Metro

COUNTY: Ramsey

CITY/TOWNSHIP: St Paul

Date(s) of Inspection: 10/29/2015

Equipment Used:

Owner: County Highway Agency

Inspected By: Ekstrand, Ron; Engel, Michael; Schaaf, Jerry

Report Written By: Ron Ekstrand

Report Reviewed By: Glenn Pagel

Final Report Date: 12/31/2015

MnDOT Bridge Office
3485 Hadley Avenue North
Oakdale, MN 55128



MnDOT Structure Inventory Report

Bridge ID: 9250

MSAS 117(CEDAR)

over CSAH 34(UNIVERSITY AVE)

Date: 12/31/2015

GENERAL			
Agency Br. No.			
District Metro			
Maint. Area		Crew	
County 062 - Ramsey			
City St Paul			
Township			
Desc. Loc. 0.2 MI E OF RICE ST			
Sect., Twp., Range		31 - 029N - 22W	
Latitude Deg	44	Min	57 Sec 21.48
Longitude Deg	93	Min	6 Sec 2.93
Custodian 02 - County Highway Agency			
Owner 02 - County Highway Agency			
BMU Agreement			
Year Built		1922	
MN Year Reconstructed			
FHWA Year Reconstructed			
MN Temporary Status			
Bridge Plan Location 4 - MUNICIPAL			
Date Opened to Traffic 1/1/1922			
On-Off System 1 - ON			
Legislative District 65A			

STRUCTURE	
Service On	5 - Highway-pedestrian
Service Under	1 - Highway, w/ or w/out ped.
Main Span Type	
1 - Concrete	12 - Arch
Main Span Detail U - SPANRDEL FILLED ARC	
Appr. Span Type	
1 - Concrete	09 - Slab Span
Appr. Span Detail	
Skew	0
Culvert Type	
Barrel Length	ft.
Cantilever ID	

NUMBER OF SPANS			
MAIN:	1	APPR:	2 TOTAL: 3
Main Span Length	82.0	ft.	
Structure Length	160.0	ft.	
Deck Width (Out-to-Out)	49.0	ft.	
Deck Material	1 - Concrete Cast-in-Place		
Wear Surf Type	6 - Bituminous		
Wear Surf Install Year	1982		
Wear Course/Fill Depth	0.20	ft.	
Deck Membrane	0 - None		
Deck Rebars	0 - None		
Deck Rebars Install Year			
Structure Area (Out-to-Out)	7840	sq. ft.	
Roadway Area (Curb-to-Curb)	4801	sq. ft.	
Sidewalk Width	Lt 8.10	ft.	Rt 7.60
Curb Height	Lt 0.33	ft.	Rt 0.33
Rail Type	Lt 17		Rt 17

ROADWAY			
Bridge Match ID (TIS) 2			
Roadway O/U Key Route On Structure			
Route Sys	05 - MSAS	Number	117
Roadway Name or Description			
MSAS 117			
Level of Service 1 - MAINLINE			
Roadway Type 2 - 2-way traffic			
Control Section (TH Only)			
Reference Point 000+00.910			
Detour Length	0.0	mi	
Lanes	On 2	Under	5
	ADT 2500	Year	2005
HCACT	0	ADTT	0 %
Functional Class 19 - Urban - Local			

RDWY DIMENSIONS			
If Divided	NB-EB	SB-WB	
Roadway Width	30.00	ft.	ft.
Vertical Clearance		ft.	ft.
Max. Vert. Clear.		ft.	ft.
Horizontal Clear.	29.9	ft.	ft.
Lateral Clearance		ft.	ft.
Appr. Surface Width	30.0	ft.	
Bridge Roadway Width	30.0	ft.	
Median Width On Bridge		ft.	

MISC. BRIDGE DATA	
Structure Flared	0 - No flare
Parallel Structure	N - No parallel structure
Field Conn. ID	
Abutment Foundation	1 - CONC
(Material/Type)	0 - UNKNOWN
Pier Foundation	1 - CONC
(Material/Type)	0 - UNKNOWN
Historic Status	5 - Not eligible

PAINT	
Year Painted	
Unsound Paint %	
Painted Area	sq. ft.
Primer Type	
Finish Type	

BRIDGE SIGNS	
Posted Load	0 - Not Required
Traffic	0 - Not Required
Horizontal	0 - Not Required
Vertical	0 - Not Required

INSPECTION	
Userkey	199
Unofficial Structurally Deficient	N
Unofficial Functionally Obsolete	N
Unofficial Sufficiency Rating	82.3
Routine Inspection Date	10/29/2015
Routine Inspection Frequency	24
Inspector Name	City of St. Paul
Status	A - Open

NBI CONDITION RATINGS	
Deck	N - Not Applicable
Unsound Deck %	
Superstructure	5 - Fair Condition
Substructure	5 - Fair Condition
Channel	N - Not Applicable
Culvert	N - Not Applicable

NBI APPRAISAL RATINGS	
Structure Evaluation 5	
Deck Geometry	4
Underclearances	5
Water Adequacy	N - Not Applicable
Approach Alignment	8 - Equal to present desirabl

SAFETY FEATURES	
Bridge Railing	0 - SUBSTANDARD
GR Transition	N - NOT REQUIRED
Appr. Guardrail	N - NOT REQUIRED
GR Termini	N - NOT REQUIRED

IN DEPTH INSP.		
	Y/N	Date
Frac. Critical		
Underwater		
Pinned Asbly.		
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	2 - H 15	
Operating Rating	2 - AS	HS 68.6
Inventory Rating	2 - AS	HS 36.9
Posting VEH:	SEMI:	DBL:
Rating Date	12/1/1976	

MnDOT Permit Codes	
A:	1 - No Restriction
B:	1 - No Restriction
C:	1 - No Restriction

MnDOT BRIDGE INSPECTION REPORT

12/31/2015

Inspector: City of St. Paul

BRIDGE 9250 MSAS 117(CEDAR) OVER CSAH 34(UNIVERSITY AVE)

ROUTINE INSP. DATE: 10/29/2015

County: Ramsey	Location: 0.2 MI E OF RICE ST	Length: 160.0 ft.
City: St Paul	Route: 05 - MSAS 117 Ref. Pt.: 000+00.910	Deck Width: 49.0 ft.
Township:	Control Section:	Rdwy. Area/ Pct. Unsnd: 4801 sq. ft. / %
Section: 31 Township: 029N Range: 22W Maint. Area:		Paint Area/ Pct. Unsnd: sq. ft. / %
Span Type: 1 - Concrete 11 - Arch - Deck	Local Agency Bridge Nbr.:	Culvert: N/A
List:		Postings:
NBI Deck: N Super: 5 Sub: 5 Chan: N Culv: N	Open, Posted, Closed: A - Open	
	MN Scour Code: A - NON WATERWAY	
Appraisal Ratings - Approach: 8 Waterway: N		Unofficial Structurally Deficient N
Required Bridge Signs - Load Posting: 0 - Not Required	Traffic: 0 - Not Required	Unofficial Functionally Obsolete N
Horizontal: 0 - Not Required	Vertical: 0 - Not Required	Unofficial Sufficiency Rating 82.3

Structure Unit:

ELEM NBR	ELEMENT NAME	ENV	REPORT TYPE	INSP. DATE	QUANTITY	QTY	QTY	QTY	QTY	QTY
						CS 1	CS 2	CS 3	CS 4	CS 5
013	Bituminous Overlay (Concrete Deck)	2	Routine	10/29/2015	7836 SF	0	0	0	7836	0
			Routine	10/29/2013	7836 SF	0	0	0	7836	0

Requires Monitoring Monitored

Notes: Bituminous layers (placed on earth fill). [1996]
 Several bituminous patches. [1997] Bituminous roadway breaking up.
 New overlay in 2004 +/-
 Cracking has reflected thru the overlay. 2013-15
 Bituminous wear surface has alligator cracking. 2013-15
 Combined unsound wear area of (potholes, spalls & temp. patches)
 is between 10% and 25% of total deck area. 2013-15

144	Reinforced Concrete Arch	2	Routine	10/29/2015	89 LF	0	79	10	0	N/A
			Routine	10/29/2013	89 LF	0	79	10	0	N/A

Requires Monitoring Monitored

Notes: CIP concrete solid spandrel earth-filled arch. [1985]
 Entire arch roof is map cracked. 2013-15
 Light longitudinal leaching cracks go all the way across arch at bout 4' spacings. 2003-07
 Moderate to extensive - efflorescence, leaching, cracking, staining and patches present. 2013-15

215	Reinforced Concrete Abutment	2	Routine	10/29/2015	98 LF	0	88	10	0	N/A
			Routine	10/29/2013	98 LF	0	89	10	0	N/A

Requires Monitoring Monitored

Notes: [1985] Abutments (base portion of arch along sidewalk) have 160 LF of random cracks & 125 SF of leaching map cracks (with scaling). [1992-2003]
 South Abutment has 2 SF of spall (exposed rebar). [1995]
 Abutment corners have 100 SF of spalls / scaling (1'deep). 2001-07
 Moderate to severe cracking, leaching, staining and surface scale. 2013-15

Structure Unit:

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	10/29/2015	322 LF	228	3	90	N/A	N/A
			Routine	10/29/2013	322 LF	228	3	90	N/A	N/A

 Requires Monitoring Monitored

Notes: Poured joint along sidewalk edge at railing (322 LF). [1996]
50% of joint along east rail has failed. 2013-15

320	Concrete Approach Slab-Bituminous Wearing Surface	2	Routine	10/29/2015	2 EA	0	2	0	0	N/A
			Routine	10/29/2013	2 EA	0	2	0	0	N/A

 Requires Monitoring Monitored

Notes: [1997] North approach has longitudinal cracks.
Numerous cracks are in the bituminous wearing course. 01-03.
New bituminous overlay in 2004 +/-
Cracking has reflected thru the overlay. 2013-15

333	Masonry, Other or Combination Material Railing	2	Routine	10/29/2015	322 LF	0	322	0	N/A	N/A
			Routine	10/29/2013	322 LF	0	322	0	N/A	N/A

 Requires Monitoring Monitored

Notes: Rail Type: Code #22 (not original - added sometime between 1960-1975). [1983]
Concrete base has 49 LF of vertical cracks. 01-03.
(2009) spalling present on w. outside face
Paint coating system has failed on the steel and concrete surfaces. 2015

359	Underside of Concrete Deck Smart Flag	2	Routine	10/29/2015	1 EA	0	1	0	0	0
			Routine	10/29/2013	1 EA	0	0	1	0	0

 Requires Monitoring Monitored

Notes: Efflorescence, leaching, cracking, staining and patches present. 2013-15
Distressed area of the underdeck is 2% or less of the total deck area. 2015

387	Reinforced Concrete Wingwall	2	Routine	10/29/2015	4 EA	1	0	3	0	N/A
			Routine	10/29/2013	4 EA	1	0	3	0	N/A

 Requires Monitoring Monitored

Notes: [1987/92] SE, NW, & SW wingwalls have 22 SF of delamination & 40 SF of spall
(up to 3" deep with exposed rebar). 01-15

Structure Unit:

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
414	Reinforced Concrete Arch Spandrel Wall	2	Routine	10/29/2015	164 LF	0	164	0	0	N/A
			Routine	10/29/2013	164 LF	0	164	0	0	N/A

 Requires Monitoring Monitored

Notes: Element added in 2013.

Arch spandrel faces have vertical & horizontal cracks.

West coping has 1 SF of spall (rusted rebar). [1997]

East and West faces - 8 LF of loose coping over roadway and sidewalk. 2013-15

964	Critical Finding Smart Flag	2	Routine	10/29/2015	1 EA	1	0	N/A	N/A	N/A
			Routine	10/29/2013	1 EA	1	0	N/A	N/A	N/A

 Requires Monitoring Monitored

Notes: DO NOT DELETE THIS CRITICAL FINDING SMART FLAG.

981	Signing	2	Routine	10/29/2015	1 EA	1	0	0	0	0
			Routine	10/29/2013	1 EA	0	0	1	0	0

 Requires Monitoring Monitored

Notes: No bridge signage is required. 2015

984	Deck & Approach Drainage	2	Routine	10/29/2015	1 EA	1	0	0	N/A	N/A
			Routine	10/29/2013	1 EA	1	0	0	N/A	N/A

 Requires Monitoring Monitored

Notes: PONTIS element inspection comments - < none >

986	Curb & Sidewalk	2	Routine	10/29/2015	1 EA	0	1	0	N/A	N/A
			Routine	10/29/2013	1 EA	0	1	0	N/A	N/A

 Requires Monitoring Monitored

Notes: Moderate damage. Walk and curbs have cracking and spalling. 2013-15

Curb height reduced due to bituminous overlays. 2013-15

987	Roadway over Culvert	2	Routine	10/29/2015	1 EA	0	0	1	N/A	N/A
			Routine	10/29/2013						

 Requires Monitoring Monitored

Notes: Cracking has reflected thru the overlays. 2011-15

Bituminous wear surface has alligator cracking. 2011-15

Combined unsound wear area of (potholes, spalls & temp. patches)
is between 10% and 25% of total deck area. 2011-15

Moderate to severe cracking, Settlement present. 2011-15

Structure Unit:

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
988	Miscellaneous Items	2	Routine	10/29/2015	1 EA	0	1	0	N/A	N/A
			Routine	10/29/2013	1 EA	0	1	0	N/A	N/A

 Requires Monitoring Monitored

Notes: 8 light standards mounted on bridge sidewalks. [1996]

West side: 2nd light base from south has stacks of washers and a bolt shimmed below for support. [1997] - 11

West side: 3rd light base from south is cracked (welded repair). 01-11.

The paint system on the light poles and bases has failed. 2015

All light bases have heavy rust. 2013-15

Clean, prep and painting is recommended. 2015

General Notes: Bridge Constructed in 1922.
Light rail transit construction was completed in 2013.

58. Deck NBI: Cracking and leaching of the under deck - typical. 2015
Bituminous roadway over soil filled arch is severely cracked. 2015

36A. Brdg Railings NBI:

36B. Transitions NBI:

36C. Appr Guardrail NBI:

36D. Appr Guardrail
Terminal NBI:

59. Superstructure NBI: Extensive cracking. Map cracked arch. 2011-15

60. Substructure NBI: Moderate deterioration. 2015
Moderate to extensive scaling and cracking of the abutments. 2015

61. Channel NBI:

62. Culvert NBI:

71. Waterway Adeq NBI:

72. Appr Roadway
Alignment NBI:

Inventory Notes:

 Ron Ekstrand

Inspector's Signature

 Glenn Pagel

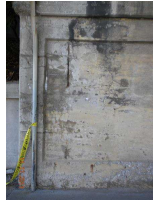
Reviewer's Signature



1. 2011 deckview_1.jpg



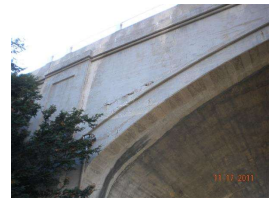
2. 2011 deckview_2.jpg



3. abut S.side_9.jpg



4. abut S.side_10.jpg



5. crack SE.jpg



6. curb spall.jpg



7. lighting base_1.jpg



8. lighting base_2.jpg



9. lighting base_3.jpg



10. lighting base_4.jpg



11. lighting base_5.jpg



12. rebar NW.side.jpg



13. spall-coping_1.jpg



14. spall-coping_2.jpg



15. underdeck_1.jpg



16. underdeck_2.jpg



17. underdeck_3.jpg



18. underdeck_4.jpg



19. walk cracks_8.jpg



20. walk cracks_9.jpg



21. 10-29-2013 027.JPG



22. elevation view east_1_10-29-2013.JPG



23. elevation view east_2_10-29-2013.JPG



24. elevation view west_1_10-29-2013.JPG



25. elevation view west_2_10-29-2013.JPG



26. longitudinal cracking n-w end of bridge.JPG



27. longitudinal cracking s-w end of bridge.JPG



28. metal railing n-w corner paint loss typical.JPG



29. n-e corner arch barrel delam-spalling.JPG



30. north abutment severe spalling -delam.JPG



31. north east wing wall - minor spalls.JPG



32. north end approach panel cracking and settlement.JPG



33. north end approach sidewalk cracking.JPG



34. north west corner arch barrel delam spalling above west bound traffic removals needed.JPG



35. north west wing wall severe spalling exposed rebar.JPG



36. s-e corner arch barrel delam-spalling.JPG



37. settlement at gutter line n-w corner of bridge deck.JPG



38. south abutment - scalling - spalls - delams.JPG



39. south east wing wall - severe spalls delam.JPG



40. south west corner of arch barrel - spalling and exposed rebar.JPG



41. south west wing wall - spalls delam.JPG



42. top of bridge rail wall - paint peeling typical.JPG



43. transverse cracking mid span west side of bridge.JPG



44. various cracking of overlay s-w end.JPG



45. various cracking of overlay s-w end (2).JPG