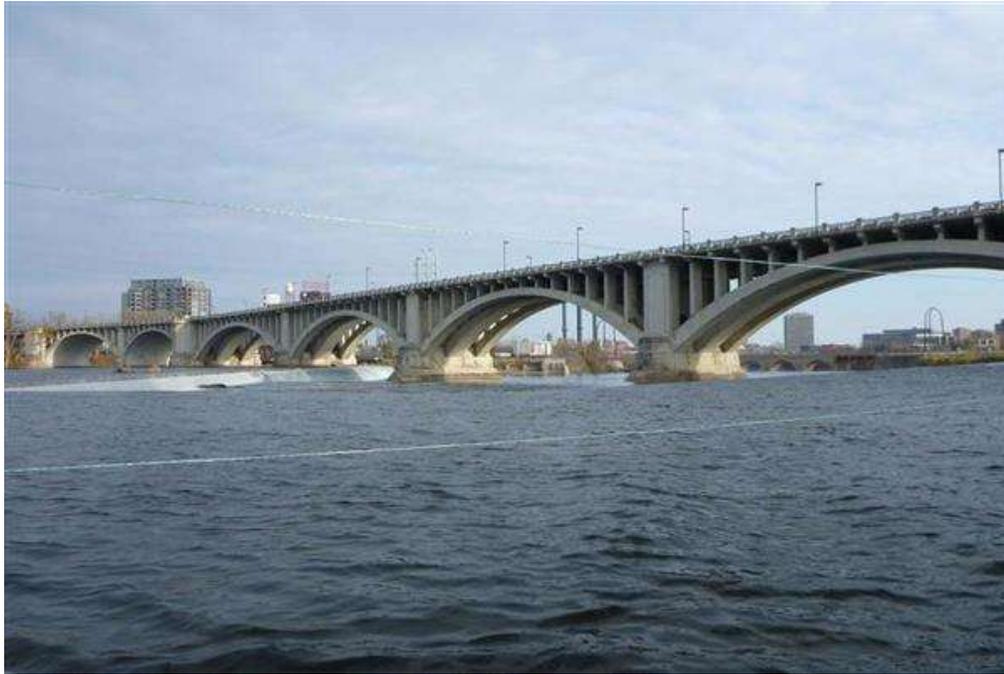


**2014 ROUTINE  
BRIDGE INSPECTION REPORT**



**BRIDGE # 2440  
TH 65 (3rd Ave S) over Mississippi R & City St**

**DISTRICT: Metro**

**COUNTY: Hennepin**

**CITY/TOWNSHIP: Minneapolis**

**Date(s) of Inspection: 10/13/2014**

**Equipment Used: A-62**

**Owner: State Highway Agency**

**Inspected By: Fuhrman, Kurt; Lundeen, John**

**Report Written By: John Lundeen**

**Report Reviewed By: Mark Pribula**

**Final Report Date: 10/29/2014**

**MnDOT Bridge Office  
3485 Hadley Avenue North  
Oakdale, MN 55128**



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# MnDOT Structure Inventory Report

Bridge ID: 2440

TH 65 (3rd Ave S)

over Mississippi R& City St

Date: 10/29/2014

GENERAL	
Agency Br. No.	6206
District	Metro
Maint. Area 5F	Crew 7627
County	027 - Hennepin
City	Minneapolis
Township	
Desc. Loc.	0.3 MI NE OF JCT TH 952A
Sect., Twp., Range	23 - 029N - 24W
Latitude	Deg 44 Min 59 Sec 0.3
Longitude	Deg 93 Min 15 Sec 31.89
Custodian	01 - State Highway Agency
Owner	01 - State Highway Agency
BMU Agreement	
Year Built	1917
MN Year Reconstructed	1980
FHWA Year Reconstructed	
MN Temporary Status	
Bridge Plan Location	1 - CENTRAL
Date Opened to Traffic	10/1/1980
On-Off System	1 - ON
Legislative District	59B

STRUCTURE	
Service On	5 - Highway-pedestrian
Service Under	8 - Highway-waterway-railroad
Main Span Type	
1 - Concrete	12 - Arch
Main Span Detail	V - OPEN SPANDREL ARCH
Appr. Span Type	
4 - Steel Continuous	01 - Beam Span
Appr. Span Detail	
Skew	0
Culvert Type	
Barrel Length	ft.
Cantilever ID	

NUMBER OF SPANS		
MAIN: 7	APPR: 4	TOTAL: 11
Main Span Length	236.7	ft.
Structure Length	1887.8	ft.
Deck Width (Out-to-Out)	81.6	ft.
Deck Material	1 - Concrete Cast-in-Place	
Wear Surf Type	4 - Low Slump Concrete	
Wear Surf Install Year	1980	
Wear Course/Fill Depth	0.17	ft.
Deck Membrane	0 - None	
Deck Rebars	1 - Epoxy Coated Reinforcing	
Deck Rebars Install Year	1980	
Structure Area (Out-to-Out)	154044	sq. ft.
Roadway Area (Curb-to-Curb)	110814	sq. ft.
Sidewalk Width	Lt 8.00	ft. Rt 8.00
Curb Height	Lt 0.25	ft. Rt 0.25
Rail Type	Lt 23	Rt 23

ROADWAY	
Bridge Match ID (TIS)	1
Roadway O/U Key Route On Structure	
Route Sys 03 - MNTH	Number 65
Roadway Name or Description	TH 65 (3rd Ave S)
Level of Service	1 - MAINLINE
Roadway Type	2 - 2-way traffic
Control Section (TH Only)	2710
Reference Point	001+00.716
Detour Length	1.0 mi
Lanes	On 4 Under 6
ADT	15500 Year 2004
HCA DT	310 ADTT 2 %
Functional Class	16 - Urban - Minor Arterial

RDWY DIMENSIONS			
If Divided	NB-EB	SB-WB	
Roadway Width	58.70	ft.	ft.
Vertical Clearance		ft.	ft.
Max. Vert. Clear.		ft.	ft.
Horizontal Clear.	58.6	ft.	ft.
Lateral Clearance		ft.	ft.
Appr. Surface Width	64.0	ft.	
Bridge Roadway Width	58.7	ft.	
Median Width On Bridge		ft.	

MISC. BRIDGE DATA	
Structure Flared	0 - No flare
Parallel Structure	N - No parallel structure
Field Conn. ID	4 - Bolted
Abutment Foundation	1 - CONC
(Material/Type)	3 - FTG PILE
Pier Foundation	1 - CONC
(Material/Type)	2 - SPRD ROCK
Historic Status	1 - On National Register

PAINT	
Year Painted	1980
Unsound Paint %	
Painted Area	sq. ft.
Primer Type	6
Finish Type	K - Unpainted 3309 Steel

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

INSPECTION	
Userkey	221
Unofficial Structurally Deficient	Y
Unofficial Functionally Obsolete	N
Unofficial Sufficiency Rating	62.6
Routine Inspection Date	10/13/2014
Routine Inspection Frequency	24
Inspector Name	Metro
Status	A - Open

NBI CONDITION RATINGS	
Deck	6 - Satisfactory Condition
Unsound Deck %	2
Superstructure	6 - Satisfactory Condition
Substructure	4 - Poor Condition
Channel	4 - Protect; Sev. undermined; S
Culvert	N - Not Applicable

NBI APPRAISAL RATINGS	
Structure Evaluation	4
Deck Geometry	5
Underclearances	9
Water Adequacy	9 - Bridge Above Flood Wat
Approach Alignment	8 - Equal to present desirabl

SAFETY FEATURES	
Bridge Railing	1 - MEETS STANDARDS
GR Transition	0 - SUBSTANDARD
Appr. Guardrail	0 - SUBSTANDARD
GR Termini	0 - SUBSTANDARD

IN DEPTH INSP.			
	Y/N	Freq	Date
Frac. Critical			
Underwater	Y	60 mo.	10/28/2012
Pinned Asbly.			
Spec. Feat.			

WATERWAY	
Drainage Area (sq. mi.)	
Waterway Opening	99999 sq. ft.
Navigation Control	0 - No nav. control on waterw
Pier Protection	
Nav. Clr. (ft.)	Vert. ft. Horiz. ft.
Nav. Vert. Lift Bridge Clear. (ft.)	
MN Scour Code	L - STBL - LOW F Year 1993

CAPACITY RATINGS	
Design Load	6 - HS 20+MOD
Operating Rating	2 - AS HS 35.0
Inventory Rating	2 - AS HS 20.0
Posting VEH:	SEMI: DBL:
Rating Date	4/1/1980
MnDOT Permit Codes	
A:	1 - No Restriction
B:	1 - No Restriction
C:	1 - No Restriction

# MnDOT Structure Inventory Report

Additional Roadways

Bridge ID: 2440

TH 65 (3rd Ave S) over Mississippi R& City St

Date: 10/29/2014

ROADWAY		
Bridge Match ID (TIS):	2	
5A. Roadway On/Under:	A - UNDERRECORD A TYPE (IF MORE	
Bridge Route System:	5 - CITY STREET	
5D. Route Number:	699	
Roadway Name or Description		
Main St SE		
5C. Level of Service:	1 - MAINLINE	
102. Direction of Traffic:	2 - 2-way traffic	
Control Section (TH Only):	27	
Reference Point:		
19. Detour Length (mi):	1.0	
Lanes:	4	
29. ADT:	2100	
30. Year:	1995	
26. Functional Class:	17	
Traffic Sequence Number:		
InterRegional Corridor (TH Only):		
ROADWAY DIMENSIONS		
	NB-EB	SB-WB
Roadway Width (ft):	50.00	
Vertical Clearance (ft):	23.9	
Max. Vert. Clear. (ft):	23.9	
Horizontal Clear. (ft):	72.9	
	Left	Right
Lateral Clearance (ft):		14.9
32. Appr. Roadway Width	53.0	
51. Brdg Roadway Width (ft):	50.0	
Median Width (ft):		
10. Vertical Clearance (ft):	23.9	
47. Horizontal Clearance	72.9	

ROADWAY		
Bridge Match ID (TIS):	3	
5A. Roadway On/Under:	B - UNDERRECORD B	
Bridge Route System:	5 - CITY STREET	
5D. Route Number:	65	
Roadway Name or Description		
West River Pkwy		
5C. Level of Service:	1 - MAINLINE	
102. Direction of Traffic:	2 - 2-way traffic	
Control Section (TH Only):	27	
Reference Point:		
19. Detour Length (mi):	1.0	
Lanes:	2	
29. ADT:	500	
30. Year:	1993	
26. Functional Class:	17	
Traffic Sequence Number:		
InterRegional Corridor (TH Only):		
ROADWAY DIMENSIONS		
	NB-EB	SB-WB
Roadway Width (ft):	14.00	14.00
Vertical Clearance (ft):	29.9	29.9
Max. Vert. Clear. (ft):	29.9	29.9
Horizontal Clear. (ft):	23.9	23.9
	Left	Right
Lateral Clearance (ft):	1.9	11.9
32. Appr. Roadway Width	38.0	
51. Brdg Roadway Width (ft):	28.0	
Median Width (ft):	10.00	
10. Vertical Clearance (ft):	29.9	
47. Horizontal Clearance	23.9	

MnDOT BRIDGE INSPECTION REPORT

10/29/2014

Inspector: Metro

BRIDGE 2440 TH 65 (3rd Ave S) OVER Mississippi R& City St

ROUTINE INSP. DATE: 10/13/2014

County: Hennepin	Location: 0.3 MI NE OF JCT TH 952A	Length: 1887.8 ft.
City: Minneapolis	Route: 03 - MNTH 65 Ref. Pt.: 001+00.716	Deck Width: 81.6 ft.
Township:	Control Section: 2710	Rdwy. Area/ Pct. Unsnd: 110814 sq. ft. / 2%
Section: 23 Township: 029N Range: 24W Maint. Area: 5F		Paint Area/ Pct. Unsnd: sq. ft. / %
Span Type: 1 - Concrete 11 - Arch - Deck	Local Agency Bridge Nbr.: 6206	Culvert: N/A
List:		Postings:

NBI Deck: 6 Super: 6 Sub: 4 Chan: 4 Culv: N  
 Open, Posted, Closed: A - Open  
 MN Scour Code: L - STBL - LOW RISK

Appraisal Ratings - Approach: 8 Waterway: 9	Unofficial Structurally Deficient	Y
Required Bridge Signs - Load Posting: 0 - Not Required	Unofficial Functionally Obsolete	N
Horizontal: 0 - Not Required	Unofficial Sufficiency Rating	62.6
Traffic: 0 - Not Required		
Vertical: 0 - Not Required		

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
106	Weathering Steel Girder or Beam	2	Routine	10/13/2014	1856 LF	1556	300	0	0	N/A
			Routine	10/16/2012	1856 LF	1556	300	0	0	N/A

Requires Monitoring  Monitored

Notes: [1980] South approach spans reconstructed (36"-56" deep welded beams, unpainted weathering steel). [1991/99] Beam ends at north end have no room for expansion (contacting parapet on arch pier 1). As a result, fixed bearings at south abutment have been damaged (anchor bolts bent southward).

109	Prestressed Concrete Girder or Beam	2	Routine	10/13/2014	1828 LF	1828	0	0	0	N/A
			Routine	10/16/2012	1828 LF	1828	0	0	0	N/A

Requires Monitoring  Monitored

Notes: Cretex 1979 [1980] North approach spans reconstructed (54" deep pre-stressed beams).

144	Reinforced Concrete Arch	2	Routine	10/13/2014	3812 LF	0	3312	500	0	N/A
			Routine	10/16/2012	3812 LF	0	3312	500	0	N/A

Requires Monitoring  Monitored

Notes: Spans 1 - 5 have 3 arch ribs, spans 6 & 7 have a solid arch barrel (all are original 1917 construction). [1980] Repair patches along arch edges. [1994/98] Arch barrels have longitudinal cracking, arch ribs have map cracking, delamination, & spalling along edges.

205	Reinforced Concrete Column	2	Routine	10/13/2014	9 EA	9	0	0	0	N/A
			Routine	10/16/2012	9 EA	9	0	0	0	N/A

Requires Monitoring  Monitored

Notes: [1980] Bents 1 & 2 on approach spans.

## 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
210	Reinforced Concrete Pier Wall	2	Routine	10/13/2014	1726 LF	0	1294	432	0	N/A
			Routine	10/16/2012	1726 LF	0	1294	432	0	N/A

 Requires Monitoring Monitored

Notes: Element includes arch piers (both the footings & upper portions) with the exception of far upper sections, all are original 1917 construction. [1984] Arch pier footings have severe spalling (up to 8" deep) below deck drains. [1996] Underwater inspection found severe scale along waterline (all piers), with "voids" at upstream ends of piers 1 & 5. [1992/97] Pier 8: upper portion of pier wall (curved east end) has a severe diagonal crack (3/4" wide) severe spalling (4" deep). The curved west end has similar cracking, but not as severe. [2003] Good condition pier footings, inspected by construction inspector Tom Waks during low water. [2010] Quantity and condition ratings adjusted as suggested in the 2008 underwater inspection report. Timber debris lodged between pier 5 and spillway. [2012] Arch pier 8 has large vertical cracks extending from the ground surface all the way to the top of the pier, and significant section loss to exposed reinforcing steel exposed in the interior pier wall. There is a significant washout at the south end of arch pier 8 as well, which has been noted in previous "in-depth" type reports on the structure. [2014] All arch piers have moderate spall with exposed rebar. Bridge arch piers under contract for repair, contractor adding collar to base of arch piers 1 & 2, about 6", (see pictures 1-5)

215	Reinforced Concrete Abutment	2	Routine	10/13/2014	168 LF	168	0	0	0	N/A
			Routine	10/16/2012	168 LF	168	0	0	0	N/A

 Requires Monitoring Monitored

Notes:

220	Reinforced Concrete Footing	2	Routine	10/13/2014	5 EA	0	3	2	0	N/A
			Routine	10/16/2012	5 EA	0	3	2	0	N/A

 Requires Monitoring Monitored

Notes: [2010] Element added and condition states assigned as suggested in the 2008 underwater inspection report.

234	Reinforced Concrete Pier Cap	2	Routine	10/13/2014	6320 LF	2860	3160	300	0	N/A
			Routine	10/16/2012	6320 LF	2860	3160	300	0	N/A

 Requires Monitoring Monitored

Notes: Element includes the spandrel caps (spans #1 - 5), & approach span pier caps. [1980] All spandrel caps & pier caps reconstructed. [1994] Some spandrel caps (mainly near center of arch spans) have severe shear cracks at column connections. [1997] Spandrel caps located below poured deck joints have rust stains, horizontal cracking & delamination, some areas of severe spall.

300	Strip Seal Deck Joint	2	Routine	10/13/2014	2982 LF	2982	0	0	N/A	N/A
			Routine	10/16/2012	2982 LF	2982	0	0	N/A	N/A

 Requires Monitoring Monitored

Notes: [2003] 43 Strip seal joints replaced at abutments, arch piers &amp; spans.

## 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	10/13/2014	496 LF	496	0	0	N/A	N/A
			Routine	10/16/2012	496 LF	496	0	0	N/A	N/A

 Requires Monitoring Monitored

Notes: [2003] Pourable joints replaced at sidewalk &amp; pier bent 2 (north approach).

310	Elastomeric (Expansion) Bearing	2	Routine	10/13/2014	48 EA	48	0	0	N/A	N/A
			Routine	10/16/2012	48 EA	48	0	0	N/A	N/A

 Requires Monitoring Monitored

Notes: Bent 1, south face arch pier 1, north face arch pier 8 &amp; bent 2.

313	Fixed Bearing	2	Routine	10/13/2014	20 EA	10	10	0	N/A	N/A
			Routine	10/16/2012	20 EA	10	10	0	N/A	N/A

 Requires Monitoring Monitored

Notes: Fixed bearings at abutments. The anchor bolts bent southward at the south abutment.

320	Concrete Approach Slab-Bituminous Wearing Surface	2	Routine	10/13/2014	2 EA	0	2	0	0	N/A
			Routine	10/16/2012	2 EA	0	2	0	0	N/A

 Requires Monitoring Monitored

Notes: Both approaches are bituminous. [1997/04] Each approach has longitudinal cracking, with 100 SF bituminous patches along abutment end block. [2014] South approach has 4 SF of spall.

333	Masonry, Other or Combination Material Railing	2	Routine	10/13/2014	4091 LF	1546	2045	500	N/A	N/A
			Routine	10/16/2012	4091 LF	1546	2045	500	N/A	N/A

 Requires Monitoring Monitored

Notes: [2003] Special surface finish on railing. [1980] Roadway rail code 23 (J-rail with line pipe). [83/2007] Rail base has moderate scale &amp; 5664 LF of vertical cracks. [1997] Metal pipe has extensive corrosion, 2 sections on SE approach radius are bent (traffic impact). [2010] 13 SF delamination, 13 SF spall roadway rail.

334	Metal Bridge Railing (Coated or Painted)	2	Routine	10/13/2014	4086 LF	2043	2043	0	0	0
			Routine	10/16/2012	4086 LF	2043	2043	0	0	0

 Requires Monitoring Monitored

Notes: Pedestrian ornamental metal rail with concrete posts, metal railings are original (refurbished in 1980). [97/2007] Metal portions have salt film, bubbled/peeled paint, surface rust. [2014] Rail is bent, appears to be from snow removal 2 LF east side above lock.

## 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
358	Concrete Deck Cracking Smart Flag	2	Routine	10/13/2014	1 EA	0	1	0	0	N/A
			Routine	10/16/2012	1 EA	0	1	0	0	N/A

 Requires Monitoring Monitored

Notes: [1983/2008] Overlay (arch spans) has extensive map cracking, with 7,500 LF of longitudinal cracks. South approach spans have some transverse cracking. [2012] Most deck cracks have been sealed, however there are isolated unsealed cracks present.

359	Underside of Concrete Deck Smart Flag	2	Routine	10/13/2014	1 EA	0	0	0	1	0
			Routine	10/16/2012	1 EA	0	0	0	1	0

 Requires Monitoring Monitored

Notes: Arch spans. [2003] Concrete repaired at old pourable joint locations. [97/2000] Underside of slab has some longitudinal leaching cracks (rust stains & delamination). Slab is deteriorating along spandrel caps (below poured joints) water saturation, delamination, spalling & exposed rebar. [2008] East coping arch spans: 2 FT wide delamination/ water saturation. South approach spans. [1991/08] Underside of deck has 400 LF transverse leaching cracks. [1999/08] 90 SF delamination along cracks. [2014] East coping has spall and exposed rebar 75% of the length.

360	Substructure Settlement & Movement Smart Flag	2	Routine	10/13/2014	1 EA	0	1	0	N/A	N/A
			Routine	10/16/2012	1 EA	0	1	0	N/A	N/A

 Requires Monitoring Monitored

Notes: [1992/98] NE retaining wall (along north abutment approach) is tipping outward 2-1/2" (lower portion of the wall is original 1917 construction) should be monitored (offset along sidewalk & railing above). The NW retaining wall is also tipped out slightly (1/2" gap offset at coping). [2012] Possible settlement at the south end of arch pier 8 due to washout.

## 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
361	Scour Smart Flag	2	Routine	10/13/2014	1 EA	0	1	0	N/A	N/A
			Routine	10/16/2012	1 EA	0	1	0	N/A	N/A

 Requires Monitoring Monitored

Notes: [1996] Underwater inspection found portions of footings exposed on arch piers 2, 5, 6, & 7.

[2004] Consultant underwater inspection found at pier #1 undermining of 18" to 24" deep by 6" high by 12 FT long along west side near the upstream nose & undermining of 18" to 24" deep by 6" to 24" high by 17.5 FT long along west side near the downstream nose. Pier #3 was only inspected at the downstream nose. High water velocity prohibited safe access to the upstream nose. Pier #5 has undermining 3 FT high by 6 FT long by 18" deep on west side near the upstream nose. Upstream nose has undermining 6" by 6" by 18" deep. Pier #6 has numerous small undermines at the upstream nose. Pier #7 has undermining 2 FT deep by 30 FT long along its side.

[2008] Consultant underwater inspection of Piers 1 - 8 found them to be generally in satisfactory to fair condition. The concrete of Piers 1 and 2 exhibited widespread deterioration and loss of section with penetrations of up to 2 feet. Similarly, the concrete of Piers 5 through 8 exhibited light to moderate scaling and deterioration with 3 inch maximum penetrations. Piers 3 and 4 generally exhibited lesser amounts of deterioration. The footings at Piers 1, 2, 5, 6, and 7 were partially exposed with vertical exposure limits varying from 1 to 4 feet. Additionally, the footing at Pier 5 was undermined (undercut) at the upstream nose of the pier, with undermining cavity measuring up to 2 feet high with 2 to 3 feet penetration. The footing step at Pier 8 was also partially exposed with up to 3.5 of maximum vertical exposure. The foundation exposure and undermining extent and limits were generally comparable to what was reported during the 2000 and 2004 inspections.

[2012] Consultant underwater inspection of found them to be generally in satisfactory to fair condition with the exception of Pier 5 which was in poor condition. The concrete of Piers 1 and 2 exhibited widespread deterioration and loss of section with penetrations of up to 2 feet. Similarly, the concrete of Piers 5 through 8 exhibited moderate scaling and deterioration with 3 inch maximum penetrations. Piers 3 and 4 generally exhibited lesser amounts of deterioration. The footings at Piers 1, 2, and 6 were partially exposed with vertical exposure limits varying from 1 to 4 feet. Additionally, the footing at Pier 5 was undermined (undercut) at the upstream end of the pier, with a cavity measuring up to 3 feet high with a maximum penetration of more than 14 feet. The footing step at Pier 8 was also partially exposed with up to 3.5 feet of maximum vertical exposure. The foundation exposure and undermining (undercut) extent and limits at Pier 5 have increased significantly compared to what was reported during the 2004 and 2008 inspections.

[2014] Continued investigation of foundation exposure and undermining (undercut) extent and limits at Pier 5, currently site investigation and repairs are underway. [2014] See Photos and attached 2008 & 2012 UW inspection reports.

377	Low Slump O/L (Concrete Deck with Epoxy Rebar)	2	Routine	10/13/2014	30937 SF	0	30937	0	0	0
			Routine	10/16/2012	30937 SF	0	30937	0	0	0

 Requires Monitoring Monitored

Notes: [2003] Type 1 & 3 deck repair, seal deck cracks. Two approach spans at each end. [1980] New deck (7" deep) with 2" low slump overlay (only top mat has epoxy rebar). [2010] Deck Cracks have been sealed.

378	Low Slump O/L (Concrete Slab with Epoxy Rebar)	2	Routine	10/13/2014	123107 SF	0	123107	0	0	0
			Routine	10/16/2012	123107 SF	0	123107	0	0	0

 Requires Monitoring Monitored

Notes: 7 arch spans. [2003] Type 1 & 3 deck repair, seal deck cracks. [1980] New slab (9" deep) with 2" low slump overlay (only top mat has epoxy rebar). [83/2000] Extensive concrete patches along poured joints (continual repairs required). [2004] 2% deck unsound. [2010] Deck cracks have been sealed.

380	Secondary Structural Elements	2	Routine	10/13/2014	1 EA	1	0	0	0	N/A
			Routine	10/16/2012	1 EA	1	0	0	0	N/A

 Requires Monitoring Monitored

Notes: Stairway at west side north end. Steel diaphragms at south 2 spans, concrete diaphragms at north 2 spans.

## 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
385	Reinforced Concrete Arch Spandrel Column	2	Routine	10/13/2014	230 EA	0	115	115	0	N/A
			Routine	10/16/2012	230 EA	0	115	115	0	N/A

 Requires Monitoring Monitored

Notes: Spans 1 - 5 have spandrel columns, spans 6 & 7 have spandrel walls. [1980] Upper portions reconstructed (lower portions original 1917 construction). Several spandrel columns have cracking & delamination. Spandrel walls have cracking at horizontal expansion joints, some areas of cracking, delamination, and spalls. [2010] Many spandrel columns/walls have cracking all the way around at the base of the column/wall. these cracks may be at construction joints. Several spandrel caps have spalling and exposed rebar near the ends of the spandrel columns/walls.

387	Reinforced Concrete Wingwall	2	Routine	10/13/2014	4 EA	2	1	1	0	N/A
			Routine	10/16/2012	4 EA	2	1	1	0	N/A

 Requires Monitoring Monitored

Notes: [1992/98] 90 SF delamination, 180 SF spall north wingwalls.

964	Critical Finding Smart Flag	2	Routine	10/13/2014	1 EA	1	0	N/A	N/A	N/A
			Routine	10/16/2012	1 EA	1	0	N/A	N/A	N/A

 Requires Monitoring Monitored

Notes:

965	Concrete Shear Cracking Smart Flag	2	Routine	10/13/2014	1 EA	0	1	0	0	N/A
			Routine	10/16/2012	1 EA	0	1	0	0	N/A

 Requires Monitoring Monitored

Notes: [94/2000] Shear cracks have developed in column stubs near center of arch spans (some have cracked through & shifted up to 1/4").

984	Deck & Approach Drainage	2	Routine	10/13/2014	1 EA	0	1	0	N/A	N/A
			Routine	10/16/2012	1 EA	0	1	0	N/A	N/A

 Requires Monitoring Monitored

Notes: Deck drains directly into river. [1984] Deck drains are eroding pier footings. [1998] Pier 8: water ponding inside hollow pier wall (west end).

985	Slopes & Slope Protection	2	Routine	10/13/2014	1 EA	0	0	1	N/A	N/A
			Routine	10/16/2012	1 EA	0	0	1	N/A	N/A

 Requires Monitoring Monitored

Notes: [1998] Pier 8: bituminous slopes along pier base corners are undermined by erosion.

## 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
986	Curb & Sidewalk	2	Routine	10/13/2014	1 EA	0	1	0	N/A	N/A
			Routine	10/16/2012	1 EA	0	1	0	N/A	N/A

 Requires Monitoring Monitored

Notes: [92/2008] Sidewalks have 1000 LF of cracks, with patching & spalling along the poured deck joints (arch spans). [2008] West side has 5 SF of spall.

988	Miscellaneous Items	2	Routine	10/13/2014	1 EA	0	0	1	N/A	N/A
			Routine	10/16/2012	1 EA	0	0	1	N/A	N/A

 Requires Monitoring Monitored

Notes: Catwalk, 36" watermain & phone conduits running below bridge. [1998] Utility supports have corrosion below poured deck joints. Deck lighting mounted on exterior railings. [1990] Light pole blown into river during high wind, severe section loss found on light pole bases (under anchor bolt covers). 3 poles were replaced, the anchor bolt covers were removed, and light pole bases repainted. [2000] Graffiti "artists" are accessing catwalk from the arched openings on pier #8 (facing SE Main St.), there is extensive graffiti throughout the arch superstructure. [2008] Severe corrosion: bubbled/peeled paint, flaking & surface rust, holes in light poles (City of Mpls contacted). [11/11/2008] Some lighting removed from top of barrier. [2014] Because of missing light poles the city has added wiring between poles on top of rail.

General Notes: Bridge #2440. Year 2014  
Bridge constructed in 1917, Extensively remodeled in 1980 (roadway grade raised 2 FT).  
[2001/10] Photos.

Note: plans show bridge running south-north.

Mississippi river channel: Bridge is located just upstream of the Upper St. Anthony Falls & Lock. There are 3 observation decks on the east sidewalk. The main navigation channel runs below arch span 1 (navigation lights mounted on arch). There are concrete protection walls along the channel side of arch piers 1 & 2, with "dolphins" upstream of pier 2 (to direct river traffic away from the upper falls). There are several spillways upstream & downstream of the bridge (severe turbulence around arch piers 3 & 4). [1997] Pier 5 has timber debris on the south face (lodged against spillway).

2005 Inspectors: M Palmer /J Bergmann

2006 Inspectors: K Fuhrman/ V Desens

2007 Inspectors: V Desens

2008 Inspectors: K Fuhrman /V Desens --- 11/11/2008 Dale Dombroske

2010 Inspectors: K Fuhrman /C Hoberg

2012 Inspectors: C Hoberg /T Elsner----- Inspection Note: This inspection was performed 16 days after its 24 month inspection frequency lapsed due to equipment and traffic control scheduling issues.

2014 Inspectors: K Fuhrman /J Lundeen

58. Deck NBI:

36A. Brdg Railings NBI:

36B. Transitions NBI:

36C. Appr Guardrail NBI:

36D. Appr Guardrail  
Terminal NBI:

59. Superstructure NBI:

60. Substructure NBI: Lowered from 5 to 4 see element 361 Scour Smart Flag for more information and attached 2012 UW Insp Rpt.

61. Channel NBI: Lowered from 6 to 4 see element 361 Scour Smart Flag for more information and attached 2012 UW Insp Rpt.

62. Culvert NBI:

71. Waterway Adeq NBI:

72. Appr Roadway  
Alignment NBI:

Structure Unit:

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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
-------------	--------------	-----	-------------	------------	----------	-------------	-------------	-------------	-------------	-------------

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Inventory Notes:

\_\_\_\_\_  
John Lundeen  
Inspector's Signature

\_\_\_\_\_  
Mark Pribula  
Reviewer's Signature

# Pictures



Photo 1 - Adding 6" cover to base arch pier 1



Photo 2 - Construction barges doing bridge repair

# Pictures



Photo 3 - Adding 6" cover to base arch pier 2. (3)

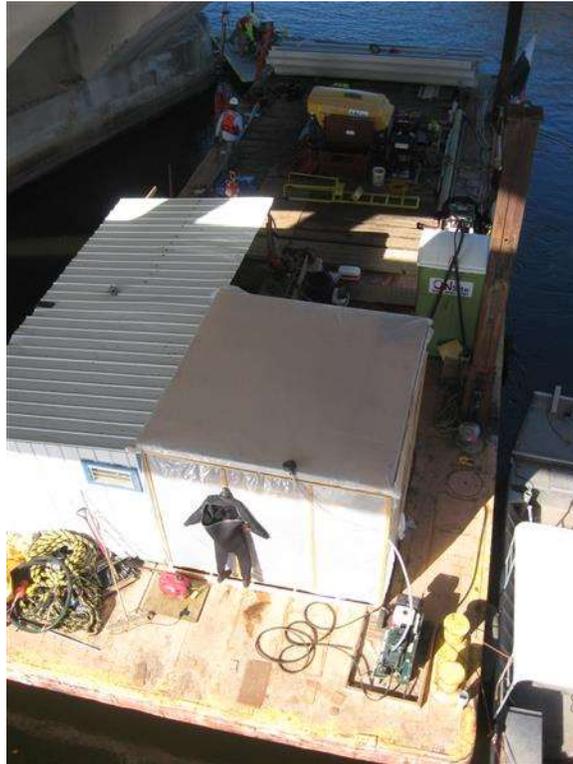


Photo 4 - Construction barge working on arch pier 5. (4)

## Pictures



Photo 5 - Core drilling base footing arch pier 5. (5)

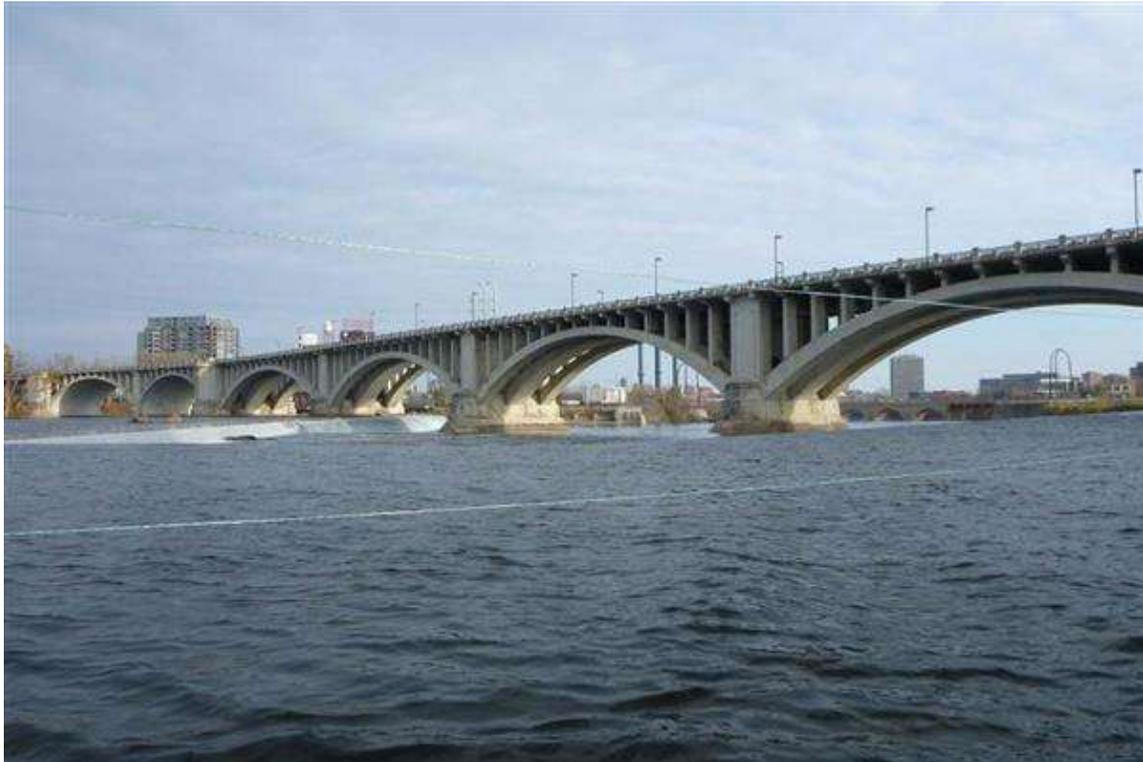


Photo 6 - Overall View of Structure, Looking Southeast.

# Pictures



Photo 7 - View of Pier 1, Looking South



Photo 8 - View of Pier 2, Looking South.

# Pictures



Photo 9 - View of Pier 3, Looking Southeast



Photo 10 - View of Pier 4, Looking West

# Pictures

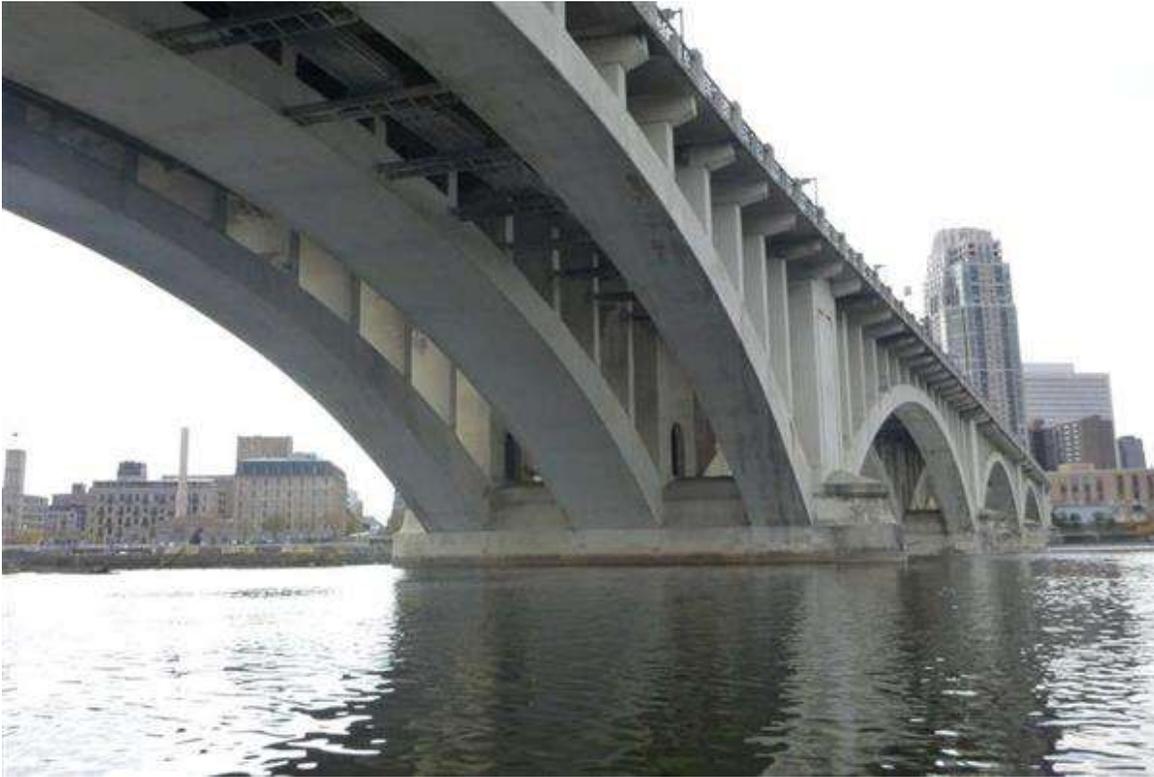


Photo 11 - View of Pier 5, Looking West

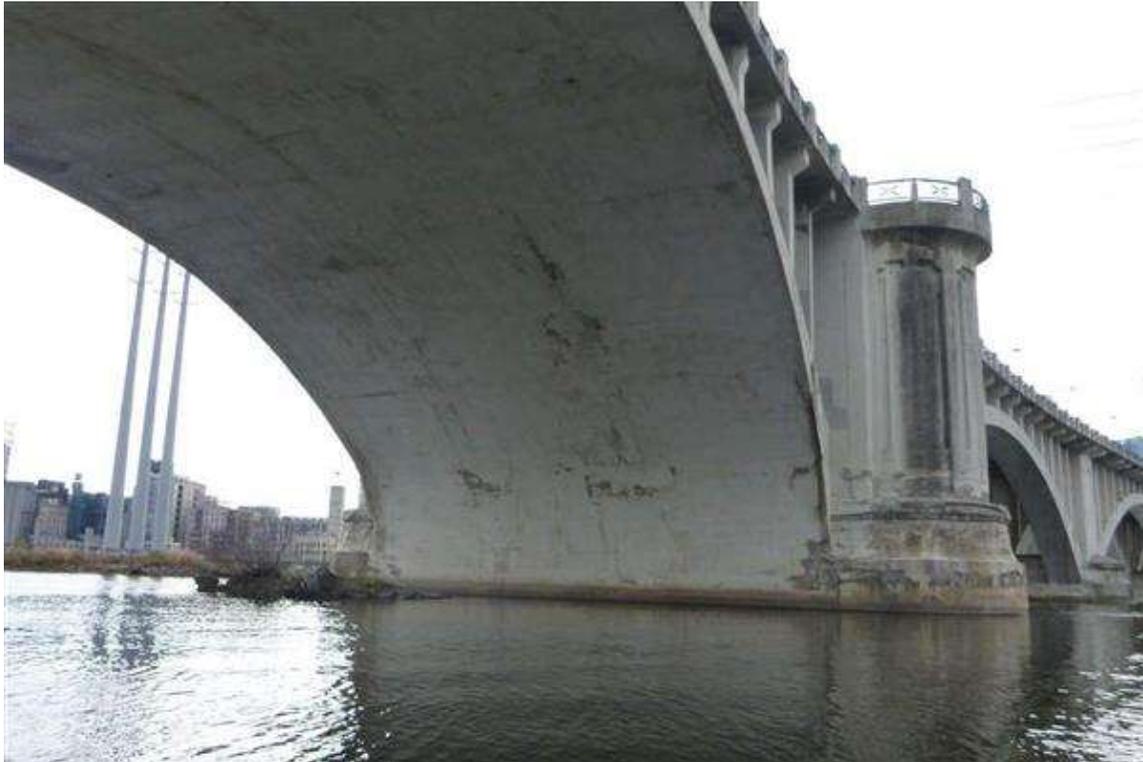


Photo 12 - View of Pier 6, Looking West

# Pictures



Photo 13 - View of Pier 7, Looking Southwest



Photo 14 - View of Pier 8, Looking Southeast

# Pictures



Photo 15 - View of Undermined (Undercutting) cavity at Pier 5, Looking South

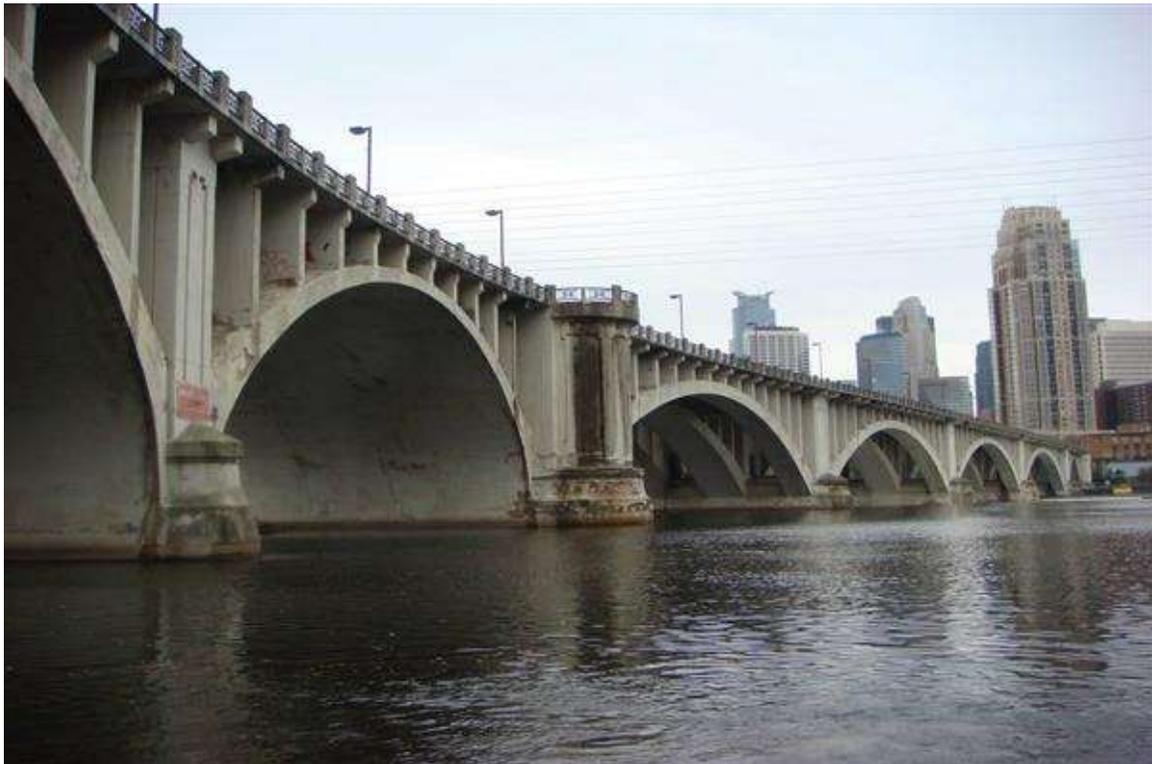


Photo 16 -



1. Br 2440 001.JPG



2. Br 2440 002.JPG



3. Br 2440 003.JPG



4. Br 2440 004.JPG



5. Br 2440 005.JPG



6. Br 2440 UW 2012 Pic 1.jpg



7. Br 2440 UW 2012 Pic 2.jpg



8. Br 2440 UW 2012 Pic 3.jpg



9. Br 2440 UW 2012 Pic 4.jpg



10. Br 2440 UW 2012 Pic 5.jpg



11. Br 2440 UW 2012 Pic 6.jpg



12. Br 2440 UW 2012 Pic 7.jpg



13. Br 2440 UW 2012 Pic 8.jpg



14. Br 2440 UW 2012 Pic 9.jpg



15. Br 2440 UW 2012 Pic 10.jpg



16. Cover Br 2440 UW 2012.jpg



## Scour POA

Bridge No.: 2440

Scour POA
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1. Is POA on File? \_\_\_\_\_
2. Date of most recent POA: \_\_\_\_\_
3. Here is a link to MnDOT's Bridge Scour website for other resources:
  - <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? \_\_\_\_\_

# Channel Section

## Upstream

Custom Label	Location	Elevation
--------------	----------	-----------

## Downstream

Custom Label	Location	Elevation
--------------	----------	-----------

Distance Measured From:

Elev. of Ref. Pt:

Depth to Water Surface:

WS Elev:

Vertical Datum:

Comments:

Distance Measured From:

Elev. of Ref. Pt:

Depth to Water Surface:

WS Elev:

Vertical Datum:

### Channel

Bridge No.: 2440

#### Channel

Item	Description	Condition	Comments
Channel Overall:	NBI Item 61	<u>4</u>	Lowered from 6 to 4 see element 361 Scour Smart Flag for more information and attached 2012 UW Insp Rpt.

#### Bank Protection/Revetment

Item	Description	Condition	Comments
Upstream Bank Protection:	_____	_____	_____
Downstream Bank Protection:	_____	_____	_____
Bridge Revetment:	_____	_____	_____
MnDOT Scour Code:	<u>L - STBL - LOW RISK</u>		

#### 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 the 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.)
	<input type="checkbox"/>	A. that the streambed is two or more feet below the bottom of pier footings which are supported on piles?
	<input type="checkbox"/>	B. scour below the bottom of spread footings?
	<input type="checkbox"/>	C. scour below the bottom of high abutment footings?
	<input type="checkbox"/>	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 MnDOT 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 \_\_\_\_\_



# 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 MnDOT 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.: 2440

BRIDGE OWNER: State Highway Agency

DATE INSPECTED: 10/13/2014

STRUCTURE TYPE: Concrete

Arch - Deck

FACILITY CARRIED: TH 65 (3rd Ave S)

FEATURES INTERSECTED: Mississippi R& City St

- TYPE OF INSPECTION:
- ROUTINE
  - FRACTURE CRITICAL
  - PINNED ASSEMBLY:
  - SPECIAL:
  - DAMAGE:
  - OTHER:

Check all that apply:

- |             |                                     |            |                                  |
|-------------|-------------------------------------|------------|----------------------------------|
| Redundancy: | <input type="checkbox"/> Load Path  | Connection | <input type="checkbox"/> Riveted |
|             | <input type="checkbox"/> Structural | Type:      | <input type="checkbox"/> Bolted  |
|             | <input type="checkbox"/> Internal   |            | <input type="checkbox"/> Welded  |
|             |                                     |            | <input type="checkbox"/> 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 immovable, 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  
 Other       Increased Inspection Frequency

Explain recommended actions:

6. Other comments:

Bridge Office Reviewer

# Maintenance

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