2015 ROUTINE
BRIDGE INSPECTION REPORT

BRIDGE # 90389
CSAH 12(CR F) over SUCKER CREEK

DISTRICT: Metro **COUNTY: Ramsey** **CITY/TOWNSHIP: Vadnais Heights**

Date(s) of Inspection: 10/05/2015
Equipment Used:

Owner: County Highway Agency

Inspected By: Bodelson, Dan

Report Written By: Dan Bodelson
Report Reviewed By: Nicklaus Fischer
Final Report Date: 01/05/2016

MnDOT Bridge Office
3485 Hadley Avenue North
Oakdale, MN 55128

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MnDOT Structure Inventory Report

Bridge ID: 90389 CSAH 12(CR F) **over** SUCKER CREEK **Date:** 01/05/2016

GENERAL

Agency Br. No.
District Metro
Maint. Area **Crew**
County 062 - Ramsey
City Vadnais Heights
Township
Desc. Loc. 0.6 MI E OF JCT CSAH 54
Sect., Twp., Range 30 - 030N - 22W
Latitude **Deg** 45 **Min** 3 **Sec** 53.25
Longitude **Deg** 93 **Min** 5 **Sec** 41.29
Custodian 02 - County Highway Agency
Owner 02 - County Highway Agency
BMU Agreement
Year Built 1930
MN Year Reconstructed
FHWA Year Reconstructed
MN Temporary Status
Bridge Plan Location 0 - NO PLAN
Date Opened to Traffic
On-Off System 0 - OFF
Legislative District 54B

STRUCTURE

Service On 1 - Highway
Service Under 5 - Waterway
Main Span Type
5 - Prestress or Precast 13 - Box Culvert
Main Span Detail
Appr. Span Type
Appr. Span Detail
Skew 0
Culvert Type W76D
Barrel Length 70 ft.
Cantilever ID

NUMBER OF SPANS

MAIN: 2 **APPR:** 0 **TOTAL:** 2
Main Span Length 7.0 ft.
Structure Length 16.8 ft.
Deck Width (Out-to-Out) 0.0 ft.
Deck Material N - Not Applicable
Wear Surf Type 6 - Bituminous
Wear Surf Install Year
Wear Course/Fill Depth 12.00 ft.
Deck Membrane 0 - None
Deck Rebars N - Not Applicable (no deck)
Deck Rebars Install Year
Structure Area (Out-to-Out) 0 sq. ft.
Roadway Area (Curb-to-Curb) sq. ft.
Sidewalk Width **Lt** 0.00 ft. **Rt** 0.00 ft.
Curb Height **Lt** 0.00 ft. **Rt** 0.00 ft.
Rail Type **Lt** NN **Rt** NN

ROADWAY

Bridge Match ID (TIS) 0
Roadway O/U Key Route On Structure
Route Sys 04 - CSAH **Number** 12
Roadway Name or Description
CSAH 12
Level of Service 1 - MAINLINE
Roadway Type 2 - 2-way traffic
Control Section (TH Only)
Reference Point 006+00.050
Detour Length 1.0 mi
Lanes **On** 2 **Under** 0
ADT 5378 **Year** 2008
HCADT 0 **ADTT** 0 **%**
Functional Class 16 - Urban - Minor Arterial

RDWY DIMENSIONS

If Divided	NB-EB	SB-WB
Roadway Width	25.00 ft.	ft.
Vertical Clearance	ft.	ft.
Max. Vert. Clear.	ft.	ft.
Horizontal Clear.	ft.	ft.
Lateral Clearance	ft.	ft.

Appr. Surface Width 30.0 ft.
Bridge Roadway Width 0.0 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 N - N/A
(Material/Type) N - N/A
Pier Foundation N - N/A
(Material/Type) N - N/A
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 N - Not Applicable

INSPECTION

Userkey 102
Unofficial Structurally Deficient N
Unofficial Functionally Obsolete N
Unofficial Sufficiency Rating 85.7
Routine Inspection Date 10/05/2015
Routine Inspection Frequency 24
Inspector Name County, Ramsey
Status A - Open

NBI CONDITION RATINGS

Deck N - Not Applicable
Unsound Deck %
Superstructure N - Not Applicable
Substructure N - Not Applicable
Channel 7 - Needs minor repairs
Culvert 5 - Mod. to major deterioration

NBI APPRAISAL RATINGS

Structure Evaluation 5
Deck Geometry N
Underclearances N
Water Adequacy 5 - Occasional Flooding - Si
Approach Alignment 8 - Equal to present desirabl

SAFETY FEATURES

Bridge Railing N - NOT REQUIRED
GR Transition N - NOT REQUIRED
Appr. Guardrail 1 - MEETS STANDARDS
GR Termini 1 - MEETS STANDARDS

IN DEPTH INSP.

	Y/N	Freq	Date
Frac. Critical			
Underwater			
Pinned Asbly.			
Spec. Feat.			

WATERWAY

Drainage Area (sq. mi.)
Waterway Opening 84 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 E - CULVERT **Year**

CAPACITY RATINGS

Design Load 0 - Other/Unknown
Operating Rating 5 - NRAP 24.0
Inventory Rating 5 - NRAP 18.0
Posting VEH: **SEMI:** **DBL:**
Rating Date 01/10/1985

MnDOT Permit Codes

A: N - N/A
B: N - N/A
C: N - N/A

MnDOT Structure Inventory Report

Additional Roadways

Bridge ID: 90389 CSAH 12(CR F) over SUCKER CREEK **Date:** 01/05/2016

MnDOT BRIDGE INSPECTION REPORT

01/05/2016

Inspector: County, Ramsey

BRIDGE 90389 CSAH 12(CR F) OVER SUCKER CREEK **ROUTINE INSP. DATE: 10/05/2015**

County: Ramsey
City: Vadnais Heights
Township:
Section: 30 Township: 030N Range: 22W
Span Type: 1 - Concrete 19 - Culvert (includes frame culverts)
List:
NBI Deck: N Super: N Sub: N Chan: 7 Culv: 5

Location: 0.6 MI E OF JCT CSAH 54
Route: 04 - CSAH 12 Ref. Pt.: 006+00.050
Control Section:
Maint. Area:
Local Agency Bridge Nbr.:
Open, Posted, Closed: A - Open
MN Scour Code: E - CULVERT

Length: 16.8 ft.
Deck Width: 0.0 ft.
Rdwy. Area/ Pct. Unsnd: sq. ft. / %
Paint Area/ Pct. Unsnd: sq. ft. / %
Culvert: W76D
Postings:

Appraisal Ratings - Approach: 8 Waterway: 5
Required Bridge Signs - Load Posting: 0 - Not Required Traffic: 0 - Not Required
Horizntal: 0 - Not Required Vertical: N - Not Applicable

Unofficial Structurally Deficient N
Unofficial Functionally Obsolete N
Unofficial Sufficiency Rating 85.7

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
241	Reinforced Concrete Culvert	2	Routine	10/05/2015	141 LF	0	141	0	0	N/A
			Routine	10/03/2013	141 LF	0	141	0	0	N/A

☐ Requires Monitoring ☐ Monitored

Notes: Dan Bodelson & Randy Bussiere walked thru culverts on 11/7/14 - SPWW drained Sucker Creek for repairs to the north.
Inside south ends of both culverts have minor spalls & cracks. [2014]
Can't walk through due to water level and not enough head room to walk through 2005-2013.
Culvert contains some cracking and leaching with slight separation of joints 2001-2011.

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	10/05/2015	1 EA	0	1	0	N/A	N/A
			Routine	10/03/2013	1 EA	0	1	0	N/A	N/A

☐ Requires Monitoring ☐ Monitored

Notes: [2013-2015] North side has block retaining wall holding up roadway & walk.
Minor scour taking place at the south side 2001-2015.
Riprap is in place 2009-2015.
The north side has metal sheeting in place along Sucker Creek edge 2007-2015. North side is OK.

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
388	Culvert Headwall, Wingwall or Other End Treatment	2	Routine	10/05/2015	2 EA	0	1	1	0	N/A
			Routine	10/03/2013	2 EA	0	1	1	0	N/A

☐ Requires Monitoring ☐ Monitored

Notes: Major delamination @ center divider, SE wing and east 1/2 of south fascia 2007-2015.
Approximately 5' of the SE wing has deteriorated and no longer in place since 1983.
North side headwall fascia has minor cracking & spalling with moderate spall @ center of headwall 2009-2015.
North side in condition 2 and south side in condition 3 2001-2015.

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
964	Critical Finding Smart Flag	2	Routine	10/05/2015	1 EA	1	0	N/A	N/A	N/A
			Routine	10/03/2013	1 EA	1	0	N/A	N/A	N/A

☐ Requires Monitoring ☐ Monitored

Notes: DO NOT DELETE THIS CRITICAL FINDING SMART FLAG.

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
981	Signing	2	Routine	10/05/2015	1 EA	1	0	0	0	0
			Routine	10/03/2013	1 EA	1	0	0	0	0

☐Requires Monitoring ☐Monitored

Notes: Horizontal clearance signs are in place 2003-2015.

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
982	Approach Guardrail	2	Routine	10/05/2015	1 EA	0	1	0	N/A	N/A
			Routine	10/03/2013	1 EA	0	1	0	N/A	N/A

☐Requires Monitoring ☐Monitored

Notes: There are minor collision damage throughout. Damage is mostly on the south side 2003-2015.
Spacer blocks on the north side need to be turned and nailed 2003-2015.
There is a broken timber board backside of guardrail on the north side just west of the bridge 2003-2013.

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 Protection	2	Routine	10/05/2015	1 EA	0	1	0	N/A	N/A
			Routine	10/03/2013	1 EA	0	1	0	N/A	N/A

☐Requires Monitoring ☐Monitored

Notes: There is major erosion of embankment above the south culvert headwall. Recommend maintenance work 2009-2015.
There is some erosion below 12" CMP at SE corner 2015.

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
987	Roadway over Culvert	2	Routine	10/05/2015	1 EA	0	1	0	N/A	N/A
			Routine	10/03/2013	1 EA	0	1	0	N/A	N/A

☐Requires Monitoring ☐Monitored

Notes: Minor settlement with moderate cracks in bituminous 2001-2015.

General Notes:
2015 Bridge safety inspection completed by Dan Bodelson on 10/05/2015
2013 Bridge safety inspection completed by Dan Bodelson on 10/02/2013
2009 Bridge safety inspection was completed by B. Wieman 8/04/2009.
Parks Department installed a 5 ton continental bridge (2000109) south of bridge # 90389
2007 Bridge safety inspection was completed by B. Wieman 8/29/2007.
2005 Bridge safety inspection was completed by Bret Wieman 9/14/2005.
Graffiti on block wall north end 2003-2007.
Barrels at full capacity 1983-2013. Unable to walk through due to water level of culverts 2005-2013.
Asphalt spillways should be lengthened 2000-2005. Erosion at south side of embankment above culvert. Needs riprap.
Sidewalk and modular block wall was installed with fence on top of wall.
Riprap & metal sheeting used for erosion prevention on the north end both sides of creek. Bank is slumping on east side. 2003-2005.
Drainage from east side north end of barrel causing some erosion north of bridge but not affecting the bridge. 2005.

58. Deck NBI: Culvert - no Deck

36A. Brdg Railings NBI: No Railing

36B. Transitions NBI: No Bridge Rail to attach

36C. Appr Guardrail NBI: Meets currant safety standards

36D. Appr Guardrail Terminal NBI: Meets currant safety standards

59. Superstructure NBI: Culvert

60. Substructure NBI: Culvert

61. Channel NBI: Channel has no notable aggregation, degradation, or lateral movement.

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

62. Culvert NBI: Culvert has moderate deterioration.

71. Waterway Adeq NBI: Culvert is full - flow is regulated by St. Paul Water.

72. Appr Roadway Alignment NBI: no speed reduction required.

Inventory Notes:

Dan Bodelson
Inspector's Signature

Nicklaus Fischer
Reviewer's Signature

Pictures

Photo 1 -

Photo 2 -

Pictures

Photo 3 -

Photo 4 -

Pictures

Photo 5 -

Photo 6 -

Pictures

Photo 7 -

Photo 8 -

Pictures

Photo 9 -

Photo 10 -

Pictures

Photo 11 -

Photo 12 -

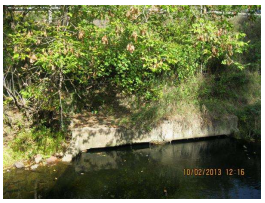
Pictures

Photo 13 -

1. Looking East.JPG

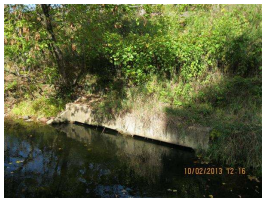
2. Looking West.JPG

3. North End.JPG



4. South End.JPG

5. South End-2.JPG



6. South End-3.JPG

7. east culvert.JPG

8. east culvert-2.JPG

9. north end.JPG

10. spall on south end east culvert.JPG

11. spall on south end west culvert.JPG

12. spall on south end.JPG

13. spall on south end-2.JPG

Culvert

Bridge No.: 90389

Culvert

Item	*Description*	*Condition*	*Comments*
Culvert Overall:	**NBI Item 62**	5	Culvert has moderate deterioration.

MnDOT Scour Code: E - CULVERT

Waterway Inspection

Item No.	Yes, No, NA or Not Visible	Description
1.		Is there a significant build-up of debris?
2.		Is there erosion of the embankment around the headwalls?
3.		Is there any indication of cracking or settlement of the culvert barrel or headwalls?
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.		Do scour measurements indicate that the streambed is below the bottom of the cutoff walls at the ends of the culvert?
6.		Is there evidence of distress in the roadway or approaches such as cracks in the pavement and sags in the guardrail or roadway? Also, is there cracking, erosion, or failure of the side slopes at or adjacent to the culvert?
7.		Is there an indication of "piping" of water along the outside of the culvert such as cavities adjacent to the barrel?
8.		Is the culvert without a bottom and scour measurements indicate that the streambed is below the plan streambed elevations?
9.		Has the riprap or other scour protection been damaged or otherwise made ineffective?
10.		If the culvert was designed to be buried (fill inside the culvert), is the material still in the barrel?

Notes:

- Streambed sounding data is to be documented.

- Soundings of the streambed should be done at each end of the culvert. If Items #5 or #8 are "Yes", then a streambed profile of the scoured area should be done.

- If "Yes" is the answer to any items on the checklist, notify the Program Administrator for further instructions.

Comments:

Completed On _____ By _____

Channel

Bridge No.: 90389

Channel

Item	*Description*	*Condition*	*Comments*
Channel Overall:	**NBI Item 61**	7	Channel has no notable aggregation, degradation, or lateral movement.

Bank Protection/Revetment

Item	*Description*	*Condition*	*Comments*
Upstream Bank Protection:			
Downstream Bank Protection:			
Bridge Revetment:			
MnDOT Scour Code:	E - CULVERT		

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 hte 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.)

- ☐ A. that the streamed is two or more feet below the bottom of pier footings which are supported on piles?
- ☐ B. scour below the bottom of spread footings?
- ☐ C. scour below the bottom of high abutment footings?
- ☐ 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 _____

Scour POA

Bridge No.: 90389

Scour POA

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:

Maintenance

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

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.: 90389

BRIDGE OWNER: County Highway Agency

DATE INSPECTED: 10/05/2015

STRUCTURE TYPE: Concrete Culvert (includes frame culverts)

FACILITY CARRIED: CSAH 12(CR F)

FEATURES INTERSECTED: SUCKER CREEK

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

Check all that apply:

Redundancy:
- ☐ Load Path
- ☐ Structural
- ☐ Internal

Connection Type:
- ☐ Riveted
- ☐ Bolted
- ☐ Welded
- ☐ 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 immoveable, 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