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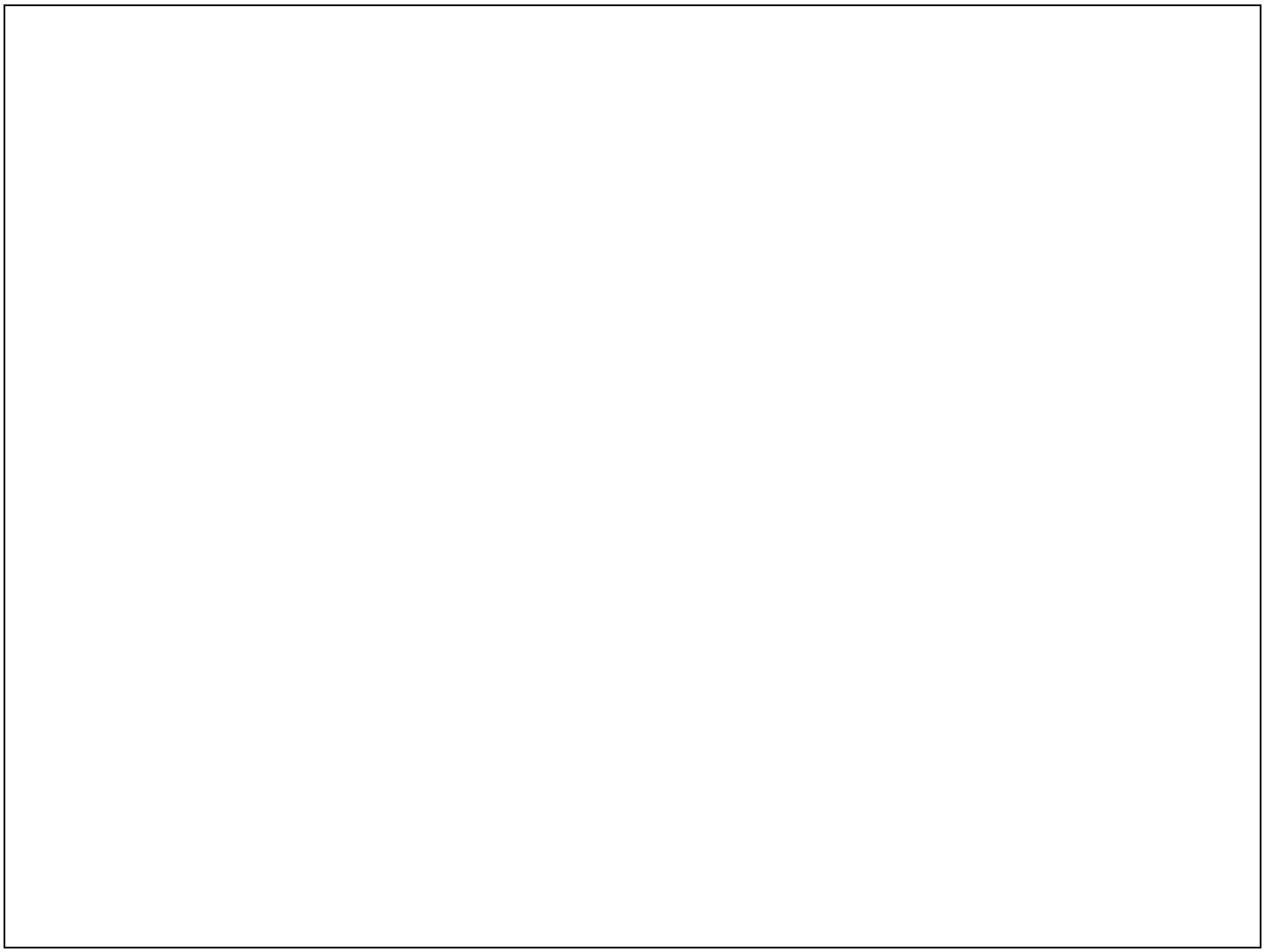
Asset #GF02(NSTM)
MINNESOTA AVE over RED RIVER OF THE NORTH
Location: MINNESOTA AVE-GRAND FORKS
Inspection Date: 10/27/2022



Latitude:47.92179, Longitude:-97.02099

Route:08661 Log:0.3

District 66, 18 - Gr. Forks

Owner: 4 - City or Municipal Highway Agency

Place Code: 32060

Team Leader: Mn DOT

Approved By: Matthew Kurle

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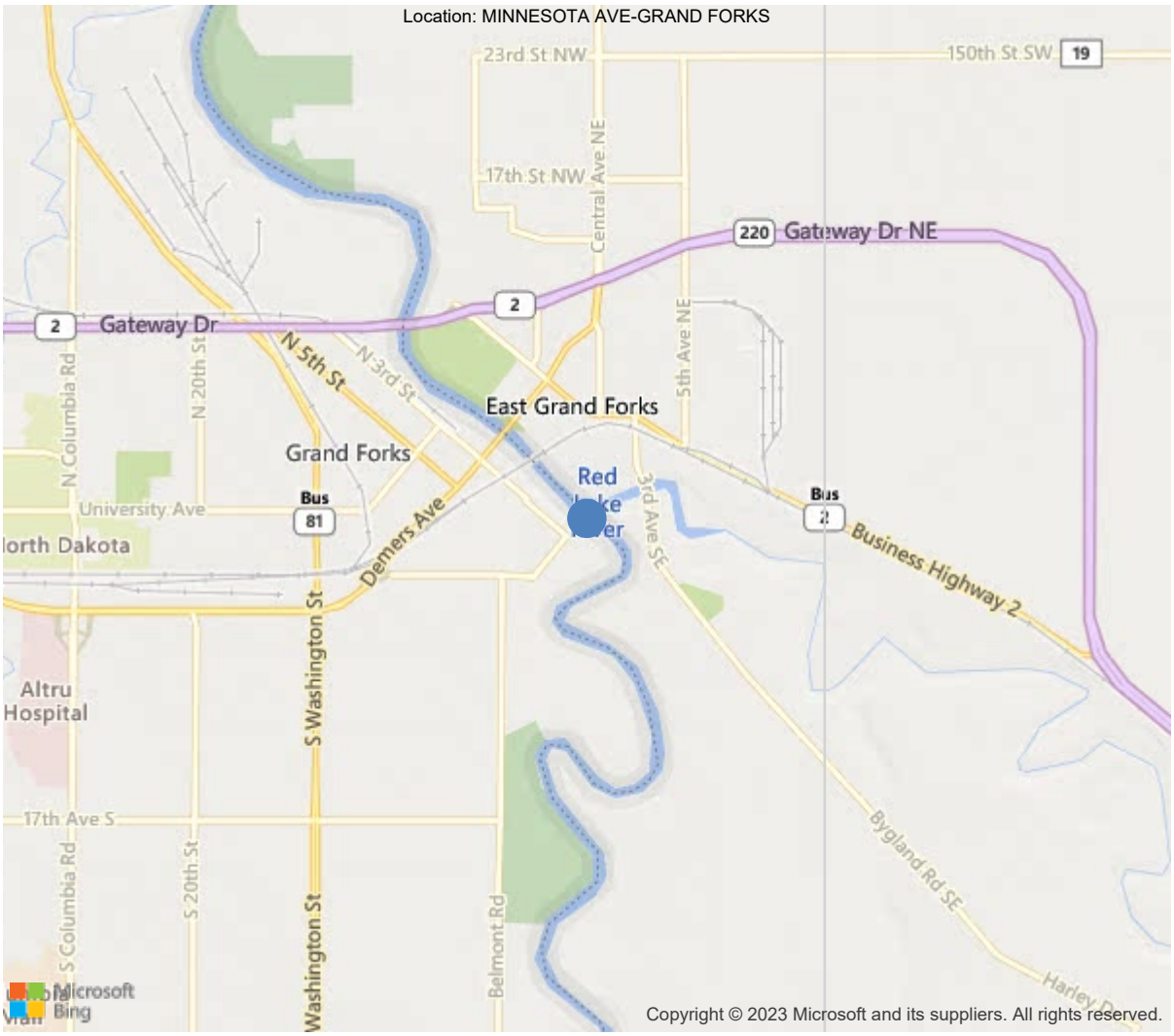
Asset **#GF02**(NSTM)
District: 66, **County:** 18 - Gr. Forks
Inspection Date: 10/27/2022



47.92179, -97.02099

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Asset #GF02(NSTM)

MINNESOTA AVE over RED RIVER OF THE NORTH

Location: MINNESOTA AVE-GRAND FORKS

Inspection Date: 10/27/2022

IDENTIFICATION	
(1) State Names	38 - North Dakota
(8) Structure Number	GF02
(5) Inventory Route	
(2) Highway Agency District	6 - Grand Forks
(3) County Code	18 - Gr. Forks
(4) Place Code	32060
(6) Features Intersected	RED RIVER OF THE NORTH
(7) Facility Carried	MINNESOTA AVE
(9) Location	MINNESOTA AVE-GRAND FORKS
(11) Mile Point	0.3 mi
(12) Base Highway Network	No
(13) LRS Inventory Rte & Subrte	
(16) Latitude	47.9217944444444
(17) Longitude	-97.0209888888889
(98) Border Bridge State Code	27
(99) Border Bridge Structure No.	60506
STRUCTURE TYPE AND MATERIAL	
(43) Main Structure Type	32
Material	3 - Steel
Type	2 - Stringer/Multi-beam or girder
(44) Approach Structure Type	32
Material	3 - Steel
Type	2 - Stringer/Multi-beam or girder
(45) No. of Spans in Main Unit	2
(46) No. of Approach Spans	11
(107) Deck Structure Type	1 - Concrete Cast-in-Place
(108) Wearing Surface/Protective System	
Type of Wearing Surface	4 - Low slump Concrete
Type of Membrane	0 - None
Type of Deck Protection	0 - None
AGE AND SERVICE	
(27) Year Built	1967
(106) Year Reconstructed	
(42) Type of Service	15
On	1 - Highway
Under	5 - Waterway
(28) Lane	
On	2
Under	0
(29) Average Daily Traffic	5200
(30) Year of ADT	2019
(109) Truck ADT	3 %
GEOMETRIC DATA	
(48) Length of Maximum Span	117.1 ft
(49) Structure Length	837.9 ft
(50) Curb or Sidewalk Width	
Left	1.6 ft
Right	3.6 ft
(51) Bridge Roadway Width Curb to Curb	27.9 ft
(52) Deck Width Out to Out	36.1 ft
(32) Approach Roadway Width (W/Shoulders)	27.9 ft
(33) Bridge Median	0 - No median
(34) Skew	30 Deg
(35) Structure Flared	0 - No flare
(10) Inventory Route Min Vert Clear	99.99 ft
(47) Inventory Route Total Horiz Clear	27.9 ft
(53) Min Vert Clear Over Bridge Rdwy	99.99 ft
(54) Min Vert Underclear	0 ft
Ref:	
(55) Min Lat Underclear RT	99.9 ft
Ref:	
(56) Min Lat Underclear LT	0 ft
NAVIGATION DATA	
(38) Navigation Control	0 - No navigation control on w
(111) Pier Protection	
(39) Navigation Vertical Clearance	0 ft
(116) Vert-Lift Bridge Nav Min Vert Clear	ft
(40) Navigation Horizontal Clearance	0 ft

CLASSIFICATION	
(112) NBIS Bridge Length	Y
(104) Highway System	0
(26) Functional Class	16 - Urban Minor Arterial
(100) Defense Highway	0 - Not a STRAHNET route
(101) Parallel Structure	N - No parallel structure exis
(102) Direction of Traffic	2 - way traffic
(103) Temporary Structure	
(105) Federal Lands Highways	0 - N/A
(110) Designated National Network	0 - The inventory route is not
(20) Toll	3 - On toll free road
(21) Maintain	4 - City or Municipal Highway
(22) Owner	4 - City or Municipal Highway
(37) Historical Significance	5 - Bridge is not eligible for
CONDITION	
(58) Deck	5
(59) Superstructure	6
(60) Substructure	5
(61) Channel & Channel Protection	5
(62) Culverts	N
LOAD RATING AND POSTING	
(31) Design Load	5 - MS 18 / HS 20
(63) Operating Rating Method	1
(64) Operating Rating	
Type	1 - Load Factor(LF)
Rating	39.3
(65) Inventory Rating Method	1 - Load Factor(LF)
(66) Inventory Rating	
Type	
Rating	23.5
(70) Bridge Posting	5 - Equal to or above legal loads
(41) Structure Open/Posted/Closed	A - Open, no restriction
APPRAISAL	
(67) Structural Evaluation	
(68) Deck Geometry	
(69) Clearances, Vertical/Horizontal	N
(71) Waterway Adequacy	8
(72) Approach Roadway Alignment	5
(36A) Bridge Railings	1 - Meets currently acceptable stan
(36B) Transitions	1 - Inspected feature meets current
(36C) Approach Guardrail	1 - Inspected feature meets current
(36D) Approach Guardrail Ends	N - Not applicable or a safety feat
(113) Scour Critical Bridges	8 - Bridge foundations determined t
PROPOSED IMPROVEMENTS	
(75) Type of Work	34 - Widening of existing brid
(76) Length of Structure Improvement	837.9 ft
(94) Bridge Improvement Cost	$ 980000
(95) Roadway Improvement Cost	$ 98000
(96) Total Project Cost	$ 1470000
(97) Year of Improvement Cost Estimate	2010
(114) Future ADT	7800
(115) Year of Future ADT	2039

INSPECTIONS *			
(90) Inspection Date			10/27/2022
(91) Frequency			24
(92) Critical Feature Inspection	Done	Freq. (Mon)	Date
A: Fracture Critical Detail	No		
B: Underwater Inspection	Yes	60	08/01/2020
C: Other Special Inspection			

* The inspection date and frequency information in this box contains the current NBI date and frequency information. Please refer to the report header for the date this inspection was conducted.

ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
12	Reinforced Concrete Deck	SF	28086	27916	140	30	0
1080	Delamination/Spall/Patched Area	SF	70	0	40	30	0
1130	Cracking (RC and Other)	SF	1609	1509	100	0	0
510	Wearing Surfaces	SF	23476	22986	350	140	0
3210	Delam/Spall/Patched Area/Pothole	SF	140	0	0	140	0
3220	Crack (Wearing Surface)	SF	350	0	350	0	0

(12) [2016-2017] No Change
10-17-18 The underside of the deck at approach relief joints has a lot of corrosion, causing concrete to spall away.
10-28-20 Spalling is present no changed enough to modify the condition states.
10-27-22 Minor spalling hasn't gotten worse. No change in condition state.

(1080-12) Spall to underside of deck in Span 12 south if Girder 1 from the North. - 12/11/2019
10/28/20: The underside of the deck at approach relief joints has lots of corrosion, causing concrete to spall away.

(1130-12) Minor transverse cracking to underside of Bridge Deck. - 12/11/2019

(3210-510-12) Various spalling throughout spotty areas of the Bridge Deck. See Photos. - 12/11/2019
10/28/20: Some open spalls. Some of the spalls have been patched with bit.

(3220-510-12) Transverse cracking throughout spotty areas of the Bridge Deck. - 12/11/2019
10/28/20: Numerous small cracks.

107	Steel Open Girder/Beam	LF	3352	3350	0	2	0
7363	Steel Section Loss	LF	2	0	0	2	0
515	Steel Protective Coating	SF	9500	8530	750	220	0
3440	Effectiveness (Steel Protective Coatings)	LF	8570	7600	750	220	0

(107) 2015 -2017 No problems noted.
Pack Rust Notes: 2006 This item was changed back to Condition State 1 after discussion with painting contractor. What appeared as pack rust
was just a build up of rust in the area of the connections. No swelling or spreading noted.
10-17-18 2 SF area of delamination at SE beam corner. Remainder in good condition.
10-28-20 No change
10-27-22 No significant changes

(7363-107) Section Loss to lower portion of Web along South Facia Girder in Spans 4 5 and 6 and 13. Minor section loss to toe of Girder and Flange in-between stiffeners at Bent Pier 3. Section loss to lower portion of Web to the North Facia Girder in Spans 1 and 2 and Drains. See Alert Code 2. - 12/11/2019

(515-107) [2016] Estimated quantity based on length
[2017] No Change
10-17-18 Some areas of fading of finish coat. Several areas where edges of beams are beginning to rust.
10-28-20 More surface rust showing on painted surfaces
10-27-22 Starting to see section loss because of flaking rust, added 200 sf to CS 2 and added 220 sf to CS 3

(3440-515-107) Areas of Rusting to Bare Metal. No Coating. No effectiveness. Areas of limited effectiveness. - 12/11/2019

202	Steel Column	EA	13	6	0	7	0
1000	Corrosion	EA	7	0	0	7	0
515	Steel Protective Coating	SF	6500	5668	811	21	0

ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
3440	Effectiveness (Steel Protective Coatings)	EA	832	0	811	21	0
(202) [2011] Debris caught in columns after spring flood. City Crews with the assistance of MNDOT removed debris. [2015 - 2017] No problems noted. 10-17-18 S. end, rust is forming at tops of some piles where they meet caps. From E. to W. , first 6 then the 8th steel column. some other areas of corrosion beginning. 10-28-20 No change 10-27-22 Tops of piles where they meet caps are showing signs of pack rust (1000-202) Rusting with minor pitting to upper and lower portions of outside columns of Bent Piers. - 12/11/2019 (515-202) [2016] Estimated quantity based on length of each [2017] No Change. 10-17-18 Some areas rusting on top at pier caps, also other areas of corrosion beginning. 10-28-20 Need to review bridge with snooper, not available this year due to Covid difficult to get good look at from ground. Did not note changes that would change condition states. 10-27-22 More areas showing rust and deterioration from ground inspection added 325 to CS 2 and 7 sf to CS 3 (3440-515-202) Areas of limited coating with limited effectiveness. - 12/11/2019						
205	Reinforced Concrete Column	EA	6	6	0	0	0
(205) [2016 UW] Good condition with no defect of structural significance. [2017] No Change 10-17-18 E. concrete column has 5 LF of hairline cracks. Overall good condition. 10-28-20 No change noted. [2020] Underwater Inspection: No significant defects were observed below the waterline of Piers 6 and 7. No change from previous inspection. 10-27-22 No changes noted.							
210	Reinforced Concrete Pier Wall	LF	108	108	0	0	0
(210) No Changes 2015 - 2017 10-17-18 Pier walls continue to be in good condition. 10-28-20 No change 10-27-22 No changes noted.							
215	Reinforced Concrete Abutment	LF	72	26	21	25	0
1080	Delamination/Spall/Patched Area	LF	25	0	0	25	0
1130	Cracking (RC and Other)	LF	21	0	21	0	0
(215) No Changes 2015 - 2017 10-17-18 3' x 2' spall at Ne abut corner. 3' x 2' x 2" deep spall at NW abut. cor. 1' x 8' x 2" deep spall @ NE end of abut. 8 vertical cracks on E. abut (4' long ea.) 5' crack at SW abut. corner, 5' crack at center of W. abut., 3' crack at NW abut. cor. Rust causing concrete delamination to backside at E. abut. cap. By SE beam ends and 2nd beam in. 18" x 1' x 6" deep spall at SE abut. cor. 10-28-20 No changes noted. The spalls mentioned appear to be about the same as before. 10-27-22 No changes noted. (1080-215) Patched area near NE Corner of East Abutment. De-bonding of Patched Area. See Photo. - 12/11/2019							
231	Steel Pier Cap	LF	468	412	0	56	0
1000	Corrosion	LF	56	0	0	56	0
515	Steel Protective Coating	SF	1200	990	150	60	0

ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
3440	Effectiveness (Steel Protective Coatings)	LF	210	0	150	60	0
(231) No Changes 2015 - 2017 10-17-18 S. end, rust is forming at tops of some piles where they meet caps. From E. to W. , first 6 then the 8th steel column. some other areas of corrosion beginning. 10-28-20 Need snooper to get better look at these items, not available this season due to Covid. No changes noted from ground view. 10-27-22 Tops of piles where they meet caps are showing signs of pack rust increase CS 3 by 16 ft (1000-231) Rusting to outside portions of Bent Pier Caps due to bearings and joints. - 12/11/2019 10/28/20: Rust is forming on top at pier caps, also other areas of corrosion beginning. (515-231) [2016] Estimated quantity based on length [2017] No Change 10-17-18 Some areas of fading paint and rust beginning to form. 10-28-20 No change noted. 10-27-22 Rusting has continued moved 60 SF to CS 3 and 50 SF to CS 2 (3440-515-231) Limited effectiveness of the coating. - 12/11/2019						
234	Reinforced Concrete Pier Cap	LF	108	88	20	0	0
1080	Delamination/Spall/Patched Area	LF	20	0	20	0	0
(234) Some spalling of concrete near a swivel joint. No Changes 2015 - 2017 10-17-18 Some areas of deterioration. None that would justify a CS 3 rating - GFL. 10-28-20 Need snooper to get better look at these items, not available this season due to Covid. 10-27-22 No change in CS states based on ground inspection. (1080-234) 10/28/20: Some spalling of concrete near a swivel joint. Some areas of deterioration.							
302	Compression Joint Seal	LF	360	82	60	178	40
2330	Seal Damage	LF	278	0	60	178	40
(302) No Changes 2015 - 2017 10-17-18 Sidewalk covers are rusting thru, Sidewalk cover joint loose SE side. Some dirt in joints, spalls on SW side. 15' pulled loose at center of Br., 10' W. side joint, & 8' by very W. end. 10-28-20 Joints need to be cleaned, Sidewalk cover joint still loose. 10-27-22 All covers are have or about to fail completely, joints are dirty and appears most of the compression seals are leaking or have failed.							
305	Assembly Joint without Seal	LF	72	72	0	0	0
(305) No Changes 2015 - 2017 10-17-18 Good condition, some dirt. 10-28-20 No change 10-27-22 Dirty							
311	Movable Bearing	EA	60	60	0	0	0
515	Steel Protective Coating	SF	100	60	0	0	40
3440	Effectiveness (Steel Protective Coatings)	EA	40	0	0	0	40

ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
(311) 10-17-18 Movable bearings at all of the piers, except center pier is fixed. Need to have snooper truck inspections performed, there are areas that can not be inspected from ground. 10-28-20 From ground appear good. but need snooper to get better look at these items, not available this season due to Covid. 10-27-22 From ground inspection no changes noted. (3440-515-311) No Coating. Loss of effectiveness. - 12/11/2019							
313	Fixed Bearing	EA	68	40	20	8	0
1000	Corrosion	EA	28	0	20	8	0
515	Steel Protective Coating	SF	100	70	0	0	30
3440	Effectiveness (Steel Protective Coatings)	EA	30	0	0	0	30
(313) 10-17-18 Fixed bearings at both abutments, and center pier #7. Rust and corrosion on 2 bearings at W. abut. 10-28-20 No change noted 10-27-22 No changes noted (1000-313) Rusting to various bearings at both abutments with minor section loss to outside south and north bearings. See Photos. - 12/11/2019 (3440-515-313) Areas of no coating. Loss of effectiveness. - 12/11/2019							
321	Reinforced Concrete Approach Slab	SF	1120	1120	0	0	0
330	Metal Bridge Railing	LF	1676	1651	23	2	0
1000	Corrosion	LF	23	0	23	0	0
7000	Damage	LF	2	0	0	2	0
515	Steel Protective Coating	SF	4800	3970	800	30	0
3440	Effectiveness (Steel Protective Coatings)	LF	830	0	800	30	0
(330) [2016] Migrator assumed concrete/metal combination type rail. Some spalling starting to appear on rail support 2006 The minor spalling on rail support has no exposed rebar. [2008] Some exposed rebar. [2015] Minor vehicle damage with repairs [2016-2017] No Change 10-17-18 From 2015 vehicle damage, one rail post pulled loose. At W. end, railings on both sides do not match the railings at app. relief joint. 10-28-20 no change noted. 10-27-22 Minor vehicle damage on the north side railing (1000-330) Minor freckles rusting throughout coating to spotty portions of North and South Railing. See Photo. Peeling with rusting down to bare metal at spotty areas. See Photo. - 12/11/2019 (7000-330) 10/28/20: 2015 vehicle damage, one rail post pulled loose. (3440-515-330) Areas of Limited Effectiveness. - 12/11/2019							
331	Reinforced Concrete Bridge Railing	LF	1676	1648	20	8	0
1080	Delamination/Spall/Patched Area	LF	8	0	0	8	0
1090	Exposed Rebar	LF	20	0	20	0	0
(331) 10/28/20: Spall at base of railing post SE. end 1' x1' x 2" deep. Bottom of railing shows deterioration and spalls. Exposed rebar backside of SW. Br. rail 6LF (const. defect). Areas of minor pop outs, spalls and small areas of exposed rebar. (2) 6" x 2" deep.							

ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
(1080-331) Spalling to various areas of the curb and rail posts throughout North and South Railing. - 12/11/2019 (1090-331) Spalling with exposed rebar to various areas on North and South Railing. - 12/11/2019							
8401	Wings	EA	4	3	0	1	0
1080	Delamination/Spall/Patched Area	EA	1	0	0	1	0
(1080-8401) Spalling to upper portion of SE Wing. Map cracking with seepage and efflorescence to outside face of SE Wing. See Photo. - 12/11/2019							

General Observation

8/27/2007 - Section loss to webs drain areas est approx 1/4" in spans 4, 5, 6 S. fascia span 1 & 2 N. Fascia.
NBI Remarks: Installed trough drain screens at strip seal and expansion joints, joint cover plates repaired, deck drain extensions installed, treated pack rust areas, installed new guardrail and lighting system and repainted all structural steel in 2006. Riprap added around pier 9 in 2006. Spalling and horizontal cracking at the NE corner of the east abutment. Channel bank erosion both banks up and downstream. Pack rust areas on the south end of the upper bent connections at bents 11, 12 and 13 have been treated and repainted in 2006. 12/2019 - Rusting to Pack Rust Areas on Bent Piers 11, 12, 13. Both columns at bent 13 lean in 1 3/4" in 4' measured on the south side. 12/2019 - No change in Lean. Second girder from the south sits on the adjacent girder seat between 3" - 4" at the expansion joint on the east side of pier #9. Some deck spalling near expansion joints throughout the deck. Minor areas of rust to bare metal on beams & column base plates. Alligator cracking with some seepage/spalling south side east abutment wing wall.
3/2018 - Bridge Division modified Ratings to match MnDOT per FHWA directive
Inspection incomplete in November due to the completion of the 2019 October County Structures.
Inspection completed 12/11/2019. - 12/11/2019
3/6/2020: Bridge Division modified NBI ratings (058, 059, 060, 061, 062, 071, 072) to match MnDOT NBI ratings from 10-17-2018 inspection KAL.
08/2020: Underwater inspection by MnDOT.
10/28/2020: Routine inspection by MnDOT.

Historical Notes:

Alert Code 1: Approximately 1/16" of section loss to the last 2" of beam ends to the bottom flange at both abutments 4' to 6' of strip seal failure at pier 8 & bent 2.One bolt missing on the inside north bearing plate east abutment. 11/22/2017 - Tree growth under structure in Spans 4, 10, 11, and around Bent Pier 5. See Photo. Tree Drift resting on middle Horizontal Brace at Bent Pier 10. See Photo. - 12/11/2019

Alert Code 2: Lower horizontal braces at bents 4, 5 & 6 have approximately 1/8" to 1/4" of section loss approximately 10' in length on bent #5 and approximately 40' on bent #6. Up to 1/4" section loss to the lower portion of web on the south outside girders in spans 4, 5 & 6. Similar section loss to the lower portion of web to the north outside girders in spans 1 & 2 at drain locations. Simaler section loss to lower portion of webs south outside girder span 13. See Photo. Pack Rust to Steel Columns Connection to Steep Cap. Bent Pier 11 with 3 Connection Plates (2 South, 1 in from the South), Bent Pier 12 with 3 Connection Plates (2 South, 1 in from the South), Bent Pier 13 with 2 Connection Plates (2 South end). See Photo. - 12/11/2019

36B - Transitions (1 - Inspected feature meets currently acceptable standards.*)
10/28/20: East side of bridge has guard rail West side not required.

36C - Approach Guardrail (1 - Inspected feature meets currently acceptable standards.*)
10/28/20: East side of bridge has guard rail West side not required.

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58 - Deck (5 - FAIR CONDITION - all primary structural elements are sound but may have minor section loss, cracking, spalling or scour.)
10-17-18 The underside of the deck at approach relief joints has a lot of corrosion, causing concrete to spall away. On wearing
surface numerous small cracks, some open spalls. Some of the spalls have been patched with bit.
10-28-20 Spalls have been patched with bit.
10-27-22 Spalls and exposed rebar on curbs and sidewalks. Lowered rating to a 5.

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59 - Superstructure (6 - SATISFACTORY CONDITION - structural elements show some minor deterioration.)
10-17-18 Beams - 2 SF area of delamination at SE beam corner. Remainder in good condition. Bearings have some rust forming,overall good condition.
10-28-20 No significant changes noted
10-27-22 No significant changes but more rust and surface changes lowered to 6

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60 - Substructure (5 - FAIR CONDITION - all primary structural elements are sound but may have minor section loss, cracking, spalling or scour.)
10-17-18 Steel columns - S. end, rust is forming at tops of some piles where they meet caps. From E. to W. , first 6 then the
8th steel column. some other areas of corrosion beginning.
Conc columns & pier walls - Good overall condition. Remainder of elements in good condition.
Abuts - Have numerous cracks & spalling at both ends. Some are getting large. Down rated element to 6.
10-28-20 No significant changes noted.
[2020] Underwater Inspection: NBI has been reviewed and confirmed with the underwater portion of bridge inspected.
10-27-22 Steel columns forming pack rust between caps and with section loss in some of the members. Lowered rating to 5

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61 - Channel/Channel Protection (5 - Bank protection is being eroded. River control devices and/or embankment have major damage. Trees and brush restrict the channel.)
10-17-18 W. river bank, no riprap, appears to be vegetated & stable. 12" dia. tree trunk behind steel column, 4th from W. E.
abut. slope is dirt only, no erosion. At NW cor. of pier 3 from W. ,erosion gully 3' x 2' x 20'. A lot of small trees & brush on W.
slope, should be cleared away.
10-28-20 West side trees and brush need to be removed, as they are starting to interfere with bridge elements.
[2020] Underwater Inspection: Accumulations of timber debris were observed around the substructure units. The west shoreline exhibited heavy erosion. The east shoreline exhibited minor erosion.
10-27-22 based on underwater inspection lowered rating to 5 due to erosion of the bank

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72 - Approach Roadway Alignment (5 - Somewhat better than minimum adequacy to tolerate being left in place as is)
10/28/20: Bridge is curved, with the roadway not allowing drivers line of sight when west bound.

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113 - Scour Critical Bridges (8 - Bridge foundations determined to be stable for the assessed or calculated scour condition. Scour is determined to be above top of footing (Example A) by assessment (i.e., bridge foundations are on rock formations that have been determined to resist scour within the service life of the bridge4), by calculation or by installation of properly designed countermeasures (see HEC 23).)
08/2020 (UW): No scour was observed at the submerged portions of substructure units or within the channel.

A-19 - Actual Posting Tons (40)
10/28/20: Load rating signs installed both ends R12-5a sign with 40 ton rating.

Significant Findings

Critical Finding

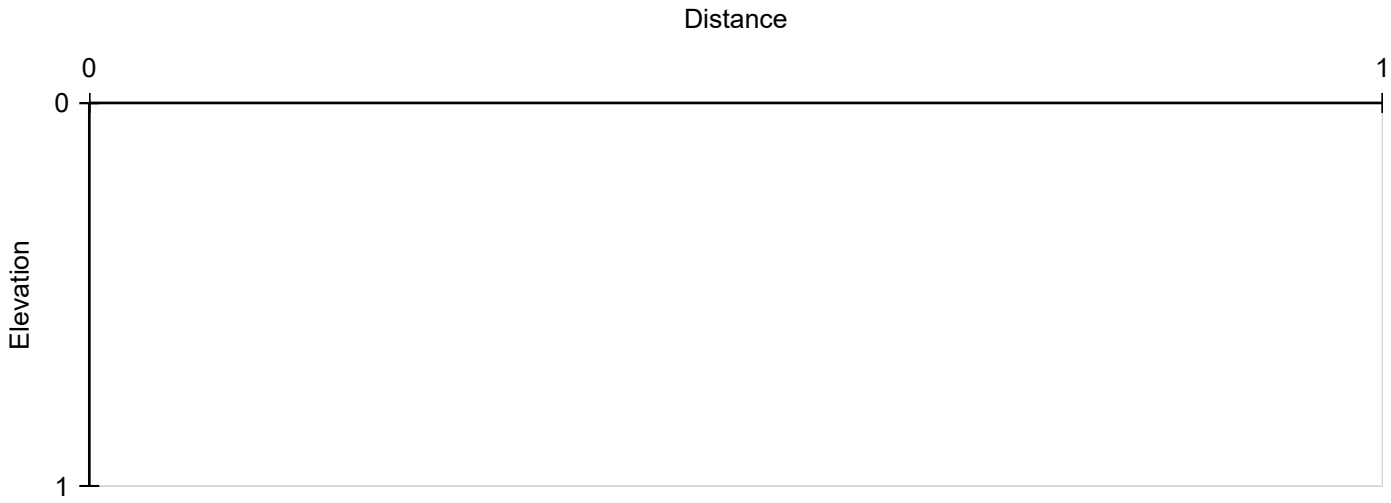
NORTH Dakota | Transportation
Be Legendary.

Asset **#GF02**(NSTM)
District: 66, **County:** 18 - Gr. Forks
Inspection Date: 10/27/2022

Channel Profile

Station	Distance	Upstream	Downstream

Upstream Elevation



Downstream Elevation