

COUNTY OF ANOKA

Public Services Division
 HIGHWAY DEPARTMENT
 1440 BUNKER LAKE BLVD.
 ANDOVER, MN 55304
 (763) 862-4200 FAX (763) 862-4201

Transmittal

DATE: 4/19/2013

TO: Joe Mueller
TKDA
444 Cedar Street
Suite 1500
Saint Paul, MN 55101

FROM: Greg Anderson
Anoka County Highway Department
1440 Bunker Lake Boulevard NW
Andover, MN 55304
Phone: 763-238-8966
Fax: 763-862-4201
E-mail: greg.anderson@co.anoka.mn.us

RE: Bridges: 02501, 02502, 02516, 02519, 02522, 02521, 02523, 02534, 02535, 02554

Item(s):	Description:
1	Half-size bridge plans
2	Bridge inspection reports
3	Bridge inventory reports
4	Existing load rating calculations

Purpose:	<input checked="" type="checkbox"/> As you requested	<input type="checkbox"/> For your use	<input type="checkbox"/> For your approval
	<input type="checkbox"/> Review & return	<input type="checkbox"/> Reply to sender	<input type="checkbox"/> Other (see remarks)

Remarks: Joe, attached is the information you requested for the specific bridges. I was unable to locate load rating calculations for Bridge 02523 in our files.

If you any questions please contact me.
 Thank you
 Greg

Mn/DOT Structure Inventory Report

Bridge ID: 02502

CSAH 28

over SEELYE BROOK

Date: 02/01/2012

GENERAL

Agency Br. No.
 District Metro
 Maint. Area Crew
 County 002 - Anoka
 City St Francis
 Township
 Desc. Loc. 0.1 MI W OF JCT CR 71
 Sect., Twp., Range 26 - 034N - 25W
 Latitude Deg 45 Min 24 Sec 10.61
 Longitude Deg 93 Min 25 Sec 4.04
 Custodian 02 - County Highway Agency
 Owner 02 - County Highway Agency
 BMU Agreement
 Year Built 1961
 MN Year Reconstructed
 FHWA Year Reconstructed
 MN Temporary Status
 Bridge Plan Location 3 - COUNTY
 Date Opened to Traffic
 On-Off System 1 - ON
 Legislative District 17A

STRUCTURE

Service On 1 - Highway
 Ice Under 5 - Waterway
 Main Span Type
 7 - Timber 09 - Slab Span
 Main Span Detail
 Appr. Span Type
 Appr. Span Detail
 Skew 0
 Culvert Type
 Barrel Length ft.
 Cantilever ID

NUMBER OF SPANS

MAIN: 1 APPR: 0 TOTAL: 1
 Main Span Length 24.8 ft.
 Structure Length 27.0 ft.
 Deck Width (Out-to-Out) 30.2 ft.
 Deck Material 8 - Wood or Timber
 Wear Surf Type 6 - Bituminous
 Wear Surf Install Year
 Wear Course/Fill Depth 0.33 ft.
 Deck Membrane 0 - None
 Deck Rebars N - Not Applicable (no deck)
 Deck Rebars Install Year
 Structure Area (Out-to-Out) 815 sq. ft.
 Roadway Area (Curb-to-Curb) 764 sq. ft.
 Sidewalk Width Lt 0.00 ft. Rt 0.00 ft.
 Curb Height Lt 0.75 ft. Rt 0.92 ft.
 Rail Type Lt 37 Rt 37

ROADWAY

Bridge Match ID (TIS) 0
 Roadway O/U Key Route On Structure
 Route Sys 04 - CSAH Number 28
 Roadway Name or Description
 CSAH 28
 Level of Service 1 - MAINLINE
 Roadway Type 2 - 2-way traffic
 Control Section (TH Only)
 Reference Point 002+00.160
 Detour Length 1.0 mi
 Lanes On 2 Under 0
 ADT 996 Year 2008
 HCA DT 60 ADT T 6 %
 Functional Class 06 - Rural - Minor Arterial

RDWY DIMENSIONS

If Divided	NB-EB	SB-WB
Roadway Width	28.10 ft.	ft.
Vertical Clearance	ft.	ft.
Max. Vert. Clear.	ft.	ft.
Horizontal Clear.	ft.	ft.
Lateral Clearance	ft.	ft.
Appr. Surface Width	28.0 ft.	
Bridge Roadway Width	28.1 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 2 - TIMBER
 (Material/Type) 4 - PILE BENT
 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 1 - Object Markers
 Vertical N - Not Applicable

INSPECTION

Userkey 42
 Unofficial Structurally Deficient N
 Unofficial Functionally Obsolete N
 Unofficial Sufficiency Rating 87.8
 Routine Inspection Date 12/19/2011
 Routine Inspection Frequency 24
 Inspector Name County, Anoka
 Status A - Open

NBI CONDITION RATINGS

Deck 5 - Fair Condition
 Unsound Deck %
 Superstructure 6 - Satisfactory Condition
 Substructure 6 - Satisfactory Condition
 Channel 5 - Bank eroded; Major damage
 Culvert N - Not Applicable

NBI APPRAISAL RATINGS

Structure Evaluation 6
 Deck Geometry 5
 Underclearances N
 Water Adequacy 7 - Slight Chance of Overtop
 Approach Alignment 6 - Equal to present minimum

SAFETY FEATURES

Bridge Railing 0 - SUBSTANDARD
 GR Transition 0 - SUBSTANDARD
 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 192 sq. ft.
 Navigation Control 0 - No nav. control on waterway
 Pier Protection
 Nav. Clr. (ft.) Vert. ft. Horiz. ft.
 Nav. Vert. Lift Bridge Clear. (ft.)
 MN Scour Code R - CRIT - MONI Year 1995

CAPACITY RATINGS

Design Load 4 - H 20
 Operating Rating 2 - AS HS 25.8
 Inventory Rating 2 - AS HS 18.1
 Posting VEH: SEMI: DBL:
 Rating Date 6/1/1991

Mn/DOT Permit Codes
 A: N - N/A
 B: N - N/A
 C: N - N/A

Mn/DOT BRIDGE INSPECTION REPORT

02/01/2012

Inspector: County, Anoka

BRIDGE 02502 CSAH 28 OVER SEELYE BROOK

ROUTINE INSP. DATE: 12/19/2011

County: Anoka	Location: 0.1 MI W OF JCT CR 71	Length: 27.0 ft.
City: St Francis	Route: 04 - CSAH 28 Ref. Pt.: 002+00.160	Deck Width: 30.2 ft.
Township:	Control Section:	Rdwy. Area/ Pct. Unsnd: 764 sq. ft. / %
Section: 26 Township: 034N Range: 25W Maint. Area:		Paint Area/ Pct. Unsnd: sq. ft. / %
Span Type: 7 - Wood or Timber 01 - Slab	Local Agency Bridge Nbr.:	Culvert: N/A
List:		Postings:
NBI Deck: 5 Super: 6 Sub: 6 Chan: 5 Culv: N		
	Open, Posted, Closed: A - Open	
	MN Scour Code: R - CRIT - MONITOR	
Appraisal Ratings - Approach: 6 Waterway: 7		Unofficial Structurally Deficient N
Required Bridge Signs - Load Posting: 0 - Not Required	Traffic: 0 - Not Required	Unofficial Functionally Obsolete N
Horizontal: 1 - Object Markers	Vertical: N - Not Applicable	Unofficial Sufficiency Rating 87.8

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
407	Bituminous Approach Roadway	1	Routine	12/19/2011	2 EA	0	2	0	0	N/A
			Routine	11/04/2009	2 EA	0	2	0	0	N/A
Notes: (1999) Settlement of bituminous at both abutments. (2000) N/C. (2002) N/C. (12/04) N/C. (1/09) Moderate settlement at both ends of the bridge.										
055	Timber Slab with Bituminous (AC) Overlay	2	Routine	12/19/2011	818 SF	0	0	818	0	N/A
			Routine	11/04/2009	818 SF	0	0	818	0	N/A
Notes: Block & alligator cracking in the bituminous wearing surface, potholes are impending. (1999) Block & alligator cracks in bituminous wearing surface. (2000) N/C. (2002) Block cracking of the bituminous surfacing, potholes impending. (12/04) N/C. (1/09) Water is dripping through the deck.										
206	Timber Column	2	Routine	12/19/2011	16 EA	0	16	0	0	N/A
			Routine	11/04/2009	16 EA	0	16	0	0	N/A
Notes: < none >										
216	Timber Abutment	2	Routine	12/19/2011	69 LF	0	69	0	0	N/A
			Routine	11/04/2009	69 LF	0	69	0	0	N/A
Notes: < none >										
235	Timber Pier Cap	2	Routine	12/19/2011	69 LF	0	69	0	0	N/A
			Routine	11/04/2009	69 LF	0	69	0	0	N/A
Notes: < none >										
333	Masonry, Other or Combination Material Railing	2	Routine	12/19/2011	171 LF	0	171	0	N/A	N/A
			Routine	11/04/2009	171 LF	0	171	0	N/A	N/A
Notes: (Railing Code 37)										
361	Scour Smart Flag	2	Routine	12/19/2011	1 EA	1	0	0	N/A	N/A
			Routine	11/04/2009	1 EA	1	0	0	N/A	N/A
Notes: R - Scour critical. Monitoring 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
386	Timber Wingwall	2	Routine	12/19/2011	4 EA	0	4	0	0	N/A
			Routine	11/04/2009	4 EA	0	4	0	0	N/A
Notes: < none >										
964	Critical Finding Smart Flag	2	Routine	12/19/2011	1 EA	1	0	N/A	N/A	N/A
			Routine	11/04/2009	1 EA	1	0	N/A	N/A	N/A
Notes: (11/06) No critical findings noted.										
981	Signing	2	Routine	12/19/2011	1 EA	0	1	0	0	0
			Routine	11/04/2009	1 EA	1	0	0	0	0
Notes: (11/11) Delineator sign posts are loose and slightly misaligned.										
982	Approach Guardrail	2	Routine	12/19/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/04/2009	1 EA	0	1	0	N/A	N/A
Notes: Impact damage to the SW twisted end treatment and the SE guardrail. (2000) Impact damage to the SW twisted end treatment. (2002) SW rail N/C, impact damage to the SE rail. (1/09) New end treatments have been installed at all four corners, minor impact damage to the south and north rails.										
985	Slopes & Slope Protection	2	Routine	12/19/2011	1 EA	0	0	1	N/A	N/A
			Routine	11/04/2009	1 EA	0	0	1	N/A	N/A
Notes: Moderate deterioration of the grouted riprap at the west abutment. Major deterioration of grouted riprap at the east abutment. (1999) N/C. (2000) N/C (2002) Moderate deterioration of the grouted riprap at the west abutment. (12/04) Moderate deterioration of the grouted riprap at both abutments. (11/09) Major deterioration of the grouted riprap at both abutments.										
906	Curb & Sidewalk	2	Routine	12/19/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/04/2009	1 EA	0	1	0	N/A	N/A
Notes: < none >										

General Notes: Inspected By: G. Anderson & W. Howard 12/04/2002., G. Anderson & M. Werlinger 12/15/04., G. Anderson & M. Werlinger 11/20/06., G. Anderson 1/21/09., G. Anderson & M. Werlinger 11/04/09., G. Anderson & C. Osterhus 11/21/11.

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:

61. Channel NBI: (1999) Deterioration of grouted riprap at east abutment resulting in the channel bank beginning to slump. (2000) N/C. (2002) N/C. (12/04) N/C. (1/09) Deterioration of the riprap has exposed steel h-pile from a previous structure in the channel. (11/11) Major deterioration of the grouted riprap along both abutments is exposing more of the timber backwall.

62. Culvert NBI:

71. Waterway Adeq NBI:

72. Appr Roadway
Alignment NBI:

Inventory Notes:

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
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Gregory Anderson
Inspector's Signature

Andrew Witter
Reviewer's Signature

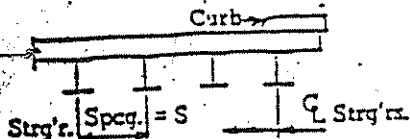
NON-COMPOSITE STRINGER RATING SHEET
(FOR STEEL OR TIMBER SIMPLE SPANS)

MHD 22106A 8-73

Rated by Robert R Tomczak

Checked by _____

Date 6-3-91



12" Longit. Panel Deck
Revised for .33' Overlay

DATA

Bridge No. 02502 Year built 1961 Total structure length 27 ft.
 County Anoka Roadway width (curb to curb) = 28 ft. No. of spans = 1
 Length of span rated = L = 26 ft. Stringers: _____ @ _____ spcg. = S = 44'
 Route CSAH 28 Feature crossed Seeyle Brook
 Abutment type Tr. Timb Pier type _____
 Floor: type Lamb. Timb thickness: 12" Curb: height _____ width _____
 Railing: type _____ height _____ width _____

DEAD LOAD

Dead load per ft. of stringer:
 **Overburden _____ = 174 lb./ft.
 Floor .33 X 3.67 X 144 = _____ lb./ft.
 Stringer 3.67 X 1 X 50 = 184 lb./ft.
 Railing or other _____ = _____ lb./ft.
 Total dead load = W _____ = 358 lb./ft.
 Dead load Moment = $1/8 (W) (L)^2$ = $1/8 X 358 X 26^2$ = 30250 ft. lb.

H RATING

Impact = _____ Sec. modulus = 1056 in³ - loss (____) = 1056 in³ = S M
 Dist. factor (from P. 29, AASHO, 1969) * = S = _____
 Resisting Moment = $\frac{S M (f_i \text{ or } f_o)}{12}$ = _____
 less Dead load Moment of _____
 = Moment available for live load and impact of _____
 Moment avail. for live load = $\frac{\text{(3)}}{(1 + \text{impact}) (\text{Dist. Factor})}$ = _____
 Per Wheel Line _____
 H 20 Mom.*** = _____
 H Rating = $\frac{\text{(4)}}{\text{(5)}} (20)$ = _____

INVENTORY		OPERATING	
f_i =	<u>1500</u> lb/in ²	f_o =	<u>1500</u> lb/in ²
	<u>132000</u> ft. lb. (1)		<u>176000</u> ft. lb. (2)
	<u>30250</u> ft. lb. (2)		<u>30250</u> ft. lb. (3)
	<u>101750</u> ft. lb. (3)		<u>145750</u> ft. lb. (4)
	<u>101750</u> ft. lb. (4)		<u>145750</u> ft. lb. (5)
	<u>104000</u> ft. lb. (5)		<u>104000</u> ft. lb. (6)
H	<u>19.6</u> (6)	H	<u>28.0</u>

POSTING CALCULATIONS

When line (5) or Oper. is as follows:	Make Posting Calculations as follows:	
less than H3	Close bridges	
H3 up to H6	Use H value from line (6) of Oper. on line (7) and post for single weight limit.	
H6 up to H12	Use H value from line (6) of Oper. on line (8) and 1.75 x H value from line (i) of Oper. on line (9).	
H12 and over	When line (4) of Oper. is less than the moment for M-3 or M-3S2 type vehicles of the rated span length, make Posting Calculations (7) and (8).	
NOTE: If any substructure unit governs Posting loads, indicate the basis of structure capacity and determine allowable loads accordingly.		POSTING LOADS (in whole tons)
VEHICLE	MOMENT*** (No Impact)	Legal (7)
M-3 =	Bridge Limit = (6) of Operating = _____ M-3 Posting load = (4) of Operating (23.25) Moment of M-3 = _____	Legal (8)
M-3S2 =	M-3S2 Posting load = (4) of Operating (36.6) Moment of M-3S2 = _____	(9)

* Standard Specifications for Highway Bridges, 1969, adopted by the American Associations of State Highway Officials

** Overburden may be wearing course or gravel fill etc. which is not a part of the Structural Floor.

*** From Minnesota Truck Moments, Plate 3 without impact.

**** When calculated loads exceed 23.5 tons and 36.6 tons respectively no posting is required.

Mn/DOT Structure Inventory Report

Bridge ID: 02501

CSAH 24

over RUM RIVER

Date: 02/01/2012

GENERAL	
County Br. No.	
District	Metro
Maint. Area	Crew
County	002 - Anoka
City	St Francis
Township	
Desc. Loc.	0.2 MI E OF JCT CSAH 28
Sect., Twp., Range	32 - 034N - 24W
Latitude	Deg 45 Min 23 Sec 12.95
Longitude	Deg 93 Min 21 Sec 26.59
Custodian	02 - County Highway Agency
Owner	02 - County Highway Agency
BMU Agreement	
Year Built	1964
MN Year Reconstructed	1985
FHWA Year Reconstructed	
MN Temporary Status	
Bridge Plan Location	3 - COUNTY
Date Opened to Traffic	
On-Off System	1 - ON
Legislative District	17A

ROADWAY	
Bridge Match ID (TIS)	0
Roadway O/U Key Route On Structure	
Route Sys	04 - CSAH Number 24
Roadway Name or Description	CSAH 24
Level of Service	1 - MAINLINE
Roadway Type	2 - 2-way traffic
Control Section (TH Only)	
Reference Point	009+00.030
Detour Length	1.0 mi
Lanes	On 2 Under 0
	ADT 11066 Year 2008
HCADT	1107 ADTT 10 %
Functional Class	06 - Rural - Minor Arterial

INSPECTION	
Userkey	42
Unofficial Structurally Deficient	N
Unofficial Functionally Obsolete	N
Unofficial Sufficiency Rating	87.6
Routine Inspection Date	11/16/2011
Routine Inspection Frequency	24
Inspector Name	County, Anoka
Status	R

NBI CONDITION RATINGS	
Deck	6 - Satisfactory Condition
Unsound Deck %	
Superstructure	5 - Fair Condition
Substructure	6 - Satisfactory Condition
Channel	6 - Bank slump; minor damage
Culvert	N - Not Applicable

RDWY DIMENSIONS		
If Divided	NB-EB	SB-WB
Roadway Width	44.00 ft.	ft.
Vertical Clearance	ft.	ft.
Max. Vert. Clear.	ft.	ft.
Horizontal Clear.	43.9 ft.	ft.
Lateral Clearance	ft.	ft.
Appr. Surface Width	44.0 ft.	
Bridge Roadway Width	44.0 ft.	
Median Width On Bridge	ft.	

NBI APPRAISAL RATINGS	
Structure Evaluation	5
Deck Geometry	6
Underclearances	N
Water Adequacy	8 - Bridge Above Approach
Approach Alignment	7 - Better than present minor

STRUCTURE	
Service On	5 - Highway-pedestrian
Use Under	5 - Waterway
Main Span Type	
	4 - Steel Continuous 01 - Beam Span
Main Span Detail	
Appr. Span Type	
Appr. Span Detail	
Skew	0
Culvert Type	
Barrel Length	ft.
Cantilever ID	

MISC. BRIDGE DATA	
Structure Flared	0 - No flare
Parallel Structure	N - No parallel structure
Field Conn. ID	2 - Riveted
Abutment Foundation	1 - CONC
(Material/Type)	3 - FTG PILE
Pier Foundation	1 - CONC
(Material/Type)	3 - FTG PILE
Historic Status	5 - Not eligible

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

IN DEPTH INSP.			
	Y/N	Freq	Date
Frac. Critical			
Underwater	Y	60 mo.	10/01/2007
Pinned Asbly.			
Spec. Feat.			

NUMBER OF SPANS		
MAIN:	4	APPR: 0 TOTAL: 4
Main Span Length	106.5	ft.
Structure Length	390.6	ft.
Deck Width (Out-to-Out)	52.8	ft.
Deck Material	1 - Concrete Cast-in-Place	
Wear Surf Type	4 - Low Slump Concrete	
Wear Surf Install Year	1979	
Wear Course/Fill Depth	0.17	ft.
Deck Membrane	0 - None	
Deck Rebars	N - Not Applicable (no deck)	
Deck Rebars Install Year		
Structure Area (Out-to-Out)	20624	sq. ft.
Way Area (Curb-to-Curb)	17190	sq. ft.
Sidewalk Width	Lt 0.00 ft. Rt 6.00	ft.
Curb Height	Lt 0.00 ft. Rt 0.83	ft.
Rail Type	Lt 17 Rt 22	

PAINT	
Year Painted	1964
Unsound Paint %	
Painted Area	sq. ft.
Primer Type	1 - Lead - non 3309
Finish Type	F - Phenolic Resin Alum

WATERWAY	
Drainage Area (sq. mi.)	
Waterway Opening	9250 sq. ft.
Navigation Control	0 - No nav. control on waterway
Pier Protection	
Nav. Clr. (ft.)	Vert. ft. Horiz. ft.
Nav. Vert. Lift Bridge Clear. (ft.)	
MN Scour Code	N - STBL - LIM Sr Year 1996

BRIDGE SIGNS	
Posted Load	0 - Not Required
Traffic	1 - Speed Limit
Horizontal	1 - Object Markers
Vertical	N - Not Applicable

CAPACITY RATINGS	
Design Load	5 - HS 20
Operating Rating	2 - AS HS 32.0
Inventory Rating	2 - AS HS 19.4
Posting VEH:	SEMI: DBL:
Rating Date	6/1/1991

Mn/DOT Permit Codes
 A: N - N/A
 B: N - N/A
 C: N - N/A

Mn/DOT BRIDGE INSPECTION REPORT

02/01/2012

Inspector: County, Anoka

BRIDGE 02501 CSAH 24 OVER RUM RIVER

ROUTINE INSP. DATE: 11/16/2011

County: Anoka Location: 0.2 MI E OF JCT CSAH 28 Length: 390.6 ft.
 City: St Francis Route: 04 - CSAH 24 Ref. Pt.: 009+00.030 Deck Width: 52.8 ft.
 Township: Control Section: Rdwy. Area/ Pct. Unsnd: 17190 sq. ft. / %
 Section: 32 Township: 034N Range: 24W Maint. Area: Paint Area/ Pct. Unsnd: sq. ft. / %
 Span Type: 4 - Steel Continuous 02 - Local Agency Bridge Nbr.: Culvert: N/A
 List: Stringer/Multi-beam or Girder Postings:
 NBI Deck: 6 Super: 5 Sub: 6 Chan: 6 Culv: N
 Open, Posted, Closed: R
 MN Scour Code: N - STBL - LIM SCOUR
 Appraisal Ratings - Approach: 7 Waterway: 8 Unofficial Structurally Deficient N
 Required Bridge Signs - Load Posting: 0 - Not Required Traffic: 1 - Speed Limit Unofficial Functionally Obsolete N
 Horizontal: 1 - Object Markers Vertical: N - Not Applicable Unofficial Sufficiency Rating 87.6

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
407	Bituminous Approach Roadway	1	Routine	11/16/2011	2 EA	2	0	0	0	N/A
			Routine	12/07/2009	2 EA	2	0	0	0	N/A
Notes: < none >										
022	Low Slump O/L (Concrete Deck with Uncoated Rebar)	2	Routine	11/16/2011	20624 SF	0	20624	0	0	0
			Routine	12/07/2009	20624 SF	0	20624	0	0	0
Notes: (3/25/94) Minor transverse cracks in deck that reflect to underside of deck. The cracks are mostly on the remodeled portion of the deck done in 1986. (2002) Areas around previous anchor bolt holes beginning to spall. (12/04) 2 - 1 sq.ft. spalls in leab.										
107	Painted Steel Girder or Beam	2	Routine	11/16/2011	2297 LF	0	2297	0	0	0
			Routine	12/07/2009	2297 LF	0	2297	0	0	0
Notes: < none >										
205	Reinforced Concrete Column	2	Routine	11/16/2011	3 EA	3	0	0	0	N/A
			Routine	12/07/2009	3 EA	3	0	0	0	N/A
Notes: Note: This element applies to the newer portion of the bridge.										
210	Reinforced Concrete Pier Wall	2	Routine	11/16/2011	66 LF	44	0	22	0	N/A
			Routine	12/07/2009	66 LF	22	0	44	0	N/A
Notes: Note: This element applies to the old portion of the bridge. (6/10/92) At centerline of pier #2, 2" band of medium scaling around pier at waterline. (12/22/95) Pier #3 scaling at waterline. (12/2001) N/C. (2002) Areas of major spalling at the waterline on pier #3 (12/09) Areas of major spalling at the waterline on pier #2 & #3, No rebar has been exposed. (11/11) +/- 16 S.F. of concrete delamination on the north end of Pier 3, up 10' from the channel bottom.										
215	Reinforced Concrete Abutment	2	Routine	11/16/2011	105 LF	97	0	8	0	N/A
			Routine	12/07/2009	105 LF	97	0	8	0	N/A
Notes: (12/04) Insignificant vertical cracks are present. (1/09) Concrete delamination and rust staining at the north end of the west abutment, results of the leaking expansion joint at this location.										

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
220	Reinforced Concrete Footing	2	Routine	11/16/2011	3 EA	2	0	0	1	N/A
			Routine	12/07/2009	3 EA	2	0	0	1	N/A
Notes: Deterioration of pier 1 footing continues. Pier #1 (west end of bridge) advanced deterioration & loss of concrete section (approx. 3"), no exposed rebar visible. Piers #2 & #3 below grade. (12/2001) Continued deterioration of pier 1 footing. (2002) Deterioration of pier 1 footing continues. (11/06) Pier 1: 7" of isolated section loss, no rebar has been exposed. Cored a 4" dia. hole in the footing 78" from the north edge and 15" from the east edge of the footing exposed a #6 longitudinal rebar down 22", this coincides with the planned rebar location, the concrete core was tested for compressive strength = 6866 PSI. (1/09) Pier 1: 8" of isolated section loss, no rebar has been exposed. (12/09) Pier 1: 12" of isolated section loss, rebar has been exposed. (11/11) No change.										
234	Reinforced Concrete Pier Cap	2	Routine	11/16/2011	157 LF	155	2	0	0	N/A
			Routine	12/07/2009	157 LF	155	2	0	0	N/A
Notes: (1/09) Pier 3; spalling at the very south end.										
300	Strip Seal Deck Joint	2	Routine	11/16/2011	105 LF	53	49	3	N/A	N/A
			Routine	12/07/2009	105 LF	53	49	3	N/A	N/A
Notes: (12/22/95) Leaking at joint of deck and walk, west abutment.										
301	Poured Deck Joint	2	Routine	11/16/2011	157 LF	0	157	0	N/A	N/A
			Routine	12/07/2009	157 LF	0	157	0	N/A	N/A
Notes: < none >										
310	Elastomeric (Expansion) Bearing	2	Routine	11/16/2011	18 EA	10	6	2	N/A	N/A
			Routine	12/07/2009	18 EA	10	7	1	N/A	N/A
Notes: (1999) E. Abut. 4th bearing S-N, shear deformation excessive, surfaces are no longer parallel. Remaining bearings on original abutments show signs of deformation. (1/2001) N/C. (1/09) E. Abut. 4th bearing S-N, shear deformation excessive, surfaces are no longer parallel, the bearing pad appears to be moving out from under the beam slightly. (11/11) E. Abut. 3rd bearing S-N, the bearing pad appears to be moving out from its original orientation.										
311	Expansion Bearing	2	Routine	11/16/2011	8 EA	8	0	0	N/A	N/A
			Routine	12/07/2009	8 EA	8	0	0	N/A	N/A
Notes: < none >										
313	Fixed Bearing	2	Routine	11/16/2011	4 EA	4	0	0	N/A	N/A
			Routine	12/07/2009	4 EA	4	0	0	N/A	N/A
Notes: < none >										
331	Reinforced Concrete Bridge Railing	2	Routine	11/16/2011	390 LF	0	390	0	0	N/A
			Routine	12/07/2009	390 LF	0	390	0	0	N/A
Notes: Note: South side railing. (Railing Code 25) (11/06) Insignificant vertical cracking throughout, cork expansion material deteriorating.										
333	Masonry, Other or Combination Material Railing	2	Routine	11/16/2011	390 LF	0	390	0	N/A	N/A
			Routine	12/07/2009	390 LF	0	390	0	N/A	N/A
Notes: Note: North side railing, combination concrete rail with metal railing on top (Railing Code 17). (11/06) Insignificant vertical cracking throughout the concrete, cork expansion material deteriorating.										
	Concrete Deck Cracking Smart Flag	2	Routine	11/16/2011	1 EA	0	1	0	0	N/A
			Routine	12/07/2009						
Notes: (11/11) The concrete wearing surface has unsealed cracks of moderate density.										

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
359	Underside of Concrete Deck Smart Flag	2	Routine	11/16/2011	1 EA	0	0	1	0	0
			Routine	12/07/2009	1 EA	0	0	0	1	0
Notes: Cracking & efflorescence/rust staining predominate on portion of deck added in 1985. Moderate map cracking evident throughout original deck area. (12/09) Rust staining evident adjacent to the construction joints on the original portion of the deck.										
387	Reinforced Concrete Wingwall	2	Routine	11/16/2011	4 EA	0	3	1	0	N/A
			Routine	12/07/2009	4 EA	0	4	0	0	0
Notes: (12/11/96) wingwalls have Minor cracks and spalls. (11/11) Concrete delamination with exposed rebar on the face of the SE wingwall.										
964	Critical Finding Smart Flag	2	Routine	11/16/2011	1 EA	1	0	N/A	N/A	N/A
			Routine	12/07/2009	1 EA	1	0	N/A	N/A	N/A
Notes: (11/06) No critical findings noted.										
981	Signing	2	Routine	11/16/2011	1 EA	1	0	0	0	0
			Routine	12/07/2009	1 EA	1	0	0	0	0
Notes: < none >										
982	Approach Guardrail	2	Routine	11/16/2011	1 EA	1	0	0	N/A	N/A
			Routine	12/07/2009	1 EA	1	0	0	N/A	N/A
Notes: (11/06) The twisted end treatment plate beam rail at the NW corner has been broken from the anchor post. (1/09) Snow covered. (12/09) The twisted end treatment has been repaired.										
985	Slopes & Slope Protection	2	Routine	11/16/2011	1 EA	0	0	1	N/A	N/A
			Routine	12/07/2009	1 EA	0	0	1	N/A	N/A
Notes: Surface runoff is undermining the grouted riprap at the west abutment. NOTE: A storm drainage outlet was constructed in SW slope 1996, without adequate restoration resulting in slope erosion and undermining of grouted riprap. (1998) N/C. (1999) Riprap has been added. (12/04) Minor deterioration of the slope protection at both abutments. (11/06) Moderate erosion of the west abutment slope. (1/09) Moderate erosion and deterioration of the slope protection at both abutments, pier 1 footing is exposed. (12/09) Major erosion at the NW corner near pier 1.										
986	Curb & Sidewalk	2	Routine	11/16/2011	1 EA	1	0	0	N/A	N/A
			Routine	12/07/2009	1 EA	1	0	0	N/A	N/A
Notes: < none >										

General Notes: General note: Bridge 02501 remodeled in 1985, widened deck 24'8", west abut. 18'6", east abut. 27'0", and added 3-9'8" pier columns.

Note: (09/19/97) Underwater inspection; Collins Engineers, Inc.

Note: (10/07) Underwater inspection; Collins Engineers, Inc.

NOTE: Structure should be scheduled for periodical in-depth inspections as under bridge elements can not be properly inspected during routine inspections.

Inspected by: G. Anderson & W. Howard 12/13/01., G. Anderson & W. Howard 12/04/2002., G. Anderson & M. Werlinger 12/15/04., G. Anderson & C. Osterhus 11/17/06., G. Anderson & C. Osterhus 1/21/09., G. Anderson & M. Werlinger 12/07/09., G. Anderson & C. Osterhus 11/16/11.

58. Deck NBI:

36A. Brdg Railings NBI:

36B. Transitions NBI:

36C. Appr Guardrail NBI:

36D. Appr Guardrail
Terminal NBI:

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
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59. Superstructure NBI:

60. Substructure NBI:

61. Channel NBI:

62. Culvert NBI:

71. Waterway Adeq NBI:

72. Appr Roadway
Alignment NBI:

Inventory Notes:

Gregory Anderson
Inspector's Signature

Andrew Witter
Reviewer's Signature

DEPARTMENT OF TRANSPORTATION

BRIDGE RATING AND LOAD POSTING REPORT

BRIDGE LOCATION AND DESCRIPTION

Bridge No. 02501 Type 401
 Highway CSAH 24 Description 4 span - 44 ft. Rdwy over Rum River
 Mile Point 009 + 00.030
 Year Built 1963 Location 0.2 Mi. E. of Jct CSAH 28
 Year Remodeled 1985

DATA USED FOR BASIS OF REPORT (check)

Bridge Inventory File
 Bridge Inspection Report (date 1986, by WAH)
 Current Bridge Rating and Load Posting Report ORG SECTION 8 1/4" Slab + W.C.
 Bridge Plans (Original, Repair and Reconstruction) NEW SECTION 9" Slab + W.C.
 Bridge Letter File
 Additional Field Information Required? Yes No
 Computer Analysis or Manual Analysis

SUMMARY OF RATING AND LOAD POSTING ANALYSIS

Bridge No. 02501

Structure: Group 1

Inventory Rating	Operating Rating	Load Posting Req'd?	LOAD POSTING LIMITS (Complete when load posting is required)		
			Vehicle Type M3 Weight = 23T	Semi-Trailer Comb. Type M3S2 Weight = 36T	Truck & Full Trailer Type M3-3 Weight = 36T
H <u>21</u>	H <u>39</u>	<u>Yes</u>			
or HS <u>19.4</u>	HS <u>32</u>	<input checked="" type="checkbox"/> No	<u> </u> Tons	<u> </u> Tons	<u> </u> Tons

Design Load (Live load category for which bridge was designed) H-20

Safe Load Capacity Appraisal Rating

CERTIFICATION

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the State of Minnesota.

Signed *Robert R. Young*

Date 6-6-91 Reg. No. 6924

RATED BY

CHECKED BY

DATE

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
BRIDGE RATING SHEET

Sheet No. 1 of 2

Rated By Robert R. Tomczal

Checked By _____

Date 4-26-91

STEEL BEAM - COMPOSITE S01 Original Beams

BRIDGE LOCATION AND DESCRIPTION	
Bridge No. <u>02501</u>	Type <u>401</u>
T.H. No. <u>CSAH 24</u>	Description <u>4 span - 44 ft. Rdwy. over Rum River</u>
Mile Point <u>009 + 00.030</u>	Location <u>0.2 Mi. E. of Jct. CSAH 28</u>
Year Built <u>1963</u>	
Year Remodeled <u>1985</u>	

SUMMARY OF RATING AND LOAD POSTING ANALYSIS	
STEEL BEAM - COMPOSITE	Bridge No. <u>02501</u>
Structure: Group I/D & No. _____	

Inventory Rating	Operating Rating	Load Posting Req'd.?	LOAD POSTING LIMITS (Complete when load posting is required)		
			Vehicle Type M3 Weight = 23T	Semi-Trailer Comb. Type M3S2 Weight = 36T	Truck & Full Trailer Type M3-3 Weight = 36T
H <u>21</u> or HS <u>19.4</u>	H <u>39</u> HS <u>32</u>	<u> </u> Yes <u>XX</u> No	<u> </u> Tons	<u> </u> Tons	<u> </u> Tons

ANALYSIS DATA					
RATING		INVENTORY		OPERATING	
		number			
Distribution Lanes	number	<u>2</u>	<u>2</u>	<u>1</u>	
Distribution Width	ft.	<u>11</u>	<u>11</u>	<u>14</u>	
Allowable Stress	lbs./sq. in.	<u>23100</u>	<u>31500</u>	<u>31500</u>	
Stress Due to Dead Load 1	lbs./sq. in.	<u>8529</u>	<u>8529</u>	<u>8529</u>	
Stress Due to Dead Load 2	lbs./sq. in.	<u>1220</u>	<u>1220</u>	<u>1220</u>	
Stress Avail. for Live Load/Lane	lbs./sq. in.	<u>13351</u>	<u>21751</u>	<u>21751</u>	
Mom. Avail. for Live Load/Lane	ft. kips	<u>1247</u>	<u>2032</u>	<u>2586</u>	

DESCRIPTION OF SECTION	
Point Rated <u>1.4</u>	Span No. <u>1</u>
Span Length <u>85', 106'-6", 106'-6", 85'</u>	Impact <u>23.8%</u>
Roadway Width <u>44'</u>	Slab Thick. <u>8'4"</u>
Beams <u>48X3/8" @ WEB</u>	W. C. Thick. <u>(2" Incl in slab)</u>
<u>9'-4"</u>	Comp. Sect. Mod. <u>951 in³</u>
<u>12 X 5/8 TOP, 16 X 3/4 Bot Fl.</u>	

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
BRIDGE RATING SHEET

Sheet No. 2 of 2
Rated By Robert R. Tomczak
Checked By _____
Date 4-26-91

STEEL BEAM - COMPOSITE & NON-COMPOSITE LOAD FACTOR

S02 - Beams Added in 1985

BRIDGE LOCATION AND DESCRIPTION	
Bridge No. <u>02501</u>	Type <u>401</u>
<u>CSAH 24</u>	Description <u>4 span - 44 Ft. Rdwy. over Rum River</u>
Mile Point <u>009 + 00:030</u>	
Year Built <u>1963</u>	Location <u>0.2 Mi. E. of Jct. CSAH 28</u>
Year Remodeled <u>1985</u>	

SUMMARY OF RATING AND LOAD POSTING					
Structure: _____					
INVENTORY RATING	OPERATING RATING	LOAD POSTING REQUIRED?	LOAD POSTING LIMITS (Complete when load posting is required)		
			Vehicle Type M3 Weight = 24T	Semi-Trailer Comb. Type M3S2 Weight = 36T	Truck & Full Trailer Type M3-3 Weight = 40T
H <u>32</u>	H <u>53</u>	Yes _____			
or HS <u>26</u>	HS <u>44</u>	No <u>XX</u>	_____ Tons	_____ Tons	_____ Tons

ANALYSIS DATA				
RATING		INVENTORY	OPERATING	RATING
Distribution Lanes	number	<u>2</u>	<u>2</u>	<u>1</u>
Distribution Width	ft.	<u>11</u>	<u>11</u>	<u>14</u>
Allowable Stress - Steel (FY)	lbs./sq. in.	<u>50000</u>	<u>50000</u>	<u>50000</u>
Critical Point Location	Number	<u>2.5</u>	<u>2.5</u>	<u>2.5</u>
Controlling Rating Factor	Name	<u>Moment</u>	<u>Moment</u>	<u>Moment</u>
Moment Available for Unfactored Live Load per Beam	ft.-kips	<u>1510</u>	<u>2516</u>	<u>2516</u>
Moment Available for Unfactored Live Load per Lane	ft.-kips	<u>1780</u>	<u>2966</u>	<u>3775</u>

DESCRIPTION OF SECTION	
Span Length <u>85, 106.5, 106.5, 85</u>	Impact <u>21.6%</u>
Roadway Width <u>44'</u>	Slab Thickness <u>9"</u> W.C. Thickness <u>(2" Incl in slab)</u>
Beams Size: <u>48 X 1/2"</u> Webs Ctrs: <u>9'-4"</u>	Sect. Mod. for Live Load <u>1069.6</u>
<u>14 X 3/4" TOP, 18 X 3/4" BOT FL</u>	

70



RECEIVED
MAR 18 1987
ANOKA COUNTY
HIGHWAY DEPT

March 18, 1987

Mr. Paul Ruud, P.E.
Anoka County Highway Engineer
Anoka County Court House
Anoka, MN 55303

RE: Bridge ratings

Dear Paul:

Enclosed are the bridge ratings requested by Bill Howard, except for Br. 02501. Bridge 02501 should be reported to Matt Lang, Mn/DOT as a continuous steel beam span designed for HS20 loading by load factor method.

Sincerely,

ERICKSON ENGINEERING COMPANY

Robert R. Tomczak, P.E.

RRT/sap

Enclosures

Mn/DOT Structure Inventory Report

Bridge ID: 02516

TWP 1197

over W BRANCH SUNRISE RIVER

Date: 02/09/2012

GENERAL

Agency Br. No.
 District Metro
 Maint. Area Crew
 County 002 - Anoka
 City
 Township 02006 - LINWOOD
 Desc. Loc. 0.2 MI W OF JCT CR 77
 Sect., Twp., Range 35 - 034N - 22W
 Latitude Deg 45 Min 23 Sec 23.25
 Longitude Deg 93 Min 2 Sec 38.2
 Custodian 03 - Town or Township Highway Agen
 Owner 03 - Town or Township Highway Agen
 BMU Agreement
 Year Built 1964
 MN Year Reconstructed
 FHWA Year Reconstructed
 MN Temporary Status
 Bridge Plan Location 3 - COUNTY
 Date Opened to Traffic
 On-Off System 0 - OFF
 Legislative District 52A

ROADWAY

Bridge Match ID (TIS) 0
 Roadway O/U Key Route On Structure
 Route Sys 08 - TWNS Number 1197
 Roadway Name or Description
 TWNS 1197
 Level of Service 1 - MAINLINE
 Roadway Type 2 - 2-way traffic
 Control Section (TH Only)
 Reference Point 000+00.230
 Detour Length 4.0 mi
 Lanes On 2 Under 0
 ADT 165 Year 1994
 HCA DT 0 ADTT 0 %
 Functional Class 08 - Rural - Minor Collector

INSPECTION

Userkey 42
 Unofficial Structurally Deficient N
 Unofficial Functionally Obsolete N
 Unofficial Sufficiency Rating 89.0
 Routine Inspection Date 12/02/2011
 Routine Inspection Frequency 24
 Inspector Name County, Anoka
 Status A - Open

RDWY DIMENSIONS

If Divided	NB-EB	SB-WB
Roadway Width	28.40 ft.	ft.
Vertical Clearance	ft.	ft.
Max. Vert. Clear.	ft.	ft.
Horizontal Clear.	ft.	ft.
Lateral Clearance	ft.	ft.
Appr. Surface Width	34.0 ft.	
Bridge Roadway Width	28.4 ft.	
Median Width On Bridge	ft.	

NBI CONDITION RATINGS

Deck 6 - Satisfactory Condition
 Unsound Deck %
 Superstructure 6 - Satisfactory Condition
 Substructure 6 - Satisfactory Condition
 Channel 3 - Protection failure
 Culvert N - Not Applicable

STRUCTURE

Service On 1 - Highway
 Service Under 5 - Waterway
 Main Span Type
 7 - Timber 09 - Slab Span
 Main Span Detail
 Appr. Span Type
 Appr. Span Detail
 Skew 0
 Culvert Type
 Barrel Length ft.
 Cantilever ID

MISC. BRIDGE DATA

Structure Flared 0 - No flare
 Parallel Structure N - No parallel structure
 Field Conn. ID
 Abutment Foundation 2 - TIMBER
 (Material/Type) 4 - PILE BENT
 Pier Foundation N - N/A
 (Material/Type) N - N/A
 Historic Status 5 - Not eligible

NBI APPRAISAL RATINGS

Structure Evaluation 6
 Deck Geometry 6
 Underclearances N
 Water Adequacy 8 - Bridge Above Approache
 Approach Alignment 5 - Somewhat better than m

SAFETY FEATURES

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

IN DEPTH INSP.

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

NUMBER OF SPANS

MAIN: 1 APPR: 0 TOTAL: 1
 Main Span Length 24.0 ft.
 Structure Length 26.0 ft.
 Deck Width (Out-to-Out) 30.4 ft.
 Deck Material 8 - Wood or Timber
 Wear Surf Type 6 - Bituminous
 Wear Surf Install Year
 Wear Course/Fill Depth 0.58 ft.
 Deck Membrane 0 - None
 Deck Rebars N - Not Applicable (no deck)
 Deck Rebars Install Year
 Structure Area (Out-to-Out) 790 sq. ft.
 Roadway Area (Curb-to-Curb) 743 sq. ft.
 Sidewalk Width Lt 0.00 ft. Rt 0.00 ft.
 Curb Height Lt 0.92 ft. Rt 0.92 ft.
 Rail Type Lt 37 Rt 37

PAINT

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

WATERWAY

Drainage Area (sq. mi.)
 Waterway Opening 120 sq. ft.
 Navigation Control 0 - No nav. control on waterway
 Pier Protection
 Nav. Clr. (ft.) Vert. ft. Horiz. ft.
 Nav. Vert. Lift Bridge Clear. (ft.)
 MN Scour Code K - LIMITED RISK Year 1995

BRIDGE SIGNS

Posted Load 0 - Not Required
 Traffic 0 - Not Required
 Horizontal 1 - Object Markers
 Vertical N - Not Applicable

CAPACITY RATINGS

Design Load 4 - H 20
 Operating Rating 2 - AS HS 25.3
 Inventory Rating 2 - AS HS 17.1
 Posting VEH: SEMI: DBL:
 Rating Date 6/1/1991

Mn/DOT Permit Codes
 A: N - N/A
 B: N - N/A
 C: N - N/A

Mn/DOT BRIDGE INSPECTION REPORT

02/09/2012

Inspector: County, Anoka

BRIDGE 02516 TWP 1197 OVER W BRANCH SUNRISE RIVER

ROUTINE INSP. DATE: 12/02/2011

County: Anoka	Location: 0.2 MI W OF JCT CR 77	Length: 26.0 ft.
City:	Route: 08 - TWNS 1197 Ref. Pt.: 000+00.230	Deck Width: 30.4 ft.
Township: 02006 - LINWOOD	Control Section:	Rdwy. Area/ Pct. Unsnd: 743 sq. ft. / %
Section: 35 Township: 034N Range: 22W Maint. Area:		Paint Area/ Pct. Unsnd: sq. ft. / %
Span Type: 7 - Wood or Timber 01 - Slab	Local Agency Bridge Nbr.:	Culvert: N/A
List:		Postings:
NBI Deck: 6 Super: 6 Sub: 6 Chan: 3 Culv: N		
	Open, Posted, Closed: A - Open	
	MN Scour Code: K - LIMITED RISK	
Appraisal Ratings - Approach: 5 Waterway: 8		Unofficial Structurally Deficient N
Required Bridge Signs - Load Posting: 0 - Not Required	Traffic: 0 - Not Required	Unofficial Functionally Obsolete N
Horizontal: 1 - Object Markers	Vertical: N - Not Applicable	Unofficial Sufficiency Rating 89.0

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
407	Bituminous Approach Roadway	1	Routine	12/02/2011	2 EA	2	0	0	0	N/A
			Routine	11/03/2009	2 EA	2	0	0	0	N/A
Notes: (3/29/94) Approach rating should have been revised when the road was improved in 1989. Near approach has localized settlement (3"x 2" area) near the road centerline (repaired in summer of 1994). (12/18/97) Settlement reoccurring. (2000) Settlement of the bituminous surfacing at both abutments. (2002) N/C. (12/04) The bituminous approaches were repaired in 2003. (1/09) Bituminous approaches were snow covered.										
984	Deck & Approach Drainage	1	Routine	12/02/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/03/2009	1 EA	0	1	0	N/A	N/A
Notes: (1/09) Clean debris from the deck drains.										
055	Timber Slab with Bituminous (AC) Overlay	2	Routine	12/02/2011	786 SF	0	786	0	0	N/A
			Routine	11/03/2009	786 SF	0	786	0	0	N/A
Notes: (12/04) The bituminous surfacing was removed and repaved in 2003. (1/09) The bituminous wearing surface was snow covered. (11/09) Minor cracks in the bituminous wearing surface.										
206	Timber Column	2	Routine	12/02/2011	16 EA	0	15	1	0	N/A
			Routine	11/03/2009	16 EA	0	15	1	0	N/A
Notes: (12/18/97) The west pile of south abutment shows signs of decay at the waterline. (12/04) The west pile of south abutment shows signs of moderate decay at the waterline.										
216	Timber Abutment	2	Routine	12/02/2011	72 LF	0	72	0	0	N/A
			Routine	11/03/2009	72 LF	0	72	0	0	N/A
Notes: < none >										
235	Timber Pier Cap	2	Routine	12/02/2011	72 LF	0	72	0	0	N/A
			Routine	11/03/2009	72 LF	0	72	0	0	N/A
Notes: < none >										
332	Timber Bridge Railing	2	Routine	12/02/2011	171 LF	0	171	0	N/A	N/A
			Routine	11/03/2009	171 LF	0	171	0	N/A	N/A
Notes: (Railing Code 37) (11/09) Minor impact damage to the plate beam on the south rail.										

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	12/02/2011	1 EA	0	0	1	N/A	N/A
			Routine	11/03/2009	1 EA	0	0	1	N/A	N/A
Notes: (1999) Sour line at or below the bottom of the abut. backing planks along the south abut. (2000) N/C. (2002) N/C. (12/04) N/C.										
386	Timber Wingwall	2	Routine	12/02/2011	4 EA	0	4	0	0	N/A
			Routine	11/03/2009	4 EA	0	4	0	0	N/A
Notes: < none >										
964	Critical Finding Smart Flag	2	Routine	12/02/2011	1 EA	1	0	N/A	N/A	N/A
			Routine	11/03/2009	1 EA	1	0	N/A	N/A	N/A
Notes: (11/06) No critical findings noted.										
981	Signing	2	Routine	12/02/2011	1 EA	1	0	0	0	0
			Routine	11/03/2009	1 EA	1	0	0	0	0
Notes: All hazard markers are inplace. S.E. hazard marker missing (10/17/94). (12/21/95) N/C. (1999) N/C. (2000) N/C. (2002) All hazard markers inplace.										
982	Approach Guardrail	2	Routine	12/02/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/03/2009	1 EA	0	1	0	N/A	N/A
Notes: (11/09) Minor impact damage to SW and NW guard rail.										
985	Slopes & Slope Protection	2	Routine	12/02/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/03/2009	1 EA	1	0	0	N/A	N/A
Notes: Erosion at S.E. wingwall has migrated into the roadway shoulder. (1999) Erosion has been repaired. (12/04) Minor erosion along the S.W. wingwall. (11/06) Erosion has been repaired. (1/09) Snow covered, no major erosion detected. (11/09) No erosion observed. (12/11) There is no slope/channel protection inplace.										
986	Curb & Sidewalk	2	Routine	12/02/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/03/2009	1 EA	0	1	0	N/A	N/A
Notes: (12/04) Minor impact damage to the N.W. corner of the west curb.										

General Notes: Channel Protection: Old bridge piling remain in the channel approximately 100' upstream. (2000) Stream bed movement at the bridge is resulting in increased scour potential along the south abutment. (12/04) N/C. (1/09) The stream bed movement continues to deposit sediment along the north abutment and increasing scour potential along the south abutment, the channel should be cleaned and slope protection added along both abutments.
 Inspected By: G. Anderson & W. Howard 12/11/02., G. Anderson & M. Werlinger 12/17/04., G. Anderson & M. Werlinger 11/29/06., 1/13/09 G. Anderson., G. Anderson & M. Werlinger 11/03/09., G. Anderson & C. Osterhus 12/2/11.

58. Deck NBI:

36A. Brg Railings NBI:

36B. Transitions NBI:

36C. Appr Guardrail NBI:

36D. Appr Guardrail
Terminal NBI:

59. Superstructure NBI:

60. Substructure NBI:

61. Channel NBI: (12/11) The entire south wingwall is expose at the upstream end with the channel dangerously close to working its way behind it.

62. Culvert NBI:

71. Waterway Adeq NBI:

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

72. Appr Roadway
Alignment NBI:

Inventory Notes:

Gregory Anderson
Inspector's Signature

Andrew Witter
Reviewer's Signature

NON-COMPOSITE STRINGER RATING SHEET

MHD 22106A 8-73

(FOR STEEL OR TIMBER SIMPLE SPANS)

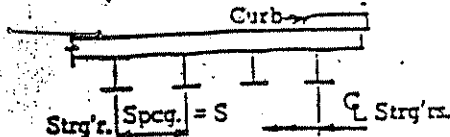
Rated by Robert R Tomczal

12" Longit Panel Deck

Checked by _____

Revised for .58' Overlay

Date 6-3-91



DATA

Bridge No. 02516 Year built 1964 Total structure length 26 ft.
 County Anoka Roadway width (curb to curb) = 28.4 ft. No. of spans = 1
 Length of span rated = L = 25.08 ft. Stringers: _____ @ _____ spce. = S = 44"
 Route CR 75 Feature crossed W Be Sunrise River
 Abutment type Tr. Timb Pier type _____
 Floor: type Panel Deck thickness 2" Curb: height _____ width _____
 Railing: type Pl Bm Guardrail height _____ width _____

DEAD LOAD

Dead load per ft. of stringer:
 **Overburden .58 X 3.67 X 144 = 306 lb./ft.
 Floor _____ = _____ lb./ft.
 Stringer 3.67 X 1 X 50 = 184 lb./ft.
 Railing or other Neglect = _____ lb./ft.
 Total dead load = W = 490 lb./ft.
 Dead load Moment = 1/8 (W) (L)² = 1/8 X 490 X 25.08² = 38526 ft. lb.

H RATING

Impact = _____ Sec. modulus = 1056 in³ - loss (_____) = 1056 in³ = S M
 Dist. factor (from P. 29, AASHO, 1969) = S = _____
 Resisting Moment = $\frac{S M (f_i \text{ or } f_o)}{12}$
 less Dead load Moment of _____
 = Moment available for live load and impact of _____
 Moment avail. for live load = $\frac{\text{(3)}}{(1 + \text{impact}) (\text{Dist. Factor})}$
 Per Wheel Line _____
 H 20 Mom.*** = _____
 H Rating = $\frac{\text{(4)}}{\text{(5)}} (20) =$ _____

	INVENTORY	OPERATING
$f_i =$	1500 lb/in ²	$f_o =$ 1500 lb/in ²
	132000 ft. lb. (1)	176000 ft. lb. (2)
	38526 ft. lb. (2)	38526 ft. lb. (3)
	93474 ft. lb. (3)	137474 ft. lb. (4)
	93474 ft. lb. (4)	137474 ft. lb. (5)
	100320 ft. lb. (5)	100320 ft. lb. (6)
	H 18.6 (6)	H 27.4 (7)

POSTING CALCULATIONS

When line (5) or Oper. is as follows:	Make Posting Calculations as follows:	
less than H3	Close bridge	
H3 up to H6	Use H value from line (6) of Oper. on line (7) and post for single weight limit.	
H6 up to H12	Use H value from line (6) of Oper. on line (8) and 1.75 x H value from line (6) of Oper. on line (9).	
H12 and over	When line (4) of Oper. is less than the moment for M-3 or M-3S2 type vehicles of the rated span length, make Posting Calculations (7) and (8).	POSTING LOADS
NOTE: If any substructure unit governs Posting loads, indicate the basis of structure capacity and determine allowable loads accordingly.		(in whole tons)
VEHICLE	MOMENT*** (No Impact)	Legal (7)
M-3 =	Bridge Limit = (6) of Operating = _____	Legal (8)
M-3S2 =	M-3 Posting load = (4) of Operating (23.25) Moment of M-3 = _____	(9)
	M-3S2 Posting load = (4) of Operating Moment of M-3S2 (26.6) = _____	

* Standard Specifications for Highway Bridges, 1969, adopted by the American Associations of State Highway Officials
 ** Overburden may be wearing course or gravel fill etc. which is not a part of the Structural Floor.
 *** From Minnesota Truck Moments, Plate 3 without impact.
 **** When calculated loads exceed 23.5 tons and 36.6 tons respectively no posting is required.

Mn/DOT Structure Inventory Report

Bridge ID: 02519

CSAH 22

over RUM RIVER

Date: 02/01/2012

GENERAL	
Agency Br. No.	
District Metro	
Maint. Area	Crew
County	002 - Anoka
City	Oak Grove
Township	
Desc. Loc.	0.2 MI E OF JCT CR 55
Sect., Twp., Range	30 - 033N - 24W
Latitude	Deg 45 Min 19 Sec 39.09
Longitude	Deg 93 Min 22 Sec 22.62
Custodian	02 - County Highway Agency
Owner	02 - County Highway Agency
BMU Agreement	
Year Built	1969
MN Year Reconstructed	
FHWA Year Reconstructed	
MN Temporary Status	
Bridge Plan Location	3 - COUNTY
Date Opened to Traffic	10/1/1969
On-Off System	1 - ON
Legislative District	48A

STRUCTURE	
Service On	1 - Highway
Service Under	5 - Waterway
Main Span Type	
	5 - Prestress or Precast 01 - Beam Span
Main Span Detail	
Appr. Span Type	
Appr. Span Detail	
Skew	37 L
Culvert Type	
Barrel Length	ft.
Cantilever ID	

NUMBER OF SPANS			
MAIN:	3	APPR:	0
TOTAL:	3		
Main Span Length	78.2	ft.	
Structure Length	238.9	ft.	
Deck Width (Out-to-Out)	34.2	ft.	
Deck Material	1 - Concrete Cast-in-Place		
Wear Surf Type	4 - Low Slump Concrete		
Wear Surf Install Year	1986		
Wear Course/Fill Depth	0.16	ft.	
Deck Membrane	0 - None		
Deck Rebars	N - Not Applicable (no deck)		
Deck Rebars Install Year			
Structure Area (Out-to-Out)	8170	sq. ft.	
roadway Area (Curb-to-Curb)	7169	sq. ft.	
Sidewalk Width	Lt 0.00	ft.	Rt 0.00
Curb Height	Lt 0.50	ft.	Rt 0.50
Rail Type	Lt 03		Rt 03

ROADWAY	
Bridge Match ID (TIS)	0
Roadway O/U Key Route On Structure	
Route Sys	04 - CSAH Number 22
Roadway Name or Description	CSAH 22
Level of Service	1 - MAINLINE
Roadway Type	2 - 2-way traffic
Control Section (TH Only)	
Reference Point	008+00.810
Detour Length	5.0 mi
Lanes	On 2 Under 0
	ADT 8149 Year 2008
HCADT	489 ADTT 6 %
Functional Class	06 - Rural - Minor Arterial

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.		ft.	ft.
Lateral Clearance		ft.	ft.
Appr. Surface Width	32.0	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)	3 - FTG PILE
Pier Foundation	1 - CONC
(Material/Type)	3 - FTG PILE
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	1 - Object Markers
Vertical	N - Not Applicable

INSPECTION	
Userkey	42
Unofficial Structurally Deficient	N
Unofficial Functionally Obsolete	N
Unofficial Sufficiency Rating	78.1
Routine Inspection Date	11/21/2011
Routine Inspection Frequency	24
Inspector Name	County, Anoka
Status	A - Open

NBI CONDITION RATINGS	
Deck	5 - Fair Condition
Unsound Deck %	
Superstructure	6 - Satisfactory Condition
Substructure	7 - Good Condition
Channel	5 - Bank eroded; Major damage
Culvert	N - Not Applicable

NBI APPRAISAL RATINGS	
Structure Evaluation	6
Deck Geometry	4
Underclearances	N
Water Adequacy	8 - Bridge Above Approache
Approach Alignment	7 - Better than present minir

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

IN DEPTH INSP.			
	Y/N	Freq	Date
Frac. Critical			
Underwater	Y	60 mo.	08/01/2007
Pinned Asbly.			
Spec. Feat.			

WATERWAY	
Drainage Area (sq. mi.)	1360.0
Waterway Opening	1834 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	0 - STBL - ACT F Year 1997

CAPACITY RATINGS	
Design Load	4 - H 20
Operating Rating	2 - AS HS 30.8
Inventory Rating	2 - AS HS 21.4
Posting VEH:	SEMI: DBL:
Rating Date	6/1/1991

Mn/DOT Permit Codes

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

Mn/DOT BRIDGE INSPECTION REPORT

02/01/2012

Inspector: County, Anoka

BRIDGE 02519 CSAH 22 OVER RUM RIVER

ROUTINE INSP. DATE: 11/21/2011

County: Anoka Location: 0.2 MI E OF JCT CR 55 Length: 238.9 ft
 City: Oak Grove Route: 04 - CSAH 22 Ref. Pt.: 008+00.810 Deck Width: 34.2 ft
 Township: Control Section: Rdwy. Area/ Pct. Unsnd: 7169 sq. ft. / %
 Section: 30 Township: 033N Range: 24W Maint. Area: Paint Area/ Pct. Unsnd: sq. ft. / %
 Span Type: 5 - Prestressed Concrete 02 - Local Agency Bridge Nbr.: Culvert: N/A
 List: Stringer/Multi-beam or Girder Postings:
 NBI Deck: 5 Super: 6 Sub: 7 Chan: 5 Culv: N
 Open, Posted, Closed: A - Open
 MN Scour Code: O - STBL - ACT REQD
 Appraisal Ratings - Approach: 7 Waterway: 8 Unofficial Structurally Deficient N
 Required Bridge Signs - Load Posting: 0 - Not Required Traffic: 0 - Not Required Unofficial Functionally Obsolete N
 Horizontal: 1 - Object Markers Vertical: N - Not Applicable Unofficial Sufficiency Rating 78.1

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
359	Underside of Concrete Deck Smart Flag	1	Routine	11/21/2011	1 EA	0	0	0	1	0
			Routine	12/07/2009	1 EA	0	0	0	1	0
Notes: (12/04) Moderate rust staining and evidence of delamination on the outside 2' of the overhang on both sides of the deck. (1/09) 8 S.F. of delamination on the south overhang in the third span, exposed corroded rebar. (12/09) Rust staining evident at centerline of span 1.										
407	Bituminous Approach Roadway	1	Routine	11/21/2011	2 EA	0	1	1	0	N/A
			Routine	12/07/2009	2 EA	1	1	0	0	N/A
Notes: (12/04) Settlement and potholing at both ends of the bridge increasing the traffic impact on the bridge. (11/06) The approaches were resurfaced in 2005, Bituminous spalling and pothole are developing adjacent to the west end of the bridge deck. (12/09) The potholes have been patched. (11/11) Moderate settlement of the east approach, major settlement of the west approach.										
022	Low Slump O/L (Concrete Deck with Uncoated Rebar)	2	Routine	11/21/2011	8170 SF	0	0	8170	0	0
			Routine	12/07/2009	8170 SF	0	8170	0	0	0
Notes: (12/04) D cracking and spalled areas adjacent to the pourable joints on the LEB half of the bridge. (11/11) Wide spread delamination of the concrete overlay adjacent to the deck joints, delamination at mid-span between piers 1 and 2 in the west bound lane.										
109	Prestressed Concrete Girder or Beam	2	Routine	11/21/2011	935 LF	935	0	0	0	N/A
			Routine	12/07/2009	935 LF	935	0	0	0	N/A
Notes: < none >										
210	Reinforced Concrete Pier Wall	2	Routine	11/21/2011	30 LF	0	30	0	0	N/A
			Routine	12/07/2009	30 LF	0	30	0	0	N/A
Notes: (1/09) Minor concrete scaling at and below the waterline										
215	Reinforced Concrete Abutment	2	Routine	11/21/2011	85 LF	83	2	0	0	N/A
			Routine	12/07/2009	85 LF	83	2	0	0	N/A
Notes: (12/09) Concrete delamination at the south corner of the west abutment.										

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
234	Reinforced Concrete Pier Cap	2	Routine	11/21/2011	75 LF	75	0	0	0	N/A
			Routine	12/07/2009	75 LF	75	0	0	0	0
Notes: < none >										
300	Strip Seal Deck Joint	2	Routine	11/21/2011	85 LF	65	0	20	N/A	N/A
			Routine	12/07/2009	85 LF	76	0	9	N/A	N/A
Notes: (12/12/95) 1" tear in strip seal over west abutment. (1/2001) N/C. (2002) 2-1' tears at the west abutment, 1' tear at the east abutment. (12/04) N/C. (1/09) 2-1' & 1-6' tears at the west abutment, 2' tear at the east abutment. (11/11) 2-2' & 1-12' tears at the west abutment, 4' tear at the east abutment.										
301	Poured Deck Joint	2	Routine	11/21/2011	85 LF	0	0	85	N/A	N/A
			Routine	12/07/2009	85 LF	0	0	85	N/A	N/A
Notes: (12/11/96) Minor "D" cracking and spalling along joints. (2002) Major adhesion failure of the joint sealant, moderate D cracking and spalling along the joints. (1/09) Major D-cracking and spalling along the joints on the LEB half of the bridge.										
311	Expansion Bearing	2	Routine	11/21/2011	20 EA	0	17	3	N/A	N/A
			Routine	12/07/2009	20 EA	12	5	3	N/A	N/A
Notes: (2002) Moderate corrosion of the bearing assemblies on the abutments caused by leaking strip seals. (11/06) The north bearing on the west abutment has major corrosion and does not appear to be functioning as designed. (1/09) 2 of the bearings on the east abutment are severely corroded due to the strip seal joint leakage. (11/11) Moderate to Extensive corrosion on all of the bearings.										
313	Fixed Bearing	2	Routine	11/21/2011	4 EA	4	0	0	N/A	N/A
			Routine	12/07/2009	4 EA	4	0	0	N/A	N/A
Notes: < none >										
331	Reinforced Concrete Bridge Railing	2	Routine	11/21/2011	479 LF	470	0	9	0	N/A
			Routine	12/07/2009	479 LF	470	0	9	0	0
Notes: (Railing Code 03) (11/06) Impact damage at the SW and NE corners, concrete spalled and rebar exposed. (12/09) Impact damage at the SW, NW and NE corners, concrete spalled and rebar exposed.										
358	Concrete Deck Cracking Smart Flag	2	Routine	11/21/2011	1 EA	0	1	0	0	N/A
			Routine	12/07/2009						
Notes: (11/11) Unsealed moderate sized cracks adjacent to the pourable deck joints.										
361	Scour Smart Flag	2	Routine	11/21/2011	1 EA	1	0	0	N/A	N/A
			Routine	12/07/2009	1 EA	1	0	0	N/A	N/A
Notes: O - Stable for scour. Additional action required.										
387	Reinforced Concrete Wingwall	2	Routine	11/21/2011	4 EA	3	1	0	0	N/A
			Routine	12/07/2009	4 EA	3	1	0	0	0
Notes: (11/07) The sealer material between the wingwall and the abutment deteriorating. (1/09) There is 1 S.F. of delamination on the top of the NW wingwall.										
964	Critical Finding Smart Flag	2	Routine	11/21/2011	1 EA	1	0	N/A	N/A	N/A
			Routine	12/07/2009	1 EA	1	0	N/A	N/A	N/A
Notes: (11/06) No critical findings noted.										

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	11/21/2011	1 EA	0	1	0	0	0
			Routine	12/07/2009	1 EA	0	1	0	0	0
Notes: Bridge delineators missing at SE & SW corners of bridge. (1/01) All bridge delineators in place. (2002) Bridge delineator missing at the NW corner of the bridge. (12/04) N/C. (11/06) The SE delineator post is bent. (11/06) The SE delineator post has been repaired, the NE delineator post is bent. (12/09) The NE delineator post has been repaired, the delineator at the NE guardrail end treatment is missing. (11/11) The NE delineator post is misaligned.										
982	Approach Guardrail	2	Routine	11/21/2011	1 EA	0	1	0	N/A	N/A
			Routine	12/07/2009	1 EA	0	1	0	N/A	N/A
Notes: (6/10/92) Approach guard rail missing 2 or 4 connection bolts at all four end posts. (12/12/95) Repaired. (1/01) New guardrail end treatments installed under contract SP 02-030-03. (1/09) Impact damage to the NE end treatment. (11/09) Impact damage to the NE end treatment and the NW guardrail.										
984	Deck & Approach Drainage	2	Routine	11/21/2011	1 EA	1	0	0	N/A	N/A
			Routine	12/07/2009	1 EA	1	0	0	N/A	N/A
Notes: (10/10/95) Catch basins at east end of bridge are clogged. (12/09) Catch basin grates are open.										
985	Slopes & Slope Protection	2	Routine	11/21/2011	1 EA	0	1	0	N/A	N/A
			Routine	12/07/2009	1 EA	0	1	0	N/A	N/A
Notes: (12/12/90) East abutment fabric slope protection does not have adequate toe in. Undermining & slumping of concrete fabric slope protection at east abutment. (1/01) N/C. (2002) Undermining & slumping of the concrete fabric slope protection at both abutments. Erosion along the SW & NW wingwalls. (12/04) N/C. (11/11) A 2" gap between the abutment and the top of the concrete fabric slope protection continuing to allow runoff from the roadway to undermine the slope protection.										
986	Curb & Sidewalk	2	Routine	11/21/2011	1 EA	1	0	0	N/A	N/A
			Routine	12/07/2009	1 EA	1	0	0	N/A	N/A
Notes: (1/09) Snow covered.										

General Notes: NOTE: Structure should be scheduled for periodical in-depth inspection as under bridge elements can not be properly inspected during routine inspections.

NOTE: (09/12/97) Underwater inspection only; Collins Engineers, Inc.

(8/07) Underwater inspection by Collins Engineers, Inc.

NOTE: Structure should be scheduled for periodical in-depth inspections as under bridge elements can not be properly inspected during routine inspections.

Channel Protection: The channel appears to be slightly migrating towards the east abutment. (12/09) Increased scouring along the toe of the east abutment slope protection indicates that the channel is attempting to migrate to the east. (11/11) Several logs have jammed against the upstream side of the west pier.

Inspected by: G. Anderson & W. Howard (12/10/02), G. Anderson & M. Werlinger 12/15/04., G. Anderson & C. Osterhus 11/17/06., G. Anderson & C. Osterhus 1/23/09., G. Anderson & M. Werlinger 12/07/09., G. Anderson & C. Osterhus 11/21/11.

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:

61. Channel NBI:

62. Culvert NBI:

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
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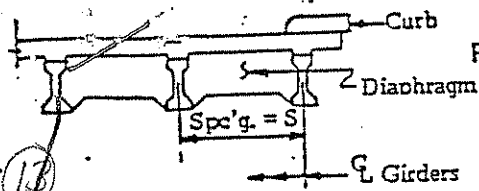
71. Waterway Adeq NBI:

72. Appr Roadway
Alignment NBI:

Inventory Notes:

Gregory Anderson
Inspector's Signature

Andrew Witter
Reviewer's Signature



PRESTRESSED CONCRETE RATING SHEET

MHD 22106F 8-73

Rated by Robert R Tomcza

Checked by _____

Date 6-3-91

Revised for 2" conc W.C.

17

DATA

Bridge No. 02519 Year built 1969 Total structure length 2389 ft.
 County Anoka Roadway width (curb to curb) = 30 ft. No. of spans = 3
 Length of span rated = L = 76.75 ft.
 Route CSAH 22 Feature crossed Rum River
 Abutment type Conc Parapet Pier type Solid Shaft Conc
 Floor: type Conc thickness 6 3/4 Curb: height _____ width _____
 Railing: type 1 Lino Conc height _____ width _____

DEAD LOAD

Dead load per ft. of girder
 **Overburden 2/12 X 8.83 X 150 = 221 lb./ft.
 Floor _____ = 745 lb./ft.
 Girder _____ = 583 lb./ft.
 Railing, Diaphragms, etc. _____ = 266 lb./ft.
 Total dead load = W _____ = 1815 lb./ft.
 Dead load Moment = $1/8 (W) (L)^2 = 1/8 X 1815 X 76.75^2$ = 1336 ft. lb. KIP

GIRDER DATA

Girders: 45" I @ 8'-10" spcg. impact = .248
 Distribution factor (from P. 29, AASHO, 1969)* = $\frac{S}{L} = \frac{8.83}{76.75} = \underline{1.606}$
 Prestress steel: $F_s^1 = \underline{270}$ Kips/in² Number of strands = 34
 Size and area of strands = .1531 in² Total strand area = $A_s = \underline{4.84}$ in²
 Distance from centroid of prestress steel to extreme compressive fiber of concrete = d = 47.6 in.
 The ratio of distance between centroid of compression and centroid of tension to the d-distance = J = .91
 J value is approximately .90, but actual values may be computed by formulas on page 77, AASHO, 1969.*

INVENTORY RATING

Based on Ultimate Moment = M_U
 $M_U = J(A_s) (F_s^1) (d) = \underline{4413}$ Ft. Kips 1K ①
 less 1.3x Dead load Moment of _____ = 1737 Ft. Kips 1K ②
 = ultimate Moment avail. for live load and impact of _____ = 2676 Ft. Kips 1K ③
 $\frac{③}{2.2} =$ Moment avail. for live load and impact of _____ = 1217 Ft. Kips 1K ④
 Moment avail. for live load = $\frac{④}{(1 + impact) (Dist. Factor)}$ = _____ = 607 Ft. Kips 1K ⑤
 $\frac{607}{1.248 \cdot 1.606} =$ _____ = 409 Ft. Kips 1K ⑥
 H 20 Moment ***per Wheel Line = _____ = 409 Ft. Kips 1K ⑥
 H Rating = $\frac{⑤}{⑥} (20) = \underline{29.7}$ = H _____ = 21.4 ⑥A

Mn/DOT Structure Inventory Report

Bridge ID: 02521

MSAS 116

over BNSF RR

Date: 02/01/2012

GENERAL

Agency Br. No.
 District Metro
 Maint. Area Crew
 County 002 - Anoka
 City Coon Rapids
 Township
 Desc. Loc. 0.3 MI SE OF JCT CSAH 1
 Sect., Twp., Range 26 - 031N - 24W
 Latitude Deg 45 Min 8 Sec 46.85
 Longitude Deg 93 Min 17 Sec 27.7
 Custodian 02 - County Highway Agency
 Owner 02 - County Highway Agency
 BMU Agreement
 Year Built 1972
 MN Year Reconstructed
 FHWA Year Reconstructed
 MN Temporary Status
 Bridge Plan Location 3 - COUNTY
 Date Opened to Traffic
 On-Off System 0 - OFF
 Legislative District 49B

ROADWAY

Bridge Match ID (TIS) 0
 Roadway O/U Key Route On Structure
 Route Sys 05 - MSAS Number 116
 Roadway Name or Description
 MSAS 116
 Level of Service 1 - MAINLINE
 Roadway Type 2 - 2-way traffic
 Control Section (TH Only)
 Reference Point 001+00.255
 Detour Length 1.0 mi
 Lanes On 4 Under 0
 ADT 17200 Year 2008
 HCA DT 0 ADT T 0 %
 Functional Class 17 - Urban - Collector

INSPECTION

Userkey 42
 Unofficial Structurally Deficient Y
 Unofficial Functionally Obsolete N
 Unofficial Sufficiency Rating 83.0
 Routine Inspection Date 11/23/2011
 Routine Inspection Frequency 24
 Inspector Name County, Anoka
 Status A - Open

NBI CONDITION RATINGS

Deck 4 - Poor Condition
 Unsound Deck %
 Superstructure 6 - Satisfactory Condition
 Substructure 5 - Fair Condition
 Channel N - Not Applicable
 Culvert N - Not Applicable

NBI APPRAISAL RATINGS

Structure Evaluation 5
 Deck Geometry 9
 Underclearances 5
 Water Adequacy N - Not Applicable
 Approach Alignment 7 - Better than present minir

RDWY DIMENSIONS

If Divided	NB-EB	SB-WB
Roadway Width	37.70 ft.	37.70 ft.
Vertical Clearance	ft.	ft.
Max. Vert. Clear.	ft.	ft.
Horizontal Clear.	37.6 ft.	37.6 ft.
Lateral Clearance	ft.	ft.
Appr. Surface Width	76.0 ft.	
Bridge Roadway Width	75.4 ft.	
Median Width On Bridge	2.99 ft.	

SAFETY FEATURES

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

MISC. BRIDGE DATA

Structure Flared 0 - No flare
 Parallel Structure N - No parallel structure
 Field Conn. ID
 Abutment Foundation 1 - CONC
 (Material/Type) 3 - FTG PILE
 Pier Foundation 1 - CONC
 (Material/Type) 3 - FTG PILE
 Historic Status 5 - Not eligible

IN DEPTH INSP.

Y/N	Freq	Date

Frac. Critical
 Underwater
 Pinned Asbly.
 Spec. Feat.

STRUCTURE

Service On 1 - Highway
 Service Under 2 - Railroad
 Main Span Type
 5 - Prestress or Precast 01 - Beam Span
 Main Span Detail
 Appr. Span Type
 Appr. Span Detail
 Skew 32 L
 Culvert Type
 Barrel Length ft.
 Cantilever ID

PAINT

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

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 1991

NUMBER OF SPANS

MAIN: 3 APPR: 0 TOTAL: 3
 Main Span Length 89.8 ft.
 Structure Length 240.6 ft.
 Deck Width (Out-to-Out) 81.8 ft.
 Deck Material 1 - Concrete Cast-in-Place
 Wear Surf Type 4 - Low Slump Concrete
 Wear Surf Install Year 1983
 Wear Course/Fill Depth 0.17 ft.
 Deck Membrane 0 - None
 Deck Rebars N - Not Applicable (no deck)
 Deck Rebars Install Year
 Structure Area (Out-to-Out) 19703 sq. ft.
 Deck Area (Curb-to-Curb) 18137 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 22 Rt 22

BRIDGE SIGNS

Posted Load 0 - Not Required
 Traffic 0 - Not Required
 Horizontal 0 - Not Required
 Vertical N - Not Applicable

CAPACITY RATINGS

Design Load 5 - HS 20
 Operating Rating 2 - AS HS 42.9
 Inventory Rating 2 - AS HS 29.7
 Posting VEH: SEMI: DBL:
 Rating Date 6/1/1991

Mn/DOT Permit Codes

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

Mn/DOT BRIDGE INSPECTION REPORT

02/01/2012

Inspector: County, Anoka

BRIDGE 02521 MSAS 116 OVER BNSF RR

ROUTINE INSP. DATE: 11/23/2011

County: Anoka	Location: 0.3 MI SE OF JCT CSAH 1	Length: 240.6 ft.
City: Coon Rapids	Route: 05 - MSAS 116 Ref. Pt.: 001+00.255	Deck Width: 81.8 ft.
Township:	Control Section:	Rdwy. Area/ Pct. Unsnd: 18137 sq. ft. / %
Section: 26 Township: 031N Range: 24W Maint. Area:		Paint Area/ Pct. Unsnd: sq. ft. / %
Span Type: 5 - Prestressed Concrete 02 -	Local Agency Bridge Nbr.:	Culvert: N/A
List: Stringer/Multi-beam or Girder		Postings:
NBI Deck: 4 Super: 6 Sub: 5 Chan: N Culv: N		
	Open, Posted, Closed: A - Open	
	MN Scour Code: A - NON WATERWAY	
Appraisal Ratings - Approach: 7 Waterway: N		Unofficial Structurally Deficient Y
Required Bridge Signs - Load Posting: 0 - Not Required	Traffic: 0 - Not Required	Unofficial Functionally Obsolete N
Horizontal: 0 - Not Required	Vertical: N - Not Applicable	Unofficial Sufficiency Rating 83.0

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
022	Low Slump O/L (Concrete Deck with Uncoated Rebar)	2	Routine	11/23/2011	19676 SF	0	0	0	19676	0
			Routine	11/20/2009	19676 SF	0	19676	0	0	0
Notes: (1/09) Isolated areas of delamination and spalling detected, an in-depth deck survey should be performed. (11/11) A 0.5 s.f. hole through the deck slab adjacent to the expansion joint at the median railing on LEB over the west abutment. +/- 75% of the concrete deck delaminated on the mid span of LWB.										
109	Prestressed Concrete Girder or Beam	2	Routine	11/23/2011	2067 LF	2035	0	32	0	N/A
			Routine	11/20/2009	2067 LF	2035	32	0	0	N/A
Notes: (1/09) Minor cracking and spalling on the beam ends at the abutments. (11/11) Moderate cracking and spalling on the beam ends at the abutments.										
205	Reinforced Concrete Column	2	Routine	11/23/2011	12 EA	0	12	0	0	N/A
			Routine	11/20/2009	12 EA	12	0	0	0	N/A
Notes: (1/09) The concrete special surface finish is flaking and peeling.										
215	Reinforced Concrete Abutment	2	Routine	11/23/2011	200 LF	0	170	30	0	N/A
			Routine	11/20/2009	200 LF	170	0	30	0	N/A
Notes: Minor rust staining evident at several of the previously repaired cracks. (12/11/90) East abutment seat and front face delaminating from leaking expansion joint at bridge centerline. (3/22/94) spall w/exposed rebar on east abutment face also adjacent area is delaminated at bridge centerline. (10/11/94) west abutment cracks with rust stains. (1/01) Spalled areas repaired and cracks have been pressure injected under contract. (12/04) Several areas repaired in 2001 are beginning to delaminate. (1/09) Major failure (delamination) of the concrete areas repaired in 2001 on the west abutment. (11/09) Major failure (delamination) of the concrete areas repaired in 2001 on both abutments.										
234	Reinforced Concrete Pier Cap	2	Routine	11/23/2011	180 LF	0	180	0	0	N/A
			Routine	11/20/2009	180 LF	180	0	0	0	N/A
Notes: < none >										
300	Strip Seal Deck Joint	2	Routine	11/23/2011	187 LF	185	2	0	N/A	N/A
			Routine	11/20/2009	187 LF	185	2	0	N/A	N/A
Notes: (12/20/95) Strip seal expansion joint leaking at center median at both abutments. (1/01) New glands installed at both abutments, leakage continues at center at both abutments.										

Structure Unit:

ELEM NR	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	11/23/2011	377 LF	0	0	377	N/A	N/A
			Routine	11/20/2009	377 LF	0	377	0	N/A	N/A
Notes: (1999) Major spalls in the deck/approach slab adjacent to the joint; (20" @ LEB W. appr.) (1/01) Spalled areas repaired and joints resealed under contract. (11/06) Adhesion failure throughout all joints. (11/11) The concrete deck is beginning to spall adjacent to the joints.										
311	Expansion Bearing	2	Routine	11/23/2011	50 EA	38	12	0	N/A	N/A
			Routine	11/20/2009	44 EA	40	4	0	N/A	N/A
Notes: (1/01) New bearing assembly installed at the east abutment, beam 4 (south fascia beam = 1) under contact. (11/06) Minor corrosion present. (1/09) Moderate corrosion and minor section loss on the west abutment. (11/11) Moderate corrosion and minor section loss to 4 of the bearing on the east abutment.										
313	Fixed Bearing	2	Routine	11/23/2011	8 EA	8	0	0	N/A	N/A
			Routine	11/20/2009	8 EA	8	0	0	N/A	N/A
Notes: (11/06) Minor corrosion present.										
321	Concrete Approach Slab-Concrete Wearing Surface	2	Routine	11/23/2011	2 EA	0	0	2	0	N/A
			Routine	11/20/2009	2 EA	0	1	1	0	N/A
Notes: (12/04) Minor cracks on both approach panels. (11/06) Minor-moderate cracking, D-cracking and settlement of both approach panels. (1/09) Minor-moderate cracking, D-cracking, minor spalling and settlement of both approach panels. (11/09) Concrete spalling along the left gutter line of LEB on the north approach panel. (11/11) Major undermining of the approach panel adjacent to the deck at the NE corner of the bridge.										
	Reinforced Concrete Bridge Railing	2	Routine	11/23/2011	971 LF	941	0	30	0	N/A
			Routine	11/20/2009	971 LF	971	0	0	0	N/A
Notes: (Railing Code 22) (12/11/90) Numerous spall areas in rails w/exposed rebar. (3/22/94) Delamination and spall areas in rails at several locations. (1/01) North and south concrete rail was replaced with type F concrete railing (486") under contract, median railing = 486" (12/04) Superficial vertical cracks throughout railing. (11/11) Moderate concrete deterioration along the gutter line at the NW corner of the bridge.										
387	Reinforced Concrete Wingwall	2	Routine	11/23/2011	4 EA	0	4	0	0	N/A
			Routine	11/20/2009	4 EA	4	0	0	0	N/A
Notes: < none >										
964	Critical Finding Smart Flag	2	Routine	11/23/2011	1 EA	1	0	N/A	N/A	N/A
			Routine	11/20/2009	1 EA	1	0	N/A	N/A	N/A
Notes: (11/06) No critical findings noted.										
981	Signing	2	Routine	11/23/2011	1 EA	1	0	0	0	0
			Routine	11/20/2009	1 EA	1	0	0	0	0
Notes: (11/06) No bridge delineators are in place. (11/09) Delineators in place at the NE and SW corners.										
982	Approach Guardrail	2	Routine	11/23/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/20/2009	1 EA	0	1	0	N/A	N/A
Notes: (12/04) Minor impact damage at the west abutment of lwb.										
983	Plowstraps	2	Routine	11/23/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/20/2009	1 EA	0	1	0	N/A	N/A
Notes: Several plowstraps missing. < none >										

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
984	Deck & Approach Drainage	2	Routine	11/23/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/20/2009	1 EA	1	0	0	N/A	N/A
Notes: Major erosion of slope in back of NE wingwall from drainage outlet overflow. (12/15/97) Repairs made summer of 1997. (11/11) Erosion along the NE wingwall is allowing runoff to undermine the slope paving and contributing to the undermining of the approach panel.										
985	Slopes & Slope Protection	2	Routine	11/23/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/20/2009	1 EA	0	1	0	N/A	N/A

Notes: Roadway runoff has undermined & buckled slope paving at both abut. (1/01) Repairs to slope paving made under contract. (12/04) Erosion along the NE corner of the slope paving is resulting water running under the concrete slope paving. (11/09) Erosion at the NE corner of the bridge beginning to undermine the approach panel. (11/11) Erosion along the NE wingwall is allowing runoff to undermine the slope paving and contributing to the undermining of the approach panel.

General Notes: NOTE: Structure should be scheduled for periodical in-depth inspection as under bridge elements can not be properly inspected during routine inspections.
NOTE: Quantity changes for conc railing, strip seal exp joint and pourable joints were field measured during the 1996 inspection.
NOTE: Contract repairs made in 2000 under contract S.P. 02-030-03.
Inspected by: G. Anderson & W. Howard 12/6/02., G. Anderson & M. Werlinger 12/09/04., G. Anderson & C. Osterhus 11/15/06., G. Anderson & C. Osterhus 1/06/09., G. Anderson & C. Osterhus 11/20/09., G. Anderson & C. Osterhus 11/23/11.

Railroad Contact: Lynn Leibfried BNSF 763.782.3492, cell 6127706062, email lynn.leibfried@bnsf.com

58. Deck NBI:

36A. Brgd Railings NBI:

36B. Transitions NBI:

36C. Appr Guardrail NBI:

36D. Appr Guardrail
Terminal NBI:

59. Superstructure NBI:

60. Substructure NBI:

61. Channel NBI:

62. Culvert NBI:

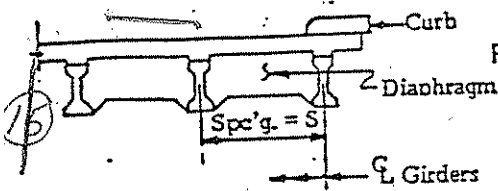
71. Waterway Adeq NBI:

72. Appr Roadway
Alignment NBI:

Inventory Notes:

Gregory Anderson
Inspector's Signature

Andrew Witter
Reviewer's Signature



PRESTRESSED CONCRETE RATING SHEET
SPAN

MHD 22106F 8-73

Rated by Robert R. Tomczak

Checked by _____

Date 6-3-91

Revised for 2" W.C.

DATA	Bridge No. <u>02521</u> Year built <u>1972</u> Total structure length <u>240.67</u> ft. County <u>Anoka</u> Roadway width (curb to curb) = <u>2034</u> ft. No. of spans = <u>3</u> Length of span rated = L = <u>83.42</u> ft. Route <u>Coon Rapids Blvd.</u> Feature crossed <u>BNRR</u> Abutment type <u>Conc. Parapet</u> Pier type <u>Conc Cap on Conc Col</u> Floor: type <u>Conc</u> thickness <u>8 1/4"</u> Curb: height _____ width _____ Railing: type <u>Type G Conc</u> height <u>2'-4"</u> width _____
	DEAD LOAD Dead load per ft. of girder **Overburden: <u>2/12 X 11.083 X 150</u> = <u>277</u> lb./ft. Floor _____ = <u>1143</u> lb./ft. Girder _____ = <u>843</u> lb./ft. Railing, Diaphragms, etc. _____ = <u>454</u> lb./ft. Total dead load = W _____ = <u>2717</u> lb./ft. Dead load Moment = $1/8 (W) (L)^2 = 1/8 X 2.717 X 83.422$ = <u>2363</u> ft. ^{1/2} KIP
	GIRDER DATA Girders: <u>54" I</u> @ <u>11'-1"</u> spcg. impact = <u>.24</u> Distribution factor (from P. 29, AASHO, 1969)* = $S = 2.015$ Prestress steel: $F_s^1 = 270$ Kips/in ² Number of strands = <u>44</u> Size and area of strands = <u>.153</u> in ² Total strand area = $A_s = 6.74$ in ² Distance from centroid of prestress steel to extreme compressive fiber of concrete = d = <u>58</u> in. The ratio of distance between centroid of compression and centroid of tension to the d-distance = J = <u>.918</u> J value is approximately .90, but actual values may be computed by formulas on page 77, AASHO, 1969.*
	INVENTORY RATING Based on Ultimate Moment = M _U $M_U = \frac{J(A_s)(F_s^1)(d)}{12} =$ <u>From Computer</u> = <u>8074</u> Ft. Kips 1K ① less 1.3x Dead load Moment of _____ = <u>3072</u> Ft. Kips 1K ② = ultimate Moment avail. for live load and impact of _____ = <u>5002</u> Ft. Kips 1K ③ ③ = Moment avail. for live load and impact of _____ = <u>2274</u> Ft. Kips 1K ④ 2.2 Moment avail. for live load = $\frac{④}{(1 + impact)(Dist. Factor)}$ = _____ = <u>910</u> Ft. Kips 1K ⑤ H 20 Moment ***per Wheel Line = _____ = <u>467</u> Ft. Kips 1K ⑥ H Rating = $\frac{⑤}{⑥} (20) =$ _____ = H <u>39</u> ⑥A HS = 29.7

Mn/DOT Structure Inventory Report

Bridge ID: 02522

COON RAPIDS BLVD

over NB EAST RIVER RD(CSAH 1)

Date: 02/01/2012

GENERAL	
Agency Br. No.	
District	Metro
Maint. Area	Crew
County	002 - Anoka
City	Coon Rapids
Township	
Desc. Loc.	AT THE JCT CR 3
Sect., Twp., Range	26 - 031N - 24W
Latitude	Deg 45 Min 8 Sec 50.94
Longitude	Deg 93 Min 17 Sec 36.88
Custodian	02 - County Highway Agency
Owner	02 - County Highway Agency
BMU Agreement	
Year Built	1972
MN Year Reconstructed	
FHWA Year Reconstructed	
MN Temporary Status	
Bridge Plan Location	3 - COUNTY
Date Opened to Traffic	
On-Off System	0 - OFF
Legislative District	49B

ROADWAY	
Bridge Match ID (TIS)	2
Roadway O/U Key	Route On Structure
Route Sys	05 - MSAS Number 116
Roadway Name or Description	
COON RAPIDS BLVD (MSAS 116)	
Level of Service	1 - MAINLINE
Roadway Type	2 - 2-way traffic
Control Section (TH Only)	
Reference Point	001+00.395
Detour Length	2.0 mi
Lanes	On 4 Under 2
	ADT 30231 Year 2007
HCADT	0 ADTT 0 %
Functional Class	16 - Urban - Minor Arterial

INSPECTION	
Userkey	42
Unofficial Structurally Deficient	N
Unofficial Functionally Obsolete	N
Unofficial Sufficiency Rating	82.0
Routine Inspection Date	11/23/2011
Routine Inspection Frequency	24
Inspector Name	County, Anoka
Status	A - Open

RDWY DIMENSIONS			
If Divided	NB-EB	SB-WB	
Roadway Width	37.70 ft.	37.70 ft.	
Vertical Clearance			
Max. Vert. Clear.			
Horizontal Clear.	37.6 ft.	37.6 ft.	
Lateral Clearance			
Appr. Surface Width	76.0 ft.		
Bridge Roadway Width	75.4 ft.		
Median Width On Bridge	2.99 ft.		

NBI CONDITION RATINGS	
Deck	5 - Fair Condition
Unsound Deck %	
Superstructure	7 - Good Condition
Substructure	5 - Fair Condition
Channel	N - Not Applicable
Culvert	N - Not Applicable

STRUCTURE	
Service On	1 - Highway
Structure Under	1 - Highway, w/ or w/out ped.
Main Span Type	5 - Prestress or Precast 01 - Beam Span
Main Span Detail	
Appr. Span Type	
Appr. Span Detail	
Skew	54 L
Culvert Type	
Barrel Length	ft.
Cantilever ID	

MISC. BRIDGE DATA	
Structure Flared	0 - No flare
Parallel Structure	N - No parallel structure
Field Conn. ID	
Abutment Foundation	1 - CONC
(Material/Type)	3 - FTG PILE
Pier Foundation	1 - CONC
(Material/Type)	3 - FTG PILE
Historic Status	5 - Not eligible

NBI APPRAISAL RATINGS	
Structure Evaluation	5
Deck Geometry	9
Underclearances	5
Water Adequacy	N - Not Applicable
Approach Alignment	7 - Better than present minor

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

NUMBER OF SPANS	
MAIN: 3	APPR: 0 TOTAL: 3
Main Span Length	89.0 ft.
Structure Length	211.4 ft.
Deck Width (Out-to-Out)	81.8 ft.
Deck Material	1 - Concrete Cast-in-Place
Wear Surf Type	4 - Low Slump Concrete
Wear Surf Install Year	1983
Wear Course/Fill Depth	0.17 ft.
Deck Membrane	0 - None
Deck Rebars	N - Not Applicable (no deck)
Deck Rebars Install Year	
Structure Area (Out-to-Out)	17621 sq. ft.
Rightway Area (Curb-to-Curb)	15984 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 22 Rt 22

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

IN DEPTH INSP.		
Y/N	Freq	Date

WATERWAY	
Drainage Area (sq. mi.)	
Waterway Opening	sq. ft.
Navigation Control	N - Not applicable, no waterway
Pier Protection	
Nav. Clr. (ft.)	Vert. ft. Horiz. ft.
Nav. Vert. Lift Bridge Clear. (ft.)	
MN Scour Code	A - NON WATER Year 1991

BRIDGE SIGNS	
Posted Load	0 - Not Required
Traffic	0 - Not Required
Horizontal	1 - Object Markers
Vertical	0 - Not Required

CAPACITY RATINGS	
Design Load	5 - HS 20
Operating Rating	2 - AS HS 37.9
Inventory Rating	2 - AS HS 25.7
Posting VEH:	SEMI: DBL:
Rating Date	6/1/1991

Mn/DOT Permit Codes
 A: N - N/A
 B: N - N/A
 C: N - N/A

Mn/DOT BRIDGE INSPECTION REPORT

02/01/2012

Inspector: County, Anoka

BRIDGE 02522 COON RAPIDS BLVD OVER NB EAST RIVER RD(CSAH 1) ROUTINE INSP. DATE: 11/23/2011

County: Anoka	Location: AT THE JCT CR 3	Length: 211.4 ft.
City: Coon Rapids	Route: 05 - MSAS 116 Ref. Pt.: 001+00.395	Deck Width: 81.8 ft.
Township:	Control Section:	Rdwy. Area/ Pct. Unsnd: 15984 sq. ft. / %
Section: 26 Township: 031N Range: 24W Maint. Area:		Paint Area/ Pct. Unsnd: sq. ft. / %
Span Type: 5 - Prestressed Concrete 02 -	Local Agency Bridge Nbr.:	Culvert: N/A
List: Stringer/Multi-beam or Girder		Postings:
NBI Deck: 5 Super: 7 Sub: 5 Chan: N Culv: N		
	Open, Posted, Closed: A - Open	
	MN Scour Code: A - NON WATERWAY	
Appraisal Ratings - Approach: 7 Waterway: N		Unofficial Structurally Deficient N
Required Bridge Signs - Load Posting: 0 - Not Required	Traffic: 0 - Not Required	Unofficial Functionally Obsolete N
Horizontal: 1 - Object Markers	Vertical: 0 - Not Required	Unofficial Sufficiency Rating 82.0

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
022	Low Slump O/L (Concrete Deck with Uncoated Rebar)	2	Routine	11/23/2011	17298 SF	0	0	17298	0	0
			Routine	11/20/2009	17298 SF	0	0	17298	0	0
Notes: (11/06) A 9 SF area on the rt southbound lane at pier 2 D-cracking and delaminating. (1/09) Numerous isolated areas of delamination and spalling detected, an in-depth deck survey should be performed. (11/09) +/- 3' diameter hole through the deck adjacent to the expansion joint on LWB at the west abutment. (11/11) The hole through the deck has been repaired but the concrete material used to make the repair is deteriorating.										
109	Prestressed Concrete Girder or Beam	2	Routine	11/23/2011	1654 LF	1650	4	0	0	N/A
			Routine	11/20/2009	1654 LF	1650	4	0	0	0
Notes: (11/09) Span 3, third beam from the north; rust staining on 4' of the bottom of the beam.										
205	Reinforced Concrete Column	2	Routine	11/23/2011	16 EA	0	16	0	0	N/A
			Routine	11/20/2009	16 EA	16	0	0	0	0
Notes: Joint sealer @ base of columns deteriorated. (1/01) Repaired under contract.										
215	Reinforced Concrete Abutment	2	Routine	11/23/2011	295 LF	0	147	148	0	N/A
			Routine	11/20/2009	295 LF	0	147	148	0	0
Notes: Minor rust staining evident at several of the previously repaired cracks. (12/11/90) East abutment has vertical cracks, some leaching and spalls. (03/23/94) vertical cracks in east abutment face extended into bridge seat area in several locations. (10/11/94) Vertical cracks in west abutment face extended into bridge seat in several areas with rust stains. (12/10/96) Exposed rebar in several spalled areas of east abutment. (1/01) Spalled areas repaired and cracks pressure injected under contract. (12/04) Surface evidence of continued rebar corrosion at the areas that were repaired in 2001, delamination and spalling of the backwall concrete at the c/l joint caused by water leakage between the center concrete railings. (11/09) East abutment; major delamination and rust staining at the previously repaired areas, west abutment; minor delamination and rust staining at the previously repaired areas.										
300	Strip Seal Deck Joint	2	Routine	11/23/2011	279 LF	279	0	0	N/A	N/A
			Routine	11/20/2009	279 LF	279	0	0	N/A	N/A
Notes: (12/20/95) Strip seal exp. joint leaking at center median both abutments. (1/01) New glands installed at both abutments under contract, leakage continues at the center median at both abutments. (11/06) A 1' section of the gland has pulled from the extrusion and is leaking at the north bound lane of the west abutment.										
301	Poured Deck Joint	2	Routine	11/23/2011	551 LF	0	547	4	N/A	N/A
			Routine	11/20/2009	551 LF	468	83	0	N/A	N/A
Notes: (1999) Area of major spalls in deck/approach slab at joints. (1/01) Spalled areas repaired and the joints resealed under contract. (11/06) Adhesion failure at the south approach panel. (1/09) Scattered isolated areas of adhesion failure. (11/09) Scattered isolated areas of adhesion failure and concrete spalling. (11/11) Adhesion failure throughout all of the joints.										

Structure Unit:

ELEM NR	ELEMENT NAME	ENV	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
311	Expansion Bearing	2	Routine	11/23/2011	40 EA	0	40	0	N/A	N/A
			Routine	11/20/2009	40 EA	0	40	0	N/A	N/A
Notes: (1/01) New bearing assemblies installed at the east abut. beams no. 4,5,6,7,8 (south fascia beam = 1) (11/06) Minor corrosion present.										
313	Fixed Bearing	2	Routine	11/23/2011	8 EA	0	8	0	N/A	N/A
			Routine	11/20/2009	8 EA	0	8	0	N/A	N/A
Notes: (11/06) Minor corrosion present.										
321	Concrete Approach Slab-Concrete Wearing Surface	2	Routine	11/23/2011	2 EA	0	0	2	0	N/A
			Routine	11/20/2009	2 EA	0	0	2	0	N/A
Notes: Joints @ j-rail & approach panel need to be cleaned and resealed. (1/01) Repaired under contract. (12/04) Diagonal cracks on both approach slabs, areas repaired in 2001 are beginning to delaminate. (11/06) Small isolated areas of D-cracking on both approach panels. (11/09) Areas of delamination requiring repair on both approaches.										
331	Reinforced Concrete Bridge Railing	2	Routine	11/23/2011	948 LF	845	78	25	0	N/A
			Routine	11/20/2009	948 LF	908	40	0	0	N/A
Notes: (Railing Code 22) Delamination and spall areas in rails with exposed rebar. (1/01) North and south concrete rail replaced with type F concrete railing (474") under contract, median rail = 474". (12/04) Area of spalled concrete with exposed rebar on LWB median rail at midspan. (11/06) insignificant vertical cracking of all the railing. (1/09) Not visible, snow covered. (11/09) LEB median railing spalling at the gutter line.										
339	Underside of Concrete Deck Smart Flag	2	Routine	11/23/2011	1 EA	0	1	0	0	0
			Routine	11/20/2009	1 EA	0	1	0	0	0
Notes: (12/15/97) Several areas along the median joint have rust stains and spall areas. (11/06) Minor cracking with efflorescence.										
387	Reinforced Concrete Wingwall	2	Routine	11/23/2011	4 EA	0	4	0	0	N/A
			Routine	11/20/2009	4 EA	0	4	0	0	N/A
Notes: (1/09) Moderate vertical cracks on all four wingwalls. (11/09) Moderate vertical cracks and concrete scaling on all four wingwalls.										
964	Critical Finding Smart Flag	2	Routine	11/23/2011	1 EA	1	0	N/A	N/A	N/A
			Routine	11/20/2009	1 EA	1	0	N/A	N/A	N/A
Notes: (11/06) No critical findings noted.										
981	Signing	2	Routine	11/23/2011	1 EA	0	1	0	0	0
			Routine	11/20/2009	1 EA	0	1	0	0	0
Notes: (11/06) The SW delineator is missing. (1/0) The SW delineator is bent.										
982	Approach Guardrail	2	Routine	11/23/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/20/2009	1 EA	0	1	0	N/A	N/A
Notes: (11/06) Moderate impact damage at the SW corner of the bridge.										
983	Plowstraps	2	Routine	11/23/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/20/2009	1 EA	0	1	0	N/A	N/A
Notes: Several plowstraps missing.										

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
984	Deck & Approach Drainage	2	Routine	11/23/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/20/2009	1 EA	1	0	0	N/A	N/A

Notes: Erosion from surface drainage at NE wingwall. (12/15/97) Repair work completed summer 1997. (11/11) Surface drainage at the NE wingwall causing slope erosion.

985	Slopes & Slope Protection	2	Routine	11/23/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/20/2009	1 EA	1	0	0	N/A	N/A

Notes: (12/04) Minor erosion along the NW slope paving. (11/09) Minor erosion along the NW and NE wingwalls. (11/11) Moderate erosion along the NE wingwall.

General Notes: NOTE: Structure should be scheduled for periodical in-depth inspection as under bridge elements can not be properly inspected during routine inspections.
NOTE: Quantity changes for conc railing, strip seal exp joint and pourable joints were field measured during the 1996 inspection.
NOTE: Contract repairs made in 2000, S.P. 02-030-03.

Inspected by: G. Anderson & W. Howard 12/6/02., G. Anderson & M. Werlinger 12/09/04., G. Anderson & C. Osterhus 11/15/06., G. Anderson & C. Osterhus 1/06/09., G. Anderson & C. Osterhus 11/20/09., G. Anderson & C. Osterhus 11/23/11.

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:

61. Channel NBI:

62. Culvert NBI:

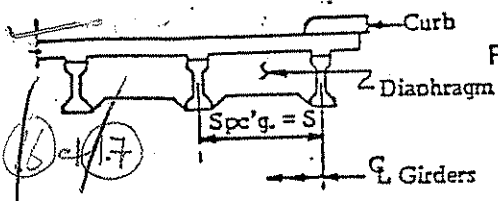
71. Waterway Adeq NBI:

72. Appr Roadway
Alignment NBI:

Inventory Notes:

Gregory Anderson
Inspector's Signature

Andrew Witter
Reviewer's Signature



PRESTRESSED CONCRETE RATING SHEET

MHD 22106F 8-73

End Span
Girder G-2
Revised for Additional 2" W.C.

Rated by Robert R. Tomczak
Checked by _____
Date 6-3-91

DATA	Bridge No. <u>02522</u> Year built <u>1973</u> Total structure length <u>211.4</u> ft. County <u>Anoka</u> Roadway width (curb to curb) = <u>34</u> ft. No. of spans = <u>3</u> Length of span rated = L = <u>63.28</u> ft. Route <u>MSAS 116</u> Feature crossed <u>CSAH 1</u> Abutment type <u>Conc Paraped</u> Pier type <u>Conc Capon Conc Col</u> Floor: type <u>Concrete</u> thickness <u>8"</u> Curb: height _____ width _____ Railing: type <u>Type G</u> height <u>3'-4'</u> width _____
	Dead load per ft. of girder **Overburden <u>2" W.C. = 2/12 X 11 X 150</u> = <u>275</u> lb./ft. Floor <u>8/12 X 11 X 150</u> = <u>1100</u> lb./ft. Girder _____ = <u>972</u> lb./ft. Railing, Diaphragms, etc. <u>167 + 162 + 50 + 50</u> = <u>429</u> lb./ft. Total dead load = W _____ = <u>2776</u> lb./ft. Dead load Moment = $1/8 (W) (L)^2 = 1/8 X 2.776 X 63.28^2$ = <u>1390</u> ft. XX KIP
	Girders: <u>60" I</u> @ <u>11'</u> spcg. impact = <u>.266</u> Distribution factor (from P. 29, AASHO, 1969) * = $\frac{S}{L}$ = <u>2.115</u> Prestress steel: $F_s^1 = 270$ Kips/in ² Number of strands = <u>24</u> Size and area of strands = <u>.153</u> in ² Total strand area = A_s <u>3.67</u> in ² Distance from centroid of prestress steel to extreme compressive fiber of concrete = d = <u>64.5</u> in. The ratio of distance between centroid of compression and centroid of tension to the d-distance = J = <u>.96</u> J value is approximately .90, but actual values may be computed by formulas on page 77, AASHO, 1969.*
	Based on Ultimate Moment = M _U $M_U = \frac{J(A_s)(F_s^1)(d)}{12} =$ <u>From Computer</u> = <u>5097</u> Ft. Kips 1K ① less 1.3x Dead load Moment of _____ = <u>1807</u> Ft. Kips 1K ② = ultimate Moment avail. for live load and impact of _____ = <u>3290</u> Ft. Kips 1K ③ ③ = Moment avail. for live load and impact of _____ = <u>1495</u> Ft. Kips 1K ④ 2.2 Moment avail. for live load = $\frac{④}{(1 + impact)(Dist. Factor)}$ = _____ = <u>558</u> Ft. Kips 1K ⑤ H 20 Moment ***per Wheel Line = _____ = <u>303.4</u> Ft. Kips 1K ⑥ H Rating = $\frac{⑤}{⑥} (20) =$ _____ = H = <u>36.8</u> ⑥A HS = <u>25.7</u>

Mn/DOT Structure Inventory Report

Bridge ID: 02523

CSAH 2(44TH AVE)

over BNSF RR

Date: 02/01/2012

GENERAL	
Agency Br. No.	
District	Metro
Maint. Area	Crew
County	002 - Anoka
City	Fridley
Township	
Desc. Loc.	0.2 MI NE OF JCT CSAH 1
Sect., Twp., Range	34 - 030N - 24W
Latitude	Deg 45 Min 2 Sec 43.97
Longitude	Deg 93 Min 16 Sec 24.26
Custodian	02 - County Highway Agency
Owner	02 - County Highway Agency
BMU Agreement	
Year Built	1973
MN Year Reconstructed	
FHWA Year Reconstructed	
MN Temporary Status	
Bridge Plan Location	3 - COUNTY
Date Opened to Traffic	
On-Off System	1 - ON
Legislative District	50A

ROADWAY	
Bridge Match ID (TIS)	0
Roadway O/U Key Route	On Structure
Route Sys	04 - CSAH Number 2
Roadway Name or Description	
CSAH 2	
Level of Service	1 - MAINLINE
Roadway Type	2 - 2-way traffic
Control Section (TH Only)	
Reference Point	000+00.181
Detour Length	3.0 mi
Lanes	On 2 Under 0
	ADT 8350 Year 2008
HCA DT	501 ADTT 6 %
Functional Class	16 - Urban - Minor Arterial

INSPECTION	
Userkey	42
Unofficial Structurally Deficient	N
Unofficial Functionally Obsolete	N
Unofficial Sufficiency Rating	95.0
Routine Inspection Date	11/22/2011
Routine Inspection Frequency	24
Inspector Name	County, Anoka
Status	A - Open

STRUCTURE	
Service On	5 - Highway-pedestrian
Ice Under	2 - Railroad
Main Span Type	
	4 - Steel Continuous 01 - Beam Span
Main Span Detail	
Appr. Span Type	
Appr. Span Detail	
Skew	0
Culvert Type	
Barrel Length	ft.
Cantilever ID	F - Friction Hinge

RDWY DIMENSIONS		
If Divided	NB-EB	SB-WB
Roadway Width	44.00 ft.	ft.
Vertical Clearance	ft.	ft.
Max. Vert. Clear.	ft.	ft.
Horizontal Clear.	43.9 ft.	ft.
Lateral Clearance	ft.	ft.
Appr. Surface Width	44.0 ft.	
Bridge Roadway Width	44.0 ft.	
Median Width On Bridge	ft.	

NBI CONDITION RATINGS	
Deck	7 - Good Condition
Unsound Deck %	
Superstructure	6 - Satisfactory Condition
Substructure	6 - Satisfactory Condition
Channel	N - Not Applicable
Culvert	N - Not Applicable

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)	3 - FTG PILE
Historic Status	5 - Not eligible

NBI APPRAISAL RATINGS	
Structure Evaluation	6
Deck Geometry	6
Underclearances	4
Water Adequacy	N - Not Applicable
Approach Alignment	5 - Somewhat better than m

NUMBER OF SPANS	
MAIN: 8	APPR: 0 TOTAL: 8
Main Span Length	205.0 ft.
Structure Length	1159.5 ft.
Deck Width (Out-to-Out)	53.3 ft.
Deck Material	1 - Concrete Cast-in-Place
Wear Surf Type	4 - Low Slump Concrete
Wear Surf Install Year	1991
Wear Course/Fill Depth	0.17 ft.
Deck Membrane	0 - None
Deck Rebars	N - Not Applicable (no deck)
Deck Rebars Install Year	
Structure Area (Out-to-Out)	61801 sq. ft.
Way Area (Curb-to-Curb)	51021 sq. ft.
Sidewalk Width	Lt 0.00 ft. Rt 5.50 ft.
Curb Height	Lt 0.00 ft. Rt 0.00 ft.
Rail Type	Lt 07 Rt 30

PAINT	
Year Painted	1991
Unsound Paint %	
Painted Area	sq. ft.
Primer Type	4 - Organic Zinc - non 3309
Finish Type	H - Vinyl

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

BRIDGE SIGNS	
Posted Load	0 - Not Required
Traffic	0 - Not Required
Horizontal	1 - Object Markers
Vertical	N - Not Applicable

IN DEPTH INSP.		
Y/N	Freq	Date

WATERWAY	
Drainage Area (sq. mi.)	
Waterway Opening	sq. ft.
Navigation Control	N - Not applicable, no waterw
Pier Protection	
Nav. Cir. (ft.)	Vert. ft. Horiz. ft.
Nav. Vert. Lift Bridge Clear. (ft.)	
MN Scour Code	A - NON WATER' Year 1991

CAPACITY RATINGS	
Design Load	5 - HS 20
Operating Rating	2 - AS HS 65.0
Inventory Rating	2 - AS HS 34.3
Posting VEH:	SEMI: DBL:
Rating Date	6/1/1974
Mn/DOT Permit Codes	
A:	N - N/A
B:	N - N/A
C:	N - N/A

10-1 ACHD DOES NOT HAVE A LOAD RATING ON FILE FOR THIS BRIDGE

Mn/DOT BRIDGE INSPECTION REPORT

02/01/2012

Inspector: County, Anoka

BRIDGE 02523 CSAH 2(44TH AVE) OVER BNSF RR

ROUTINE INSP. DATE: 11/22/2011

County: Anoka	Location: 0.2 MI NE OF JCT CSAH 1	Length: 1159.5 ft.
City: Fridley	Route: 04 - CSAH 2 Ref. Pt.: 000+00.181	Deck Width: 53.3 ft.
Township:	Control Section:	Rdwy. Area/ Pct. Unsd: 51021 sq. ft. / %
Section: 34 Township: 030N Range: 24W Maint. Area:		Paint Area/ Pct. Unsd: sq. ft. / %
Span Type: 4 - Steel Continuous 02 -	Local Agency Bridge Nbr.:	Culvert: N/A
List: Stringer/Multi-beam or Girder		Postings:
NBI Deck: 7 Super: 6 Sub: 6 Chan: N Culv: N		
	Open, Posted, Closed: A - Open	
	MN Scour Code: A - NON WATERWAY	
Appraisal Ratings - Approach: 5 Waterway: N		Unofficial Structurally Deficient N
Required Bridge Signs - Load Posting: 0 - Not Required	Traffic: 0 - Not Required	Unofficial Functionally Obsolete N
Horizontal: 1 - Object Markers	Vertical: N - Not Applicable	Unofficial Sufficiency Rating 95.0

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
409	Chain Link Fence	1	Routine	11/22/2011	1150 LF	1150	0	0	0	0
			Routine	11/19/2009	1150 LF	1150	0	0	0	0
	Notes: 8' Chain link fence									
022	Low Slump O/L (Concrete Deck with Uncoated Rebar)	2	Routine	11/22/2011	61796 SF	0	61796	0	0	0
			Routine	11/19/2009	61796 SF	0	61796	0	0	0
	Notes: (2002) 2- 3'x3' areas spalled out on the deck surface. (12/04) N/C.									
107	Painted Steel Girder or Beam	2	Routine	11/22/2011	5794 LF	0	3476	0	2318	0
			Routine	11/19/2009	5794 LF	0	3476	0	2318	0
	Notes: (03/22/94) Girders have fatigue prone details monitor girders for fatigue cracking. (10/12/94) Consulted and inspected with Mn/DOT bridge staff - the determination is that there are fatigue prone details, there was no cracking observed and the bridge is ""overdesigned"" significantly and therefore the details are not a big concern (1999) Paint is beginning to chalk and peel. (1/01) N/C. (12/2001) N/C. (2002) Active corrosion present along the top and bottom flanges of both fascia beams. (12/04) N/C. (1/09) Significant corrosion in the areas of the bridge deck drains. (11/11) There is significant corrosion and minor section loss on the center girder at the east abutment.									
205	Reinforced Concrete Column	2	Routine	11/22/2011	23 EA	0	22	1	0	N/A
			Routine	11/19/2009	23 EA	23	0	0	0	N/A
	Notes: All pier columns have concrete collision wall protection. (12/04) Superficial vertical cracks on concrete collision walls. (11/11) The south column of easterly pier; evidence of concrete crushing at the cap.									
215	Reinforced Concrete Abutment	2	Routine	11/22/2011	102 LF	0	102	0	0	N/A
			Routine	11/19/2009	102 LF	102	0	0	0	N/A
	Notes: < none >									
234	Reinforced Concrete Pier Cap	2	Routine	11/22/2011	404 LF	394	0	10	0	N/A
			Routine	11/19/2009	404 LF	404	0	0	0	N/A
	Notes: (11/11) Evidence of shear cracking at the north end of the easterly pier cap.									
300	Strip Seal Deck Joint	2	Routine	11/22/2011	210 LF	208	0	2	N/A	N/A
			Routine	11/19/2009	210 LF	209	0	1	N/A	N/A
	Notes: (1999) 2" of gland pulled from extrusion @ east abut. (1/01) N/C. (12/2001) N/C. (2002) N/C. (12/04) N/C. (1999) 1' of gland pulled from extrusion at the east abutment. (11/11) 2' of gland pulled from extrusion at the east abutment.									

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	11/22/2011	213 LF	0	109	104	N/A	N/A
			Routine	11/19/2009	213 LF	0	109	104	N/A	N/A
Notes: (12/04) Major adhesion failure with adjacent spalling of the joints at both approach panels.										
311	Expansion Bearing	2	Routine	11/22/2011	40 EA	35	5	0	N/A	N/A
			Routine	11/19/2009	40 EA	35	5	0	N/A	N/A
Notes: (12/2001) East abutment bearing assemblies appear to moving toward the abutment backwall. (12/04) Moderate corrosion of the bearing assemblies on the east abutment.										
313	Fixed Bearing	2	Routine	11/22/2011	15 EA	15	0	0	N/A	N/A
			Routine	11/19/2009	15 EA	15	0	0	N/A	N/A
Notes: < none >										
321	Concrete Approach Slab-Concrete Wearing Surface	2	Routine	11/22/2011	2 EA	0	1	1	0	N/A
			Routine	11/19/2009	2 EA	0	1	1	0	N/A
Notes: (10/12/94) Longitudinal cracks in approach panel. Cracks at joint between approach panel and deck. (1/01) N/C. (12/2001) N/C. (11/06) Moderate longitudinal cracking of the west approach panel.										
333	Masonry, Other or Combination Material Railing	2	Routine	11/22/2011	2320 LF	0	2320	0	N/A	N/A
			Routine	11/19/2009	2320 LF	0	2320	0	N/A	N/A
Notes: (Railing Code; Lt. 07, Rt. 30) (11/09) Minor - moderate cracking and spalling throughout.										
358	Concrete Deck Cracking Smart Flag	2	Routine	11/22/2011	1 EA	1	0	0	0	N/A
			Routine	11/19/2009						
Notes:										
359	Underside of Concrete Deck Smart Flag	2	Routine	11/22/2011	1 EA	0	0	1	0	0
			Routine	11/19/2009	1 EA	0	0	1	0	0
Notes: (12/20/95) Cracking and efflorescence on under surface of overhang, under deck can not be observed due stay in place metal work. (12/2001) Areas of rust and efflorescence observed at the east abutment on the stay in place forms causing active corrosion along the top flange of the center steel girder. (2002) Active corrosion continuing. (12/04) N/C. (1/09) Scattered numerous areas of corrosion and leaching adjacent to the beams on the stay in place forms. (11/11) Extensive concrete cracking, rust staining, delamination and spalling is visible on the deck overhangs (there are no stay in place forms on the deck overhangs). Note: it was reported to Anoka County on 12/20/11 that a piece of the concrete deck had fallen from the underside of the bridge, Anoka County and MN/DOT responded and it was discovered that the concrete had fallen from the deck overhang/edge near the east abutment and it was determined that there was no structural impact to the bridge.										
387	Reinforced Concrete Wingwall	2	Routine	11/22/2011	4 EA	4	0	0	0	N/A
			Routine	11/19/2009	4 EA	4	0	0	0	N/A
Notes: < none >										
964	Critical Finding Smart Flag	2	Routine	11/22/2011	1 EA	1	0	N/A	N/A	N/A
			Routine	11/19/2009	1 EA	1	0	N/A	N/A	N/A
Notes: (11/06) No critical findings noted.										
981	Signing	2	Routine	11/22/2011	1 EA	1	0	0	0	0
			Routine	11/19/2009	1 EA	1	0	0	0	0
Notes: < none >										

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
982	Approach Guardrail	2	Routine	11/22/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/19/2009	1 EA	1	0	0	N/A	N/A
Notes: (11/11) Minor impact damage to the plate beam railing at all four corners of the bridge										
984	Deck & Approach Drainage	2	Routine	11/22/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/19/2009	1 EA	0	1	0	N/A	N/A
Notes: (1998) Deck drain system appears to be plugged and not functioning as designed. (12/2001) N/C. (2002) N/C. (12/04)N/C.										
985	Slopes & Slope Protection	2	Routine	11/22/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/19/2009	1 EA	0	1	0	N/A	N/A
Notes: (1998)Erosion apparent under slope paving at east abut. causing displacement of slope paving. (1999) No corrections have been made, erosion has increased. (1/01) No corrections have been made, erosion and undermining of slope paving continuing to increase. (12/2001) severity of erosion increasing at the east abutment. Erosion at the west abutment beginning to undermine the slope pavement. (2002) Severity of erosion increasing at both abutments. (12/04) N/C.										
986	Curb & Sidewalk	2	Routine	11/22/2011	1 EA	1	0	0	N/A	N/A
			Routine	11/19/2009	1 EA	1	0	0	N/A	N/A
Notes: (12/15/97) 4" by 6" deep hole in sidewalk 300" from south end. (1999) Hole has been patched.										

General Notes: GENERAL NOTE: THE BRIDGE WAS REHABILITATED IN 1991 (SAP 02-602-09)
 GENERAL NOTE: Prior roadway runoff caused erosion of control joint and buckling of slope pavement at the east abutment.
 NOTE: Structure should be scheduled for periodical in-depth inspection as under bridge elements can not be properly inspected during routine inspections

Inspected by: G. Anderson & W. Howard (12/11/01). Inspected by: G. Anderson & W. Howard 12/06/02., G. Anderson & M. Werlinger 12/09/04., G. Anderson & C. Osterhus 11/15/06., G. Anderson & C. Osterhus 1/08/09., G. Anderson & C. Osterhus 11/19/09., G. Anderson & C. Osterhus 11/22/11.

Railroad Contact: Lynn Leibfried BNSF 763.782.3492, cell 6127706062, email lynn.leibfried@bnsf.com

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:

61. Channel NBI:

62. Culvert NBI:

71. Waterway Adeq NBI:

72. Appr Roadway
Alignment NBI:

Inventory Notes:

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
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Gregory Anderson
Inspector's Signature

Andrew Witter
Reviewer's Signature

Mn/DOT Structure Inventory Report

Bridge ID: 02534

CR 71

over SEELYE BROOK

Date: 02/01/2012

GENERAL	
Agency Br. No.	
District	Metro
Maint. Area	Crew
County	002 - Anoka
City	St Francis
Township	
Desc. Loc.	0.1 MI S OF JCT CSAH 28
Sect., Twp., Range	35 - 034N - 25W
Latitude	Deg 45 Min 23 Sec 52.6
Longitude	Deg 93 Min 24 Sec 39.4
Custodian	02 - County Highway Agency
Owner	02 - County Highway Agency
BMU Agreement	
Year Built	1986
MN Year Reconstructed	
FHWA Year Reconstructed	
MN Temporary Status	
Bridge Plan Location	3 - COUNTY
Date Opened to Traffic	9/1/1986
On-Off System	1 - ON
Legislative District	17A

ROADWAY	
Bridge Match ID (TIS)	0
Roadway O/U Key Route On Structure	
Route Sys	07 - CNTY Number 71
Roadway Name or Description	CNTY 71
Level of Service	1 - MAINLINE
Roadway Type	2 - 2-way traffic
Control Section (TH Only)	
Reference Point	001+00.350
Detour Length	6.0 mi
Lanes	On 2 Under 0
	ADT 572 Year 2008
HCADT	0 ADTT 0 %
Functional Class	07 - Rural - Major Collector

INSPECTION	
Userkey	42
Unofficial Structurally Deficient	N
Unofficial Functionally Obsolete	N
Unofficial Sufficiency Rating	82.7
Routine Inspection Date	11/21/2011
Routine Inspection Frequency	24
Inspector Name	County, Anoka
Status	A - Open

RDWY DIMENSIONS		
If Divided	NB-EB	SB-WB
Roadway Width	32.10 ft.	ft.
Vertical Clearance	ft.	ft.
Max. Vert. Clear.	ft.	ft.
Horizontal Clear.	ft.	ft.
Lateral Clearance	ft.	ft.
Appr. Surface Width	40.0 ft.	
Bridge Roadway Width	32.1 ft.	
Median Width On Bridge	ft.	

NBI CONDITION RATINGS	
Deck	6 - Satisfactory Condition
Unsound Deck %	
Superstructure	7 - Good Condition
Substructure	5 - Fair Condition
Channel	5 - Bank eroded; Major damage
Culvert	N - Not Applicable

MISC. BRIDGE DATA	
Structure Flared	0 - No flare
Parallel Structure	N - No parallel structure
Field Conn. ID	
Abutment Foundation	2 - TIMBER
(Material/Type)	4 - PILE BENT
Pier Foundation	8 - CIP
(Material/Type)	4 - PILE BENT
Historic Status	5 - Not eligible

NBI APPRAISAL RATINGS	
Structure Evaluation	5
Deck Geometry	6
Underclearances	N
Water Adequacy	9 - Bridge Above Flood Wat
Approach Alignment	8 - Equal to present desirabl

STRUCTURE	
Service On	1 - Highway
Force Under	5 - Waterway
Main Span Type	
	7 - Timber 09 - Slab Span
Main Span Detail	
Appr. Span Type	
Appr. Span Detail	
Skew	0
Culvert Type	
Barrel Length	ft.
Cantilever ID	

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

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

IN DEPTH INSP.		
Y/N	Freq	Date

NUMBER OF SPANS		
MAIN: 3	APPR: 0	TOTAL: 3
Main Span Length	24.0 ft.	
Structure Length	72.0 ft.	
Deck Width (Out-to-Out)	34.0 ft.	
Deck Material	8 - Wood or Timber	
Wear Surf Type	6 - Bituminous	
Wear Surf Install Year		
Wear Course/Fill Depth	0.33 ft.	
Deck Membrane	0 - None	
Deck Rebars	N - Not Applicable (no deck)	
Deck Rebars Install Year		
Structure Area (Out-to-Out)	2448 sq. ft.	
Way Area (Curb-to-Curb)	2314 sq. ft.	
Sidewalk Width	Lt 0.00 ft. Rt 0.00 ft.	
Curb Height	Lt 1.00 ft. Rt 1.00 ft.	
Rail Type	Lt 06 Rt 06	

WATERWAY	
Drainage Area (sq. mi.)	40.0
Waterway Opening	310 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	R - CRIT - MONI Year 1995

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

CAPACITY RATINGS	
Design Load	5 - HS 20
Operating Rating	2 - AS HS 33.6
Inventory Rating	2 - AS HS 24.0
Posting VEH:	SEMI: DBL:
Rating Date	3/1/1987

Mn/DOT Permit Codes
 A: N - N/A
 B: N - N/A
 C: N - N/A

Mn/DOT BRIDGE INSPECTION REPORT

02/01/2012

Inspector: County, Anoka

BRIDGE 02534 CR 71 OVER SEELYE BROOK

ROUTINE INSP. DATE: 11/21/2011

County: Anoka Location: 0.1 MI S OF JCT CSAH 28 Length: 72.0 ft.
 City: St Francis Route: 07 - CNTY 71 Ref. Pt.: 001+00.350 Deck Width: 34.0 ft.
 Township: Control Section: Rdwy. Area/ Pct. Unsnd: 2314 sq. ft. / %
 Section: 35 Township: 034N Range: 25W Maint. Area: Paint Area/ Pct. Unsnd: sq. ft. / %
 Span Type: 7 - Wood or Timber 01 - Slab Local Agency Bridge Nbr.: Culvert: N/A
 List: Postings:

NBI Deck: 6 Super: 7 Sub: 5 Chan: 5 Culv: N
 Open, Posted, Closed: A - Open
 MN Scour Code: R - CRIT - MONITOR
 Appraisal Ratings - Approach: 8 Waterway: 9
 Required Bridge Signs - Load Posting: 0 - Not Required Traffic: 0 - Not Required
 Horizontal: 0 - Not Required Vertical: N - Not Applicable

Unofficial Structurally Deficient N
 Unofficial Functionally Obsolete N
 Unofficial Sufficiency Rating 82.7

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
407	Bituminous Approach Roadway	1	Routine	11/21/2011	2 EA	0	2	0	0	N/A
			Routine	11/04/2009	2 EA	0	2	0	0	N/A
Notes: (1/09) Minor settlement and map cracking at both ends of the bridge.										
055	Timber Slab with Bituminous (AC) Overlay	2	Routine	11/21/2011	2443 SF	0	2443	0	0	N/A
			Routine	11/04/2009	2443 SF	0	2443	0	0	N/A
Notes: Wearing surface milled and a 3" overlay placed (7/94). (12/11/97) Transverse and longitudinal cracks have reoccurred wearing surface. (1999) Impending potholes in bituminous surfacing. (2000) 1" bituminous overlay placed in 2000, transverse and longitudinal cracks have reoccurred in the wearing surface. (2002) Cracks have been sealed, new cracks developing. (12/24) N/C. (1/09) Map cracking of the bituminous surface, evidence of water leaking through the deck. (11/11) Several patched potholes exist in the bituminous wearing surface, water continues to leak through the deck.										
206	Timber Column	2	Routine	11/21/2011	12 EA	0	12	0	0	N/A
			Routine	11/04/2009	12 EA	0	12	0	0	N/A
Notes: < none >										
216	Timber Abutment	2	Routine	11/21/2011	75 LF	1	75	0	0	N/A
			Routine	11/04/2009	75 LF	1	75	0	0	N/A
Notes: < none >										
235	Timber Pier Cap	2	Routine	11/21/2011	148 LF	0	148	0	0	N/A
			Routine	11/04/2009	148 LF	0	148	0	0	N/A
Notes: Pier cap = 72 LF, Abutment cap = 76 LF.										
332	Timber Bridge Railing	2	Routine	11/21/2011	144 LF	126	18	0	N/A	N/A
			Routine	11/04/2009	144 LF	126	18	0	N/A	N/A
Notes: (Railing Code 06) (11/06) Impact damage to the west rail at midspan. (1/09) Impact damage to the east rail at midspan and the SE corner.										
361	Scour Smart Flag	2	Routine	11/21/2011	1 EA	1	0	0	N/A	N/A
			Routine	11/04/2009	1 EA	1	0	0	N/A	N/A
Notes: R - Scour critical. Monitoring 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
382	Cast-In-Place (CIP) Piling	2	Routine	11/21/2011	10 EA	0	0	0	10	N/A
			Routine	11/04/2009	10 EA	0	0	0	10	N/A
Notes: (12/12/95) Pier piling. CIP piling has some corrosion with peeled paint at cap and waterline. (1999) Major corrosion with section loss at cap & waterline. (2000) Active corrosion and section loss of pile shells continuing. (2002) Corrosion and section loss continue, paint caulking over the entire length of the pile shells. (12/04) Major deterioration of the steel shells. (1/09) Steel connection plates at the timber caps have severe section loss and pack rust.										
386	Timber Wingwall	2	Routine	11/21/2011	4 EA	0	4	0	0	N/A
			Routine	11/04/2009	4 EA	0	4	0	0	N/A
Notes: < none >										
964	Critical Finding Smart Flag	2	Routine	11/21/2011	1 EA	1	0	N/A	N/A	N/A
			Routine	11/04/2009	1 EA	1	0	N/A	N/A	N/A
Notes: (11/06) No critical findings noted.										
981	Signing	2	Routine	11/21/2011	1 EA	0	1	0	0	0
			Routine	11/04/2009	1 EA	0	1	0	0	0
Notes: (11/09) NE delineator slightly bent.										
982	Approach Guardrail	2	Routine	11/21/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/04/2009	1 EA	1	0	0	N/A	N/A
Notes: (11/09) Guardrail has been extended and new end treatment installed at all four corners. (11/11) Impact damage to the NW guardrail.										
500	Slopes & Slope Protection	2	Routine	11/21/2011	1 EA	0	0	1	N/A	N/A
			Routine	11/04/2009	1 EA	0	1	0	N/A	N/A
Notes: Minor undermining of grouted riprap at waterline. (2000) N/C. (12/04) Minor erosion at the SW wingwall. (11/09) The grouted riprap is deteriorating and undermining in the SW corner. (11/11) The lateral movement of the channel is resulting in the undermining and slumping of the grouted riprap along the south abutment.										

General Notes: Channel Protection: (1999) Floating bog is restricting channel at upstream end of bridge. (2000) Floating bog has been removed from the channel. (12/04) The channel appears to be laterally moving to the south at the upstream end of the bridge causing sedimentation to deposit along the north side of the channel. (1/09) Sediment deposits in the channel on both sides of the bridge is restricting the channel and forcing the flow towards the abutments.
 Inspected by: G. Anderson & W. Howard 12/04/02., G. Anderson & M. Werlinger 12/15/04., G. Anderson & M. Werlinger 11/20/06., G. Anderson 1/08/09., G. Anderson & M. Werlinger 11/04/09., G. Anderson & C. Osterhus 11/21/11.

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:

61. Channel NBI:

62. Culvert NBI:

63. Waterway Adeq NBI:

72. Appr Roadway
Alignment NBI:

Inventory Notes:

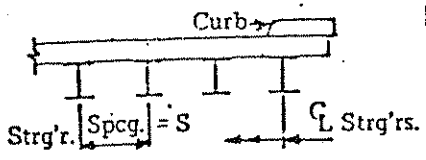
Structure Unit:

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
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Gregory Anderson
Inspector's Signature

Andrew Witter
Reviewer's Signature

24



NON-COMPOSITE STRINGER RATING SHEET
(FOR STEEL OR TIMBER SIMPLE SPANS)

MHD 22106A

Rated by RRT

Checked by _____

Date 3-18-87

TIMBER PANELS

DATA	Bridge No. <u>02534</u> Year built _____ Total structure length <u>72</u> ft. County <u>ANOKA</u> Roadway width (curb to curb) = <u>32</u> ft. No. of spans = <u>3</u> Length of span rated = L = <u>23</u> ft. Distribution factor (from P. 29, AASHO, 1969)* = <u>S 44"</u> Route <u>154th St</u> Feature crossed <u>SEELYE BROOK</u> Abutment type <u>TREATED TIMBER</u> Pier type <u>12" O CIP</u> Floor: type <u>LONG LAM TIM</u> thickness <u>12"</u> Curb: height <u>12"</u> width <u>12"</u> Railing: type <u>LAM TIMB</u> height _____ width _____																							
DEAD LOAD	Dead load per ft. of stringer: **Overburden <u>.25 x 3.67 x 150</u> = <u>138</u> lb./ft. Floor <u>1.0 x 3.67 x 50</u> = <u>184</u> lb./ft. Stringer _____ = _____ lb./ft. Railing or other _____ = _____ lb./ft. Total dead load = W _____ = <u>322</u> lb./ft. Dead load Moment = 1/8 (W) (L) ² = <u>1/8 x 322 x 23²</u> = <u>21292</u> ft. lb.																							
H RATING	Stringers: _____ @ _____ spcg. = S Sec. modulus = <u>1056</u> in ³ - loss () = <u>1056</u> in ³ = S M Impact = _____ <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"></td> <td style="width:35%; text-align:center;">Inventory, $f_i = 1500$ lb/in²</td> <td style="width:35%; text-align:center;">Operating $f_o = 2000$ lb/in²</td> </tr> <tr> <td>Resisting Moment = $\frac{S M (f_i \text{ or } f_o)}{12}$ = <u>1056 ()</u></td> <td style="text-align:center;"><u>132000</u> ft. lb. ①</td> <td style="text-align:center;"><u>176000</u> ft. lb. ①</td> </tr> <tr> <td>less Dead load Moment of</td> <td style="text-align:center;"><u>21292</u> ft. lb. ②</td> <td style="text-align:center;"><u>21292</u> ft. lb. ②</td> </tr> <tr> <td>= Moment available for live load and impact of</td> <td style="text-align:center;"><u>110708</u> ft. lb. ③</td> <td style="text-align:center;"><u>154708</u> ft. lb. ③</td> </tr> <tr> <td>Moment avail. for live load = $\frac{\text{③}}{(1 + \text{impact}) (\text{Dist. Factor})}$ =</td> <td style="text-align:center;"><u>110702</u> ft. lb. ④</td> <td style="text-align:center;"><u>154708</u> ft. lb. ④</td> </tr> <tr> <td>H₂₀ Mom.*** =</td> <td style="text-align:center;"><u>92000</u> ft. lb. ⑤</td> <td style="text-align:center;"><u>92000</u> ft. lb. ⑤</td> </tr> <tr> <td>H Rating = $\frac{\text{④}}{\text{⑤}} (20) =$</td> <td style="text-align:center;"><u>HS 24</u> ⑥</td> <td style="text-align:center;"><u>HS 33.6</u> ⑥</td> </tr> </table>				Inventory, $f_i = 1500$ lb/in ²	Operating $f_o = 2000$ lb/in ²	Resisting Moment = $\frac{S M (f_i \text{ or } f_o)}{12}$ = <u>1056 ()</u>	<u>132000</u> ft. lb. ①	<u>176000</u> ft. lb. ①	less Dead load Moment of	<u>21292</u> ft. lb. ②	<u>21292</u> ft. lb. ②	= Moment available for live load and impact of	<u>110708</u> ft. lb. ③	<u>154708</u> ft. lb. ③	Moment avail. for live load = $\frac{\text{③}}{(1 + \text{impact}) (\text{Dist. Factor})}$ =	<u>110702</u> ft. lb. ④	<u>154708</u> ft. lb. ④	H ₂₀ Mom.*** =	<u>92000</u> ft. lb. ⑤	<u>92000</u> ft. lb. ⑤	H Rating = $\frac{\text{④}}{\text{⑤}} (20) =$	<u>HS 24</u> ⑥	<u>HS 33.6</u> ⑥
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H Rating = $\frac{\text{④}}{\text{⑤}} (20) =$	<u>HS 24</u> ⑥	<u>HS 33.6</u> ⑥																						
POSTING CALCULATIONS	<p>A. Bridge length ≤ 20 feet: When H Rating at Operating ⑥ is less than 16, make Posting Calculation ⑦.</p> <p>B. Bridge length > 20 feet: When ④ of Operating is less than the Moment for M-3 or M3S2 type vehicles of the rated span length, make Posting Calculations ⑧ and ⑨.</p> <p>C. If any substructure unit governs Posting loads, indicate the basis of structure capacity and determine allowable loads accordingly.</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td colspan="2"></td> <td style="text-align:center;">BRIDGE LENGTH ≤ 20 feet</td> <td></td> </tr> <tr> <td colspan="2"></td> <td>Bridge Limit = ⑥ of operating (.75) = _____</td> <td style="text-align:center;"><u>LEGAL</u> ⑦</td> </tr> <tr> <td style="text-align:center;">VEHICLE</td> <td style="text-align:center;">MOMENT*** (No Impact)</td> <td style="text-align:center;">BRIDGE LENGTH > 20 feet****</td> <td></td> </tr> <tr> <td style="text-align:center;">M-3 =</td> <td style="text-align:center;">_____</td> <td>M-3 Posting load = $\frac{\text{④ of operating}}{\text{Moment of M-3}} (23.25) =$ _____</td> <td style="text-align:center;"><u>LEGAL</u> ⑧</td> </tr> <tr> <td style="text-align:center;">M-3S2 =</td> <td style="text-align:center;">_____</td> <td>M-3S2 Posting load = $\frac{\text{④ of operating}}{\text{Moment of M-3S2}} (36.6) =$ _____</td> <td style="text-align:center;"><u>LEGAL</u> ⑨</td> </tr> </table>					BRIDGE LENGTH ≤ 20 feet				Bridge Limit = ⑥ of operating (.75) = _____	<u>LEGAL</u> ⑦	VEHICLE	MOMENT*** (No Impact)	BRIDGE LENGTH > 20 feet****		M-3 =	_____	M-3 Posting load = $\frac{\text{④ of operating}}{\text{Moment of M-3}} (23.25) =$ _____	<u>LEGAL</u> ⑧	M-3S2 =	_____	M-3S2 Posting load = $\frac{\text{④ of operating}}{\text{Moment of M-3S2}} (36.6) =$ _____	<u>LEGAL</u> ⑨	
		BRIDGE LENGTH ≤ 20 feet																						
		Bridge Limit = ⑥ of operating (.75) = _____	<u>LEGAL</u> ⑦																					
VEHICLE	MOMENT*** (No Impact)	BRIDGE LENGTH > 20 feet****																						
M-3 =	_____	M-3 Posting load = $\frac{\text{④ of operating}}{\text{Moment of M-3}} (23.25) =$ _____	<u>LEGAL</u> ⑧																					
M-3S2 =	_____	M-3S2 Posting load = $\frac{\text{④ of operating}}{\text{Moment of M-3S2}} (36.6) =$ _____	<u>LEGAL</u> ⑨																					

*Standard Specifications for Highway Bridges, 1969, adopted by the American Associations of State Highway Officials.
 **Overburden may be wearing course or gravel fill etc. which is not a part of the Structural Floor.
 ***From Minnesota Truck Moments, Plate 3 without impact.
 ****When calculated loads exceed 23.5 tons and 36.6 tons respectively, no posting is required.

Mn/DOT Structure Inventory Report

Bridge ID: 02535

CSAH 7

over SEELYE BROOK

Date: 02/01/2012

GENERAL	
Agency Br. No.	
District	Metro
Maint. Area	Crew
County	002 - Anoka
City	Oak Grove
Township	
Desc. Loc.	1.2 MI S OF JCT CSAH 24
Sect., Twp., Range	7 - 033N - 24W
Latitude	Deg 45 Min 21 Sec 58.82
Longitude	Deg 93 Min 22 Sec 22.16
Custodian	02 - County Highway Agency
Owner	02 - County Highway Agency
BMU Agreement	
Year Built	1984
MN Year Reconstructed	
FHWA Year Reconstructed	
MN Temporary Status	
Bridge Plan Location	3 - COUNTY
Date Opened to Traffic	10/1/1984
On-Off System	1 - ON
Legislative District	48A

ROADWAY	
Bridge Match ID (TIS)	0
Roadway O/U Key Route On Structure	
Route Sys	04 - CSAH Number 7
Roadway Name or Description	
CSAH 7	
Level of Service	1 - MAINLINE
Roadway Type	2 - 2-way traffic
Control Section (TH Only)	
Reference Point	013+00.210
Detour Length	3.0 mi
Lanes	On 2 Under 0
	ADT 7042 Year 2008
HCA DT	423 ADTT 6 %
Functional Class	07 - Rural - Major Collector

INSPECTION	
Userkey	42
Unofficial Structurally Deficient	N
Unofficial Functionally Obsolete	N
Unofficial Sufficiency Rating	86.1
Routine Inspection Date	11/21/2011
Routine Inspection Frequency	24
Inspector Name	County, Anoka
Status	A - Open

RDWY DIMENSIONS		
If Divided	NB-EB	SB-WB
Roadway Width	44.10 ft.	ft.
Vertical Clearance	ft.	ft.
Max. Vert. Clear.	ft.	ft.
Horizontal Clear.	ft.	ft.
Lateral Clearance	ft.	ft.
Appr. Surface Width	32.0 ft.	
Bridge Roadway Width	44.1 ft.	
Median Width On Bridge	ft.	

NBI CONDITION RATINGS	
Deck	6 - Satisfactory Condition
Unsound Deck %	
Superstructure	7 - Good Condition
Substructure	5 - Fair Condition
Channel	7 - Needs minor repairs
Culvert	N - Not Applicable

MISC. BRIDGE DATA	
Structure Flared	0 - No flare
Parallel Structure	N - No parallel structure
Field Conn. ID	
Abutment Foundation	2 - TIMBER
(Material/Type)	4 - PILE BENT
Pier Foundation	8 - CIP
(Material/Type)	4 - PILE BENT
Historic Status	5 - Not eligible

NBI APPRAISAL RATINGS	
Structure Evaluation	5
Deck Geometry	6
Underclearances	N
Water Adequacy	9 - Bridge Above Flood Wat
Approach Alignment	8 - Equal to present desirabl

STRUCTURE	
Service On	1 - Highway
Service Under	5 - Waterway
Main Span Type	
	7 - Timber 09 - Slab Span
Main Span Detail	
Appr. Span Type	
Appr. Span Detail	
Skew	0
Culvert Type	
Barrel Length	ft.
Cantilever ID	

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

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

IN DEPTH INSP.		
Y/N	Freq	Date

NUMBER OF SPANS			
MAIN:	3	APPR:	0
TOTAL:	3		
Main Span Length	20.0	ft.	
Structure Length	60.0	ft.	
Deck Width (Out-to-Out)	46.0	ft.	
Deck Material	8 - Wood or Timber		
Wear Surf Type	6 - Bituminous		
Wear Surf Install Year			
Wear Course/Fill Depth	0.33	ft.	
Deck Membrane	0 - None		
Deck Rebars	N - Not Applicable (no deck)		
Deck Rebars Install Year			
Structure Area (Out-to-Out)	2760	sq. ft.	
Way Area (Curb-to-Curb)	2648	sq. ft.	
Sidewalk Width	Lt 0.00	ft.	Rt 0.00
		ft.	
Curb Height	Lt 1.00	ft.	Rt 1.00
		ft.	
Rail Type	Lt 06		Rt 06

WATERWAY	
Drainage Area (sq. mi.)	48.0
Waterway Opening	265 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	R - CRIT - MONI Year 1995

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

CAPACITY RATINGS	
Design Load	5 - HS 20
Operating Rating	2 - AS HS 40.6
Inventory Rating	2 - AS HS 29.6
Posting VEH:	SEMI: DBL:
Rating Date	3/1/1987

Mn/DOT Permit Codes	
A:	N - N/A
B:	N - N/A
C:	N - N/A

Mn/DOT BRIDGE INSPECTION REPORT

02/01/2012

Inspector: County, Anoka

BRIDGE 02535 CSAH 7 OVER SEELYE BROOK

ROUTINE INSP. DATE: 11/21/2011

County: Anoka Location: 1.2 MI S OF JCT CSAH 24 Length: 60.0 ft
 City: Oak Grove Route: 04 - CSAH 7 Ref. Pt.: 013+00.210 Deck Width: 46.0 ft
 Township: Control Section: Rdwy. Area/ Pct. Unsnd: 2648 sq. ft. / %
 Section: 7 Township: 033N Range: 24W Maint. Area: Paint Area/ Pct. Unsnd: sq. ft. / %
 Span Type: 7 - Wood or Timber 01 - Slab Local Agency Bridge Nbr.: Culvert: N/A
 List: Postings:

NBI Deck: 6 Super: 7 Sub: 5 Chan: 7 Culv: N
 Open, Posted, Closed: A - Open
 MN Scour Code: R - CRIT - MONITOR

Appraisal Ratings - Approach: 8 Waterway: 9 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: N - Not Applicable Unofficial Sufficiency Rating 86.1

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
407	Bituminous Approach Roadway	1	Routine	11/21/2011	1 EA	0	1	0	0	N/A
			Routine	11/04/2009	1 EA	1	0	0	0	N/A
Notes: (1/09) Map cracking adjacent to the deck at both ends of the bridge. (11/11) Map cracking and potholes adjacent to the deck at both ends of the bridge.										
055	Timber Slab with Bituminous (AC) Overlay	2	Routine	11/21/2011	2756 SF	0	2756	0	0	N/A
			Routine	11/04/2009	2756 SF	0	2756	0	0	N/A
Notes: (12/11/97) Overlaid SEPT 97, CP 94-03-07. Transverse & longitudinal cracks in bituminous surfacing. (1999) Cracks have been routed & sealed. (2002) New cracks in the bituminous surfacing developing. (12/04) Unsealed cracks exist in the bituminous surfacing. (11/06) Minor splitting of the deck timbers evident on the underside, bituminous surfacing map cracking. (1/09) Potholes evident, evidence of water leaking through the deck. (11/11) Potholes and extensive cracking of the bituminous surfacing on the deck. Checking and splitting of the deck timbers at the south abutment.										
206	Timber Column	2	Routine	11/21/2011	16 EA	0	16	0	0	N/A
			Routine	11/04/2009	16 EA	0	16	0	0	N/A
Notes: < none >										
216	Timber Abutment	2	Routine	11/21/2011	98 LF	0	98	0	0	N/A
			Routine	11/04/2009	98 LF	0	98	0	0	N/A
Notes: < none >										
235	Timber Pier Cap	2	Routine	11/21/2011	197 LF	0	197	0	0	N/A
			Routine	11/04/2009	197 LF	0	197	0	0	N/A
Notes: Pier caps = 96 LF, Abutment caps = 100 LF.										
332	Timber Bridge Railing	2	Routine	11/21/2011	394 LF	394	0	0	N/A	N/A
			Routine	11/04/2009	394 LF	394	0	0	N/A	N/A
Notes: (Railing Code 06)										
361	Scour Smart Flag	2	Routine	11/21/2011	1 EA	1	0	0	N/A	N/A
			Routine	11/04/2009	1 EA	1	0	0	N/A	N/A
Notes: R - Scour critical. Monitoring required.										

Structure Unit:

ELEM #SR	ELEMENT NAME	ENV	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
382	Cast-In-Place (CIP) Piling	2	Routine	11/21/2011	14 EA	0	0	0	14	N/A
			Routine	11/04/2009	14 EA	0	0	0	14	N/A
Notes: (3/25/94) Top of steel piles corroded from water passing through transverse cracks in wearing surface located over the piers. (12/12/95) Corrosion at the waterline. Center pile shell of each pier has major corrosion with section loss caused by leakage through the deck. (1999) Increasing corrosion and section loss evident on all pile shells. (2000) Increasing corrosion and section loss on all pile shells. (2002) Corrosion and section loss continuing. (12/04) N/C. (1/09) (1/09) Steel connection plates at the timber caps have severe section loss and pack rust, severe section loss throughout the entire shell of the center pile on both piers.										
386	Timber Wingwall	2	Routine	11/21/2011	4 EA	0	4	0	0	N/A
			Routine	11/04/2009	4 EA	0	4	0	0	N/A
Notes: (12/04) 4-4" utility conduits have been placed through the NE wingwall.										
964	Critical Finding Smart Flag	2	Routine	11/21/2011	1 EA	1	0	N/A	N/A	N/A
			Routine	11/04/2009	1 EA	1	0	N/A	N/A	N/A
Notes: (11/06) No critical findings noted.										
981	Signing	2	Routine	11/21/2011	1 EA	0	1	0	0	0
			Routine	11/04/2009	1 EA	0	1	0	0	0
Notes: (1999) Delineator sign posts at NE & NW corners of bridge are severely bent. (2000) Delineators have been repaired. (2002) NE bridge delineator damaged. (12/04) NE bridge delineator bent slightly. (11/09) NE and SW bridge delineators bent slightly. (11/11) NE and NW bridge delineator posts bent slightly.										
982	Approach Guardrail	2	Routine	11/21/2011	1 EA	1	0	0	N/A	N/A
			Routine	11/04/2009	1 EA	1	0	0	N/A	N/A
Notes: (12/11/97) New guardrail installed 1997, CP 94-03-07.										
984	Deck & Approach Drainage	2	Routine	11/21/2011	1 EA	1	0	0	N/A	N/A
			Routine	11/04/2009	1 EA	1	0	0	N/A	N/A
Notes: < none >										
985	Slopes & Slope Protection	2	Routine	11/21/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/04/2009	1 EA	0	1	0	N/A	N/A
Notes: Erosion behind NW & NE wingwalls. (1999) Erosion beginning to undermine grouted riprap. (2000) N/C. (2002) Concrete flumes have been poured along the NW & NE wingwalls, undermining of the grouted riprap continues along the NW wingwall. (12/04) Erosion undermining the grouted riprap at the NW & NE corners of the bridge. (11/06) The grouted riprap has been repaired. (11/09) Minor erosion and undermining of the grouted riprap along the NE wingwall.										
986	Curb & Sidewalk	2	Routine	11/21/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/04/2009	1 EA	0	1	0	N/A	N/A
Notes: < none >										

General Notes: Inspected by: G. Anderson & M. Werlinger 12/15/04., G. Anderson & C. Osterhus 11/17/06., G. Anderson 1/08/09., G. Anderson & M. Werlinger 11/04/09., G. Anderson & C. Osterhus 11/21/11.

58. Deck NBI:

36A. Brdg Railings NBI:

36B. Transitions NBI:

36C. Appr Guardrail NBI:

36D. Appr Guardrail
Terminal NBI:

59. Superstructure NBI:

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
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60. Substructure NBI:

61. Channel NBI:

62. Culvert NBI:

71. Waterway Adeq NBI:

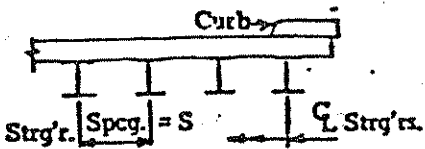
72. Appr Roadway
Alignment NBI:

Inventory Notes:

Gregory Anderson
Inspector's Signature

Andrew Witter
Reviewer's Signature

2



NON-COMPOSITE STRINGER RATING SHEET
(FOR STEEL OR TIMBER SIMPLE SPANS)

MHD 22106A 8-73

Rated by RRT
Checked by _____
Date 3-18-87

DATA

Bridge No. 02535 Year built _____ Total structure length _____ ft.

County ANOKA Roadway width (curb to curb) = 44 ft. No. of spans = _____

Length of span rated = L = 20 ft. Stringers: _____ @ _____ spcg. = S = 44"

Route CSAH 24 Feature crossed SEELYE BECK

Abutment type TREATED TIMBER Pier type PILE BENT
150 CIP

Floor: type LONG. LAM. TIMBER thickness 12" Curb: height _____ width _____

Railing: type _____ height _____ width _____

DEAD LOAD

Dead load per ft. of stringer:

**Overburden 2.5/12 x 44/12 x 120 = 92 lb./ft.

Floor 1.0 x 44/12 x 50 = 183 lb./ft.

Stringer _____ = _____ lb./ft.

Railing or other _____ = _____ lb./ft.

Total dead load = W = 275 lb./ft.

Dead load Moment = 1/8 (W) (L)² = 1/8 x 275 x 20² = 13750 ft. lb.

H RATING

Impact = NONE Sec. modulus = 1056 in³ - loss (-) = 1056 in³ = S M

Dist. factor (from P. 29, AASHO, 1969)* = S = 44"

	INVENTORY	OPERATING
Resisting Moment = $\frac{S M (f_i \text{ or } f_o)}{12}$	$f_i = 1500 \text{ lb/in}^2$ <u>132000</u> ft. lb. (1)	$f_o = 2000 \text{ lb/in}^2$ <u>176000</u> ft. lb. (1)
less Dead load Moment of	<u>13750</u> ft. lb. (2)	<u>13750</u> ft. lb. (2)
= Moment available for live load and impact of	<u>118250</u> ft. lb. (3)	<u>162250</u> ft. lb. (3)
Moment avail. for live load = $\frac{\text{(3)}}{(1 + \text{impact}) (\text{Dist. Factor})}$	<u>118250</u> ft. lb. (4)	<u>162250</u> ft. lb. (4)
Per Wheel Line	<u>80000</u> ft. lb. (5)	<u>80000</u> ft. lb. (5)
H 20 Mom.*** =	<u>80000</u> ft. lb. (5)	<u>80000</u> ft. lb. (5)
H Rating = $\frac{\text{(4)}}{\text{(5)}} (20) =$	<u>HS 29.6</u> (6)	<u>HS 40.6</u> (6)

POSTING CALCULATIONS

When line (5) of Oper. is as follows:

less than H3	Close bridge
H3 up to H6	Use H value from line (6) of Oper. on line (7) and post for single weight limit.
H6 up to H12	Use H value from line (6) of Oper. on line (8) and 1.75 x H value from line (5) of Oper. on line (9).
H12 and over	When line (4) of Oper. is less than the moment for M-3 or M-3S2 type vehicles of the rated span length, make Posting Calculations (8) and (9).

NOTE: If any substructure unit governs Posting loads, indicate the basis of structure capacity and determine allowable loads accordingly.

VEHICLE	MOMENT*** (No Impact)	Bridge Limit = (6) of Operating	POSTING LOADS (in whole tons)
M-3 =		M-3 Posting load = (4) of Operating (23.25) Moment of M-3	<u>LEGAL</u> (7)
M-3S2 =		M-3S2 Posting load = (4) of Operating Moment of M-3S2 (36.6)	<u>LEGAL</u> (8)
			<u>LEGAL</u> (9)

* Standard Specifications for Highway Bridges, 1969, adopted by the American Associations of State Highway Officials
 ** Overburden may be wearing course or gravel fill etc. which is not a part of the Structural Floor.
 *** From Minnesota Truck Moments, Plate 3 without impact.
 **** When calculated loads exceed 23.5 tons and 36.6 tons respectively no posting is required.

Mn/DOT Structure Inventory Report

Bridge ID: 02554

MUN 31(AQUA LANE)

over RICE CREEK

Date: 02/06/2012

GENERAL	
Agency Br. No.	
District	Metro
Maint. Area	Crew
County	002 - Anoka
City	Lino Lakes
Township	
Desc. Loc.	0.2 MIE OF JCT TH 49
Sect., Twp., Range	20 - 031N - 22W
Latitude	Deg 45 Min 9 Sec 48.87
Longitude	Deg 93 Min 6 Sec 56.18
Custodian	12 - Local Park, Forest, or Res. Agenc
Owner	12 - Local Park, Forest, or Res. Agenc
BMU Agreement	
Year Built	1991
MN Year Reconstructed	
FHWA Year Reconstructed	
MN Temporary Status	
Bridge Plan Location	3 - COUNTY
Date Opened to Traffic	
On-Off System	0 - OFF
Legislative District	53A

ROADWAY	
Bridge Match ID (TIS)	0
Roadway O/U Key	Route On Structure
Route Sys	10 - MUN Number 31
Roadway Name or Description	
MUN 31	
Level of Service	1 - MAINLINE
Roadway Type	2 - 2-way traffic
Control Section (TH Only)	
Reference Point	000+00.370
Detour Length	1.0 mi
Lanes	On 2 Under 0
	ADT 430 Year 1995
HCADT	0 ADTT 0 %
Functional Class	19 - Urban - Local

INSPECTION	
Userkey	42
Unofficial Structurally Deficient	N
Unofficial Functionally Obsolete	N
Unofficial Sufficiency Rating	98.0
Routine Inspection Date	11/17/2011
Routine Inspection Frequency	24
Inspector Name	County, Anoka
Status	A - Open

RDWY DIMENSIONS		
If Divided	NB-EB	SB-WB
Roadway Width	32.00 ft.	ft.
Vertical Clearance	ft.	ft.
Max. Vert. Clear.	ft.	ft.
Horizontal Clear.	31.9 ft.	ft.
Lateral Clearance	ft.	ft.
Appr. Surface Width	32.0 ft.	
Bridge Roadway Width	32.0 ft.	
Median Width On Bridge	ft.	

NBI CONDITION RATINGS	
Deck	7 - Good Condition
Unsound Deck %	
Superstructure	7 - Good Condition
Substructure	6 - Satisfactory Condition
Channel	6 - Bank slump; minor damage
Culvert	N - Not Applicable

STRUCTURE	
Service On	5 - Highway-pedestrian
Structure Under	5 - Waterway
Main Span Type	
	7 - Timber 09 - Slab Span
Main Span Detail	
Appr. Span Type	
Appr. Span Detail	
Skew	0
Culvert Type	
Barrel Length	ft.
Cantilever ID	

MISC. BRIDGE DATA	
Structure Flared	0 - No flare
Parallel Structure	N - No parallel structure
Field Conn. ID	
Abutment Foundation	2 - TIMBER
(Material/Type)	4 - PILE BENT
Pier Foundation	8 - CIP
(Material/Type)	4 - PILE BENT
Historic Status	5 - Not eligible

NBI APPRAISAL RATINGS	
Structure Evaluation	6
Deck Geometry	6
Underclearances	N
Water Adequacy	9 - Bridge Above Flood Wat
Approach Alignment	6 - Equal to present minimur

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

NUMBER OF SPANS	
MAIN: 3	APPR: 0 TOTAL: 3
Main Span Length	22.0 ft.
Structure Length	62.0 ft.
Deck Width (Out-to-Out)	34.6 ft.
Deck Material	8 - Wood or Timber
Wear Surf Type	6 - Bituminous
Wear Surf Install Year	
Wear Course/Fill Depth	0.17 ft.
Deck Membrane	0 - None
Deck Rebars	N - Not Applicable (no deck)
Deck Rebars Install Year	
Structure Area (Out-to-Out)	2145 sq. ft.
Way Area (Curb-to-Curb)	1981 sq. ft.
Sidewalk Width	Lt 8.00 ft. Rt 0.00 ft.
Curb Height	Lt 0.83 ft. Rt 0.83 ft.
Rail Type	Lt 56 Rt 56

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

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

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

WATERWAY	
Drainage Area (sq. mi.)	120.0
Waterway Opening	330 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	1 - LOW RISK Year 1997

CAPACITY RATINGS	
Design Load	5 - HS 20
Operating Rating	2 - AS HS 32.7
Inventory Rating	2 - AS HS 23.5
Posting VEH:	SEMI: DBL:
Rating Date	2/1/1993

Mn/DOT Permit Codes

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

Mn/DOT BRIDGE INSPECTION REPORT

02/06/2012

Inspector: County, Anoka

BRIDGE 02554 MUN 31(AQUA LANE) OVER RICE CREEK

ROUTINE INSP. DATE: 11/17/2011

County: Anoka	Location: 0.2 MI E OF JCT TH 49	Length: 62.0 ft.
City: Lino Lakes	Route: 10 - MUN 31 Ref. Pt.: 000+00.370	Deck Width: 34.6 ft.
Township:	Control Section:	Rdwy. Area/ Pct. Unsnd: 1981 sq. ft. / %
Section: 20 Township: 031N Range: 22W Maint. Area:		Paint Area/ Pct. Unsnd: sq. ft. / %
Span Type: 7 - Wood or Timber 01 - Slab	Local Agency Bridge Nbr.:	Culvert: N/A
List:		Postings:
NBI Deck: 7 Super: 7 Sub: 6 Chan: 6 Culv: N		
	Open, Posted, Closed: A - Open	
	MN Scour Code: I - LOW RISK	
Appraisal Ratings - Approach: 6 Waterway: 9		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: N - Not Applicable	Unofficial Sufficiency Rating 98.0

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
407	Bituminous Approach Roadway	1	Routine	11/17/2011	2 EA	0	2	0	0	N/A
			Routine	11/02/2009	2 EA	0	2	0	0	N/A
Notes: (3/29/94) Near approach - transverse crack in bituminous at abutment. (12/29/97) Settlement at both abutments. (2000) N/C. (2002) Major settlement of the bituminous roadway at both ends of the bridge. (12/04) Bituminous approaches have been repaired. (12/05) Moderate settlement of the bituminous approach slabs at both ends of the bridge. (1/09) The bituminous surface was snow covered. (11/09) Moderate settlement of the bituminous approach slabs at both ends of the bridge										
982	Approach Guardrail	1	Routine	11/17/2011	1 EA	0	0	1	N/A	N/A
			Routine	11/02/2009	1 EA	0	0	1	N/A	N/A
Notes: (11/09) No guardrail in place.										
055	Timber Slab with Bituminous (AC) Overlay	2	Routine	11/17/2011	2142 SF	0	2142	0	0	N/A
			Routine	11/02/2009	2142 SF	2142	0	0	0	N/A
Notes: (11/06) Moderate cracking of the bituminous wearing surface. (1/09) The bituminous surface was snow covered. (11/09) Unsealed cracks of moderate size and density in the bituminous wearing surface.										
206	Timber Column	2	Routine	11/17/2011	16 EA	16	0	0	0	N/A
			Routine	11/02/2009	16 EA	16	0	0	0	N/A
Notes: < none >										
216	Timber Abutment	2	Routine	11/17/2011	95 LF	95	0	0	0	N/A
			Routine	11/02/2009	95 LF	95	0	0	0	N/A
Notes: < none >										
235	Timber Pier Cap	2	Routine	11/17/2011	187 LF	187	0	0	0	N/A
			Routine	11/02/2009	187 LF	187	0	0	0	N/A
Notes: Pier cap = 92 LF, Abutment cap = 96 LF.										
332	Timber Bridge Railing	2	Routine	11/17/2011	407 LF	397	0	10	N/A	N/A
			Routine	11/02/2009	407 LF	397	0	10	N/A	N/A
Notes: (Railing Code 56) (1998) 8' of 3"x4" rail along sidewalk @ SE corner of bridge broken and missing. (1999) N/C (2000) N/C. (2002) N/C. (12/04) 6' of 3"x4" rail along the walk at the SE corner of the bridge is broken and missing. (12/05) The timber railing has been repaired. (11/06) The timber railing that paralleled the bituminous path beyond the NW corner of the bridge is no longer in place. (1/09) A portion of the timber railing is missing adjacent to the NE corner of the bridge.										

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
382	Cast-In-Place (CIP) Piling	2	Routine	11/17/2011	14 EA	0	0	14	0	N/A
			Routine	11/02/2009	14 EA	0	0	14	0	N/A
Notes: (1999) Steel pile shells have chalked paint with areas of corrosion at the waterline. (2000) Steel pile shells have chalked paint with areas of corrosion at the waterline and at the pier caps. (2002) Corrosion of the steel pile shells continuing at the waterline and pier caps. (12/04) N/C. (12/05) Corrosion and section loss of the steel pile shells continuing.										
386	Timber Wingwall	2	Routine	11/17/2011	4 EA	4	0	0	0	N/A
			Routine	11/02/2009	4 EA	4	0	0	0	N/A
Notes: < none >										
964	Critical Finding Smart Flag	2	Routine	11/17/2011	1 EA	1	0	N/A	N/A	N/A
			Routine	11/02/2009	1 EA	1	0	N/A	N/A	N/A
Notes: (11/06) No critical findings noted.										
981	Signing	2	Routine	11/17/2011	1 EA	0	0	1	0	0
			Routine	11/02/2009	1 EA	0	1	0	0	0
Notes: (1999) Hazard marker missing @ SW corner of bridge (2000) N/C. (12/04) All signing inplace. (12/05) Hazard markers at the SW and NW corners of the bridge have been painted with graffiti. (11/06) The NW delineator facing material is failing. (1/09) Bridge delineators are faded and loss of reflectivity. (11/11) The SE delineator is missing, the other three delineators appear to be new.										
985	Slopes & Slope Protection	2	Routine	11/17/2011	1 EA	0	1	0	N/A	N/A
			Routine	11/02/2009	1 EA	0	1	0	N/A	N/A
Notes: (3/29/94) Grouted riprap cracked undermined at NE corner, erosion behind all wingwalls. (12/09/96) moderate deterioration of limestone riprap material. (12/29/97) Additional riprap has been placed at NW and SE wingwalls. (1998) Riprap undermining & slumping @ waterline, erosion along SE wingwall. (1999) Erosion along SE & NE wingwalls beginning to erode bit path. (2000) N/C. (2002) Severe erosion along the SE and NE wingwalls has eroded away part of the bituminous trail. (12/04) Erosion along the SE and NE wingwalls has been repaired. (12/05) Minor erosion along the SE and SW wingwalls. (11/06) Minor erosion along all four wingwalls. (8/07) The grouted riprap is beginning to slump along the abutments. (1/09) Deterioration of the grouted riprap at the waterline is increasing. (11/09) Moderate erosion at the NE and NW corners of the bridge.										
986	Curb & Sidewalk	2	Routine	11/17/2011	1 EA	0	0	1	N/A	N/A
			Routine	11/02/2009	1 EA	0	0	1	N/A	N/A
Notes: (8/07) Timber sidewalk planks (green treated) are cracking, splitting and decaying. (11/09) Several planks severely decayed, need to be replaced.										

General Notes: Channel Protection: (1998) Bank protection being eroded on upstream end of bridge. (1999) Brush/debris in channel under bridge restricting waterway. (2000) N/C. (2002) The brush and debris has been removed from the channel. (12/05) The waterway is unrestricted. (11/06) Dislodged riprap under the bridge is acting as a dam restricting the waterway slightly. (1/09) A beaver dam under the bridge is restricting the channel. (11/09) Logs and brush under the bridge restricting the channel. (11/11) The channel is free of logs and brush.
 Inspected by: G. Anderson & W. Howard 12/11/02., G. Anderson & M. Werlinger 12/13/04., G. Anderson & M. Werlinger 12/12/05., G. Anderson & M. Werlinger 11/22/06., G. Anderson & M. Werlinger 8/03/07., G. Anderson & C. Osterhus 1/07/09., G. Anderson & M. Werlinger 11/02/09., G. Anderson & K. Rank 11/17/11.

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:

61. Channel NBI:

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
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62. Culvert NBI:

71. Waterway Adeq NBI:

72. Appr Roadway
Alignment NBI:

Inventory Notes:

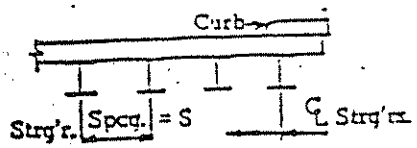
Gregory Anderson

Inspector's Signature

Andrew Witter

Reviewer's Signature

39



NON-COMPOSITE STRINGER RATING SHEET
(FOR STEEL OR TIMBER SIMPLE SPANS)

MHD 22106A 8-73

Rated by D.D.
Checked by _____
Date 2-11-93

DATA

Bridge No. 02554 Year built 1991 Total structure length 62 ft.
 County ANOKA Roadway width (curb to curb) = 32 ft. No. of spans = 3
 Length of span rated = L = 21.5 ft. Stringers: _____ @ _____ spcs. = S
 Route AQUA LANE Feature crossed RICE CREEK
 Abutment type TREATED TIMBER Pier type PILE BENT 12" C.I.P.
 Floor: type TREATED TIMBER thickness 12" Curb: height _____ width _____
 Railing: type GLU-LAM height 2'-10" width _____

DEAD LOAD

Dead load per ft. of stringer:
 **Overburden _____ = _____ lb./ft.
 Floor _____ = _____ lb./ft.
 Stringer _____ = _____ lb./ft.
 Railing or other _____ = _____ lb./ft.
 Total dead load = W _____ = _____ lb./ft.
 Dead load Moment = $1/8 (W) (L)^2$ = _____ = 18538 ft. lb.

H RATING

Impact = _____ Sec. modulus = 792 in³ - loss (____) = 792 in³ = S M
 Dist. factor (from P. 29, AASHO, 1969) = S = _____
 Resisting Moment = $S M (f_i \text{ or } f_o)$ _____
 less Dead load Moment of _____
 = Moment available for live load and impact of _____
 Moment avail. for live load = $\frac{\text{③}}{(1 + \text{impact}) (\text{Dist. Factor})}$ = _____
 Per Wheel Line _____
 H 20 Mom. *** = _____
 H Rating = $\frac{\text{④}}{\text{⑤}} (20)$ = _____

	INVENTORY	OPERATING
$f_i = 1812$ lb/in ²	$f_o = 2411$ lb/in ²	
<u>119588</u> ft. lb. ①	<u>159148</u> ft. lb. ②	
<u>18538</u> ft. lb. ②	<u>18538</u> ft. lb. ③	
<u>101050</u> ft. lb. ③	<u>140610</u> ft. lb. ④	
<u>101050</u> ft. lb. ④	<u>140610</u> ft. lb. ⑤	
<u>86000</u> ft. lb. ⑤	<u>86000</u> ft. lb. ⑥	
<u>HS 23.5</u> ⑥	<u>HS 32.7</u>	

POSTING CALCULATIONS

When line ⑤ or Oper. is as follows: Make Posting Calculations as follows:

less than H3	Close bridges
H3 up to H6	Use H value from line (6) of Oper. on line (7) and post for single weight limit.
H6 up to H12	Use H value from line (6) of Oper. on line (8) and 1.75 x H value from line (6) of Oper. on line (9).
H12 and over	When line (4) of Oper. is less than the moment for M-3 or M-3S2 type vehicles of the rated span length, make Posting Calculations (7) and (8).

NOTE: If any substructure unit governs Posting loads, indicate the basis of structure capacity and determine allowable loads accordingly.

VEHICLE	MOMENT*** (No Impact)	Bridge Limit	Posting load	LOADS (in whole tons)
M-3	_____	= ⑥ of Operating	= _____	<u>LEGAL ⑦</u>
M-3S2	_____	M-3 Posting load = ④ of Operating (23.25) Moment of M-3	= _____	<u>LEGAL ⑧</u>
		M-3S2 Posting load = ④ of Operating Moment of M-3S2 (26.6)	= _____	<u>LEGAL ⑨</u>

* Standard Specifications for Highway Bridges, 1969, adopted by the American Associations of State Highway Officials
 ** Overburden may be wearing course or gravel fill etc. which is not a part of the Structural Floor.
 *** From Minnesota Truck Moments, Plate 3 without impact.
 **** When calculated loads exceed 23.5 tons and 26.6 tons respectively no posting is required.
 * see ATTACHED SHEET.

DATE: 02-10-1993
TIME: 09:58:14

Kenneth A. Johnson, P.E.

BRIDGE DESIGN

Stress-Laminated Longitudinal Deck

GIVEN INFORMATION:

Project designation: Bridge No. 02554
 Project location: Anoka County, Minnesota
 Species of timber to be used: Northern Pine (Table 4D)
 Commercial grade: No. 1
 Size classification: Beams and Stringer
 The timber is rough full sawn and has moisture content less than 19%.
Tabulated allowable design values for the species selected:
 Extreme fiber stress in bending (psi): 1,050
 Compression perpendicular to grain (psi): 435
 Modulus of elasticity = E = 1,300,000
Dimensions of span to be designed:
 Effective span length (feet): 21.5
 Curb to curb roadway width (feet): 32
 Width of one curb (feet): 1
 Number of laminates per butt joint in 4 feet along span: 4

Design load: HS20

Bituminous thickness (in): 3

COMPUTED VALUES:

Live load moment for AASHTO HS20 lane load 172.00 ft-kips

Modified allowable extreme fiber stress in bending: 1,811.3 psi

Deck Thickness (inches)	Distribution Width (inches)	Dead load Moment (in-lbs)	Live load Moment (in-lbs)	Total Moment (in-lbs)	Section Modulus (inches ³)	Extreme Fiber stress (psi)
12.00	44.00	222,458	1,032,000	1,254,458	792.0	1,583.9
14.00	48.00	265,794	1,032,000	1,297,794	1,176.0	1,103.6
16.00	52.00	312,982	1,032,000	1,344,982	1,664.0	808.3
18.00	56.00	364,022	1,032,000	1,396,022	2,268.0	615.5

Deck Thickness (Inches)	Live load Deflection Distance (Inches)	Deflection L/Δ Ratio (L/Δ)	Dead load Deflection (Inches)	Min. Prestress For Bending (psi)	Min. spacing 1 in. dia. rod (Inches)	Max. spacing 1 in. dia. rod (Inches)
12.00	0.67	38.7	0.217	110	44.3	67.6
14.00	0.38	67.1	0.150	110	37.9	58.0
16.00	0.24	1,085	0.109	110	33.2	50.7
18.00	0.16	1,663	0.083	110	29.5	45.1

Deck Thickness (inches)	Design Rod Spacing (feet)	Plate Width (Inches)	Plate Length (Inches)	Plate Thickness (inches)	Rating of Span Inventory HS	Rating of Span Operating HS
12.00	4.00	10.00	25.00	3.587	23.5	32.7
14.00	4.00	12.00	24.00	3.219	36.1	49.8
16.00	3.00	14.00	18.00	1.431	52.3	71.6
18.00	3.00	16.00	18.00	1.431	72.6	98.8

