# 2016 ROUTINE BRIDGE INSPECTION REPORT



#### BRIDGE # 2937 CP RAIL over CSAH 77(8TH AV NW)

DISTRICT: Metro COUNTY: Ramsey CITY/TOWNSHIP: New Brighton

STATE: Minnesota

Date of Inspection: 09/20/2016

**Equipment Used:** 

**Owner: Railroad** 

Inspected By: Bodelson, Dan

Report Written By: Dan Bodelson

Report Reviewed By: Nicklaus Fischer

Final Report Date: 10/20/2016



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#### **Minnesota Structure Inventory Report**

over CSAH 77(8TH AV NW) Bridge ID: 2937 Date: 10/20/2016 **CP RAIL** INSPECTION **GENERAL ROADWAY** Bridge Match ID (TIS) Userkey 102 Agency Br. No. Unofficial Structurally Deficient N **District** Metro Roadway O/U Key none Maint. Area Crew **Route Sys** Number **Unofficial Functionally Obsolete N** County 062 - Ramsey **Roadway Name or Description Unofficial Sufficiency Rating** City **New Brighton Routine Inspection Date** 09/20/2016 **Township** Level of Service **Routine Inspection Frequency** 12 Desc. Loc. 0.1 MI S OF JCT CSAH 15 Inspector Name CO Bridge Roadway Type Sect., Twp., Range - 030N - 23W 32 **Status** A - Open Control Section (TH Only) **Deg** 45 Sec 57.68 Latitude Min 2 Reference Point **NBI CONDITION RATINGS** Longitude Deg 93 Sec 57.52 Min 11 Deck **Detour Length** N - Not Applicable Custodian 27 - Railroad **Unsound Deck %** Lanes On Under 2 Owner 27 - Railroad Superstructure 4 - Poor Condition ADT Year **BMU Agreement** Substructure ADTT 0 % 5 - Fair Condition HCADT 0 Year Built 1928 Channel N - Not Applicable **Functional Class MN Year Reconstructed** Culvert N - Not Applicable **RDWY DIMENSIONS FHWA Year Reconstructed NBI APPRAISAL RATINGS** SB-WB If Divided **NB-EB MN Temporary Status** Structure Evaluation N Roadway Width ft. ft. Bridge Plan Location 0 - NO PLAN **Deck Geometry** Ν **Vertical Clearance** ft **Date Opened to Traffic Underclearances** Max. Vert. Clear. ft. ft. **On-Off System** 0 - OFF Water Adequacy N - Not Applicable Horizontal Clear. ft. Legislative District 50B Approach Alignment N - Not Applicable Lateral Clearance ft. ft. **ABC Suitable SAFETY FEATURES** Appr. Surface Width ft. **STRUCTURE** Bridge Railing N - NOT REQUIRED **Bridge Roadway Width** ft. Service On 2 - Railroad **GR Transition** N - NOT REQUIRED Median Width On Bridge Service Under 1 - Highway, w/ or w/out ped. Appr. Guardrail N - NOT REQUIRED MISC. BRIDGE DATA Main Span Type **GR Termini** N - NOT REQUIRED Structure Flared 0 - No flare 4 - Steel Continuous 01 - Beam Span IN DEPTH INSP. Main Span Detail Parallel Structure N - No parallel structure Y/N Freq Date Appr. Span Type Field Conn. ID 2 - Riveted Frac. Critical Ν Abutment Foundation 1 - CONC Underwater Ν Appr. Span Detail (Material/Type) 3 - FTG PILE Pinned Asblv. Skew 15 L 1 - CONC Pier Foundation Spec. Feat. **Culvert Type** (Material/Type) 3 - FTG PILE WATERWAY **Barrel Length** ft. Historic Status 5 - Not eligible Drainage Area (sq. mi.) **Cantilever ID Waterway Opening PAINT** NUMBER OF SPANS Navigation Control N - Not applicable, no waterw Year Painted APPR: 0 TOTAL: 3 **MAIN:** 3 **Pier Protection** Unsound Paint % 80 Main Span Length 39.0 ft. Nav. Clr. (ft.) Vert. ft. Horiz. ft. Painted Area sq. ft. Structure Length 70.0 Nav. Vert. Lift Bridge Clear. (ft.) ft. Primer Type 1 - Lead - non 3309 MN Scour Code A - NON WATER' Year Deck Width (Out-to-Out) 37.5 ft. Finish Type **Deck Material** N - Not Applicable **CAPACITY RATINGS Wear Surf Type** N - Not Applicable (applies onl **Design Load** 8 - RAILROAD **BRIDGE SIGNS** Wear Surf Install Year Operating Rating 2 - AS HS 65.0 Posted Load 0 - Not Required Wear Course/Fill Depth 0.00 Inventory Rating 2 - AS HS 65.0 Traffic 0 - Not Required Deck Membrane 0 - None Posting VEH: DBL: **Deck Rebars** N - Not Applicable (no deck) Horizontal 1 - Object Markers **Rating Date Deck Rebars Install Year** Vertical 1 - Rdwy. Clr. Restriction **Minnesota Permit Codes** Structure Area (Out-to-Out) 2625 sa. ft. A: N - N/A Roadway Area (Curb-to-Curb) sq. ft. Sidewalk Width Lt 0.00 ft. Rt 0.00 B: N - N/A ft.

**Curb Height** 

Rail Type

Lt 0.00

Lt NN

ft. Rt 0.00

Rt NN

ft

C: N - N/A

#### **Minnesota Structure Inventory Report**

Date: 09/14/2016

Bridge ID: 2937

CP RAIL over CSAH 77(8TH AV NW)

	+ G E N E R A L +	± R	OADWAY+	+INSPECTION+			
Agency Br. No.	Crew	Bridge Match ID (TIS)	)	Userkey 102			
District	05 Maint. Area	Roadway O/U Key		Structurally Deficient N			
County	062 - Ramsey	Route Sys	Number	Functionally Obsolete N			
City	New Brighton	Roa	dway Name or Description	Sufficiency Rating -2			
Township				Routine Inspection Date 09/20/2016			
Desc. Loc.	0.1 MI S OF JCT CSAH 15	Level of Service		Routine Inspection Frequency 12			
Sect., Twp., Range	32 - 030N - 23W	Roadway Type		Inspector Name Bodelson, Dan			
Latitude	45 ° 2 ' 57.68 "	Control Section (TH	Only)	Status A - Open			
Longitude	93 ° 11 ' 57.52 "	Reference Point		+NBI CONDITION RATINGS+			
Custodian	27 - Railroad	Detour Length	mi.	Deck N Unsound			
Owner	27 - Railroad	Lanes ON		Superstructure 4 Deck %			
BMU Agreement		AD		Substructure 5			
Year Built	1928	HCADT	ADTT %	Channel N			
MN Year Reconstru	cted	Functional Class		Culvert N			
FHWA Year Recons	structed			- Current			
MN Temporary Stat		+ R D W Y	DIMENSIONS+	+NBI APPRAISAL RATINGS+			
Bridge Plan Location	on 0 - NO PLAN	KBistina	ND ED	Structure Evaluation N			
Date Opened to Tra		If Divided	NB-EB SB-WB	Deck Geometry N			
On - Off System	<b>n</b> 0 - OFF	Roadway Width	ft. ft.	Underclearances 2			
Legislative District	50B	Vertical Clearance	ft. ft.				
Potential ABC	2 - N/A	Max. Vert. Clear.	ft. ft.	Waterway Adequacy N Approach Alignment N			
	STRUCTURE+	Horizontal Clear.	ft. ft.	Approach Alignment N			
		Lateral Clearance	ft. ft.	+SAFETY FEATURES+			
Service On	2 - Railroad	Appr. Surface Width	ft.				
Service Under	1 - Highway, w/ or w/out ped.	Bridge Roadway Wid		Bridge Railing N - NOT REQUIRED			
Main Span Type	4 - Steel Continuous	Median Width On Bri	dge ft.	GR Transition N - NOT REQUIRED			
Main Span Design	01 - Beam Span	+ MISC.	BRIDGE DATA+	Appr. Guardrail N - NOT REQUIRED			
Main Span Detail				GR Termini N - NOT REQUIRED			
Appr. Span Type		Structure Flared	0 - No flare	+IN DEPTH INSP.+			
Appr. Span Design		Parallel Structure	N - No parallel structure	-			
Appr. Span Detail		Field Conn. ID	2 - Riveted	Y/N Freq Date			
Skew	15 LEFT	Abutment Foundation	1 - CONC	Frac. Critical N			
Culvert Type		(Material/Type)	3 - FTG PILE	Underwater N			
Barrel Length		Pier Foundation	1 - CONC	Pinned Asbly. N			
Cantilever ID		(Material/Type)	3 - FTG PILE	Spec. Feat.			
				+ W A T E R W A Y +			
Nu	mber of Spans	Historic Status	5 - Not eligible				
MAIN: 3 AP	PR: 0 TOTAL:			Drainage Area (sq. mi.)			
Main Span Length	39.0 ft.	-	+PAINT+	Waterway Opening (sf.)			
Structure Length	70.0 <b>ft.</b>			Navigation Control N - Not applicable, no			
Deck Width (Out-to-	Out) 37.5 ft.	Year Painted		Pier Protection _			
Deck Material	N - Not Applicable	Unsound Paint % 8	30	Nav. Clr. (ft.) Vert. 0.0 Horiz. 0.0			
Wear Surf Type	N - Not Applicable (applies	Painted Area	sq. ft.	Nav. Vert. Lift Bridge Clear. (ft.)			
Wear Surf Install Ye	ear	Primer Type 1	- Lead - non 3309	MN Scour Code A - NON Year			
Wear Course/Fill De	epth 0.00 ft.	Finish Type		+CAPACITY RATINGS+			
Deck Membrane	0 - None						
Deck Rebars	N - Not Applicable (no deck)	+BRID	GE SIGNS+	Design Load 8 - RAILROAD			
Deck Rebars Install	Year			Operating Rating 7 - RAILROAD 65.0			
Structure Area (Out	-to-Out) 2625 <b>sq.</b> ft.	Posted Load 0	) - Not Required	Inventory Rating 7 - RAILROAD 65.0			
Roadway Area (Cur	b-to-Curb) sq. ft.	Traffic 0	) - Not Required	Posting VEH: SEMI: DBL:			
Sidewalk Width 50	0A. Lt 0.00 ft. 50B. Rt 0.00 ft.	Horizontal 1	- Object Markers	Rating Date			
Curb Height	Lt 0.00 ft. Rt 0.00 ft.	Vertical 1	- Rdwy. Clr. Restriction	Overweight Permit Codes			
Rail Type	Lt NN Rt NN			A N-N/A B N-N/A C N-N/A			

#### MINNESOTA BRIDGE INSPECTION REPORT

10/20/2016

BRID	RIDGE 2937 CP RAIL OVER CSAH 77(8TH AV NW)							<b>ROUTINE INSP. DATE: 09/20/2016</b>					
County	y: Ramsey		L	ocation: 0.1 M	II S OF JCT	CSAH	15	Length:		70.0 ft.			
City:	New Brighto	nton Route: Ref. Pt.:					Deck Wid	lth:	37.5 ft.				
Towns	ship:		(	Control Section:				Rdwy. Ar	ea/ Pct. Ur	nsnd: sq. f	t. / %		
Sectio	n: 32 Town	ship: 030N R	ange: 23W	Maint. Area:				Paint Are	a/ Pct. Uns	snd: sq. f	t. / 80%		
Span <sup>-</sup>	Type: 4 - Steel Co	ontinuous 2 -		Local Agency E	Bridge Nbr.:			Culvert:	N/A				
List:	Stringer/Mu	lti-beam or Gird	ler					Postings:					
NBI D	eck: N Supe	r: 4 Sub:	5 Chan:	: N Culv:	N								
				Open, F	Posted, Clos	ed: A	- Open						
					ur Code: A	- NON	WATERWAY						
	isal Ratings - App		Waterway:					Un	official Stru	ucturally De	eficient N	1	
Requir	red Bridge Signs -	ŭ	•		Traffic:		Not Required	Un	official Fur	nctionally C	bsolete 1	1	
		Horizntal:	1 - Object M	larkers	Vertical:		Rdwy. Clr. striction	Un	official Suf	ficiency Ra	iting N	١	
ELEM								QTY	QTY	QTY	QTY	QTY	
NBR	ELEMEN	IT NAME	ENV	REPORT TYPE	INSP.	DATE	QUANTITY	CS 1	CS 2	CS 3	CS 4	CS 5	
07	Painted Steel G	Girder or Beam	2	Routine	09/20/	2016	840 LF	0	84	672	84	0	
				Routine	09/25/	2015	840 LF	0	84	672	84	0	
		[2006-2015] T [2004-2014] M and pushed in [2009-2013] T girders, which	he flange of lajor failure to beam #5 otal traffic in have been	npact to #2, #3, #	een badly com. Steel Gir	rimped a ders ne beams	ed to be painte	ed. #6 bean	n has beer	•	•	·	
205	Reinforced Cor	crete Column	2	Routine	09/20/	2016	10 EA	0	0	8	2	N/A	
00			-	Routine	09/25/		10 EA	0	0	8	2	N/A	
		[2009-2013] T concrete cap. [2006-2013] T [2011-2013] C [2009-2013] E	here is addithe north side columns #2, fast side of co	between the colutional delamination of column#1 cc #4, #5, #6,#8 & #column #4 & #6 hans in need of sho	umns and create to the east on to the east ontains a mage of consists cave major de	eated post side of spall of delamina	of column #2. Column #	bar. spalling & o	cracking w	ith exposed		er the	
210	Reinforced Cor	ocrete Dior Mall	2	Davitina	00/00	(2010	56 LF	0	56	0	0	N/A	
210	Rominoroed COI	IOIOIO I IOI VVAII	2	Routine Routine	09/20/ 09/25/		56 LF	0	56	0	0	N/A	
		[2014] Minor s	shrinkage cra	kage cracks on backs on both pier n the culumns an	oth piers wit	h efferv	esce.				ŭ	. 4/1	

ROUT	INE	INICD	דאח	re.	ロロノクロ	/2N1	G
11001	111	11101 .			U31 ZU	<i>1</i> <b>2 0</b> 1	u

ELEM NBR	ELEMENT N	NAME	ENV	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
215	Reinforced Concre Abutment	ete	2	Routine	09/20/2016	72 LF	0	61	11	0	N/A
				Routine	09/25/2015	72 LF	0	61	11	0	N/A
	[2 [2 [2 [2 [2 [2	2015] There is 2015] West abu 2014] Repaired 2009-2014] We 2011-2014] The 2009-2014] The 2004-2014] SE	a 1.5' X1' utment ha I slope on est abutmere is a 4' ere is a 5' E & NW co	1' X 2" spall at NW c ' spall & 5' delaminati is a 3' delamination a east abutment cove ent has a 3' horizontal diagonal crack at NV horizontal crack from orners of abutments o osed piling on the east	ion from the SE at girders#7 & #8 ring the exposed at crack at girder N corner. In the SE corner contain major de	. d piling. s#7 & #8. extending towallamination.	rd the nortl	<b>1</b> .	1.		
234	Reinforced Concre	ete Pier Cap	2	Routine	09/20/2016	56 LF	0	0	56	0	N/A
				Routine	09/25/2015	56 LF	0	0	56	0	N/A
	th [2 [2	ne east side- 4 2004-2013] We 2009-2013] Bot	LF in needst cap ha	amination of concrete ed of rehabilitation. is 4 SF of delamination ps contain moderate	on & exposed re cracking & spall	bar east side of ing with some d	west cap lelaminatio	@ column n througho	#1. out.		
811	Expansion Bearing	9	2	Routine Routine	09/20/2016 09/25/2015	24 EA 24 EA	0	24 24	0	N/A N/A	N/A N/A
	N I			4.1 .							
	[2	2002-2015] Bol	ts for #1	ment bearings are cogirder have been ber Bearing devices requi	nt. Bearings have	e moderate to horication.	eavy corro	sion with s	ome buildu	p of debris	that ma
362	[2	2002-2015] Bol e affecting mo	ts for #1	girder have been ber Bearing devices requi Routine	nt. Bearings have ire cleaning & lul 09/20/2016	e moderate to h	eavy corro  0 0	sion with s	ome buildu 0 0	np of debris	that ma
362	[2 be Traffic Impact Sma N [2 [2 tr in [2	2002-2015] Bole affecting mover art Flag  lotes: [2010-202009] Steel gird 2008] There was uck. The #7 steepected by CF	ts for #1 vement. E  2  015] Minoders #1 & as collisioneel girder P Rail befoal traffic i	girder have been ber Bearing devices requi	nt. Bearings have ire cleaning & lul 09/20/2016 09/25/2015 ment girders #1 ced on 3/18/2008 er in 2008. The # ped and pushed er the railroad br #6, & #12 girder	e moderate to horication.  1 EA 1 EA 2 due to traffic in rotsel girder will into girder #8. idge was openeds.	0 0 oppear to be npact. vas struck of Girder #7 i ed 2008.	1 1 e structural	0 0 Ily sound. th side by a	N/A N/A	N/A N/A
	[2 be Traffic Impact Sma N [2 [2 tr in [2	e affecting more affecting more affecting more art Flag store [2010-2009] Steel gird (2008] There was uck. The #7 store appeted by CF (2009-2015] Tote (2003-2015] Diagonal for the property of the property o	ts for #1 vement. E  2  015] Minoders #1 & as collisioneel girder P Rail befoal traffic i	Routine Routine From the properties of the prope	nt. Bearings have ire cleaning & lul 09/20/2016 09/25/2015 ment girders #1 ced on 3/18/2008 er in 2008. The # ped and pushed er the railroad br #6, & #12 girder	e moderate to horication.  1 EA 1 EA 2 due to traffic in rotsel girder will into girder #8. idge was openeds.	0 0 oppear to be npact. vas struck of Girder #7 i ed 2008.	1 1 e structural	0 0 Ily sound. th side by a	N/A N/A	N/A N/A nd boon
	Traffic Impact Sma  No. [2] [2] [2] [2] [2] [2] [2] [2] Critical Finding Sma	e affecting more affecting more affecting more affecting more affecting more affecting more affecting affecting more affecting more affecting affecting affecting more affe	ts for #1 vement. E  2  015] Minotes #1 & as collision of P Rail beformal traffic inphragms	Routine Routine Routine r scrapes to replacer #7 have been replacer has been badly crim ore the roadway under mpact to #2, #3, #5, are in place but has  Routine  Routine  Routine	nt. Bearings have ire cleaning & lul 09/20/2016 09/25/2015 ment girders #1 ed on 3/18/2009 er in 2008. The #1 ped and pushed per the railroad br #6, & #12 girder slight deformation 09/20/2016 09/25/2015	e moderate to horication.  1 EA 1 EA 2 #7. Girders ap 3 due to traffic in 7 steel girder w 1 into girder #8. idge was opene 5. on due to impact 1 EA 1 EA	0 0 oppear to be npact. ras struck of Girder #7 i ed 2008.	1 1 e structural on the souts s also lear	0 0 lly sound. th side by a ning severe	N/A N/A I north-bou ly. The inci	N/A N/A and boor dent wa
	Traffic Impact Sma  No. [2] [2] [2] [2] [2] [2] [2] [2] Critical Finding Sma	e affecting more affecting more affecting more affecting more affecting more affecting more affecting affecting more affecting more affecting affecting affecting more affe	ts for #1 vement. E  2  015] Minotes #1 & as collision of P Rail beformal traffic inphragms	Routine Routine From the properties of the roadway under the roadw	nt. Bearings have ire cleaning & lul 09/20/2016 09/25/2015 ment girders #1 ed on 3/18/2009 er in 2008. The #1 ped and pushed per the railroad br #6, & #12 girder slight deformation 09/20/2016 09/25/2015	e moderate to horication.  1 EA 1 EA 2 #7. Girders ap 3 due to traffic in 7 steel girder w 1 into girder #8. idge was opene 5. on due to impact 1 EA 1 EA	0 0 oppear to be npact. ras struck of Girder #7 i ed 2008. tt.	1 1 e structural on the sout s also lear	0 0 Ily sound. th side by a ning severe	N/A N/A north-bou ly. The inci	N/A N/A nd boon dent wa
964	Traffic Impact Sma  No. [2] [2] [2] [2] [2] [2] [2] [2] Critical Finding Sma	e affecting more affecting more affecting more affecting more affecting more affecting more affecting affecting more affecting more affecting affecting affecting more affe	ts for #1 vement. E  2  015] Minotes #1 & as collision of P Rail beformal traffic inphragms	Routine Routine Routine r scrapes to replacer #7 have been replacer has been badly crim ore the roadway under mpact to #2, #3, #5, are in place but has  Routine  Routine  Routine	nt. Bearings have ire cleaning & lul 09/20/2016 09/25/2015 ment girders #1 ed on 3/18/2009 er in 2008. The #1 ped and pushed per the railroad br #6, & #12 girder slight deformation 09/20/2016 09/25/2015	e moderate to horication.  1 EA 1 EA 2 #7. Girders ap 2 due to traffic in 7 steel girder w 1 into girder #8. idge was opene 5. on due to impact 1 EA 1 EA FLAG.	0 0 oppear to be npact. ras struck of Girder #7 i ed 2008. tt.	1 1 2 structural on the souts also lear	0 0 Ily sound. th side by a ning severe	N/A N/A north-bou ly. The inci	N/A N/A and boon dent wa
964	Traffic Impact Sma  No. [2] [2] [2] [2] [2] [2] Critical Finding Sm.  No. [2]  Signing	2002-2015] Bole affecting more affecting more affecting more art Flag dotes: [2010-2009] Steel gird 2008] There was uck. The #7 st is pected by CF 2009-2015] Tot 2003-2015] Diamart Flag dotes: DO NOT lotes: DO NOT lotes: [2002-20]	tts for #1 vement. E  2  015] Minothers #1 & as collision eel girder P Rail befral traffic inphragms  2  CDELETI  2  015] Verti	Routine Routine Process and a serior of the serior of the roadway undompact to #2, #3, #5, are in place but has  Routine	nt. Bearings have ire cleaning & lul 09/20/2016 09/25/2015 ment girders #1 red on 3/18/2009 or in 2008. The # red and pushed er the railroad br #6, & #12 girder slight deformation 09/20/2016 09/25/2015 NDING SMART 09/20/2016 09/25/2015 should be installed.	e moderate to horication.  1 EA 1 EA 2 WHT. Girders ap 2 due to traffic in 3 steel girder w 1 into girder #8. idge was opened 5. on due to impact 1 EA 1 EA 1 EA 1 EA 1 EA	0 0 ppear to be impact. as struck of Girder #7 i ed 2008. it.  1 0 0	1 1 2 structural on the souts also lear	0 0 lly sound. th side by a ning severe N/A N/A	N/A N/A north-bou ly. The inci	N/A N/A and boon dent was N/A N/A
964	Traffic Impact Sma  No. [2] [2] [2] [2] [2] [2] Critical Finding Sm.  No. [2]  Signing	2002-2015] Bole affecting more affecting more affecting more art Flag dotes: [2010-2009] Steel gird 2008] There was uck. The #7 st is pected by CF 2009-2015] Tot 2003-2015] Diamart Flag dotes: DO NOT lotes: DO NOT lotes: [2002-20]	tts for #1 vement. E  2  015] Minothers #1 & as collision eel girder P Rail befral traffic inphragms  2  CDELETI  2  015] Verti	Routine Routine Routine r scrapes to replacer #7 have been replacer has been badly crim mpact to #2, #3, #5, are in place but has  Routine  THIS CRITICAL FII  Routine Routine Routine Routine Routine Routine Routine	nt. Bearings have ire cleaning & lul 09/20/2016 09/25/2015 ment girders #1 red on 3/18/2009 or in 2008. The # red and pushed er the railroad br #6, & #12 girder slight deformation 09/20/2016 09/25/2015 NDING SMART 09/20/2016 09/25/2015 should be installed.	e moderate to horication.  1 EA 1 EA 2 WHT. Girders ap 2 due to traffic in 3 steel girder w 1 into girder #8. idge was opened 5. on due to impact 1 EA 1 EA 1 EA 1 EA 1 EA	0 0 ppear to be impact. as struck of Girder #7 i ed 2008. it.  1 0 0	1 1 2 structural on the souts also lear	0 0 lly sound. th side by a ning severe N/A N/A	N/A N/A north-bou ly. The inci	N/A N/A and boom dent wa N/A N/A
964 981	Traffic Impact Sma  No. [2] [2] [2] [2] [2] [2] Critical Finding Sm.  No. [2]  Signing	2002-2015] Bole affecting more art Flag  lotes: [2010-2020] Steel given was uspected by CF 2009-2015] Total 2003-2015] Diamart Flag  lotes: DO NOTION Control of the contro	tts for #1 vement. E  2  015] Minothers #1 & as collisionel girder P Rail befral traffic inphragms  2  CDELETI  2  015] Verti	Routine Routine Process and a serior of the serior of the roadway undompact to #2, #3, #5, are in place but has  Routine	nt. Bearings have ire cleaning & lul 09/20/2016 09/25/2015 ment girders #1 red on 3/18/2009 or in 2008. The # red and pushed er the railroad br #6, & #12 girder slight deformation 09/20/2016 09/25/2015 NDING SMART 09/20/2016 09/25/2015 should be installed.	e moderate to horication.  1 EA 1 EA 2 WHT. Girders ap 2 due to traffic in 3 steel girder w 1 into girder #8. idge was opened 5. on due to impact 1 EA 1 EA 1 EA 1 EA 1 EA	0 0 ppear to be impact. as struck of Girder #7 i ed 2008. it.  1 0 0	1 1 2 structural on the souts also lear	0 0 lly sound. th side by a ning severe N/A N/A	N/A N/A north-bou ly. The inci	N/A N/A and boom dent wa N/A N/A

BRIDO	BRIDGE 2937 CP RAIL OVER CSAH 77(8TH AV NW)							ROUTINE INSP. DATE: 09/20/2016					
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		
985	Slopes & Slope F	Protection	2	Routine	09/20/2016	1 EA	0	1	0	N/A	N/A		
				Routine	09/25/2015	1 EA	0	1	0	N/A	N/A		
		[2015] West at [2014] East ab [2014] Pre-cast [2013] Additior [2008-2013] A [2003-2013] Si Pre-cast concress side of ro 2016 Bridge 2015 Bridge 2014 Bridge Culumns we New concret 2013 Bridge 2012 Bridge 2011 Bridge 2011 Bridge 2011 Bridge 3 Safety railing Safety railing 2009 Bridge girders on 3/	outment is unutment has at concrete that slope produtional skillope is under the wall was ad in 1991.  safety inspected in safety in safety in specification in safety	has moderate erosion undermined for 20'. It is been repaired and I wall was added for some contection is needed a permining at the east as added for slope protection is needermining at the east as added for slope protection was complete ection was completed by E	t is 0' - 0.5' into the as no exposed plope protection at the east abutmed ded at the NW cabutment. Slope otection at the S  d by Dan Bodels d by B. Essler & d by B. Essler & d by B. Essler & d by B. Wieman d by B. W	politing. It the NE & NW ent due to expoorner to retain by protection is re E & SW corners  From, Brian Essle D Boldelson on D	sed piling. pallast. Slo commend is in 2002. Fr & Randy in 9/23/201: in 9/25/201: in 2004-20 was company CP Raine & B. N	pe protectied on the essidewalk was Bussiere ess. 4. 3. 111. bleted by B. Bail replace Wieman 10	east side. vas constru on 9/20/20  . Wieman of #1 and # /21/2008.	on 11/02/20	110.		
	58. Deck NBI:	Railroad brid	lge has no	deck									
36A. E	Brdg Railings NBI:	roadway und	ler bridge										
36B	. Transitions NBI:	roadway und	ler bridge										
36C. Ap	ppr Guardrail NBI:	roadway und	ler bridge										

36D. Appr Guardrail

Terminal NBI: roadway under bridge

Bearing have moderate to heavy corrosion. Total traffic impact to #2, #3, #5, #6 & #12 beams. All steel girders have minor 59. Superstructure NBI:

scrapes except for #1 & #7 steel girders, which have been replaced.

60. Substructure NBI: Filled with concrete between the columns and created pier walls. Numerous spalls and cracking on abutments.

61. Channel NBI: Railroad bridge not over waterway

62. Culvert NBI: Railroad bridge

71. Waterway Adeq NBI: Railroad bridge not over waterway

72. Appr Roadway Alignment NBI: Railroad bridge

Inventory Notes: [2012] Vertical clearance measured at 14'3". The vertical clearance should be changed to 14'3".

Dan Bodelson	Nicklaus Fischer
Inspector's Signature	Reviewer's Signature

#### MINNESOTA BRIDGE INSPECTION REPORT

10/20/2016

Inspector: CO Bridge

**BRIDGE 2937 CP RAIL OVER CSAH 77(8TH AV NW)** County: Ramsey Location: 0.1 MI S OF JCT CSAH 15 Length: 70.0 ft. City: **New Brighton** Route: Ref. Pt.: Deck Width: 37.5 ft. Township: Control Section: Rdwy. Area/ Pct. Unsnd: sq. ft. / % Section: 32 Township: 030N Range: 23W Maint. Area: Paint Area/ Pct. Unsnd: sq. ft. / 80% Span Type: 4 - Steel Continuous 2 -Local Agency Bridge Nbr.: Culvert: N/A Stringer/Multi-beam or Girder List: Postings: NBI Deck: N Super: 4 Sub: 5 Chan: N Culv: N Open, Posted, Closed: A - Open MN Scour Code: A - NON WATERWAY Appraisal Ratings - Approach: Waterway: **Unofficial Structurally Deficient** Ν Required Bridge Signs - Load Posting: 0 - Not Required Traffic: 0 - Not Required Unofficial Functionally Obsolete N Horizntal: 1 - Object Markers Vertical: 1 - Rdwy. Clr. **Unofficial Sufficiency Rating** Ν Restriction **ELEM** QTY QTY QTY QTY **ELEMENT NAME** REPORT TYPE INSP. DATE QUANTITY NBR CS<sub>1</sub> CS<sub>2</sub> CS<sub>3</sub> CS<sub>4</sub> Steel Open Girder/Beam 840 LF 0 756 84 0 107 09/20/2016 Routine 840 LF 0 756 84 0 Migrated Values Notes: [2014-2016] The flange of #3 girder has been crimped above the south bound lane . [2013-2015] 10% in condition state 2 80% in condition state 3 10% in condition state 4 [2012-2015] Alignment is good. There was collision damage to #7 girder in 2008. The #7 steel girder was struck on the south side by a northbound boom truck. The #7 steel girder has been badly crimped and pushed into girder #8. Girder #7 is also leaning severely. The incident was inspected by CP Rail before the roadway under the bridge was opened. [3/18/2009] CP Rail replaced #1 & #7 mid-span steel girders. [2009-2012] 90% in condition state 3 & 10% in condition state 4. [2008] 75% in condition state 3 & 25% in condition state 4. [2006-2015] The flange of #12 girder has been badly crimped above the south bound lane. [2004-2014] Major failure of the paint system. Steel Girders need to be painted. #6 beam has been badly crimped at mid-span and pushed into beam #5 in 1983. [2009-2013] Total traffic impact to #2, #3, #5, #6 & #12 beams. All steel girders have minor scrapes except for #1 & #7 steel girders, which have been replaced. [2004-2012] Bolts are leaning toward the south @ SW corner. 515 - Steel Protective Coating 7021 SF Λ 776 0 6245 Routine 09/20/2016 Migrated Values 7021 SF n 776 n 6245 Notes: [2016] Steel girders #1 & #7 Replaced with new beams in 2010 by C P Rail, condition state 2 (42' x 9.24 SF/ft. x 2 = 776 SF) - remainder condition state 4 [2016] Migrator assumed quantity of 999 SF and estimated the condition states. 2016 Outer beams (pier walls to abutments) 1.67' web x 0.69' flange x 0.04' thick = 6.18 SF/ft. x 14' long x 24 = 2076 SF [2016] Inner beams (between pier walls) 2.15' web x 1.2' flange x 0.07' thick = 9.24 SF/ft. x 42' long x 12 = 4657 SF [2016] Diaphrams 1.7' x 1.47' = 2.5 SF x 2 sides = 5 SF each x 32 = 160 SF [2016] Diaphrams 1.47' x 1.35' = 2.0 SF x 2 sides = 4 SF each x (16 west + 16 east) = 128 SF Reinforced Concrete Column 0 8 2 10 EA 0 205 09/20/2016 Routine 10 EA 0 0 8 2 Migrated Values Notes: [2014-2016] RR filled in between the columns and created pier walls. [2009-2013] There is additional delamination to the east side of column #2. Column #6 has additional delamination under the concrete cap. [2006-2013] The north side of column#1 contains a major spall w/exposed rebar. [2011-2013] Columns #2, #4, #5, #6,#8 & #9 consists of delamination, major spalling & cracking with exposed rebar. [2009-2013] East side of column #4 & #6 have major delamination with exposed rebar & section loss. [2006-2013] 50% of columns in need of shot-crete rehabilitation. Reinforced Concrete Pier Wall 56 LF 0 56 0 0 210 Routine 09/20/2016

Notes: [2015-2016] Minor shrinkage cracks on both piers with effervesce.

[2014] Minor shrinkage cracks on both piers.

[2014] RR filled in between the culumns and created pier walls Condition state 2 due to being a repair.

Migrated Values

56 LF

0

56

0

0

#### BRIDGE 2937 CP RAIL OVER CSAH 77(8TH AV NW)

ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
15	Reinforced Concrete Abutment	Routine	09/20/2016	72 LF	0	61	11	0
		Migrated Values		72 LF	0	61	11	0
	Notes: [2015-2016] There is a 1' X 2" s [2015-2016] There is a 1.5' X1" spall & [2015-2016] West abutment has a 3' de [2014] Repaired slope on east abutmer [2009-2014] West abutment has a 3' ho [2011-2014] There is a 4' diagonal crac [2009-2014] There is a 5' horizontal crac [2004-2014] SE & NW corners of abutt [2004-2013] There is exposed piling on	5' delamination from elamination at girders at covering the expos orizontal crack at gird k at NW corner. ck from the SE corner ments contain major or ments contain major or ck	#7 & #8. ed piling. ers#7 & #8. er extending towa delamination.	ard the north.				
34	Reinforced Concrete Pier Cap	Routine	09/20/2016	56 LF	0	0	56	0
		Migrated Values	00/20/2010	56 LF	0	0	56	0
	[2009-2013] There is a 2' X 1' area of n [2004-2013] There is delamination of control 4 LF in need of rehabilitation. [2004-2013] West cap has 4 SF of delations [2009-2013] Both pier caps contain mo	oncrete cap at the bo	ttom with expose rebar east side o	ed rebar w/section of west cap @ co	olumn #1.	tween colu	mns #6 & #	t8 on the east si
1	Movable Bearing	Routine	09/20/2016	24 EA	0	24	0	0
		Migrated Values		24 EA	0	24	0	0
	Notes: [2009-2016] Abutment bearings [2002-2016] Bolts for #1 girder have be movement. Bearing devices require cle	en bent. Bearings ha		neavy corrosion	with some	e buildup of	debris tha	t may be affectir
00	Critical Deficiencies or Safety Hazards	Routine	09/20/2016	1 EA	1	0	0	0
		Migrated Values		1 EA	1	0	0	0
	Notes: NO CRITICAL FINDINGS OBS	ERVED DURING TH	E LAST INSPEC	TION.				
0	Impact Damage	Routine	09/20/2016	1 EA	0	1	0	0
-		Migrated Values		1 EA	0	1	0	0
	Notes: [2010-2016] Minor scrapes to re [2009] Steel girders #1 & #7 have been [2008] There was collision damage to # steel girder has been badly crimped an the roadway under the railroad bridge v [2009-2016] Total traffic impact to #2, # [2003-2015] Diaphragms are in place b	replaced on 3/18/20 7 girder in 2008. The d pushed into girder a vas opened 2008. 3, #5, #6, & #12 gird	09 due to traffic in #7 steel girder volume #8. Girder #7 is a ers.	mpact. was struck on th also leaning sev	e south si	de by a nor		
		Routine	09/20/2016	1 EA	1	0	0	0
3	Concrete Shear Cracking	rtoutino		1 EA	1	0	0	0
3	Concrete Shear Cracking	Migrated Values		ILA				
3	Concrete Shear Cracking  Notes: Use this element to monitor the	Migrated Values	racking on concr		ay particul	ar attentior	n to the cor	crete pier caps.
	Notes: Use this element to monitor the	Migrated Values presence of shear co	-	ete elements. P				
33	-	Migrated Values	09/20/2016		ay particul 0 0	ar attention 0 0	to the cor	ocrete pier caps.  0 0

#### BRIDGE 2937 CP RAIL OVER CSAH 77(8TH AV NW)

ELEM NBR	ELEM	IENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
892	Slopes & Slope F	Protection	Routine	09/20/2016	1 EA	0	1	0	0
			Migrated Values		1 EA	0	1	0	0
	[2015-2016] W [2014] East ab [2014] Pre-cas [2013] Addition [2008-2013] Ad [2003-2013] SI	utment has been rep t concrete wall was a nal slope protection is dditional slope protect ope is undermining a	moderate erosion.  ermined for 20'. It is 0' - 0  aired and has no expose  dded for slope protectior  needed at the east abut  tion is needed at the NW  t the east abutment. Slop  or slope protection at the	d piling.  In at the NE & NV  In ment due to exp  I corner to retain  I cornection is r	V corners losed piling. ballast. Slope precommended o	n the east	side.		dge west side o
893	Guardrail		Routine	09/20/2016	1 EA	0	1	0	0
			Migrated Values		1 EA	0	1	0	0
	Notes: [20008	-2016] Minor traffic d	amage to SE guardrail a	nd NE guardrail	. Moderate dam	age to twi	sted end at	the NW co	orner.
 394	Deck & Approach	n Drainage	Routine	09/20/2016	1 EA	1	0	0	0
		Ū	Migrated Values		1 EA	1	0	0	0
		s element to rate the d bridge over County	condition, function, and	adequacy of the	drainage syster	m.			
900	Protected Specie	S	Routine	09/20/2016	1 EA	1	0	0	0
			Migrated Values		1 EA	1	0	0	0
		is element to track the ective species found.	e presence of protected s	species living on	this structure.				
		2014 Bridge safety Culumns were filled New concrete pave 2013 Bridge safety 2012 Bridge safety 2011 Bridge safety New catwalk was in Safety railing on so Safety railing on the 2009 Bridge safety girders on 3/18/200	inspection was complete inspection was completed in with concrete and turnent under bridge was in inspection was complete inspection was complete inspection was complete installed w/safety railing in uth side has the 2nd pose north side is loose 2009 inspection was complete 9. 2008 Bridge safety institution was completed by E	ed by B. Essler & ned into pier walnstalled in 2014 and by B. Essler & and by B. Wieman and 2000 on the not loose and the \$0.2010 Bridge said by B. Wieman and by B. Wieman and the said by B. Wieman and by B. Wieman and by B. Wieman and spection was corection was corected was corect	D Boldelson or lls in 2014 D Boldelson or on 10/23/2012 on 10/12/2011 orth side. Oth post is broke afety inspection on 7/13/2009.	n 9/23/201 n 9/25/201 en 2004-20 was comp 2009 CP F aine & B. \	4. 3. 011. Dleted by B Rail replace Wieman 10	d #1 and # /21/2008.	
	58. Deck NBI:	Railroad bridge has	s no deck						
36A. E	Brdg Railings NBI:	roadway under brid	ge						
36E	B. Transitions NBI:	roadway under brid	ge						
36C. Ap	opr Guardrail NBI:	roadway under brid	ge						
36	D. Appr Guardrail Terminal NBI:	roadway under brid	ge						
59. St	uperstructure NBI:		erate to heavy corrosion. #1 & #7 steel girders, wh			, #6 & #12	deams. Al	l steel gird	ers have minor
60.	Substructure NBI:	Filled with concrete	between the columns ar	nd created pier w	valls. Numerous	spalls and	d cracking	on abutme	nts.
	61. Channel NBI:	Railroad bridge not	over waterway						
	CO. Culuant NDI.	Dellas ed baldas							
	62. Culvert NBI:	Railroad bridge							
71. Wa	terway Adeq NBI:	· ·	over waterway						

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Inventory Notes: [2012] Vertical clearance measured at 14'3". The vertical clearance should be changed to 14'3".

BRIDGE 2937	CP RAIL OVER CSAH	77(8TH AV NW)							
ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	
	Dan Bodelson				Nic	klaus Fis	cher		

Reviewer's Signature

Dan Bodelson Inspector's Signature



Photo 1 - 2937 E Pier 2012



Photo 2 - 2937 E Pier Culumns 2012



Photo 4 - 2937 W Pier 2012



Photo 5 - 2937 Girders 7-12 2012



Photo 6 - 2937 girders from north 2012



Photo 7 - 2937 NB 1-6 girders 2012



Photo 8 - 2937 NB girders from south 2012



Photo 9 - 2937 SB girders from north 2012



Photo 10 - Culumn 6 2013



Photo 11 - Culumn 9 2013



Photo 12 - Culumns 4 & 6 2013



Photo 13 - East abutment 2013



Photo 14 - East culumns 2013



Photo 15 -

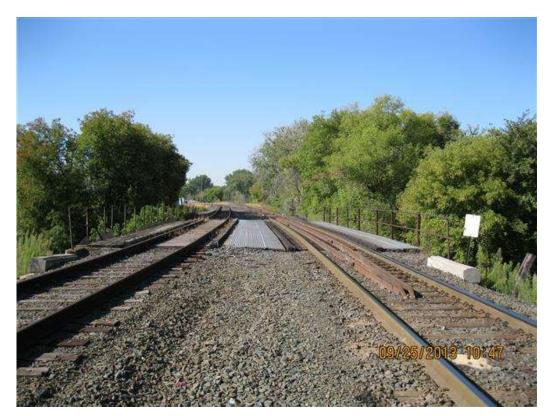


Photo 16 - Track WB 2013



Photo 17 - Road NB 2013

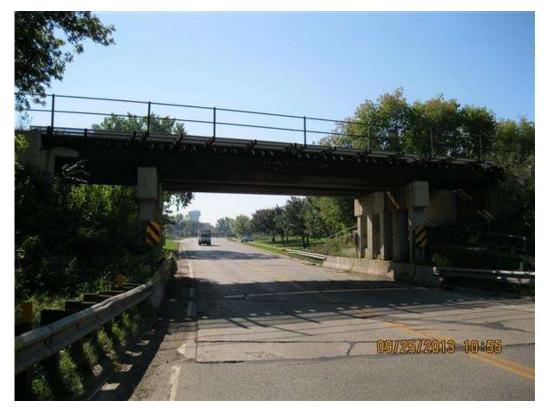


Photo 20 - Road SB2 2013



Photo 21 - East abutment 2014



Photo 22 - east pier wall 2014



Photo 23 - looking north 2014



Photo 24 - looking south 2014

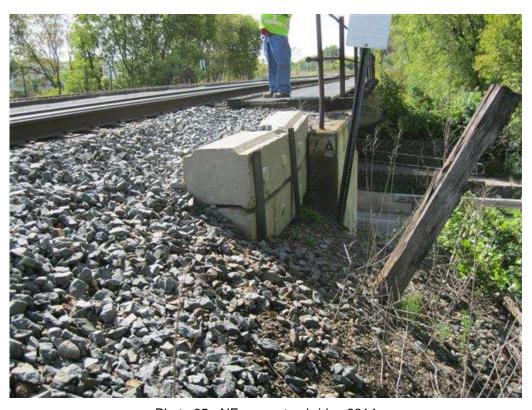


Photo 25 - NE corner top bridge 2014



Photo 26 - west pier wall 2014

#### Maintenance

#### 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.: 2937	BRIDGE OWNER: Railroad					
DATE INSPECTED: 09/20/2016	STRUCTURE TYPE: Steel Continuous					
FACILITY CARRIED: CP RAIL		ger/Multi-beam or Girder ED: CSAH 77(8TH AV NW)				
TYPE OF INSPECTION:  ROUTINE						
Redundancy:	Connection	d				
<ol> <li>Was a critical finding identified during this i structural review?</li> </ol>	nspection or upon	☐ Yes ☐ No				
a) If selected "Yes" above, state briefly the	finding(s):					
2. If a critical finding was identified, what is th	e current status?	<ul><li>□ Pending</li><li>□ Resolved</li><li>□ N/A</li></ul>				
a) Briefly state actions taken:						
3. Does the condition of any bridge component function? Examples of bridge components v include elements that are: frozen or immove misaligned, distorted or structurally deforme deteriorated, cracked, broken, eroded or scot	vith impaired function eable, out-of-plumb or d, excessively	☐ 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			□ No
	a) If selected "Yes", state the reason for this recommendation and indicate a proposed timeframe accordance with State of Minnesota Rule 8810.9500 (Subpart 2):			
5.	Based on the structural assessment of these findings, recommendations include:			
	☐ Repair/Maintenance ☐ I	Monitoring Plan		
	☐ Complex ☐ 1	ncreased Inspection Frequency	y	
	Explain recommended actions:			
6.	6. Other comments:			

**Bridge Office Reviewer**