

# MINNESOTA STRUCTURE INVENTORY REPORT

Bridge ID: 9030

I 535 over ST LOUIS R; RR,STREET

Date: 05/13/2025

+ GENERAL +			+ ROADWAY ON BRIDGE +			+ INSPECTION +		
Agency Br. No.	Crew CARL		Facility	I 535		Bridge Plan. Index (2023)	37	
District	1	Maint. Area 1A	LRS Mile Point	(I) 0.033 / (D) 0.027		Overall Condition	POOR	
County	69 - ST LOUIS		Ref Post	000+00.000		Last Routine Insp Date	07-15-2024	
City	DULUTH		Functional Class	INTERSTATE		Routine Insp Frequency	12	
Township			Urban Code	24850 - DULUTH		Inspector Name	DISTRICT 1	
Desc. Loc.	1.3 SE OF JCT TH 35		ADT (YEAR)	28,098 (2021)		Status	P-LOAD POSTED	
Sect., Twp., Range	03 - 049N - 14W		HCADT	1,686		+ NBI CONDITION RATINGS +		
Lat/Long	46.749714, -92.101203		Speed Limit	45		Deck	6	
Custodian	STATE HWY		National Highway System	Y		Superstructure	4	
Owner	STATE HWY		Detour Length	8 mi.		Substructure	6	
Insp Responsibility	DISTRICT 1		Lanes	4 Lanes ON Bridge		Channel	7	
Year Built	1961		Control Section (TH Only)	6981		Culvert	N	
Date Opened to Traffic	06-01-1994		Function	MAINLINE		+ NBI APPRAISAL RATINGS +		
MN Year Remodeled	2016		Type	2 WAY TRAF		Structure Evaluation	4	
FHWA Year Reconstructed	1993		Bridge Match ID	1		Deck Geometry	4	
Bridge Plan Location	DISTRICT		Roadway Key	1-ON		Underclearances	4	
Potential ABC	YES		+ RDWY DIMENSIONS ON BRIDGE +			Waterway Adequacy	8	
On - Off System	ON		If Divided	NB-EB	SB-WB	Approach Alignment	8	
+ STRUCTURE +			Roadway Width	29.3 ft	29.3 ft	+ SAFETY FEATURES +		
Service On	HIGHWAY		Vertical Clearance	19.1 ft	19.1 ft	Bridge Railing	1-MEETS STANDARDS	
Service Under	HWY;RR;STREAM		Max. Vert. Clear.	19.1 ft	19.1 ft	GR Transition	0-SUBSTANDARD	
Main Span Type	CSTL HIGH TRUSS		Horizontal Clear.	29.2 ft	29.2 ft	Appr. Guardrail	1-MEETS STANDARDS	
Main Span Detail	OPEN SPANDREL ARCH		Appr. Surface Width	58.0 ft		GR Termini	1-MEETS STANDARDS	
Appr. Span Type	CSTL DECK GIRD		Bridge Roadway Width	58.6 ft		+ IN DEPTH INSPECTIONS +		
Appr. Span Detail			Median Width on Bridge	2.0 ft		NSTM	Y	24 mo 07/2024
Skew			+ MISC. BRIDGE DATA +			Underwater	Y	60 mo 08/2021
Culvert Type			Structure Flared	YES		Pinned Asbly.	Y	48 mo 07/2023
Barrel Length			Parallel Structure	NONE		+ WATERWAY +		
No of Spans	Main: 3 Appr: 49 Total: 52		Field Conn. ID	RIVETED		Drainage Area		
Main Span Length	600.0 ft		Cantilever ID	PIN & HANGER		Waterway Opening	99999 sq ft	
Structure Length	7,979.9 ft		+ FOUNDATIONS +			Navigation Control	PERMIT REQD	
Deck Width	63.7 ft - Varies		Abut.	CONC - FTG PILE		Pier Protection	DETERIORATING	
Deck Material	C-I-P CONCRETE		Pier	CONC - FTG PILE		Nav. Vert./Horz. Clr.	120 ft	500.0 ft
Deck Install Year	1993		Historic Status	ELIGIBLE		Nav. Vert. Lift Bridge Clear.		
Deck Rebar Layers	UNKN		+ PAINT +			MN Scour Code	N-STBL;LIM SCOUR	
Deck Rebar (NBI)	1-EPOXY COATED REBAR		Year Painted	2013		Scour Evaluation Year	1992	
Wear Surf Type	LOW SLUMP CONC		Painted Area	397,702 sf		+ CAPACITY RATINGS +		
Wear Surf Install Year	1993		Primer Type	ORGANIC ZINC		Design Load	HS 20	
Wear Course/Fill Depth	0.17 ft		Finish Type	URETHANE		Operating Rating	RF 0.83 (HL-93)	
Structure Area	594,186 sq ft		+ BRIDGE SIGNS +			Inventory Rating	RF 0.64 (HL-93)	
Roadway Area	570,250 sq ft		Posted Load	VEHICLE & SEMI		Posting	VEH: 40 SEMI: 40 DBL: 40	
Sidewalk Width - L/R			Traffic	NOT REQUIRED		Rating Date	09-23-2021	
Curb Height - L/R			Horizontal	OBJECT MARKERS		Overweight Permit Codes		
Rail Codes - L/R	22	22	Vertical	NOT REQUIRED		A: X	B: X	C: X

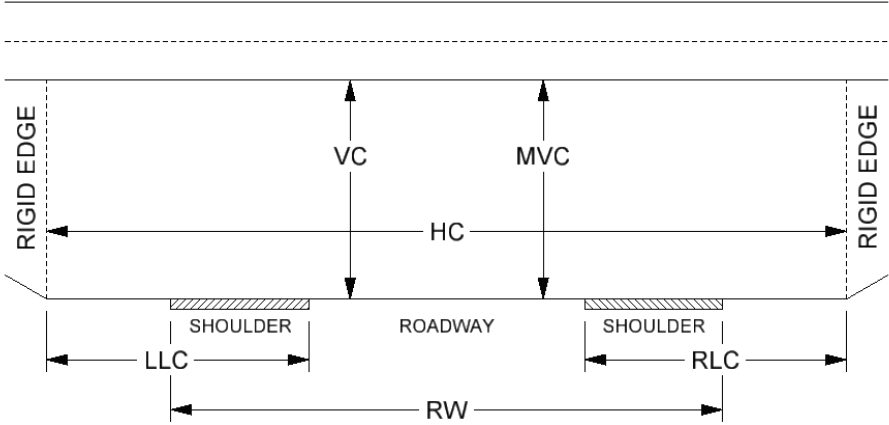
**MINNESOTA STRUCTURE INVENTORY REPORT**  
 Roadway Under Bridge  
 PORT TERMINAL ROAD under I 535

Bridge ID: 9030

Date: 05/13/2025

+ FEATURES +			+ DIMENSIONS +			
Item Description	NBI (if appl)	Value	Item Description	Diagram Abbrev.	Values	
					NB-EB	SB-WB *
Road Name		PORT TERMINAL ROAD	Roadway Width	RW	34.0 ft	
LRS Functional Class	26	5 - MAJOR COLLECTOR	Vertical Clearance	VC	30.4 ft	
ADT (YEAR)	29 (& 30)	2,000 (1994)	Max. Vert. Clear	MVC	31.5 ft	
HCA DT	109		Horizontal Clear	HC	58.0 ft	
National Highway System	104	N	Lateral Clr. - Lt	LLC	6.0 ft	
Route Sys/Nbr (LRS)		MSAS 149	Lateral Clr. - Rt	RLC	18.0 ft	
LRS Mile Point		0.450	Median Width	MW	NA	
Reference Post		000+00.425	* Entered only if this record is for a divided roadway			
Detour Length	19	8 mi.				
Lanes	28B	2 Lanes UNDER Bridge				
Control Section (TH Only)						
Function	5C	MAINLINE				
Type	102	1 WAY TRAF				
Bridge Match ID	5A	2				
Roadway Key		A-UNDER (1ST)				

**UNDIVIDED HIGHWAY**  
 1 WAY TRAFFIC



RIGID EDGE IS A TOE OF SLOPE STEEPER THAN 1 TO 3 OR A FIXED OBJECT SUCH AS GUARDRAIL, PIER STRUT OR OTHER BARRIER.

LLC (LEFT LATERAL CLEARANCE) IS THE MEASUREMENT FROM THE OUTSIDE EDGE OF THE ROADWAY TO THE RIGID EDGE. LEFT IS DETERMINED WHEN FACING THE DIRECTION OF TRAVEL.

RLC (RIGHT LATERAL CLEARANCE) IS THE MEASUREMENT FROM THE OUTSIDE EDGE OF THE ROADWAY TO THE RIGID EDGE. RIGHT IS DETERMINED WHEN FACING THE DIRECTION OF TRAVEL.

MINNESOTA STRUCTURE INVENTORY REPORT

Roadway Under Bridge

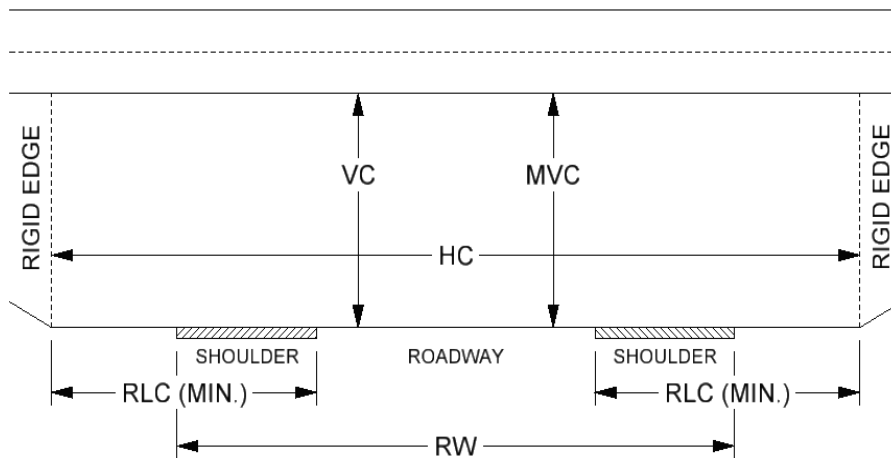
PINE STREET under I 535

Bridge ID: 9030

Date: 05/13/2025

+ FEATURES +			+ DIMENSIONS +			
Item Description	NBI (if appl)	Value	Item Description	Diagram Abbrev.	Values	
					NB-EB	SB-WB *
Road Name		PINE STREET	Roadway Width	RW	38.0 ft	
LRS Functional Class	26	7 - LOCAL	Vertical Clearance	VC	70.8 ft	
ADT (YEAR)	29 (& 30)	3,000 (1975)	Max. Vert. Clear	MVC	70.8 ft	
HCA DT	109		Horizontal Clear	HC	127.0 ft	
National Highway System	104	N	Lateral Clr. - Lt	LLC	63.0 ft	
Route Sys/Nbr (LRS)		M 690	Lateral Clr. - Rt	RLC	23.0 ft	
LRS Mile Point		0.030	Median Width	MW	NA	
Reference Post		000+00.021	* Entered only if this record is for a divided roadway			
Detour Length	19	8 mi.				
Lanes	28B	2 Lanes UNDER Bridge				
Control Section (TH Only)						
Function	5C	MAINLINE				
Type	102	2 WAY TRAF				
Bridge Match ID	5A	3				
Roadway Key		B-UNDER (2ND)				

UNDIVIDED HIGHWAY  
2 WAY TRAFFIC



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MINNESOTA STRUCTURE INVENTORY REPORT

Roadway Under Bridge  
RAMP TO GARFIELD under I 535

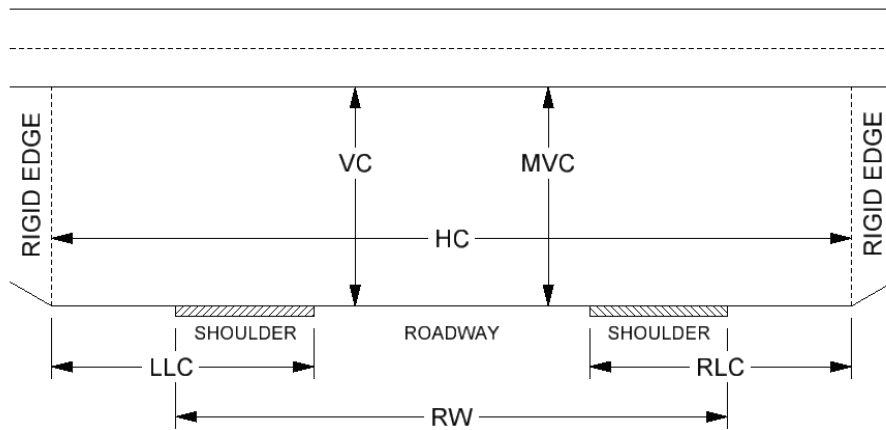
Bridge ID: 9030

Date: 05/13/2025

+ FEATURES +			+ DIMENSIONS +			
Item Description	NBI (if appl)	Value	Item Description	Diagram Abbrev.	Values	
					NB-EB	SB-WB *
Road Name		RAMP TO GARFIELD	Roadway Width	RW	42.0 ft	
LRS Functional Class	26		Vertical Clearance	VC	78.5 ft	
ADT (YEAR)	29 (& 30)	1,900 (2019)	Max. Vert. Clear	MVC	78.5 ft	
HCA DT	109	76	Horizontal Clear	HC	146.0 ft	
National Highway System	104	N	Lateral Clr. - Lt	LLC	23.0 ft	
Route Sys/Nbr (LRS)		CON 579	Lateral Clr. - Rt	RLC	24.0 ft	
LRS Mile Point		0.020	Median Width	MW	NA	
Reference Post		000+00.029	* Entered only if this record is for a divided roadway			
Detour Length	19	0 mi.				
Lanes	28B	2 Lanes UNDER Bridge				
Control Section (TH Only)						
Function	5C	RAMP/WYE				
Type	102	1 WAY TRAF				
Bridge Match ID	5A	4				
Roadway Key		C-UNDER (3RD)				

UNDIVIDED HIGHWAY

1 WAY TRAFFIC



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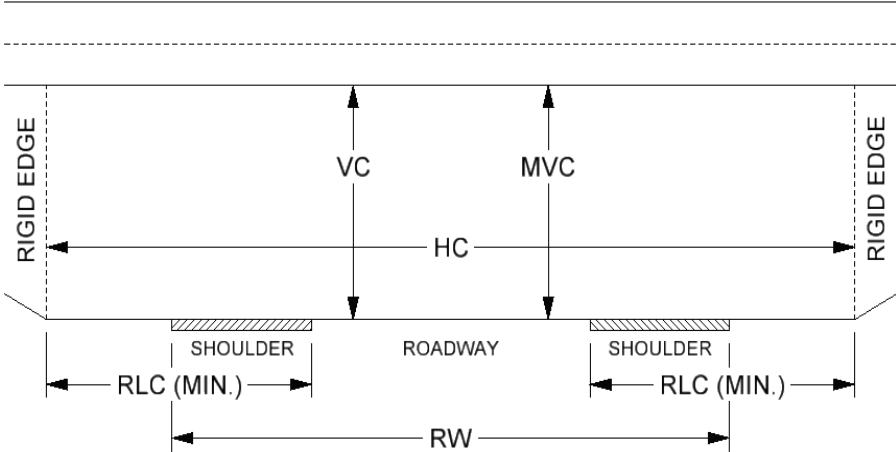
**MINNESOTA STRUCTURE INVENTORY REPORT**  
 Roadway Under Bridge  
 N 1ST ST - WISCONSIN SIDE under I 535

Bridge ID: 9030

Date: 05/13/2025

+ FEATURES +			+ DIMENSIONS +			
Item Description	NBI (if appl)	Value	Item Description	Diagram Abbrev.	Values	
					NB-EB	SB-WB *
Road Name		N 1ST ST - WISCONSIN SIDE	Roadway Width	RW	55.0 ft	
LRS Functional Class	26		Vertical Clearance	VC	52.1 ft	
ADT (YEAR)	29 (& 30)	1 (2022)	Max. Vert. Clear	MVC	52.4 ft	
HCA DT	109		Horizontal Clear	HC	115.0 ft	
National Highway System	104	N	Lateral Clr. - Lt	LLC	72.0 ft	
Route Sys/Nbr (LRS)			Lateral Clr. - Rt	RLC	13.0 ft	
LRS Mile Point		NA	Median Width	MW	NA	
Reference Post			* Entered only if this record is for a divided roadway			
Detour Length	19	1 mi.				
Lanes	28B	2 Lanes UNDER Bridge				
Control Section (TH Only)						
Function	5C	MAINLINE				
Type	102	2 WAY TRAF				
Bridge Match ID	5A	5				
Roadway Key		D-UNDER (4TH)				

UNDIVIDED HIGHWAY  
2 WAY TRAFFIC



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MINNESOTA STRUCTURE INVENTORY REPORT

Roadway Under Bridge

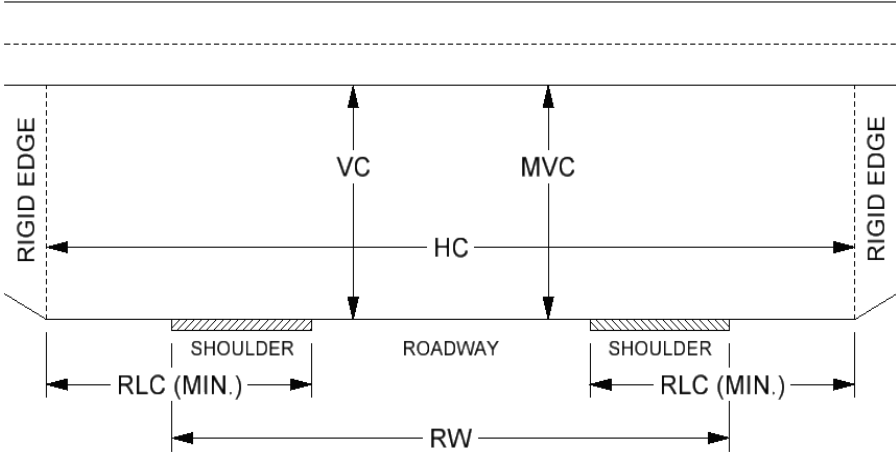
Bridge ID: 9030

N 3RD STREET - WISCONSIN SIDE under I 535

Date: 05/13/2025

+ FEATURES +			+ DIMENSIONS +			
Item Description	NBI (if appl)	Value	Item Description	Diagram Abbrev.	Values	
					NB-EB	SB-WB *
Road Name		N 3RD STREET - WISCONSIN	Roadway Width	RW	50.0 ft	27.0 ft
LRS Functional Class	26		Vertical Clearance	VC	16.4 ft	17.4 ft
ADT (YEAR)	29 (& 30)	1 (2022)	Max. Vert. Clear	MVC	16.9 ft	18.1 ft
HCA DT	109		Horizontal Clear	HC	89.0 ft	
National Highway System	104	N	Lateral Clr. - Lt	LLC		
Route Sys/Nbr (LRS)			Lateral Clr. - Rt	RLC	6.0 ft	
LRS Mile Point		NA	Median Width	MW	3.0 ft	
Reference Post			* Entered only if this record is for a divided roadway			
Detour Length	19	1 mi.				
Lanes	28B	4 Lanes UNDER Bridge				
Control Section (TH Only)						
Function	5C	MAINLINE				
Type	102	2 WAY TRAF				
Bridge Match ID	5A	6				
Roadway Key		E-UNDER (5TH)				

UNDIVIDED HIGHWAY  
2 WAY TRAFFIC



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05/13/2025  
Crew: CARL  
Insp Responsibility: DISTRICT 1

## MINNESOTA BRIDGE INSPECTION REPORT

**BRIDGE 9030 I 535 OVER ST LOUIS R; RR, STREET**

**INSP. DATE: 07-15-2024**

County: ST LOUIS	Location: 1.3 SE OF JCT TH 35	Length: 7,979.9 ft
City: DULUTH	Facility: I 535 Mile Pt: (I) 0.033 / (D) 0.027	Deck Width: 63.7 ft (Varies)
Township:	Control Section: 6981 Maint. Area: 1A	Rdwy. Area 570,250 sq ft
Section: 03 Township: 049N Range: 14W	Local Agency Bridge Nbr:	Paint Area 397,702 sq ft
Main Span Type: CSTL HIGH TRUSS	Open, Posted, Closed: LOAD POSTED	Culvert: N/A
NBI Deck: 6 Super: 4 Sub: 6 Chan: 7 Culv: N		Postings: 40 - 40 - 40
Appraisal Ratings - Approach: 8 Waterway: 8	MN Scour Code: N-STBL;LIM SCOUR	Bridge Plan. Index (2023) 37
Required Bridge Signs - Load Posting: VEHICLE & SEMI	Traffic: NOT REQUIRED	Overall Condition: Poor
Horizontal: OBJECT MARKERS	Vertical: NOT REQUIRED	

ELEM NBR	ELEMENT NAME	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
800	CRITICAL DEFS OR SAFETY HAZARDS	07-15-2024	1 EA	1	0	0	0
		07-25-2023	1 EA	1	0	0	0

Notes: 2024/2021/2023] No critical deficiencies or safety hazards at the time of this inspection.

2020- DR (Nothing spans 16-18), nothing to note at time of inspection

[2018-2019] - Nothing at time of inspection.

[2016-2017] No Change

[2015] No critical findings.

2014 No critical findings were identified during the 2014 routine and routine snoopers inspection (North bound not inspected with snoopers as of 7/16/2014).

12	REINFORCED CONCRETE DECK	07-15-2024	594,186 SF	353,852	180,912	59,422	0
		07-25-2023	594,186 SF	353,855	180,912	59,419	0

Notes: 2024- 1sq' spall above Girder A at Pier 20  
2sq' spall near Pier 25 at soffit of Girder F

2022 - ROUTINE: 3,444 CS2 trans cracking with eff. and 732 SF of CS3 trans cracking with rust, no exposed rebar;  
SNOOPER: No change from previous notes in spans 16-18 and all other spans

[2021] CS2 - 26,565 additional LF of transverse and longitudinal cracking with efflorescence under deck. Photos 24-26.

[2019] - Random transverse and map cracking with efflorescence visible on underside of deck. Crack spacing varies by span with some areas spaced as close as 1'. Shoulder extensions typically exhibited 8' crack spacing with efflorescence.

2018- Under deck is map cracked in areas with 1' intervals. Cracking over strings is causing corrosion in top flange.

[2017] 178,255 rated CS-2 due to the abundant presence of transverse leaching cracks throughout the deck.

[2016] No Change Transverse cracks with efflorescence at 1-30 ft intervals.

2015 - Deck underside has cracking with efflorescence every 3' - 10' throughout bridge - CS3 (approaching 10% of deck).  
Some map cracking in sporadic areas

2014 - ROUTINE: Span 22 Between Girder A&D 2x4 lumber left in place near pin and hanger; SNOOPER: Typical cracking along centerline of main span (photos 151-154). Typical cracking of approach spans (photos 148, 149).[2013] No change

2012 - Bottom of deck at truss see attached photos 35,38.

[2011] Deck underside has numerous transverse cracks with efflorescence Total distressed area is less than 10% of the total deck area. (2012 Some leaching onto the girders and rusting. Under side of deck is map cracked 6 in. to 2 ft. squares. Span 24, 26, Hinge joints have chipped out fresh concrete on bottom flanges.)

510 WEARING SURFACE	07-15-2024	570,250 SF	550,565	19,685	0	0
	07-25-2023	570,250 SF	550,565	19,685	0	0

Notes: 2024/[2023] No change.

2022 - ROUTINE: deck is currently under construction and an MMA flood seal is being placed. Quantity being moved to CS2

[2021] CS2 - SB 37,033 LF and NB 44,640 LF of additional transverse and longitudinal cracking. CS3 - SB 725 LF and NB 403 LF of additional transverse and longitudinal cracking.

[2018-2019] - cracks were all sealed in 2017 and didn't see any new cracks.

[2017] There are 44,039 LF of cracks in the south bound bridge and 59,630 LF in the north bound bridge. Chaining and IR of the bridge deck showed little evidence of deck delaminations.

2016: South bound lane has 4,866 SF cracking, North bound has 4,657 SF of cracking with an estimated 30% being .030" or greater. Cracks need sealing

[2015] Top of deck in the north bound lanes has some dirt and debris along the fog lines and shoulder. Some map cracking in sporadic areas. Top of deck cracking .025-.035 wide at 4'-6' intervals with longitudinal cracking between joints; needs sealing. SB lanes have 15,958 LF of longitudinal cracks; 32,552 LF of transverse cracks. Condition state remains in CS2 as there are <2% of delaminations, spalls, and temporary patches

.2013]: Numerous new unsealed transverse cracks in deck since 2011. 2014 Removed notes

2011: The deck surface has many sealed transverse cracks, but otherwise is in good condition. Total distressed area is less than 2% of the deck surface. Application of gel seal to the deck was being done by D1 bridge crews at the time of inspection

.Low Slump Overlay with Epoxy Rebar Notes: 08-23-2010 Inspection performed by WisDOT. NBI ratings unchanged from MnDOT's 2009 inspection. Elements, quantities and CS may not reflect the 2010 WisDOT inspection - refer to WisDOT documentation. Spalling occurring along some of the moveable joints Span 6.

2007(PB): Overall, the the overlay is in very good condition. Minor scaling intermittently along bridge deck.

810	CONC WEAR SURF-CRACKING SEALING	07-15-2024	103,670 LF	0	103,670	0	0
		07-25-2023	103,670 LF	0	103,670	0	0

Notes: 2023 No change.

2022 - ROUTINE: under construction and getting an MMA flood seal. Moving entire quantity to CS2 (sealed)

[2021] 82,873 LF of deck and approach cracking. The majority of the epoxy has failed.

2020- Majority of epoxy has failed, especially in the larger cracks.

[2018-2019] - Cracks were sealed in 2017.

[2017] There are 103,669 LF of deck cracks on the bridge. the racks were previously sealed but the material is failing.

[2016] Cracks need sealing

[2015] Top of deck cracking .025-.035 wide at 4'-6' intervals with longitudinal cracking between joints; needs sealing - CS3. SB lanes have 15,958 LF of longitudinal cracks; 32,552 LF of transverse cracks.

[2013] New transverse cracks on top of deck have appeared since the last deck crack sealing in 2011 - CS2. 2014 No Change.

2011: Deck has numerous sealed transverse cracks. Gel seal was being applied to deck surface at the time of inspection. 2012/- Deck area at link joint 1-3A has longitudinal cracks at 1 to 2 ft. spacings with signs of map cracking developing. Typical spacing of transvers cracking in deck is 3-8 ft. Sizes .035-.040

(2009, Deck cracks were sealed during this inspection. with 2501)

300	STRIP SEAL DECK JOINT	07-15-2024	817 LF	814	0	3	0
		07-25-2023	817 LF	814	0	3	0

Notes: 2024- Good working condition

2023 No change.

2022 - ROUTINE: no issues found with the strip seals. They are all completely filled with sand from the MMA flood seal.



See pictures for joint measurements

[2021] Missing curb plate Joint 1 (Photos 19-21). See spreadsheet for joint measurements.

2020- Cover plate missing at North abutment right SB lane. 1 ft of strip seal out at 2nd to last joint SB right and left lanes (2 ft. total). The SB center cover plate at the South abutment is missing 1 bolt. 1 ft of joint is out at the North abutment in the SB ramp lane.

[2019] - Moderate to heavy debris buildup in joints in Span 6, 47, and 52.

[2017] See the joint measurement table in Update Report for 2017 joint measurements.

2016: SW cover plate in south bound lane is loose and missing a bolt. Strip seal measurements per Dow's request: 1: 2 1/2", 2: 2 1/8", 3: 2 1/4", 4: 2 1/8", 5: 1 7/8", 6: 1 7/8", 7: 1 3/4", 8: 1 3/4", 9: 1 3/4", 10: 1 3/4"

[2015] Most north bound joints filled with dirt, with dirt build up on the deck at center rail. There is leakage at the median gap at the following locations: North Abutment, Spans 6, 33, 44, and 47, and South Abutment. See joint gap measurement attachment.

2012 - New strip seals have been installed.

815	PLOW FINGERS	07-15-2024	1 EA	0	0	0	1
		07-25-2023	1 EA	0	0	0	1

Notes: 2024/2023 No change.

2022 - ROUTINE: still missing plow straps

2013 - Plow straps still missing at South Abutment, SB lanes. Plowstraps missing at South Abutment, NB lanes as well. Plowstraps to be installed at the North Abutment and Joint 4AB-4C (not completed as of 7-23-2013).2014 5 plow straps missing on south abut.south bound.

[20115] No change.

301	POURED SEAL JOINT	07-15-2024	206 LF	12	96	59	39
		07-25-2023	206 LF	12	96	59	39

Notes: 2024- Pourables at north end to bridge no visual under construction

[2023] No change.

2022 - ROUTINE: currently under construction and re-establishing pourable joints, update quantities with next inspection.

[2021] 74 LF of up to 6" spalling along joints. 59 LF needs sealing. Photo 21.

[2019] - Seal has failed above North Abutment allowing water to pass through onto abutment.

[2017] South bound North end 14' spall at joint. North bound north end 24' x 5" spalling CS 4; 48' sealant is missing CS 3

[2016] Pourable joints need resealing

[2015] NB relief joint has no foam for 28' - likely included in the 50 LF of CS2. SB relief joint is filled with debris.

2014 - North pourable joint needs Sealing

2012- There are some spalls along the end block joints. South Abutment, the spalls total 8 LF x 4 to 12 in. wide (CS 3).

2011: The poured joint quantity should be reduced to 206 LF. Poured joints are only present at the abutment end blocks.

303	MODULAR DECK JOINT	07-15-2024	1,057 LF	1,057	0	0	0
		07-25-2023	1,057 LF	1,057	0	0	0

Notes: 2024- Good working condition

[2023] No change.

2022 - ROUTINE: no issues found with the Mod 6 and Mod 9 joints. They are all completely filled with sand from the MMA flood seal. See pictures for joint measurements

[2021] Joint measurements on spreadsheet (see attachments). Overall in good condition. Photo 23.

[2017] See the joint measurement table for 2017 joint measurements.

2016: Measurement per Dow's request 1: 15/16", 2: 15/16", 3: 3/4", 4: 1", 5: 1 1/16", 6: 1 5/16, 7: 1 1/4", 8: 1 1/4", 9: 15/16", 10: 1", 11: 1 1/8", 12: 1 1/8", 13: 1 1/8"

[2015] No change. See gap measurements in attached file.

2012 - New modular deck joints have been installed.

2011: The modular deck joint quantity should be reduced to 1,057 LF. There are 14 modular deck joints in the approach spans (3, 6, 9, 12, 22, 24, 26, 29, 33, 36 & 39) and truss spans (panel points 0, 11 and 0').

816	APPROACH RELIEF JOINT	07-15-2024	82 LF	0	0	0	82
		07-25-2023	82 LF	0	0	0	82

Notes: 2024/2023 No change.

2022 - ROUTINE: relief joints still failed

[2021] Relief joints have failed; needs sealing or replace with EMSEAL joint. CS4 Photo22.

2020- Estimated 82 LF of approach relief joint, all of which has failed.

331	REINFORCED CONC BRIDGE RAILING	07-15-2024	23,940 LF	0	11,970	11,970	0
		07-25-2023	23,940 LF	0	11,970	11,970	0

Notes: 2024- Illuminare 33 cracking with 2' x1' spall. Numerous spalls with map cracking throughout rails

[2023] No change.

2022 - ROUTINE: currently under construction and being repaired. Update quantity in the next inspection

[2021] SB - west rail protective surface has failed. Cracking remains consistent with 2016 inspection. Median rail remains consistent with 2016 inspection. Special surface treatment has deteriorated. Roughly 400 SF of delamination along the median rail; typically around luminaires and joints. NB - 2139 LF of vertical cracks in CS2 measured. East rail cracking on the outside in Span 18 between U7'-U6'E typical. No change in condition state quantities. Photos 27-30.

2020- NB: Cracking at 2' - 4' intervals, leeching and map cracking under light posts, around utility access plates, and at joints. 1' x 1' x 6" diameter spall at corner of outer rail section, 6" x 6" x 6" impact spall, both near pier 30. Heavy map cracking in outer rail section over span 19 for full length and height of section with a 4" spall and leeching. Heavy cracking for 25' at light post just south of mainspan.

SB: Cracking at 2' - 4' intervals, slightly more cracks on median rail. Map cracking and leeching under light posts, utility access plates, and at joints. Section of rail at modular joint SE of Arch has 10' map cracking, leaching, and delam for full height of rail. Heavy map cracking full section of rail under center of arch at utility access plate. Spalling (6" diameter or less) and cracking on top of rail every 4-5 sections of rail.

[2019] - In addition to 2016/2017 notes: Span 4 - Spall in parapet 2.5'L x 2'W x 1.5"D.  
 Span 4 - Spall in parapet 10"L x 6"W x 3/4"D.  
 Span 5 - Spall in parapet 2'L x 8"W x 1"D.  
 Span 47 - Spall at top of parapet 7"W x 4"L x 2"D.  
 South Approach - Spalls in parapet in approach span up to 2.5' long.

[2017] there are 6372 vertical cracks in the rail.

[2016] 2496 full depth vert. cracks in south bound outer rail, 2371 full depth vert. cracks in mid rail, 2093 full depth vert. cracks in north bound outer rail.

[2015] NB and SB railings have vertical cracking 2' to 4' intervals with staining; special finish debonding of rails. Span 30 NB 2'x1' spall in median rail; patch delamination. Span 12 Joint 5 rail saturated for 9' each direction. Due to current and previous notes, at least half of the railing should be in CS3.

2014- East bound median rail, heavy cracking in J-rail 20' East of 2nd modular joint. ( 2 diagonal cracks in 5') Median rail alluminar x39 east bound concrete deteriorating at anchor bolts. Surface finish beginning to come off.

[2013] West rail metal plate over joint at North Abutment is not flush with rail surface. Center median has numerous longitudinal cracks and spalls on southbound side at south end of Span 18. Center median has map cracking under light pole attachment in several places. Gouge and spall in west rail at south end of bridge; probably from a snowplow blade.

Outside of fascia railings have numerous small spalls and vertical cracks.

2012 - Construction project in progress. Bridge railing has sections of temporary railing in place at strip seal joint repair areas. Areas of bridge railing have been marked to be repaired. Outside concrete rails in truss section replaced with lighter, narrower WisDOT design.

Cracks 1 to 3 ft plus map cracking in some spots. WEST BOUND RAILING WEST SIDE OF TRUSS 3 ft TO 6 ft 0/C. WITH STAINING. 2 Bolts missing from cover plate west center rail. West bound main span outside one gone. East bound rail has gouges and scrapes over Howards Pocket and other small scrapes, spalls and scale on rail, paint starting to fail.

2011: Concrete rails are in good condition, with numerous sealed transverse cracks.

321	CONCRETE APPROACH SLAB	07-15-2024	4,640 SF	2,274	2,366	0	0
		07-25-2023	4,640 SF	2,274	2,366	0	0

Notes: 2024- North approach is under construction

[2023] No change.

2022 - ROUTINE: approach slabs are currently under construction and being repaired. Move all CS3 quantity to CS2 (sound patches)

[2021] 64 LF of cracking. Spalling 4" wide along east rail. Spalling along the east shoulder of the south approach. The tapered barrier in this location is a launching hazard. The NB approach has minor spalling along the joints. Photos 34-36.

[2019] - South Approach - Spall in approach 14"L x 16"W x 2"D.  
South Approach - Northbound west lane exhibited 3" deep spalls on approach.

2018-NE SB 1x1 spall on fog line.

[2017] There is spalling along the pourable joints at the rails in all four approach panels. south bound south end pourable along J rail up to 5" spalling, north bound south end pourable joint along J-rail up to 3" Spalling, pourable at the center line up to 2" spalling. South bound north end pourable 14' x 4" spall along joint. North bound north end at pourable joints 24' x 5" spalling. there are 36 LF of transverse cracks in the joints.

[2016] 10 LF diagonal crack in SW approach panel

[2015] Duluth side pavement off the bridge NB is rough - 4" wide spalls.

[2013-2014] Spall in bituminous pavement adjacent to south approach panel on southbound side

[2012] South approach, north bound has 20 LF of pourable at CS2 and 20 LF CS3 spalled 2 in. to 4 in. wide.

[2011] South approach panel has a spall running along the abutment paving block in the southbound lane.  
APPROACH: Median curb spalled with exposed rebars 42 L x 4 W x 3 1/2 in. deep. SOUTH APPROACH: South bound lane gutter settled 1 1/4 inch for 30 feet.

2012/- North bound left lane has one panel cracked. 2007 (PB): NB approach has minor spalling at the interface with north abutment joint concrete.

822	BITUMINOUS APPROACH ROADWAY	07-15-2024	2 EA	0	0	2	0
		07-25-2023	2 EA	0	0	2	0

Notes: 2023/2024 No change.

2022 - ROUTINE: same condition

2020- Approach roadway bituminous is spalling for entire edge at southern approach in NB and SB lanes. .

107	STEEL GIRDER OR BEAM	07-15-2024	39,688 LF	34,913	3,300	1,475	0
		07-25-2023	39,688 LF	34,913	3,300	1,475	0

Notes: [2024] - SNOOPER (Spans 1-15 and 19-28): See notes attached in the pictures/files under element in the view bar; (Spans 29-50): sporadic cracks in tack welds on stiffeners at top and bottom flanges. Built up bottom flange sections have cracked stitch welds with pack rust between the plates causing distortion. Isolated areas of pitting measured for section loss. No new cracks found or growth in existing cracks. Span 32 Girder B Brace 4 crack in the bottom of the stiffener has not grown.

[2023] Span 7 Girder A, B, C & D: Top flange has 4LF of flaking rust at leaching cracks. E 16 LF-(CS-3)

Span 8 Girder B, C & D: Pack rust at the bottom of vertical stiffeners. 98 LF-(CS-3)

Span 9 Girder B, C & D: Pack rust at the bottom of vertical stiffeners. 99 LF-(CS-3)

Span 10 Girder B, C: Pack rust at the bottom of vertical stiffeners. 78 LF-(CS-3)  
 Span 10 Girder A, B & E: Each Top flange has 6 LF of flaking rust at leaching cracks. . 18 LF-(CS-3)  
 Span 11 Girder B, C: Pack rust at the bottom of vertical stiffeners. 78 LF-(CS-3)  
 Span 12 Girder B, C: Pack rust at the bottom of vertical stiffeners. 78 LF-(CS-3)  
 Span 13 Girder A, B & C: Pack rust at the bottom of vertical stiffeners. 130 LF-(CS-3)  
 Span 14 Girder B, C: Pack rust at the bottom of vertical stiffeners. 87 LF-(CS-3)  
 Span 15 Girder A, B, C & D: Pack rust at the bottom of vertical stiffeners. 173 LF-(CS-3)

[2021] Bottom flanges in all spans exhibit minor pitting and isolated corrosion for both top and bottom flanges (Photos 7-9). All 10 beams in Span 51 have scrapes on the bottom flange from a high load just south of the north field splice (Photo 10).

Span 4 - Girder has 1/2" pack rust at FB 5 on underside of bottom flange (Photos 50).  
 Span 5 - Girder H has full length grind marks on underside of bottom flange (Photo 54). Girder F has flaking rust on top flange external surface near Pier 4 (Photo 55).  
 Span 6 - Girders C&D has 1/2" pack rust at splice plate 30 feet from Pier 5 (Photo 58).. Girder H has paint failure and corrosion at splice plate (Photo 60). Girder F has flaking paint on vertical splice plate (Photo 61). Arrested corrosion on bottom flange and web (Photo 62).  
 Span 7 - Girder B has fretting rust on east side, midspan (Photo 66). Girder F has web paint failure midspan.  
 Span 8 - Girder H both splice plates have corrosion on the bottom flange.  
 Span 9 - Girder B has corrosion at FB 17 on bottom flange and stiffener. Girder C has 4 drilled holes in web near FB 14 (Photo 72) - previous condition.  
 Span 10 - Girder B angle stiffener flame cut at FB 7 (Photo 75). Girder D has a crack at connector angle on top flange at FB 5 (Photo 76).  
 Span 11 - Girder D 4 cracked tack welds on west face near FB 12. Girder F has top flange corrosion at deck underside cracking.  
 Span 12 - Girder D 3 inch tack weld on bottom surface of bottom flange south of FB 19 (Photo 79). Cracked tack weld in bottom flange to web connection, west face (Photo 80).  
 Span 13 - Girder E top flange flaking rust near Pier 13 (Photo 82). Girder C connection angle on top flange not welded. Girder D tack weld on east face near FB 4 (Photo 83). Girder F flaking rust on exterior connection plate at FB 2.  
 Span 15 - Girder E flaking rust on top flange near Pier 15 (Photo 86), and also at Girder F at Pier 14.  
 Span 19 - Girder B pack rust between FB 2 stiffener and flange angle, west side (Photo 90). Girder C has a partially cracked tack weld west side between FB 1-2 (Photo 91) and at FB 3 (Photo 92). Top flange corrosion at deck cracks (Photo 93). Active pitting up to 1/8" on 1st stiffener south of FB 0, east side (Photo 94). East face stiffener south of FB 0 bent 3/4" from pack rust (Photo 95). Girder D has 3/4" pack rust on bottom cover plate at FB 3. Numerous cracked tack welds at bottom of stiffeners on west face (Photos 96, 97). Girder F has scattered areas of finish coat failure on west web. Primer is intact (Photo 98). Corrosion and flaking rust at connection of drain hanger to outer web (Photo 99).  
 Span 20 - Girder A has a large nest on west side at FB 10. Girder B has cracked tack welds (Photo 100). Girder D has a cracked tack weld west side bottom at FB 14. Girder F has a line of active corrosion starting in lower web repainted area (Photo 101). Electrical box broken away from rail and hanging (Photo 102).  
 Span 21 - Girder A has pack rust 3rd stiffener north of Pier 21, east side (Photo 105). Girder B has cracked tack welds (Photo 106). Girder C has a cracked tack weld on E side between FB23-24. Thru corrosion 1st stiffener S of Pier 21, E side (Photo 107). Girder D web stiffeners on west side are twisted from pack rust near piers (Photos 108-110). 2 stiffeners have rust-thru corrosion at Pier 21. Cracked tack weld on W side at FB18 and between FB17-18 (Photo 111). Partially cracked tack weld west side 2nd & 3rd stiffeners S of Pier 20 (Photo 112). Pitting up to 1/4" in web, east side, under 3rd stiffener south of Pier 20 (Photos 113-114). Crack in 3rd stiffener north of Pier 20, east side, has not changed since first noted (Photo 115). Rust-thru corrosion in bottom of 1st & 2nd stiffeners north of Pier 21, east side (Photos 116-117).  
 Span 22 - Girder B cracked tack weld west side 2nd and 3rd stiffeners south of the pin and hanger. Girder C 1/2" partially cracked tack weld west side at shop splice between FB 3-4. Girder D cracked tack weld east side 2nd & 3rd stiffeners south of P&H and between FB 6-7, west side (Photo 120).  
 Span 23 - Girder B 2 cracked tack weld W side S of Pier 22. Girder C 6 cracked tack welds on E side, 1 on W side. Girder D 2 cracked tack welds E side (Photo 123). Girder F corrosion and flaking rust around bolt in web TYP (Photo 124).  
 Span 24 - Girder A partially cracked tack weld east side between FB 18-19 (Photo 126). Girder B cracked tack weld on east side at FB17 (Photo 127). Girder D cracked tack weld west side between FB 16-17 (Photo 128). Cracked tack weld and 3/4" pack rust between FB 15-16 (Photo 129). Girder F top flange on west side has large area of paint failure and corrosion mid-span (Photo 130).  
 Span 25 - Girder A top flange corrosion at deck cracks TYP (Photo 132). Girder B 2 cracked tack welds W side and 2 Cracked tack weld E side. Girder C cracked tack weld E side at FB5 (Photo 133). 1/2" Partially cracked tack weld E side between FB9-10 (Photo 134). Girder D 1-1/8" pack rust at FB2 noted in 2015 has increased to 1-1/4" (Photo 135). 3 Cracked tack welds on E side (Photo 136). Cracked tack weld on W side between FB3-4 (Photo 137). Girder F 6 SF paint failure top flange at mid-span.  
 Span 26 - Girder B through corrosion in 3rd stiffener south of Pier 25 west side (Photo 145). Girder D partially cracked tack weld, west side between FB 12-13 (Photo 146).  
 Span 29 - Girder B plug welds in 1st stiffener north of Pier 29. Through corrosion in 3rd stiffener north of Pier 29, west side (Photo 154). Girder C plug welds in 1st stiffener north of Pier 29, east side (Photo 155). Girder D 3rd stiffener north of Pier 29 east side has pitting and flaking rust (Photo 156).  
 Span 30 - Girder A partially cracked tack weld between flange plates, E side N of Pier 30 (Photo 157). Girder C partially

cracked tack weld noted in 2015 is fully cracked, and a new partially cracked tack weld is in the same area (Photo 158). Pitting in web up to 3/16" on E side above flange angle between FB1-2 (Photo 159). 2-1/2" x 2" rust thru hole in 3rd stiffener S of Pier 29, E side (Photo 160). Cracked tack weld between bottom flange and shelf plate at FB4, E side (Photo 161).

#### Girder D

partially cracked tack weld in splice plate between FB3-4 has grown since 2015 (Photo 162). Partially cracked tack weld and Cracked tack weld in bottom flange cover plate between FB8-9, E side (Photo 163). Partially cracked tack weld on E side noted in 2015 is now fully cracked (Photo 164).

Span 31 - Girder A 7/8" pack rust in bottom flange splice plate at FB17 (Photo 166). Girder D numerous Cracked tack weld and Partially cracked tack weld between lower flange plates. Several Partially cracked tack weld noted previously have grown or have fully cracked (Photo 167). Pack rust between bottom flange plates up to 3/8", E side between FB14-15 (Photo 168).

Span 32 - Girder A corrosion and pack rust along bottom flange at the filed splice between FB 21 & 22 (Photo 175). Likely related to nearby deck drain. Pack rust on bottom flange cover plate between FB 24-25 (Photo 176). Pitting on bottom flange near the Pier 32 bearing (Photo 177). Girder B corrosion at shop splice between FB 22-23 (Photo 178). Pitting on bottom flange and lateral bracing connection plate at FB 21 (Photo 179). Girder C pack rust along bottom flange plate between FB 24-25 (Photo 180). Girder D pack rust along bottom flange plates near Pier 31 (Photo 181). There are two loose bolts on the lateral bracing connection plate at FB 21 (Photo 182). There is a loose bolt on the bottom flange at the filed splice between FB 25-26 (Photo 183). Girder F original paint is faded throughout, with some cracks (Photo 184).

Span 33 - Girder C pack rust at end of bottom flange plate near FB 1 (Photo 192). Girder D pitting on web adjacent to pin & hanger (Photo 193).

Span 34 - Girder B corrosion along web shop splice plates between FB 7 & 8 (Photo 199). Girder D Cracked tack weld at the web shop splice between FB 14-15 (Photo 200).

Span 35 - Girder F pitting in exterior web and splice plate at the south field splice (Photo 207). Corrosion on top flange at Pier 34 (Photo 208).

Span 36 - Girder B pitting on web base and vertical stiffeners below pin & hanger (Photo 214). Girder C cracked tack weld on web shop splice plate near Pier 36 (Photo 215). Pitting on web base, bottom flange, and stiffeners below pin & hanger (Photo 216). Girder D web base and vertical stiffeners have pitting below the pin & hanger (Photo 218). Girder F original paint has fading throughout, with isolated areas of paint failure (Photo 219).

Span 37 - Girder C pack rust on bottom flange at south field splice (Photo 225). Cracked tack weld at FB 9 (Photo 226).

Girder F pitting in web along north field splice (Photo 227).

Span 38 - Girder A partially cracked tack weld shop splice plate E side between FB17-18 (Photo 235). Girder C corrosion coming through top flange angles near FB 15 (Photo 236). Girder D pack rust on bottom flange field splice plate between FB 14-15 (Photos 237-238).

Span 39 - Girder B web, bottom flange, and stiffener have pitting just below the pin & hanger (Photo 241). Girder C pitting on web base, bottom flange, and stiffener below pin & hanger. Girder F pitting on web base at pin & hanger (Photo 242).

Span 40 - Girder E minor corrosion on upper portion of south field splice (Photo 250). Girder A pack rust and corrosion at south field splice (Photo 251). Girder B cracked tack welds on bottom flange near Pier 39 (Photo 252). Girder C pack rust on bottom flange plate between FB 6 & 7 (Photo 253). Pack rust and corrosion at north field splice (Photo 254). Girder F corrosion on top flange at deck leaching cracks (Photos 256-257). Original paint is faded (Photo 258).

Span 41 - Girder E old pitting and minor corrosion at the south field splice (Photo 262). Girder C pack rust just above the Pier 41 bearing. Girder F minor pitting on bottom flange and web at splice (Photo 263).

Span 42 - Girder C faded paint throughout girder - typical (Photo 268). Girder F intermediate web stiffener has tight fit detail at tension flange (Photo 269). Minor corrosion on upper portion of splice (Photo 270).

Span 43 - Girder C bottom flange plate between FB 8 & 9 has pack rust distortion (Photo 272). Girder F faded paint throughout floorbeam - typical.

Span 44 - Girder A bottom flange has pitting near Pier 43 (Photo 276). Girder C bottom flange has minor pitting at the pin & hanger (Photo 277).

Span 45-47 - isolated corrosion at splices and top and bottom flanges.

Span 50 & 52 - The beams south of the hinge have an obvious S-shaped camber, with deck stool heights up to 7" (Photos 294-297). Beam #1 (west fascia) has minor pitting at the hinge.

#### [2019-2020]

Span 4 - Girder B, 6' south of Pier 3 exhibited 1/4" pack rust in 3 locations on bottom cover plate.

Span 5 - Exhibited 1/2" pack rust at bottom of Girder B splice plate at FB 11.

Span 6 - Girder A near joint exhibited 100% section loss in stiffener.

Span 6 - Girder A, 4' north of Pier 6 exhibited a cracked tack weld at stiffener.

Span 7 - No change from previous notes.

Span 8 - Girder A, 6' south FB 8 exhibited 1/4" pack rust at bottom cover plate.

Span 8 - Girder A at FB 9 exhibited a loose bolt at shelf plate.

Span 9 - Girder B, 2' south of FB 17 exhibited 1/4" pack rust at bottom cover plate.

Span 9 - Girder B at FB 14 exhibited 1/4" pack rust at bottom cover plate.

Span 9 - All bolts were secure.

Span 9 - All corrosion mitigated with paint system and not active.

Span 9 - Girder B stiffener near joint exhibited 100% section loss/painted over.

Span 10 - Girder B, 8' north FB 7 exhibited 1/4" pack rust at bottom cover plate.

Span 10 - Girder B, 8' north FB 2 3/4" pack rust at bottom cover plate.

Span 10 - Girder A at FB 7 exhibited ¼" pack rust at bottom cover plate.

Span 11 - Girder E at FB 12 exhibited minor corrosion/paint failure at diaphragm connection and top flange.

Span 11 - Girder A, 6' south of FB 10 exhibited ¼" pack rust.

Span 11 - Girder B at FB 14 exhibited a loose bolt on shelf plate.

Span 12 - Girder B end stiffeners are out of plane 1".

Span 12 - Exhibited section loss on vertical end stiffeners.

Span 13 - Girder A exhibited a cracked tack weld approx. 5' south of FB 3.

Span 13 - Girder A exhibited 3/8" pack rust at bottom splice plate.

Span 13 - Girder A cracked tack weld approx. 3' south of FB 13.

Span 13 - Girder B, 20' south of Pier 12 exhibited ½" pack rust.

Span 13 - Girder B exhibited 1/8" pack rust at bottom splice plate.

Span 14 - Girder A, 5' north of FB 13 exhibited ¼" pack rust on cover plate.

Span 14 - Girder E near FB 16 exhibited minor corrosion and paint failure on east side of girder.

Span 15 - Girder B just north of FB 19 exhibited ¼" pack rust.

Span 15 - Girder B, 10' north of FB 19 has 3/8" pack rust.

Span 15 - Still has loose bolt at FB 20, Connection plate appears to be fixed.

Span 15 - Cracked tack weld on Girder B at FB 22.

Span 16 - West truss has pitting and section loss on bottom chord L1-L2.

Span 19 - Cracked tack weld on Girder B at FB 1.

Span 19 - Cracked tack welds on Girder A 5' north of FB 5.

Span 24 - Girder A at FB 22 vertical leg of lower flange exhibited 50% gone and 1/8" section loss on connection angle.

Span 24 - Girder B exhibited 1/8" section loss along web flange and stiffener.

Span 25 - Girder D at FB 2 splice has 1" pack rust and flange pitting.

Span 25 - Cracked tack weld at Girder C and D.

Span 25 - Girder D at FB 7 splice plate exhibited 1/8" pitting on bottom flange.

Span 25 - Girder B at FB 2 exhibited section loss on splice plate up to ¼" deep (not full width), previous corrosion mitigated with paint system.

Span 26 - Girder A at FB 0 between flange and vertical exhibited 1/8" section loss.

Span 26 - Girder A previous loss mitigated, but 1/8" loss on web and flange.

Span 26 - Exhibited 1/16" pitting on underside of Girder C at FB 12.

Span 26 - Cracked weld and pack rust.

Span 26 - Pack rust and pitting 1/32" on Girder C underside.

Span 27 - Girder C at FB 2 exhibited ½" pack rust with 1/32" pitting on bottom of girder.

Span 27 - Pack rust and 1/16" pitting on lower connection plate between girder and plate.

Span 28 - Same as before with pitting up to 1/8" deep over a 3" by ½" area.

Span 29 - Girder B 1/16" deep pitting on underside at FB 19.

Span 29 - Girder D exhibited ½" pack rust and 1/16" deep pitting at FB 19.

Span 29 - Girder D exhibited ¾" pack rust on underside between FB 20-21.

Span 29 - Loose bolt on lower connection plate.

Span 29 - Exhibited ¼" pitting at lower connection plate of FB 23 and Girder D.

Span 29 - Girder C has ¼" pack rust between FB 20-21.

Span 30 - Pack rust previously noted has a cracked weld.

Span 30 - Exhibited ¾" pack rust at lower connection plate at Girder D and FB 3.

Span 30 - Exterior face of girder at splice exhibited paint failure with moderate surface corrosion.

Span 31 - Numerous cracked tack welds throughout the span.

Span 32 - Plug welds noted at FB 20 between Girders B and C at lower diaphragm connection, no cracks.

Span 35 - ½" negative camber on Girder A and B.

Span 39 - Exhibited ½" pack rust at connection plate to Girder A.

Span 40 - Girder D same as previous with 1/16" pitting.

Span 40 - Pitting 1/8" deep on girder at splice connection.

Span 41 - Moderate corrosion with 5% section loss on stiffener of Girder D and FB 13.

Span 41 - Pack rust and 1/8" pitting at FB 14, Girder D.

Span 41 - Cracked tack weld at FB 15, Girder D.

Span 41 - Previously noted bolt is still loose.

Span 41 - Exhibited ¼" pitting at lower connection plate at FB 16, Girder A.

Span 41 - Exhibited ½" pack rust at splice on lower connection plate.

Span 42 - Pitting and pack rust on Girder A and lower flange up to ½" with approximately 10% section loss.

Span 42 - Pitting at lower connection plates on both sides of pin and hanger and girder.

Span 43 - Exhibited 7/8" pack rust on stiffener at Girder D and FB 7.

Span 43 - Crack in web weld connection of FB 8 and Girder D from pack rust.

Span 43 - Girder C exhibited ½" pack rust on lower flange at FB 5.

Span 44 - Poor weld at Girder D and B 9 just north of pin and hanger connection.

Span 44 - Girder C exhibited pack rust on bottom flange.

Span 45 - Exhibited areas of paint loss and surface corrosion with 1/32" pitting 3' from second diaphragm.

Span 5 has 3/4" PR @ bottom of Girder B splice plate @FB11  
 Span 7 Girder A has 1/2" PR @FB6, 3/8" PR @ FB2 and 1/2" PR @ splice under FB 6.  
 Span 9 Girder A has 1/2" PR between FB 14+15 splice plate. Also loose bolt @ FB 15 connection plate.  
 Span 10 Girder B has 1/2" PR @ FB 6+7 conn. plate. Also 3/4" PR between splice plate between FB 1+2  
 Span 11 Girder B has a loose bolt @ FB 14 conn. plate.  
 Span 13 Girder B has a 1/2" PR @ N. splice plate and conn. plate  
 Span 15 Girder A has a loose bolt @ FB20 conn. plate. Conn. plate under FB 23 also has a loose bolt.  
 Span 19 Girder B has 1-3/8" PR on bottom flange @FB3  
 Span 20 Girder B has 5/8" PR on bottom splice @ FB13. Also loose bolt @ FB11 conn. plate  
 Span 21 Girder D in between FB 18+19 on the South side there is heavy pitting @ the bottom of the stiffener.  
 Span 23 Girder B has 2 loose bolts @ FB 9 in the horizontal gusset plate.  
 Span 24 Girder F has rust leaching through sandblasted repair on the fascia mid span @ the top of beam Fascia. 5sq' w/pack rust developing.  
 Span 25 Girder B has 1/4" section loss @ bottom flange @ splice plate under girder B.  
     Girder D has 2 loose bolts under FB 7 in splice plate.  
 Span 26 Girder B has 5/8" PR on bottom flange @ FB 11.  
 Span 27 Girder A has 1" PR between FB 3+4 on the bottom flange.  
     Girder C has PR up to 3/4" between FB 3+4  
     Girder D Up to 1" PR between FB 3+4  
     Girder F has paint failure @ top flange in various areas with developing pack rust 10sq' total.  
 Span 28 Girder C has 5/8" PR @ FB9, FB11, FB15 and 3/4" @ FB16  
 Span 29 Girder E has 1/2" PR between FB 18+19  
     Girder B has a hole in Stiffener between FB 0+1. Also 1" thick PR between FB 20+21.  
 Span 30 Girder C has 2 holes Between FB 1+2. (1) 2.5"x2" (2) 2.5"x1.125"  
     Girder D has 5/8" active pack rust @ splice plate @ bottom of FB7.  
 Span 31 Girder A has 1.125" PR @ bottom field splice plate N of FB17. Also 3/4" PR in between splice plates of FB 11+12  
 Span 32 No change in crack on West face north side diaphragm.  
     Girder D @FB 21 there are 3 loose bolts on the connection plate and a loose bolt @splice under FB26.  
 Span 40 Girder C has 3/4" PR between FB 10+11 on splice, 3/4" between FB 9-10, 1/2" under FB 9, and a 1/2" under FB7.  
     Girder D has a 1/2" PR under FB9 and 3/4" PR between FB 9+10  
 Span 41 Girder A has a loose bolt in the splice plate on lower flange between FB 16+17  
 Span 43 Girder C has 1/2" distortion between FB 8+9 splice plate in 2 spots.

[2017] 440 LF should be rated CS-3 due to the areas of the girders with cracked tack welds and splices with pack rust. See section IV in Update Report for specific locations.

[2016] Crack was found in Stiffener on span 21 G3 on the East side 3 stiffeners North of Pier 21. Pictures attached. The crack in the stiffener was about 2.5 in.

[2015] Pack rust at vertical stiffeners of approach span girders near piers and on bottom flange splice plates. Previous pack rust in deck truss members either painted over or attempted clean-out during 2012 painting contract. Pack rust at U0W, L2W, L4E and most FBTr upper gusset connections in Span 16. Pack rust at the connection of U10E and U11NW Span 17 to the interior gusset. Pack rust at the horizontal gusset plate connections to the upper diagonal bracing. Span 18 FBTr upper gusset connections most all exhibit some level of pack rust. Span 18 FBTr 5' USE plate crack and pack rust (crack end drilled out with 1/8" hole and pack rust removed by heating method by the District in December 2015) (Photo 19).

[2015] Leaking rust starting to show through new paint (CS2).

[2015] Girders (Spans 3-15; 19-44): Top flange corrosion of all girders typical at underdeck cracks; every 10'-12'. Bottom flange splice plates of all girders exhibit pack rust at edges 1/4"-3/4". A number of additional cracked tack welds were identified; see FC Inspection Field Notes for specific locations. Span 15 exhibits a significant amount of pigeon excrement especially near Pier 15. Bottom flanges of all girders, bottoms of diaphragms, and bottom half of girders near piers (surface corrosion and pack rust at vertical stiffeners) should be painted. Fascia girder top flanges and entire splice plates should also be painted. No change in CS necessary.

[2015] Span 5 Girder E top flange splice plates have moderate corrosion. There is noticeable web distortion for the entire length of the girder.

[2015] Span 9 Girder E exhibits web distortion.

[2015] Span 12 Girder D horizontal stiffener has 4 inch crack at interior of Girder D at FB19 north side.

[2015] Span 13 Girder E web splice plate east side has rolling defect at 4th bolt from the top.

[2015] Span 29 Girder B bottom flange dented between FB0-1.

[2015] Span 30 Girder B bottom flange dented at splice between FB3-4. Girder D flange bent upwards 3/16".

[2015] Span 31 Girder C two missing rivets on bottom flange north of FB18.

[2015] Span 32 Girder D line of corrosion on bottom flange and lower web near Pier 32, likely from long-term accumulation of blasting sand. Vertical stiffener bent 7/16", E side between FB25-26, likely from original fabrication. Localized pitting (arrested) 3/8" deep on bottom flange, W side between FB22-23.

[2015] Multi-beam spans (Spans 1-2; 45-51) have paint failure at splice plates and areas where cracks in deck propagate on top of beams. No visible gap under B9 on Pier 48. Span 45: bearings tipped slightly south. Span 46: B6 peeling paint

on web. Isolated peeling paint on splices. Span 47: Leaching cracks on deck. Bottom flange beam splices have moderate paint failure in Span 1, Beams (2-5) & Span 2 beams (2-8). Some diaphragms have moderate paint failure in Span 2.

2014/- Steel newly painted, some areas starting to rust (photos 139, 140, 144, 147).

2014 Span 31 50% of the stitch welds on girder B cover plate have torn due to pack rust.

2014-Paint has failed at splice plates. Top flange of fascia beam paint is blistering. Span 5 Girder A at modular joint there is a 3" x 1" hole in end stiffener. Span 20 Girder A cracked tack weld 50' From Pier 19'

2014- Span 43 pack rust distortion at girder D north of pier 43 (photos 146,147).

2014 Span 41 Girder A 1 nut not tight at splice plate.

[2013] Fascia girders on approach girder spans have been (or will be due to current contract) repainted along the bottom web and flange. Some fascia splice locations were repainted. All pin and hanger areas and girders within 2-3 feet on each side have been (or will be) repainted.

[2013] There is noticeable web distortion for the entire length of Girder E in Spans 4, 6, 28, 29 - Photos 9-10. A string line measurement was taken on the west side of the girder between the third and fourth diaphragms of Span 4. The maximum deflection to the east was 3/4" and to the west was 1". This area was not the most distorted when looking visually. This was the most distorted area that could be adequately measured using a string line. This web distortion was noted during previous inspections and brought to the attention of the Bridge Office Fabrications Engineer. The Engineer stated these are as-built conditions due to the function of welding of the stiffeners to beam with a narrow flange.

[2013] Span 12 Girder A - north vertical stiffener on the east side of the pin at the top has an 18" area of through corrosion (Photo 11). The south vertical stiffener east side at the bottom has a 5" area of through corrosion (Photo 12).

[2013] Span 30 Girder A has a cracked tack weld at the bottom web splice plate east face south of Pier 29.

[2013] Span 31 - Girder A loose bolt, top flange west face south of FB9. Partially cracked tack weld bottom flange cover plate, east face south of FB13...63-in pack rust, bottom field splice plate north of FB17. Rust-through hole (arrested) in bottom of stiffener north of Pier 31 .25-in deep pitting in bottom flange and active corrosion and pitting in lower web at same location.

[2013] Span 32 - Girder A .25-in pack rust distortion, bottom field splice plate south of FB21. Fresh rust between top flange and concrete stool, west face, 1st stiffener north of FB24. Cracked tack weld, east face bottom web splice plate between FB22-23. Girder B pitting on east face and shelf plate; east face at FB22.

[2013] Span 35 - Girder B bottom flange bent up .375-in between FB 22-23.

[2013] Span 36 - Girder D .31-in pack rust distortion, end of bottom flange cover plate between FB3-4. .25-in pack rust on bottom flange cover plate, west side at Pier 36.

[2013] Span 38 - Girder C fretting rust on upper vertical edge of stiffener at FB16, median side. Top flange corrosion under deck crack at FB15. .25-in PR distortion on bottom field splice plate between FB14-15. Girder D partial cracked tack weld on west face, bottom web splice plate between FB17-18.

[2013] Span 39 - Girder D .38-in pack rust distortion on bottom of web stiffener near Pier 38.

[2013] Span 40 - Girder D .50-in pack rust distortion bottom splice plate north of FB10.

[2013] Span 41 - Girders B/C .25-in pack rust distortion in bottom cover plate near Pier 40. Girder D spalls in stool above girder.

[2013] Span 42 - Girder D bend in bottom flange 5/16" over 12", south of FB3.

[2013] Span 43 - Girder C 1st stiffener north of FB7 has distortion over web at tack weld. Girder D 7/8" pack rust bottom shop splice south of FB7. Pack rust distortion bottom splice plate north of Pier

[2013] Floorbeam truss bottom middle gusset plates in Span 16 and 18 typically have significant pack rust spreading the edges up to 1" or more. This has existed for quite some time. Connections have not been compromised.

[2013] All areas are (or will be) painted by the end of the 2013 rehabilitation contract - CS1. 2014 removed note

2012 - Girder D, Span 22, 2nd stiffener to south of pin and hanger, west side has cracked tack weld of bottom. Girder C, Span 2, bottom flange splice plate between FB3 - FB4. Span 22 at Pier 22 has 2 rivets missing on top splice plate of Girder E for top flange west side. Span 23, Girder D cracked tack weld at stiffener, west side of FB5, and Girder B broken tack welds at the first 2 stiffeners from 3 and 4 from Pier 22. Span 24, bottom flange of SB fascia is heavily rusted. Fascia pin and hanger has area on hanger with paint failure.

2012/- L4"W to L3"W bottom cord edges bowed up to 1/2 in. due to pack rust. See attached photos for truss members with typical pack rust (pic. 16, 17, 23, 24, 25, 28, 33, 34, 39).

2011: Approach spans have been deemed non-fracture critical since the last inspection. An "arms-length" inspection was performed on the center diaphragms and any problem areas noted in 2009. There is little change in the condition of the approach spans since 2009. Areas of pitting and stiffener rust-through holes are painted and have not deteriorated further since 2009. A few additional cracked tack welds were observed, but none have propagated into the base metal. Fascia girders E and F have large areas of blistering paint, surface corrosion and flaking rust on the bottom flange and lower portion of the web.

2011: Pack rust present in many locations on approach girders A-D, especially in splice plates at riveted shop splices and bolted field splices. Pack rust distortion up to 1.38" is present at the corners of some lower flange splice plates, with lesser distortion in other areas. Some pack rust spreading is occurring between multiple bottom flange cover plates in spans 30-32, (2012 -Pack rust is cracking tack welds in this area). Pack rust distortion is occurring on many truss gusset plate connections of up to 1/4". Isolated areas have up to 1 in. of distortion

Painted Steel Beam End Notes: 2011: Quantity changed to 25 EA to reflect the number of strip-seal (11) and modular (14)



joints on the bridge. There are isolated areas of surface corrosion on the superstructure below the joints, especially in the pin & hanger assemblies, with total unsound paint 5% or less at all locations. There is extensive corrosion at Span 16 panel points 6 & 0 and at Span 17 at panel point 11.

(2009, Moderate paint deterioration and minor pack rust at girder splices with a total area of corrosion at 2% in CS2. 4% in CS3 due to bottom flange of fascia girders having extensive paint failure with exposed steel and surface corrosion. 1% in CS4 due to moderate to extensive corrosion with flaking rust present in areas around the pin and hanger areas. Fatigue crack found in 2003 (see element #356). No further propagation (photo#1).) Superior side span (last) beams have a strong negative camber coming out of pier cap. At Piers 30 & 31 some of the vertical stiffeners have had a portion of the leg normal to the web removed by flame cutting and not ground smooth. From end to end there are bolt holes not plugged and cut rivets left in place in vertical stiffeners or mounting plates.

2007 (PB): The steel girders have corrosion with paint loss at the west/East splices and at some bearing stiffeners & joints - predominantly at the fascia girders. The riveted girders typically have minor pack rust on the bottom flanges at the web splices. Total area of corrosion is approx. 1%.

Pack Rust Notes: 2007 (PB): Many of the approach span girders have minor pack rust at web splices on the bottom flange, but no notable distress and girders were re-decked and repainted.

(2009, Pack rust is starting to spread gusset plate interface with bottom chord at numerous locations but is minor at this time. Continue to monitor during future inspections. Built up bottom chord truss sections also have pack rust developing.

515 STEEL PROTECTIVE COATING	07-15-2024	982,196 SF	914,012	32,550	22,729	12,905
	07-25-2023	982,196 SF	914,012	32,550	22,729	12,905

Notes: 2024 - SNOOPER (Spans 1-15, 19-28, and 29-50): notes are consistent with findings during snoop inspection.

[2023] Paint continues to deteriorate - additional 3000 SF CS2, 3000 SF CS3, 3000 SF CS4.

[2022] SNOOPER: Consistent with prior notes.

[2021] See notes in element 107.

2020:

Span 1: 42 SF Paint deterioration

Span 2: 45 SF

Span 3: 40 SF

Span 4: 35 SF

Span 5: 36 SF

Span 6: 38 SF

Span 7: 38 SF

Span 8: 26 SF

Span 9: 46 SF

Span 10: 40 SF

Span 11: 30 SF

Span 12: 38 SF

Span 13: 30 SF

Span 14: 30 SF

Span 15: 38 SF

Span 16: 40 SF

Span 19: 40 SF

Span 20: 30 SF

Span 21: 27 SF

Span 22: 18 SF

Span 23: 20 SF

Span 24: 20 SF

Span 25: 25 SF

Span 26: 30 SF

Span 27: 17 SF

Span 28: 20 SF

Span 29: 38 SF

Span 30: 32 SF

Span 31: 16 SF

Span 32: 18 SF

Span 33: 48 SF

Span 34: 45 SF

Span 35: 36 SF

Span 36: 42 SF

Span 37: 37 SF

Span 38: 40 SF  
 Span 39: 33 SF  
 Span 40: 35 SF  
 Span 41: 29 SF  
 Span 42: 44 SF  
 Span 43: 37 SF  
 Span 44: 34 SF  
 Span 45: 35 SF  
 Span 46: 30 SF  
 Span 47: 30 SF  
 Span 48: 30SF  
 Span 49: 26 SF  
 Span 50: 55 SF  
 Span 51: 40 SF

[2019] - Random areas of paint failure primarily at splice locations and cover plates with pack rust. Span 3, Girder E exhibited a vertical line of corrosion at location of paint transition.

2018-J.P. Minor paint deterioration at all splice plates.

This quantity includes 843315 SF of girders in the approach spans and 138861 SF of secondary members including the approach diaphragms and cross bracing between the original girders.

[2017] Rate 3% CS-2 for light freckling rust especially at the points where deck cracks contact the girders. Rate 2% CS-3 for peeling paint especially at the points where deck cracks contact the stringers. . Rate 1% CS-4 for paint system failure especially at the points where deck cracks contact the stringers and peeling paint at some of the splice plates.

113	STEEL STRINGER	07-15-2024	32,977 LF	27,306	5,270	351	50
		07-25-2023	32,977 LF	28,156	4,770	51	0

Notes: [2024 NSTM] Corrosion continues to leak through paint.  
 [2024] Paint continues to deteriorate - additional 500 SF CS2, 300 SF CS3, 50 SF CS4.

[2023] The crack in Span 16 Stringer 4 is unarrested, but unlikely to propagate into critical areas (CS3). The top flange of stringers in Spans 16-18 have small areas of surface corrosion under deck cracks - additional 500 SF CS2.

2022- SNOOPER: Span 18 Floorbeam 7 stringer 2 there was a crack that began at the end of the coping where the baseplate was welded on the end of the stringer. Crack has since been arrested and many photos taken. Span 16 stringer 4 on the South(road direction) side there is a crack in the top of the stiffener. Marked to monitor growth. Looks like it may have been caused when strip seals were replaced. Following up with removal of washer in the near future. No further deterioration at this time

[2021] Span 7 paint failure and corrosion near deck Stringers 3 & 4. Span 12 Stringer 4 has a dent in the top flange west side 10 feet north of FB 19 likely due to deck removal (Photo 78). Span 17 Stringer 8 at FB16-17 south side has fretting/leaking rust (Photo 430). Span 18 Stringer 7 at FB 4'-3' bearing plate is now bowed upward 5/16" over FB4'. Span 40 and 43 Stringers 3 & 4 corrosion on top flange at deck leaching cracks (Photos 255, 273).

2020-Span 17: Stringers 17'-16' 2 Stingers have welds transverse bottom flange for walk support.

Span 18: Stringers 6'-5' heavily pitted due to joint. Painted over. Stringer 4'-3' pack rust between bottom flange and bearing 5/16"

All stringer ends at joints are cut with a torch and not ground.

[2019] - Condition similar to previous reported with addition of the following: Span 18 - West truss missing bolt in S4 splice at FB 8'.

2018- No change for spans 16-18 (J.P. no change in prior notes for spans 1-15 & 19-50)

[2017] The areas with active corrosion: the top flange in spans 16-18 & the stringers under leaching deck cracks are CS-2.

[2016] Spans 16-18 Active corrosion top flanges due to leaking deck cracks

[2015] Stringers in approach spans show no deterioration.

[2015] Leaking rust on top flanges over floorbeams typical and at underdeck cracks. Span 16 fretting rust under stringers at FB 6.

[2015] Span 17 fretting rust under stringers at FB16'N. Top flange leaking rust in some places typical.

[2015] Span 18 heavy fretting rust under stringers at U6'. Top flange leaking rust in sporadic locations typical.

[2013] Stringers were all completely painted, or will be, in Spans 16-18. Stringer ends were repainted near end floorbeams of each span in the approach girder spans. Span 17 T14-15 Stringer 8 connection bolt at FB 15 is not tight.

2011: Stringers in trusses and approach spans are in good condition, with localized surface corrosion of top flanges present where they are in contact with transverse deck cracks.

515 STEEL PROTECTIVE COATING	07-15-2024	188,095 SF	170,070	10,125	5,020	2,880
	07-25-2023	188,095 SF	170,070	10,125	5,020	2,880

Notes: [2024] - SNOOPER (Spans 1-15, 19-28, and 29-50): notes are consistent with previous findings during snoop inspection.

[2023] Paint continues to deteriorate - additional 2000 SF CS2, 1000 SF CS3, 1000 SF CS4.

[2022] SNOOPER: (JP) No change from previous notes in span 16-18 and all other spans

[2021] Spans 51-52 paint is chalky with paint failing at splice plates. Also see notes for element 113.

2020-No Change (Spans 16-18)

This quantity includes the truss stringers (56769 SF) & approach stringers (131326 SF).

[2018-2019] - No change spans 16-18 (J.P. no change in prior notes for spans 1-15 & 19-50)

[2017] Rate 4% CS-2 for light freckling rust especially at the points where deck cracks contact the stringers. Rate 2% CS-3 for peeling paint especially at the points where deck cracks contact the stringers. Rate 1% CS-4 for paint system failure especially at the points where deck cracks contact the stringers.

120 STEEL TRUSS	07-15-2024	2,280 LF	0	2,029	250	1
	07-25-2023	2,280 LF	0	2,029	250	1

Notes: [2024 NSTM] Noted leaking rust at seams some heavier than in the past and cracked tack weld all noted in attached field notes. Through corrosion was also noted on end cover plate of bottom chord U0-U1 on West truss.

[2024]- Inspection completed by CO inspection team

[2023] The truss continues to corrode and deteriorate. See Section IV for details on specific members.

2022- SNOOPER: No new changes with the exception of there is still significant vibration under FB 6,7, and 8. Those are also the only ones that did not have the retrofit done

[2021] North Portal Bracing - Bare steel in small spots on north face (Photos 11-12). Pack rust in plate to portal brace (Photos 13-14), south face. Paint blister at top of bottom plate on the west end (Photo 15). Pack rust at west end, sway strut stiffener (Photo 16). South Portal Bracing - Pack rust at east truss connection and paint failure. Bare steel near U11'S (Photos 17-18).

All main truss and FBTr members exhibit leaking rust through paint. See inspection field notes for more details.

Span 16 FBTr5 middle plates exhibit losses both north and south sides; localized up to 32% loss on north plate and 11% loss on south plate (Photos 319-320).

Span 16 FBTr6 both diagonals have widespread flange loss. Northeast diagonal previous losses – this member vibrates a lot (Photo 324).

Span 16 FBTr7 middle to upper west diagonal vibrates. Bottom middle connection plate; south plate has no losses, but the north plate has localized losses of up to 30%. Upper west gusset plates exhibit leaking rust between the north and south plates (Photos 327-329).

Span 16 FBTr 9 minor losses inside the middle-middle plates; localized loss along diagonal inside both east and west sides 25% (Photos 338-342). Lower west panel point losses 15.8% (Photo 343).

Span 18 FBTr 9' U9'NW through corrosion – 2.5"x1.5" at top corner (CS4). U9'SW previous loss through corrosion. Middle/middle plate has minor loss (3/16") on top inside north along seams. Drilled hole in diagonal going up to U9'W. (Photos 526-530)

Span 18 FBTr 5' upper gussets west exhibit pack rust at edges ¼" and previous losses. South upper plate is plated on west side (Photos 537-538). Bottom chord previous losses painted over have leaking rust now (Photo 539). Top east gusset south face has a previous drilled out cracks and loss (Photo 540).

Span 18 FBTr 1' upper gusset west plates exhibit ½" pack rust along the diagonal edge. SE upper interior partially cracked tack weld (Photo 548). NE upper exterior partially cracked tack weld (Photo 549).

Span 18 FBTr0' east diagonal south face losses – 21% (Photo 551). Bottom chord east north face losses (Photo 552).

2020- Span 16-18: Span 16-Light rusting FBT 6 UNW gusset PR at jct to diagonal 50% LOS 7" x 1". FBT 7 Pitting along SWG no new los. 3/4" PR with .12-.18" LOS adj to gusset. FBT 8 NWG Areas of pitting 1/16"- 1/8" FBT 9 20" x 3" x 3/16" LOS along diagonal from U9 to center gusset. Bottom cords have active corrosion along caulked riveted areas. Overall condition no additional LOS.

Span 17- T12 Area of LOS paint has deteriorated. L10 corrosion along caulked areas.

Span 18- FB 4' Truss- UNW Gusset has been repaired. Rest has 3/16' LOS along the diagonal shear plane Lower cord has heavy pitting on top. East UNE areas of pitting around the bolts. Nom. .443 localized pitting .170, .273, .266, .121

Check wind shear struts during inspections. connection 11' end is a fixed connection with pin. Connection 11 end is a expansion end. Connection 11 shows signs of moving.

[2019] - Span 16 - West truss exhibited significant vibration at FBT 6, 7, 8.

Span 16-18 - FBT lower horizontal gussets exhibited pack rust and significant distortion at corners with section loss and pitting on top surface of plates which are painted over.

Span 16-18 - West truss section loss was consistent with previous measurements noted; no new section loss was observed.

Span 16-18 - U6 E interior gusset 1' below barrier to top of gusset exhibited 1/4" pitting.

Span 16-18 - U7 E and U8 E gussets exhibited 3/16" section loss.

Span 16-18 - L7-U7 W typical pitting 1/8".

Span 16-18 - U8-U9 E exhibited 1/8" pitting on both sides of barrier.

Span 16-18 - U8 W 1/8" pitting on gusset.

Span 16-18 - L8-U8 E exhibited 1/8" section loss on the west gusset as well as impact damage over northbound lanes.

Span 16-18 - U9-L9 E below top of barrier, pitting up to 1/8".

Span 16-18 - L9-U9W typical pitting in splash zone 1/8".

2018- FB 0 Truss: Center gusset area full of pigeon droppings. FB Truss 6: west diagonal north flange area along gusset 8" long up to 50% LOS. FB Truss 7:

Heavy pitting at JCT SWG in diagonal 58% LOS on S flange. FB 10' truss: Between FB truss 10 & 11 inter-gusset stiffener vibrates under heavy loads. FB truss 8' vibrates under heavy loads. 9-26-2018 KMR D1 to pursue adding stiffeners to these members as done in the past to eliminate vibrations. FB truss 6': Missing bolt lower middle gusset.

[2017] Corrosion is starting in the splash zone of the truss especially in the top chord in spans 16 & 18.

[2016] Span 16 (West) Active corrosion on Bottom of top cord U0-U1; Caulk failing around gussets with rust staining; Vertical L9-U9' both E & W trusses filled with concrete

Bottom Chord Notes: This element represents the arch tie. (2009, Moderate paint deterioration in most areas with minor section loss in re-painted areas. Surface corrosion with flaking rust, measurable repainted areas of section loss, and pack rust are located near panel points (typ).

[2015] No change. Since tie chord was repainted and there is minimal losses, all should be in CS2. [2015] Leaking rust at seams of members through new paint typical. All floorbeam truss bottom middle plates plated due to previous section loss. Due to previous losses painted over, CS will remain the same except for the west diagonal in Span 16 FBTr 6 - item to repair 10 feet in CS4 (see note below).

[2015] A number of areas were identified during the 2015 inspection in need of repair and/or analysis. The notable areas found during the inspection are listed below. Other areas of concern due to previous noted losses and an impending repair contract as a result are attached to this report. Analysis already completed during December 2015 and January 2016.

[July/October 2015] Span 16 FBTr 9 UE & W both north and south plate losses (Photos 12-15); Span 17 FBTr 10 and 10' bottom middle plate (repaired by the District in December 2015) (Photo 47); Span 17 L14E NW cable strand severed (Photos 45-46); Span 18 FBTr 5' USE plate crack and pack rust (crack end drilled out with 1/8" hole and pack rust removed by heating method by the District in December 2015) (Photo 19).

[November 2015] Span 16 FBTr 6 West diagonal losses (Photos 37-39); Span 16 FB6W web losses (Photo 40); Span 16 FBTr 7 UNW and USW losses (Photos 10-11).

[2015] Span 16 L2-U3W has small through corrosion bottom 4 feet - 6 areas.

[2015] Pigeon covers are not effective in Span 16.

[2015] Span 16 L8-U8W 1" diameter hole at top near U8W

[2015] Span 16 FBTr 8 upper NW plate cracked tack weld interior top.

[2015] Span 17 floorbeam truss 10 has heavy leaking rust at the middle connection.

[2015] Pack rust at the connection of Span 17 U10E to the interior gusset plate.

[2015] Span 18 FBTr 6' bottom south middle plate completed plated over; middle bottom north plate partially plated over like all other locations.

[2015] Span 18 U3'-L2'W small through corrosion half-way up the member.

[2015] Span 18 U3'-L2'E small through corrosion near middle of chord; through corrosion at bottom near L2'E is 1"-2" in diameter.

[2015] Span 18 U1'-U0'E hole noted in 2009 is 2.5" long by 2.5" wide.

2014 Lower truss members have been painted, covering areas that are heavily pitted and loss of section (photos 130-140). There is some light rust staining beginning as shown in photos 138, 140.

2014 S 17 upper diagonal bracing appears to have bowed a minimum of 3" S 16 also has same detail however it does not appear to be as extreme. unable to get exact dimensions due to logistics.

[2013] Deck trusses repainted in 2013. There is previous pitting of 1/8" - 3/16" in most members and bowed gusset plates 1-8" - 1/4" due to fit-up or pack rust both in the deck truss main panel points and the floorbeam deck truss panel points. A number of repairs were made to the floorbeam truss gusset plates in 2012-2013.

[2013] Significant section loss found in Span 16 Floorbeam Truss U9W (see Superstructure NBI notes) - rating reflected in elements #152, #363, and #423. Thorough UT readings taken on 10-2-2013. Structural analysis will be done at the locations noted by the Bridge Office during the next upcoming months. The current load posting of 40 tons is still in effect until the District is notified otherwise by the Bridge Office. NBI lowered to 4 pending the outcome of the analysis. Span 16 Floorbeam Truss U9E also has similar deterioration, although not as severe.

[2013] Span 16 L2-U3W 4' diameter hole previously notes is now 4"x5".

[2013] Span 18 FB3' has vertical stiffeners tack welded to the bottom flange on both sides.

2012 - Painting of truss started in 2012. Rivet heads appear to be ground off near LO West (pics 36, 37). Bowing of bottom plate at W. truss, L0 reported -no issue (pic. 5). 2012- L4' to L3' Bottom cord edges bowed up 1/2" due to pack rust. Between U2' and U3' broken ladder brace. L6' C/L Gusset for lower dia wind bracing North Side LOS of gusset.

2012/- There is moderate corrosion of a cable at the W. truss, T14' (pic. 4, 7). LOS at diagonal connection plate T16 W. truss (pic. 8) Connections with small percentage of deteriorated bolts are not

being repaired (pic. 9). [2013] Through truss bottom chord repainted, or will be repainted, in 2013. There is previous pitting of 1/8" - 3/16" in most members and bowed gusset plates 1-8" - 1/4" due to fit-up or pack rust both in the deck truss main panel points and the floorbeam deck truss panel points

2011: Deck truss (panel points 0-11 and 0'-11') have scattered surface corrosion and pack rust along the plate edges of built-up members. Pitting on member surfaces has been arrested by repainting, with some active pitting near gusset plate connections. Rust staining is prevalent on most members. Specific areas of deterioration noted in the 2009 report have not changed. 2011: Arch tie has surface corrosion along built-up plate edges and at cable connections. Most pitting in plates has been arrested by repainting, with some active pitting near cable connection points. Section loss is minimal. West chord between L15'W and L16'W has 1/2" bow in top plate due to pack rust.

Deck Truss Notes: Deck Truss Notes: 2007 (PB): Large areas of paint pitting. Pack rust in the seams of the box and failed caulking.

(2009, Quantity includes deck truss in the two 270 ft. anchor spans, as well as the 60 ft. cantilever sections supporting the suspended span. A number of gussets were retrofitted with free edge stiffeners and painted in 2008 due to previous section loss, and LO and U1 gusset plates were also reinforced (see 2008 Gusset Plate Inspection Summary). Currently, about half of the steel on the deck truss has moderate paint deterioration with limited exposed steel. Repainted areas have minor section loss (CS2). The other half of the deck truss steel has prevalent surface corrosion, and the repainted areas have measurable section loss mainly near panel point areas (CS3). Areas in CS4 - areas of significant section loss that do not require analysis yet - include: Sp 16 L2E north and south diagonals near panel point minor through corrosion, Sp 16 L2-U3W diagonal bottom through corrosion 4" diameter (Photo #2), Sp 18 L2' middle floor truss gusset hole minor, Sp 18 L6' middle floor truss gusset cut out, Sp18 L10'E south BC cover hole, Sp 18 L2'E north minor diagonal holes, Sp 18 FB4'W floor truss north face gusset hole at top(Photo #3). Other areas to note are the vertical portion of the floorbeam truss bottom chords are bowed inward up to 1.5" (typ), FB7'W middle top diaphragm is bent and top vertical tack welds are cracked through.

Fracture Critical Smart Flag Notes: 2011: During the 2011 inspection rust holes were found in gusset plates of the transverse floorbeam trusses in Span 16. These findings have triggered the MnDOT Bridge Office to perform an in-depth analysis on all floorbeam trusses. Any necessary repairs will be included in the 2012 repair contract. The 2008 restriction for overweight permits will remain appropriate until further notice. This element may be raised to CS 2 after analysis is complete and/or repairs have been made.

2012 - Necessary repairs have been made. 2014 No Change.

[2013] See element notes #152, #363, and #423 - condition state will remain at CS2 for now (see General Notes).

2014/- See notes (5-27-2014) in NBI Super.

[2015] See Superstructure NBI notes for specific areas that were analyzed and have been/will be repaired. CS 2 until these locations are repaired in 2016.

515 STEEL PROTECTIVE COATING	07-15-2024	148,563 SF	128,652	9,955	8,471	1,485
	07-25-2023	148,563 SF	131,652	7,955	6,471	2,485

Notes: [2024 NSTM]- Inspection completed by CO inspection team Paint continues to deteriorate - additional 2000 SF CS2, 2000 SF CS3, 1000 SF CS4.

[2023] Paint continues to deteriorate - additional 2000 SF CS2, 2000 SF CS3, 1000 SF CS4.

2022- SNOOPER: All findings are consistent with prior year notes.

[2021] See notes in Element 120. All main truss and FBTr members exhibit leaking rust through paint. 1% more in CS 2 and CS3.

2020- Span 16-18 paint is beginning to deteriorate on bottom cord around caulked areas

This quantity includes the trusses in Spans 16 & 18.

[2018-2019] - 3% CS 2 of top coat failure along top and bottom cords , 2% CS 3 peeling paint along cords and gusset connection and 1% paint failure with rust at gusset connections, and chords

[2017] Rate 3% CS-2 top coat failure especially at the edges of the top chord by the rail. Rate 1% CS-3 for peeling paint especially at the edges of the top chord by the rail and on the chords inside the gusset plate connections. Rate 1% CS-4 for paint failure especially at the edges of the top chord by the rail and on the chords inside the gusset plate connections.

141	STEEL ARCH	07-15-2024	960 LF	0	960	0	0
		07-25-2023	960 LF	0	960	0	0

Notes: [2024 NSTM] Leaking rust, paint failure and surface corrosion was noted and can be seen in attached field notes.

[2023] No change.

2022 - SNOOPER: span 17 No Change  
contractor was repainting cables.  
U11NW slide pin. 6.25 at 67 degrees  
U11NE slide pin. 6.625 at 68 degrees.  
U11SW slide pin. 5.625 at 60 degrees.  
U11SE slide pin. 6.00 at 68 degrees

[2021] Span 17 - no change in condition state.

U10-U11N - 3 rivet heads popped up.

North Portal Brace at U11N - Bare steel in small spots on north face (Photos 365-366). Pack rust in plate to portal brace (Photos 367-368), south face. Paint blister at top of bottom plate on the west end (Photo 369). Pack rust at west end, sway strut stiffener (Photo 370).

L11NW - exterior plate losses localized up to 34% (Photo 371).

U11NW Slide Pin Assembly - IGP paint failure around pin. Rust staining and paint failure. Flaking rust. 6-1/4" gap at 72 degrees (Photos 373-379).

U11NE Slide Pin Assembly - 6.25" at 66 degrees (Photo 380), Interior (Photos 381-382).

U11SW - Exterior face pack rust in plates above lower pin (Photo 390).

L12-U12E - Surface corrosion, paint failure, and pack rust at riveted connections (Photo 399).

L12-U13E - Finish coat failure (Photos 400-401).

Upper Transverse Sway Strut (U12) - Bend at midpoint where diagonal attaches. 1/8" bow gusset to U12 W (Photo 402).

L13W - Lots of leaking rust south side (Photo 407).

Overhead Sway Frame (L13) and L13 Strut - Pack rust at L13 connection on north and south side. Pack rust on all vertical edges at U13 W (Photos 408-409).

L13-L14W - Bare steel on top surface (Photo 410).

L13-U13E - Flaking rust at L13 (Photo 411).

U13W - Interior gusset plate face pack rust at vertical (Photo 412).

L14E - Pack rust starting at SE edge of IGP (Photo 415).

L14-L15E bottom chord, top chord, vertical, and diagonal - top flange surface corrosion and finish coat failure outside (Photo 416).

U14-U15W - Surface corrosion on top plate.

L15W - Pack rust at EGP on north edge. Isolated surface rust and paint failure on interior of north end (Photos 424-425).

Upper Transvers Sway Strut (L15) - bow in top flange of north and south side at 1/3 point (Photo 426).

L15-L16W - minor corrosion interior at L16W (Photo 427).

U15-L16W - surface corrosion at opening along bottom plate.

U15-L16E - finish coat paint failure (Photo 428).

U15W - exterior plate has pack rust on bottom edge. Top connection has paint failure and surface corrosion on sway frame (Photo 429).

L16W - rust staining on rivets at L16-U16W. Bare steel at sway connection (Photo 437). Exterior and interior plate bowed in 1/8" at north vertical edge; interior plate 1/8" bow on top free edge.

L16-L17 - both east and west paint failure and rust/pack rust (Photo 438).

L16-U17 - both east and west top coat paint failure and surface corrosion.

U16-U17E - exterior finish coat failure on exterior web and pack rust starting along top of cover plate (Photo 439).

Upper Transverse Sway Strut (L17) - pitting arrested at west gusset plate. Small rust spot north side, bottom flange near L17W (Photo 445).

Similar conditions for the rest of the arch truss. See inspection field notes section for all details.

[2019] - Span 17 - L10-U10 E exhibited typical 1/16" section loss on splash zone.  
 Span 17 - L11-U11 E exhibited a broken bolt on inside of lower pin.  
 Span 17 - T12-L12 W 3/8" pack rust.  
 Span 17 - T13-L13 W 6' above barrier exhibited typical corrosion.  
 Span 17 - L14 E exhibited misdrilled holes.  
 Span 17 - L14-L15 E top northwest hanger rubbing on member  
 Span 17 - L17 E northwest hanger strand rubbing on chord.  
 Span 17 - U17 E missing 4 bolts/rivets.  
 Span 17 - L17 W hanger not wrapped at top.  
 Span 17 - U18 E missing 2 bolts/rivets.  
 Span 17 - L19 W anchor rust staining.  
 Span 17 - L12' W pack rust and pitting on gusset.

2014 No Change.[2013] Not repainted in 2012/2013 except 10 feet above deck in the splash zone and sporadic spot painting; chalking paint and minor gusset distortion due to pack rust and/or fit up is typical. At U11'SE, debris is built up on the bottom curved member portal bracing. U19-L18'E has one rivet missing on the exterior face at the U19E connection.

2011: Pitting on member surfaces has been arrested by repainting, with some localized active pitting near gusset plate connections. Most active corrosion and rust staining is on lower members close to the deck surface.

2007 (PB): General paint failure of top coat of paint. (2009, Quantity includes the "trussed arch" of the suspended span (2 X 480ft). Corrosion is restarting on many of the elements, generally heavier with closer proximity to the deck elevation.)

515 STEEL PROTECTIVE COATING	07-15-2024	76,900 SF	28,067	16,380	21,763	10,690
	07-25-2023	76,900 SF	30,067	16,380	21,763	8,690

Notes: [2024] - Conditions states were increased slightly due to noted leaking rust and surface corrosion and peeling or failing paint in attached field notes.

[2023] Paint continues to deteriorate - additional 1000 SF each in CS2, CS3, and CS4.

2022- SNOOPER: paint is failing around areas of pack rust.

[2021] See element 141 notes and inspection field notes section. No change in condition state.

This quantity includes the trusses in span 17 and the secondary bracing and portals above the deck.

[2017] Rate 20% CS-2 for chalking paint & freckling rust especially above the 10' line where the painting contract stopped.. Rate 27% CS-3 for top coat failure in the paint above the 10' line where the painting contract stopped and peeling paint especially at the connections of the floorbeams to the cables and at the gusset plate connections of the upper steel. Rate 1% CS-4 for paint system failure at the connections of the floorbeams to the cables and at the gusset plate connections of the upper steel..

152 STEEL FLOORBEAM	07-15-2024	15,724 LF	12,974	2,600	150	0
	07-25-2023	15,724 LF	12,974	2,600	150	0

Notes: [2024 NSTM] Floorbeam in spans 16-18 had no notable change other than pack rust and leaking rust. Locations noted in attached field notes.

[2024] - SNOOPER: No new deficiencies found to be present during snooper inspection. All prior notes monitored for changes in spans 1-15, 9-28, and 29-50 and found no changes present.

[2023] The lower middle gusset plates (L2 Connection of the Floorbeam Trusses) at the connection of the middle vertical to the bottom chord exhibits bowing up to 1" putting the vertical out of line with the lower chord.. See Section IV for measurements at each location. The misalignment appears to be due to fit-up but should be verified during future inspections.

[2021]

Span 4 - FB 4 pack rust at Stringer 1 & 2 connection (Photos 51-52). FB 5 miss-drilled hole at top flange near Girder C.  
 Span 12 - FB 0 bottom flange cut and re-welded on south side (Photo 81).  
 Span 17 - FB 13 top flange leaking rust at T13W. Tie off bar broken off SE side. FB 14 cracked tack weld on south face at east connection. FB 15 leaking rust top flange typical. FB 16 top flange fretting/leaking rust east side. FB 17 cracked tack weld at T17W north (Photos 440-441). FB 18' NE leaking dirt and rust (Photo 463). FB 17' cracked tack weld at T17'W north. Top flange fretting rust northeast side (Photo 472). FB 14' NE cracked tack weld at bottom of angle connection (Photo 488). FB 12' leaking rust south (Photo 496).  
 Span 18 - FB 0' leaking rust at U0'E (Photo 550).  
 Span 21 - FB 21 horizontal shelf plate bent at Girder C (Photo 118).  
 Span 27 - Shelf plate connection to Girder D east side has pack rust distortion typical (Photo 153).  
 Span 32 - FB 20 6 plug welds from miss-plated holes in the Girder C web stiffener at the median diaphragm connection (Photo 185).

Span 34 - FB 7 pack rust along bottom center bracing connection plate between Girders A & B (Photo 201). FB 9 bottom horizontal brace between Girders C & D has corrosion and pack rust at the center connection plate (Photo 202).  
 Span 36 - FB 24 corrosion on median diaphragm from joint gap. FB 1 pack rust at lateral bracing connection to Girder B (Photo 222).  
 Span 37 - FB 7 tight fit web stiffener detail at tension flange; typical (Photos 228-229).  
 Span 40 - FB 8 faded paint throughout floorbeam (Photo 260).  
 Span 43 - FB 7 faded paint throughout floorbeam.

2020-FB Span 16( No change) 17- FB 11'N LOS painted over bottom flanges. Span 18: Webs and flanges heavily pitted due to joint

[2019] - Additions to 2018 inspection notes include:

Span 15 - Deformed bottom cover plate due to pack rust, bent 1/2" at corners only.  
 Span 16 - West truss exhibited pitting on bottom flange and pack rust on horizontal gusset at FB 2.  
 Span 16 - West truss FB 3 exhibited pitting of 1/4" deep on FB 3 on the west end.  
 Span 16 - West truss FB 3 and FB 4 exhibited pitting and pack rust on flanges.  
 Span 16 - West truss FB 4 lower gusset deformation of 1" on corner.  
 Span 16 - West truss FB 5 exhibited a deformed splice plate with minor section loss.  
 Span 20 - Vertical split in stiffener of FB 10 at Girder D.  
 Span 21 - Heavy pack rust on FB 23, at Girder D.  
 Span 21 - Pack rust on stiffener of FB 23, at Girder B.

2018- T14 connection: Lower gusset is bent 1/2" due to pack rust.

(J.P.)- Span 4 has 1/2" Pack Rust @ splice under FB2. Up to 7/8" PR Between FB 1A+2 on lower splice.

Span 31 FB 11 has a twist in the lower FB on SB side between Girder C+D.

Span 36 FB 24 has a missing rivet where center support attaches FB

FB 0 has a missing rivet where center support attaches to the FB

Span 38 FB 15 Distortion in 2 spots on the lower member

FB 16 has distortion in 1 spot on the lower member.

[2017] Rate 120 LF CS-3 due to pitting in the deck trusses. This pitting has been arrested by repainting.

2016- Span 16-18 Active corrosion on top flanges due to cracks in deck. FB Truss 6 vibrates under heavy loads. Crack poor fusion in diaphragm welds to bottom flange FB 9'; NE T12' web connection to vertical member .25 LOS for 43". Nom thickness .404. F/C inspectors also took measurements in this area.

[2015] Floor beams in approach spans mainly show no significant deterioration. Span 17 floorbeams exhibit heavy leaking rust at the ends near the cables - typical.

[2015] Span 6 FB19 typical section loss arrested; painted in 2013.

[2015] Span 7 FB5 2 nuts are welded to bottom of bottom flange with only 1 holding hanger rod.

[2015] Span 9 FB14 top and bottom flanges are cut and welded on the north side of floorbeam at Girders A & B.

[2015] Span 15 FBs are all covered with pigeon droppings.

[2015] Span 16 FB0 first west diaphragm dinged at bottom; heavy pigeon excrement.

[2015] Span 16 FB0 1st west diaphragm dinged at bottom.

[2015] Span 16 FB6 SW face bottom third of web 31% loss over 4 feet (Photo 40).

[2015] Span 17 FB11S' rod at east end broken off at stiffener.

[2015] Span 18 FB1' previous pitting painted over; typical 5-15% total loss. SW face lower web losses 20%.

[2015] Span 18 FB 0' pack rust at some lower flange plates; cleaned out during paint contract >1" bent out west portion north and south.

[2015] CS for previous notes in CS4 and CS5 have been resolved and moved to CS3.

[2015] Span 26 FB12 to Girder A connection - 2 large nests.

[2015] Span 32 FB23 stiffener at Girder B cracked and bents. Pack rust between shelf plate and diagonal bracing - typical for most locations.

[2015] Span 33 diaphragm between Girders D & F has about 2 SF primed but not repainted.

[2015] Span 34 FB14 bracing kink noted in 2009 is now cracked on the west side.

[2015] Span 36 FB6 corrosion on lower connection to Girder F.

2014/- See notes (5-27-2014) for NBI Super.

[2013] Span 8 FB 9 round bar connection nut welded to the bottom flange of the floorbeam is barely welded. Span 10 FB 4 west side between Girders B&C (diaphragm connection) - connection angle has a 4-3/4" long crack at the bottom - Photo 13. The crack was marked for future reference. The bottom "T" member of the floorbeam truss is bowed to the north 1/4". Span 20 FB 9 has pitting along horizontal gusset 1/8" deep east end.

[2013] Floorbeam deck trusses in Spans 16 and 18 and floorbeams in Span 17 repainted in 2013 - previous quantity in CS 4 is now in CS 3. There is previous pitting of 1/8" - 3/16" in most members and bowed gusset plates 1-8" - 1/4" due to fit-up or pack rust in the floorbeam deck truss panel points. A number of repairs were made to the floorbeam truss



gusset plates in 2012-2013.

[2013] Significant section loss found in Span 16 Floorbeam Truss U9W (see Superstructure NBI notes) - 4 feet in CS5 (Photos 1-6). Thorough UT readings taken on 10-2-2013. Structural analysis will be done at the locations noted by the Bridge Office during the next upcoming months. The current load posting of 40 tons is still in effect until the District is notified otherwise by the Bridge Office. NBI lowered to 4 pending the outcome of the analysis. Span 16 Floorbeam Truss U9E also has similar deterioration, although not as severe; 4 feet in CS4 (Photos 7-8).

[2013] Span 17 - FB 12 and 12' have temporary braces in place north and south face of stringers respectively. FB 14' has a cracked tack weld at north face of Stringer 6.pitting that have been repainted. There is severe corrosion (not exceeding 10% of effective section) and extensive flaking rust within 5ft of the panel points. Almost all floorbeams in the tied arch span (Sp 17) have broken tack welds near the panel points.)

2012 - Floorbeam connection at L11E has high percentage of deteriorated bolt nuts that will be replaced in 2012 project (pics. 10-14 and file L11 FB). Typical repair for loss of section at floor beam gusset plates L2 (see pic. 30).

(2009, All floor beams in girder spans are CS1. Floorbeams located in deck truss and tied arch spans are in CS2, CS3, and CS4. Overall, the floorbeams in those spans have measurable section loss/

515 STEEL PROTECTIVE COATING	07-15-2024	214,800 SF	165,977	18,904	16,534	13,385
	07-25-2023	214,800 SF	169,477	17,404	15,034	12,885

Notes: [2024 NSTM] Paint continues to deteriorate - additional 1500 SF CS2, 1500 SF CS3, 500 SF CS4.

[2023] Paint continues to deteriorate. - additional 5% in CS2, CS3, and CS4.

2022- SNOOPER: No change in overall condition in spans 16-18 and all other spans

[2021] See element 152 notes.

2020-Overall good condition span 16-18

[2018-2019] - Condition consistent with 2017 inspection spans 16-18 (J.P. No condition changes during 2018 inspection of spans 1-15 & 19-50)

This quantity includes the approach span floorbeams and attached bracing in Spans 4-15 & 19-43 (138555 SF), Floorbeams in Span 17, The Floorbeam Trusses in Spans 16 & 18 and all the secondary bracing below the deck in Spans 16 & 18 (76245 SF).

[2017] Rate 3% CS-2 for freckling rust especially at the connections of the floorbeams to the trusses. Rate 2% CS-3 for peeling paint especially at the connections of the floorbeams to the trusses. Rate 1% CS-4 for paint system failure especially at the connections of the floorbeams to the truss.

162 STEEL GUSSET PLATE	07-15-2024	260 EA	0	76	183	1
	07-25-2023	260 EA	0	76	183	1

Notes: [2024 NSTM] Gusset plates had noted leaking rust on edges and corrosion on some stiffeners. Locations are noted in attached field notes. L10'W was reviewed with a finite element model and found to not change the load rating. Other L10 locations are in better condition and additional analysis was not necessary in 2024.

Quantity includes gusset plates on the main trusses and tie girders (93 per side) and the transverse floorbeam trusses in the deck truss spans 16 & 18 (3 each at panel points L0-L10 and L0'-L10')

[2023] All gusset plates in the splash zone and below exhibit areas of of pitting and pack rust. Much of it has been arrested by repainting. The corrosion is starting again as the paint fails. The U10-U19 and L12-L19 gusset plates are CS-2 the remainder are CS-3. At the L10'W Connection: North side of the inner plate along the connection of the vertical member, approximately 25% to 40% loss of thickness for a distance of 2'-8" was observed. The length of the plate in this area is 6'-0". This is a total estimated loss of section between 12% and 20% UT readings were taken and the load rating is being updated to include these findings - CS4.

2022- SNOOPER: No additional loss or defects to document. Currently only exhibiting paint failure in many areas

[2021] All main truss and FBTr gussets exhibit leaking rust through paint and minor distortions from pack rust - see inspection field notes.

Span 16 U8W 1/8" bow on bottom north free edge of exterior gusset plate (Photos 330-331). Interior gusset plate (Photo 332). The inside plate has localized losses in the vertical shear areas of up 33% average and 12% in other areas. The outside plate has localized losses of up to 33% as well (Photos 333-335).

Span 16 U8E both exterior and interior plates exhibit up to 22% loss along the seams to the vertical (Photo 336).

2020-Span 16- L0 35% LOS 3" x 24"along gusset. Painted over no additional los. L7 Active corrosion along caulked members. U7 one rivet missing.

Span 17- T16 lower gusset to wind bracing has Los along bottom cord. T16-T17 Outer gusset has 3/4" PR between

gusset and outer cord. T14' 1/4" crack in

lower gusset. L12' PR on interior gusset 3/16" along top of bottom cord 6" total.

Span 18: UNE U6' gusset section LOS along west edge. U4' 3" x 18" los at jct to cord gusset

2018- FB Truss 5': Crack in gusset has been arrested in second drilled hole. Measurements around crack and bolted area run at 46% LOS in gusset. FB Truss 2: Heavy pitting on U2W connection plate. FB 3 tack welds on stiffener to bottom flange. L5W connection: heavily pitted bowed 1/4" at jct with bottom cord. FB Truss 9 (pier16) Cracked tack weld at middle gusset jct with upper west diagonal. Heavy LOS in middle center gusset. FB Truss 9': UNW connection has small area of complete LOS on bottom of gusset. Connection L11S: missing 3 bolts. L11' Connection: outer gusset bowed out 1/2" due to pack rust. Connection U0' Small hole in exterior plate and area of heavy section los. All LOS measurements are not the total cross section LOS of the gussets.

[2017] U5' floorbeam truss USE. One plate had a crack that was arrested by drilling it out. The crack has propagated past the arrest hole 3/4". This plate should have an arrest hole drilled. the U4' floorbeam truss USE plate has section loss of 21% vertically along the connection angle.

[2016] U8, UNW , crack in tack weld angle to gusset. Connection T12 & T12'E 1/4" LOS full ht of FB web at junction to vertical connection.

[2015] Span 18 U8'E exterior gusset plate has a 1/8" vertical bow.

[2015] Span 18 L4'E exterior south vertical free edge bowed out 1/8".

[2015] Span 18 L2'E 1/8" bow out on all free edges.

[2015] See Superstructure NBI notes for specific areas that were analyzed and have been/will be repaired. 23 plates will be repaired/reinforced in 2016 (CS4 till repaired/reinforced, then CS2) - see attachment.

Span 16 L4E outside top free edge bowed in 1/8" from pack rust at edges; L7E south exterior free edge bowed out >1/8".

[2015] Span 16 U0E inside plate previous losses 1/8" to 1/4"; nominal is 1/2".

[2015] Span 17 floorbeam truss 10 has heavy leaking rust at the middle connection.

[2015] Pack rust at the connection of Span 17 U10E to the interior gusset plate.

[2015] Span 17 L11'NE top of plates have some paint failure.

[2015] Span 17 U9'E pitting and paint failure at the stiffener angle on the exterior gusset plate.

[2015] Span 18 U8'E exterior gusset plate has a 1/8" vertical bow.

[2015] Span 18 L4'E exterior south vertical free edge bowed out 1/8".

[2015] Span 18 L2'E 1/8" bow out on all free edges. 15] Span 18 FBTr 6' bottom south middle plate completed plated over; middle bottom north plate partially plated over like all other locations.

[2015] Span 18 L0'E interior and exterior plates missing bolt at bottom in compression zone; assumed as-built.

[2015] Span 18 U0'W localized and general pitting overall now from 5% reported in 2008 to 10%.

[2015] Span 18 L4'W active corrosion along bottom chord interior surface.

[2015] Span 18 U7'W south plate 10-20% sporadic losses.

2014 See (5-27-2014) notes in NBI Super. 2014 Span 15, East truss, gusset plate U2', 2 bolts missing from gusset plate. 2 3/4" x 3/4".

[2013] Free-edge distortion repairs made to L12, L12', L16, and L16' in Span 17. Free edge distortion still exists mainly in the floorbeam truss gusset plates due to pack rust and fit up - CS3 remains.

[2013] Quantity changed from 252 to 260 to account for north and south gusset plates at L11 and L11' east and west.

[2013] A number of gusset plates were repaired in the 2012 Repair Contract. All gusset plates below the deck and 10 feet above in the splash zone were repainted. Spot painting was done above deck. Previous pitting that was painted over still warrants CS2. The floorbeam truss gusset plates in Spans 16 and 18 have moderate previous pitting that still warrants CS3. Significant section loss found in Span 16 Floorbeam Truss U9W (see Superstructure NBI notes) - 4 feet in CS5 (Photos 1-6). Thorough UT readings taken on 10-2-2013. Structural analysis will be done at the locations noted by the Bridge Office during the next upcoming months. The current load posting of 40 tons is still in effect until the District is notified otherwise by the Bridge Office. NBI lowered to 4 pending the outcome of the analysis. Span 16 Floorbeam Truss U9E also has similar deterioration, although not as severe; 1 in CS4 (Photos 7-8).

[2013] Span 17 - Three broken top gusset plate bolts at L11SE inside plate; L12W interior plate 3/4" bend along bottom curved edge; L12E interior plate 1 rivet sheared off; T15E and T17W top connection bolts to tie chord have section loss. Gusset Plate Distortion Notes: (2009, Previously distorted gusset plates along free edges have been reinforced in 2008. Distortions noted in 2009 along free edges were due to pack rust and/or fit-up and did not exceed 3/16".)

2012 -Necessary repairs have been made to gusset plates.

2011: Quantity has been changed to include gusset plates on the main trusses and tie girders (93 per side) and the transverse floorbeam trusses in the deck truss spans 16 & 18 (3 each at panel points L0-L10 and L0'-L10'). Rust-through holes have now been identified in the floorbeam truss gusset plates at 4 locations: #1: Span 16 FB5 at U1N, #2 Span 16 FB6 at L2S, #3 Span 16 FB7 at L2N, and #4 Span 18 FB4' at U1N (first identified in 2009). See photos. A load rating with the reported section loss into account resulted in a restriction of permit loads on the bridge, as well as operational restrictions for the Snoopers (Maintain at least a floorbeam spacing between, and snoopers are not to exceed 10mph)

which was already in place since 2008. Other gusset plates on the floorbeam trusses have significant section loss due to pitting, which has been arrested by repainting. Gusset plates on the main truss have some surface corrosion and areas of arrested pitting.

2011: Free-edge distortion on gusset plates is 1/4" or less.

2009 - Most gussets have minor to moderate previous section loss due to pitting that is painted over. A number of gussets were retrofitted with free edge stiffeners and painted in 2008 due to previous section loss, and L0 and U1 gussets were retrofitted with free edge stiffeners and painted in 2008 due to previous section loss, and L0 and U1 gusset plates were also reinforced. These inspections were performed by Mn/DOT and PB Americas (see 2008 Gusset Plate Inspection Summary).

515 STEEL PROTECTIVE COATING	07-15-2024	18,105 SF	13,274	2,391	2,110	330
	07-25-2023	18,105 SF	13,724	2,191	1,910	280

Notes: [2024] Paint continues to deteriorate - additional 200 SF in CS2 & CS3; additional 50 SF in CS4.

[2023] Paint continues to deteriorate - additional 1000 SF in CS2 & CS3; additional 100 SF in CS4.

2022- SNOOPER: Many areas showing signs of paint failure when compared to prior notes. Rainbow Inc. is currently on bridge under contract to do spot painting. Will need to update coating in 2023. Adjusted CS rating to account for paint failure.

[2021] All gusset plates exhibit leaking rust at seams. Paint is starting to deteriorate. 1% more in CS 2 and CS 3.

2020-Gussets in lower area condition 3% freckled rust at caulked areas

[2018-2019] - Gussets in lower truss area condition 1% CS 2 freckling rust at caulked plates

This quantity includes all the truss gusset plates, the gusset plates in the suspended Span 17 & the Floorbeam truss gusset plates in Spans 16 & 18.

[2017] Rate 10% CS-2 for freckling rust especially at the gusset plates in the upper steel . Rate 5% CS-3 for peeling paint especially at the gusset plates in the upper steel . Rate 1% CS-4 for paint system failure especially in the interior of the gusset plate connections.

205 REINFORCED CONCRETE COLUMN	07-15-2024	112 EA	81	21	10	0
	07-25-2023	112 EA	81	21	10	0

Notes: 2024- Pier 24 column 2 delam and rust due to drainage prior to drain retrofit 60SF. Pier 25 area 60 SF on pier 2 has been repaired with areas of rust, done prior to drainage repair. Column 1 west 4SF delam under cap. Pier 26 cracking, delam with efflorescence column 1 and 2, column 1 40SF column 2 20SF. Pier 27, strut, light rusting of chains pier2 20SF of cracking with delamination.

SNOOPER (Spans 29-50): P27 C1 has cracking and delam, P 29 C1 and C2 have cracking and delam, P30 C2 has cracking and delam

[2023] No change.

2022- ROUTINE: columns on Connor's Point have cracking and delam with rust (CS3) and others have moderate vertical cracking and delam (CS2). Columns in other areas have minor map cracking in some areas. SNOOPER: Pier 16 and 17 were being worked on by Northland construction. They were guniting the spalled areas. Will need to have CS rating adjusted during 2023 inspection. Otherwise no deficiencies were present.

[2021] Underwater Inspection: All piers exhibited scaling with maximum penetration of 6 inches and random locations of exposed vertical reinforcement ranging from 2 ft above waterline to 4 ft below. Spalls were present on Piers 15 & 17, see WisDOT Underwater Inspection Report 2021 (Attached). (6 EA CS1, 8 EA CS2, routine qty controls).

[2021] Pier 8 west column has a 1 SF spall at the base (Photos 70-71). West column has extensive failure of the special surface treatment. Pier 18 - Footing has 3'x2'x6" spall at ground level with areas of efflorescence and leaching from Column 2. Pier 24 - Column 2 has 20 feet of cracking with leaching and three 1'x1' spalls. Pier 25 - 20'x4' patch that is map cracked. Pier 26 - Column 2 has cracking with leaking rust. Piers 23-26 - all have cracking with rust due to stains.

2020- Pier 5: 15' x 6' area where paint has peeled off. Peeling on columns due to dumping snow beneath bridge.

Pier 6: C3 has 12' x 4' peeling of coating.

Pier 8: C1 special surface wearing.

Pier 9: Vertical cracks with leeching every 3'.

Pier 10: C1 special surface is wearing. Drain is eroding edge of roadway below.

Pier 14: C1 6' x 6' delamination of special surface.

Pier 18: C1 and C2 linner walls have 6" spalls and vetical cracks.

Pier 24: C2 West face has 20 SF delamination, multiple areas with rust staining and 3 vertical cracks running

throughout height.

- Piers 24-29: Cracking with rust staining due to discharging drains.
- Pier 35: 5' vertical crack on West face.
- Pier 37: West face C1 has 20 SF delam, very light map cracking full width 25 ft long.
- Pier 39: 30 S.F. special surface failure.
- Pier 50: (2) 4 ft long moderate vertical cracks on C1.

[2019] - Underwater inspection from 2016 reported columns in the water are scaling below the water line, 2 in. to 4 in. deep.

- Pier 3 - Good condition, minor cracking but no spalls.
- Pier 4 - Minor cracks but no spalls.
- Pier 25 - Spall on west column Pier 25, west face 2'W x 18"H x 1" deep.
- Pier 29 - Spalls (2) on west column 2' tall x 5" wide x 1.5" deep.
- Pier 29 - Spall on east column 2' tall x 6" wide x ¾" deep.
- Pier 50 - 2'W x 1.5'L delamination on west column Pier 50.

2018- pier 5 has a 15x4 foot area that the paint peeled off.

Columns in the water are scaling below the water line, 2 in. to 4 in. deep.

[2017] Random map cracking developing at column pier 19-28. Areas of cracking with efflorescence and delamination. Pier 12 has delaminated area on column 1, west side.

[2015] Pier 16 columns have vertical cracking throughout - typical of all pier columns. Piers 24-29 have cracking and discoloration of struts between columns with rust staining due to drains discharging above them. Pier 28 spall on west face of west column

2014- 2'x2' spall on west side of pier 25.

[2013] Spalls and delamination in upper half of east column above strut as noted in 2012 - Photo 14. See Channel NBI rating notes for 2012 Underwater Inspection Report findings in relation to this element.

2011 Concrete columns have a few small isolated spalls, but overall are in satisfactory condition with some staining and random map cracking. Spalling with exposed rebar on Pier 16 was noted in 2009. The west side of Pier 15 and 16 have spalling corners. The southeast side of Pier 17 has a 3LF section with spalls/exposed rebar. 2012 /2014- Pier 26 concrete reinforcing between the 2 columns have exposed rebar for the entire length. From drain water falling on the pier.

(2009, Random map cracking developing at one column of Piers 19, 20, 21, 23, 32 and at both columns of Piers 24, 25, 26, 27, and 28. Moderate spalling with exposed corrosive rebar on Pier 16 both columns at bearing.)

2007 (PB): No inspection of scour below waterline performed in this inspection.

210	REINFORCED CONCRETE PIER WALL	07-15-2024	578 LF	0	566	12	0
		07-25-2023	578 LF	0	566	12	0

Notes: 2024/2023No change.

2022- ROUTINE: Pier 15 has vertical cracking with rust on the north face. Pier 18 has sound patches. SNOOPER: Pier 15-18/No new deficiencies present when inspected above using the snooper. All others consistent with prior notes

[2021] Underwater Inspection: All piers exhibited scaling with maximum penetration of 6 inches and random locations of exposed vertical reinforcement ranging from 2 ft above waterline to 4 ft below. Spalls were present on Piers 15 & 17, see WisDOT Underwater Inspection Report 2021 (Attached). (566 LF CS2, 12 LF CS3).

2020- Pier 15: South side has 16 SF of spalling up to 3" deep at waterline. There is a 24 SF map cracked area under C2 at the base with rust staining.

Pier 16: North side has 6 SF of spalling 3" deep at the top center of pier wall. There is a 4 SF spall on the South side at the water line under C2. 4 SF spall on south side with exposed rusted rebar and 4 SF of delamination. 2 SF spall 3" deep at top of cap. 10 SF spall with exposed rusted rebar (see pictures).

Pier 17: North side has a 3 SF spall at top center of pier wall. 4 SF spall at water line under C2. 3 horizontal cracks at top of pier wall with rust staining, show signs of delamination.

Pier 29: West face has 8 SF delam 3" deep above water line. North face at water line under C1 has a 2 SF spall 3"

deep.

Pier 30: South side has 6 SF spalling on C1 2' above reinforcement. 10 SF spalling up to 3" deep and 10 SF delam under C2.

Pier 31: 6 SF spall with exposed rusted rebar at C2.

Pier 32: 1 light vertical crack on north face, map cracking at the top of the south face

[2015] Piers 15 & 17 exhibit large vertical cracking and spalls. Piers 16 & 18 have minor cracking. Spalls on Pier 30 lower wall. Pier 31 wall cracking and delamination.

[2013] No significant change. See Channel NBI rating notes for 2012 Underwater Inspection Report findings in relation to this element.

2011: Scaling on pier walls in water (Piers 15-18, 29-31) noted in 2008 underwater report. Pier 32 (on land) is in good condition.

(2009, This element includes Piers 15 - 18 (main channel) and Piers 29 - 32 (Howard's Pocket). There is scaling on pier shafts and footing exposure with occasional exposed reinforcing steel. Wall on Pier 32 over land has no scaling or other deterioration.) 2008 under water inspection report noted a band of scaling ranging from moderate, with 1 to 3 inch penetration, to heavy with 4 to 6 in. penetration and exposed reinforcing steel at times, was noted at the water line around the perimeter of all inspected piers. Consideration should be given during future bridge maintenance operations to repair areas of heavy scaling with exposed reinforcing steel.)

215	REINFORCED CONCRETE ABUTMENT	07-15-2024	258 LF	205	45	8	0
		07-25-2023	258 LF	205	45	8	0

Notes: 2024/2023 No change.

2022 - ROUTINE: North: failing patches at each corner (CS3), 5 moderate vertical cracks on the back wall, sporadic light vertical cracking on the backwall, 10 L.F. of sound patch on the front face; South: spall on backwall at each corner (CS3), approximately 20 vertical cracking on the backwall with eff. and leaching, 15 L.F. of light vertical cracking on the front face

[2021] Southeast backwall has 10 SF of delamination under turn-up. Leaching cracks and spalling at both ends. Several vertical leaching cracks between beams (Photos 1-4).

2020- North: Crack between B4 and B5, crack between B9 and B10. 2 light cracks in bridge seat.  
South: 24 cracks in backwall, 3 in bridge seat. 10 SF of dry mix/lime spots on backwall.

[2019] - Vertical cracking full height between each beam in backwall of North Abutment.

2018-crack between beam 3 and 4 on north end.

[2017] 15 light vertical cracks with efflorescence North abutment backwall. South Abutment heavy efflorescence B4-B7 in backwall. 30 vert cracks in the backwall.

[2016] Poly guard has failed on North abutment

[2015] Light vertical cracking North Abutment backwall; polyguard at top has failed. South slope protection has been repaired.

2014- 5 L.F. spalling and cracking on south abutment backwall with efflorescence.

Wingwall notes: 2011: Concrete wingwalls are in good condition with little or no cracking, spalling or staining.

Light cracking in back wall and cracks in N&S headblocks. 2009/2012 - Moderate cracking in north abutment.

2011/2012 - The South Abutment parapet has spalling at S.W. corner (4 LF at CS 3).

220	REINFORCED CONCRETE FOOTING	07-15-2024	860 LF	0	860	0	0
		07-25-2023	860 LF	0	860	0	0

Notes: 2024- Check underwater report

[2022-2023] SNOOPER: Pier 15-18 and all others/ No new deficiencies present; ROUTINE - see underwater inspection.

[2021] Underwater Inspection: Concrete was generally smooth and in sound condition. Footing exposure up to 9 ft vertically at Piers 15, 16, 17 and 18. Footing exposure up to 12 ft vertically at Piers 29, 30, and 31. (860 LF CS2)

2020- Pier 18 has 8 SF spalling/delamination at C2 and 3 SF near middle. North face has a 6" gouge/spall, South side has

a 6" diameter gouge at waterline.

[2017] Pier 30 25' of spalling, delamination, with exposed rusted rebar 2' up from the waterline.

[2016 U/W] Only the exposed portion of footing at Piers 15-18 and 29-31 were quantified and rated.

[2016] Migrator assumed 10LF per EA quantity, a total of 70 LF.

[2015] Piers 15, 16, and 17 exhibit large vertical cracking and spalls; spalls on Pier 30 (CS2).

[2021] Underwater inspection of this element performed in 2020-2021. Report has yet to be entered into SIMS.

[2013] No significant change. See Channel NBI rating notes for 2012 Underwater Inspection Report findings in relation to this element.

2011: Submerged footings (Piers 15-18, 29-31) have no significant deterioration, as noted in the 2008 underwater report. Next underwater inspection is scheduled for 2012.

(2009, This element refers only to the inspected submerged footing of Piers 15-18 and Piers 29-31. Footing exposure but no deterioration (see 2008 Underwater Report).)

234	REINFORCED CONCRETE PIER CAP	07-15-2024	762 LF	0	737	25	0
		07-25-2023	762 LF	0	737	25	0

Notes: 2024- All prior notes found to be conclusive when compared to findings in the field in Caps 1-15, 18-29, and 44 - 49

[2023] No change.

2022 - ROUTINE: Pier Caps 44 - 51 have light vertical cracking under and on the faces of the caps, scrapes under Pier Cap 50; Pier Caps 15 and 18 appear to have cracking with rust under the cap (see snooper notes); SNOOPER: No new deficiencies found

2020- Pier cap 50 has a 3' vertical crack with delamination on the West face of C1. P16 South patches have deteriorated exposing rebar

2018- 9030 West cap ,Pier 16, 18' x 2' x 1' Spalling of patches. Pier 18 3' x 18" Failed patch.

[2015] Typical vertical cracking with minor spalls for all (CS2). Pier 18 repaired on south side.

2014/- Top of caps have been repaired.2014 Pier 50 bottom of cap traffic hits east & west ends.

[2013] Pier 16 top of pier west end east side of cap/column has two large spalls with exposed reinforcement. The south spall is 2'6" long x 2'6" wide. The north spall is 2'6" x 2'6". P20 bearing seat #3 has a hairline crack radiating into anchor bolt location.

2012 - West end of pier caps 16,17and 18 have large spalls at bearing caps and delamination in pier cap. Repairs should be made (pic. 6, 40). 1' x 6" spall top of cap at pier 18 , L0' 12' x 24".

2011: Non-prestressed pier caps (Piers 15-18, 44-51) are in good condition with little or no cracking, scaling or staining. Non P/S portions of piers 1 - 7, piers 15 - 18, and piers 44 - 51. Some rust staining on truss. caps.

233	PRESTRESSED CONCRETE PIER CAP	07-15-2024	2,830 LF	0	2,810	20	0
		07-25-2023	2,830 LF	0	2,810	20	0

Notes: 2024- All prior notes found to be conclusive when compared to findings in the field in Caps 1-15, 18-29, and 30-43

[2023] No change.

2022 - ROUTINE: Pier Caps 1-14 have light map cracking underneath. Pier Cap 5 and 8 have rebar chairs rusted and exposed. Pier Caps 19-43 have light might cracking underneath and on the faces of the caps SNOOPER: No further deterioration at this time

[2021] Pier 50 cap has impact damage/scrapes (Photo 6).

[2019] - In addition to 2015 notes, Pier 21 exhibited cracks under Girders A and B.

[2015] All caps exhibit cracking; particularly map/block cracking. Pier 9 has a 1'x1' spall on the NE side with rusting plate. Pier 25 bearing pedestals A, B, & C have cracking on the south face; pedestal A has a spall on the north face. Piers 30 & 31 has horizontal cracks at the post-tensioned areas south face west end. Pier 32 has a full depth vertical crack in the cap

on the north face west side.

2014-pier 25,girder B@C the caps have moderate cracking.

[2013] Vertical/horizontal cracks on both cap faces at most piers. The west end of Pier 11 cap on the south side has a corner spall. There are two spalls on the east end of the cap at Pier 12 where the post tensioning anchorage is still exposed due to research inspection per the 2012 repair contract (approximately 14"x12") - add 2 LF in CS3 for Pier 11 and 12 - Photo 15. Miss-drilled scaffold holes in Pier 19 cap are not plugged - Photo 16. Pier 19 large vertical crack south face 1/16" - 1/8" wide.

2011: Shrinkage cracks are present on all prestressed pier caps (Piers 1-14, 19-43). A small spall (less than 1 SF) is present on the east end of the Pier 42 cap. The north face, east side of Pier 4 has a 3LF shear crack.

(2009, A contract was let in 1995 to repair shrinkage cracks shortly after construction. All caps have cracking and nearly identical on each cap.)

310	ELASTOMERIC EXPANSION BEARING	07-15-2024	184 EA	180	1	3	0
		07-25-2023	184 EA	182	1	1	0

Notes: 2024- South abutment: Fascia bearing is beyond design limits 1 1/4 at 75Deg (Spans 1 through 15 and 19 through 29)  
 Girder A at Pier 1 slid out past plate 1/2"  
 Girder G at Pier 5 has over 22.5% loss of contact from bearing to plate  
 SNOOPER (Spans 29-50): functioning as intended

[2023] No change.

2022 - ROUTINE: no issues found with elastomeric bearings at north and south abutments; SNOOPER: Found to be in good condition

[2021] Pads all tilted in expansion at the South Abutment, but properly positioned below sole plates. East bearing has minor corrosion on steel components. Girder F bearing pad in Span 36 has a section of the covering missing; steel plates exposed (Photo 224).

[2017] South abutment expanded 1/2" at 70 Degrees.

[2015] Good condition; bearings typically in the neutral position or tipped slightly (1/4") to the south. No visible gap under B9 on Pier 48 as previously noted (put at CS1).

[2013] Elastomeric bearing under Beam 9 on Pier 48 has visible gap between pad and bearing plate - CS2 - Photo 17. All bearings are functioning as intended.

2012 - Elastomeric bearing on Pier 32, Beam F, has small 1" minus cuts on what looks to be a patch, 10 cuts in all.

2011: The elastomeric bearing quantity should be reduced to 184 to reflect expansion elastomeric bearings only. Other bearings with thin elastomeric pads (designated on the 1993 plans as F1, F2, or F3) should be rated as fixed bearings. All elastomeric expansion bearings are in good condition and are operating within their expansion limits. Girder #6 pier #34 & 36 have a piece missing from side.

2007 (PB): The north abutment bearings appeared to be slightly more extended in warm weather direction than expected as temp. @ inspection was 75F. No distress or walking of bearings noted.

311	EXPANSION BEARING	07-15-2024	96 EA	39	56	1	0
		07-25-2023	96 EA	39	56	1	0

Notes: 2024- SNOOPER: (Spans 1 through15 and 19 through 29)  
 No new notable changes found during inspection  
 (Spans 30-49): rocker bearings functioning as intended

[2023] No change.

2022 - SNOOPER: In need of grease

[2021] Span 36 modular deck joint is leaking through at gap in median (Photo 221) - CS3.

[2018-2020] - Roller bearings in working order Light corrosion beginning on masonry plates

[2015] Approach span rocker bearings repainted; no signs of surface corrosion (rc0015). See attached bearing

measurements.

[2015] Rocker nest bearings on Piers 15 and 18 have surface corrosion. Pier 15 L0E bearing tipped to the south at 63F - south roller 1/2", 3/4", 5/8", north roller 5/8". Pier 15 L0W bearing tipped to the south at 63F - south roller 3/4", 1/2", 3/8", north roller 1/2". Pier 18 L0'E and W both tipped 1/4" to the north. 20 additional approach span bearings have shown movement from 2013 to 2015 (see bearing measurement table in FC report) - (CS1); minor surface corrosion present.

2014/-Daylight still showing under elastomeric bearing pad, beam 9, pier 48, condition unchanged (photo 157).

[2013] 16 of the rocker bearings show notable movement (>1/8" tilt) since 2011 - Pier 3 Girder A, Pier 5 Girders B/D, Pier 6 Girder 4, Pier 11 Girders A/B, Pier 12 Girder A, Pier 14 Girder A, Pier 21 Girder C, Pier 22 Girder B, Pier 26 Girders C/D, Pier 28 Girder C, Pier 29 Girders C/D, and Pier 40 Girder C. Upgrade to CS1. The truss bearings appear to be functioning properly.

(2009,Sp 16 L0W roller bearing missing northwest vertical stabilizer anchor bolt (Photo #4).)2011: The expansion bearing quantity should be increased to 96. This element includes the original rocker bearings on the approach spans and the rockernest bearings on the truss (Piers 15 & 18). The rocker bearings on the approach spans are well within their expansion limits, but show no evidence of movement since the bridge was repainted (CS 2). Measurements were taken of all rocker bearings to provide a comparison basis for future inspections. The truss bearings appear to be functioning properly (CS 1).

313	FIXED BEARING	07-15-2024	85 EA	81	4	0	0
		07-25-2023	85 EA	81	4	0	0

Notes: 2024- SNOOPER: (Spans 1 through15 and 19 through 29)  
 No new notable changes found during inspection  
 (Spans 30 to 49): functioning as intended

[2023] No change.

2022- SNOOPER: Bearings over Pier 16 and 17 and all others show no changes in prior notes

[2021] Corrosion has begun to initiate again.

2018-Fixed bearings at Piers 16 & 17 consistent with 2015 report

[2015] Fixed bearings at Piers 16 and 17 exhibit surface corrosion. Approach span fixed bearings have minor chalking.

[2013] Fixed bearings at Girders B and C have typical surface corrosion at all piers.

2012 - Pier 34, Girder D, the pins are too short, providing only 3/4 in. of threats available for the nuts on each side of the pin. Pier 34, Girder F facia, elastomeric bearing has a 1.5 in. square torn out exposing the plates.

2011: The fixed bearing quantity should be increased to 85. This element includes the fixed truss bearings at Piers 16 & 17, the fixed pin bearings (Girders A-D) and fixed elastomeric pad bearings (Girders E & F) on the approach spans (Piers 4, 7, 10, 13, 20, 23, 25, 27, 30, 31, 34, 37, 41, &43), and the fixed bearings on the multi-beam approach spans. All fixed bearings are in good condition and are functioning properly.

161	PIN & HANGER/PINNED CONNECTION	07-15-2024	105 EA	71	22	12	0
		07-25-2023	105 EA	89	4	12	0

Notes: 2024- SNOOPER: In spans 1-15 and 19-28 all were functioning properly and showing signs of movement. No changes to condition state. Measurements will be in the pic/file part of the element for comparison. In Spans 29-50 - pins in spans 36, 33, 29 have rust leaking through the pin (move 18 EACH to CS2)

[2023] Span 3 Pin and Hanger A , B - Pack rust present but still functioning properly. 2 - (CS-3)  
 Span 5 Pin and Hanger A , B & F- Pack rust present but still functioning properly. 3 - (CS-3)  
 Span 6 Pin and Hanger A , B & F- Pack rust present but still functioning properly. 3 - (CS-3)  
 Span 9 Pin and Hanger E & F- Pack rust present but still functioning properly. 2 - (CS-3)  
 Span 12 Pin and Hanger A- Pack rust present but still functioning properly. 1 - (CS-3)  
 Span 15 Pin and Hanger D- Pack rust present but still functioning properly. 1 - (CS-3)

[2022] SNOOPER: No new deficiencies noticed during inspection of spans 16-18 and all other spans

[2021] Pins on truss UT'd. Rust staining and paint failure around pins. Approach span pin and hangers not UT'd. Lots of pigeon dropping at pin and hangers (Photo 59). No change in condition state.

2020- Span 16-18 hangers in good condition No UT done.

[2019] - All bridge pins were tested with ultrasonic testing during 2019 inspection. See standalone pin inspection report



attached in Appendix of 2019 FC report document completed by Collins Engineers, Inc. No significant findings. Indications found were consistent of being acoustic coupling and/or minor wear groves.

2018- Excel spreadsheet in notes where pics are of the measurements and temp for all pin and hanger assembly.

[2017] Approach span pins UT'd in 2017. Pigeon debris coating many of the connections. Indications consistent with wear were noted on all of the truss hanger pins. The indications appeared from approximately 6:00-8:00 on the lower pins and 12:00-2:00 on the upper pins. The indications were most prevalent on the southeast upper pin, the northeast lower pin, the northwest lower pin, and the southeast lower pin. The indications were located around 26.75" from both ends of the lower pins and 30" from both ends of the upper pins. The indications were not visible at the corresponding distance from the inspection end. That and their location at the top of the upper pins and bottom of the lower pins make them consistent with wear grooves caused by movement of the pin and hanger assembly.

[2015] Approach span pins not UT'd this year, as they were already in 2013. Truss/arch pins were UT'd during this inspection. No indications were noted. Span 17 U11E slide pin assembly is open at 6.125" at 68 degrees. Span 17 U11'E slide pin assembly is open at 6" at 60 degrees. Span 17 U11W slide pin assembly is open at 5.625" at 42 degrees. Span 17 U11'W slide pin assembly is open at 5.375" at 40 degrees.

2014 removed note

2014/- New paint

[2013] All pins ultrasonically tested in 2013. Span 17 U11E, U11'E, and U11W top pins have indications 31" from the outside end of the pin in the 0-45 degrees area. The U11W indication is a reoccurring one that also has a corresponding 9-10" indication from the inside. In 1999, the plug was removed from the outside pin and the interior was examined using a remote video imaging camera. It was determined that the indication was caused by a ridge in the bore. The top pins at U11E and U11'E do not show a corresponding indication from the inside, which is indicative of normal wear. No indications were detected in the approach span girder pins. The hanger gaps are within design plan tolerance. All approach span girder pin and hanger locations have (or will be) repainted by the end of 2013; therefore, condition state was upgraded to CS1. The 4 pin locations in Span 17 were not repainted - slide pin movement was evident at all locations - pin nuts have minor surface corrosion.

2011: Pin & Hanger joints in the approach spans are functioning properly. Gap measurements were taken on all joints, with many readings differing from those taken in 2009. A few hanger plates have light to moderate surface corrosion near the lower pin indicating that they are functioning. Some lower pins show evidence that the pin is turning relative to the nut. All cotter pins are in place. 2012/- See attached file with pin and hanger assembly measurements.

2009 - Pin assemblies have little to minor deterioration. Pigeon waste is the only debris covering these areas. Ultrasonic thickness testing was performed and no indications were noted.)Quantity includes both pin and hangers in approach girder spans and the 4 pinned connections in Span 17.

Span 33 Pin and hanger beam #3 has 3/4 in between nut and washer on one side. Pin was fabricated too long according to construction inspector. 3/28/08 Pier 15 the interior pin seams to be rotating not the nut. The exterior pin the nut is rotating.

515 STEEL PROTECTIVE COATING	07-15-2024	1,277 SF	1,149	64	64	0
	07-25-2023	1,277 SF	1,149	64	64	0

Notes: 2024 - SNOOPER: No significant growth in deterioration of paint in spans 1-15, 19-28, and 29-50

[2023] Paint is failing around the pins - 64SF each in CS2 and CS3.

2022- SNOOPER: starting to rust around pins

2020- Good condition

[2018-2019] - No deficiencies to report.

[2017] The pin and hanger joints showed no evidence of paint failure at the time of inspection. 100% CS-1

850 STEEL HINGE ASSEMBLY	07-15-2024	52 EA	16	36	0	0
	07-25-2023	52 EA	16	36	0	0

Notes: 2024 - SNOOPER: (JP)No changes noticed from the outsides of Pier 15 and 18. F/C was responsible for the insides of those spans this year. (BW) rust coming through weld gap on span 47 and 50 hinges (see photo)

[2023] No change.

2022- SNOOPER: No change in Pier 15 and 18 and all other hinge assemblies

2018- Light corrosion at Pier 15 & 18 hinge assembly's

[2015] Previous notes from the fracture critical reports indicate there is corrosion and fretting rust at all the expansion hinges in the main truss spans - CS2 (8x4 locations = 32).

2011: The stringer expansion hinges in the main truss spans (panel points #6, 16, 16' & 6' - 8 at each location) could be rated as hinges - this would increase the element quantity to 52. The fascia hinges in Spans #47 & 50 have corrosion (CS 2) - these are the only other spans that have hinges (10 in each span).

148	STEEL SECONDARY CABLE	07-15-2024	104 EA	0	92	12	0
		07-25-2023	104 EA	0	92	12	0

Notes: [2024 NSTM] Flaking rust was seen on some of the stiffeners around cable connections. Locations can be seen in attached field notes.

[2023] The coating around the the cables at the cable blocks in the lower panel points is starting to fail exposing strands and allowing them to corrode in small isolated areas especially near the connections to the Floorbeams.

2022- SNOOPER: contractor was starting to repaint cables.

[2021] All cables have initial corrosion starting.

L13W Wire wrap coming apart on NE and SE cables at upper opening (Photo 404). Slight vibration observed at L13.

L13E NE cable is vibrating more than others.

L17 cables - Corrosion in wire wrap (Photo 442). NW cable vibrated more than others. Rust staining in anchor block.

L18W NE and SE cable vibrating more than others.

L19 W NE cable has corrosion at the top of T19W plate (Photo 456).

At L18' - Lower NW, SE cables in contact. NW protection plate is rubbing. SW bottom upper plate has surface corrosion. At T18' - NE cable at top of T18'W possible nicked strand (Photo 465).

Low plate, both west cables are in contact at L16'W.

SE cable in contact at L16'E.

SE, SW, and NW cables in contact at L15'W. All have protection plates. SW cable exhibits corrosion at the top of T15'W (Photo 484).

SW cable touching side of vertical plate at T15'E (Photos 485-486).

NE cable possibly contacting to side of plate at block of T14'E (Photo 489). South cables blocks are twisted (Photo 490).

L13'W - NW cable in contact at upper and NE at lower. Pack rust at upper anchorage. T13' - SE cable has peeling paint and corrosion at top of T13' plate. NW and SW cables have a bulge extrusion at top of plate with corrosion and peeling paint (Photo 491).

T13' south cables move more excessively than the north cables. The SW cable block is twisted (Photo 493).

2020- DR ( T18 Cables and connection have active corrosion)

[2019] - Truss cables in fair condition with minor corrosion at most lower connections.

2018- Cables in good condition at lower connections

[2016-2017] Cable hangers bottom chord showing signs active corrosion.

[2015] All cable anchorages and connections exhibit leaking rust through new paint; no cables are rubbing/contacting the bridge at the tie chord on the the east side.

[2015] L13E NW cable guard on the bottom of the bottom chord is contacting (CS3).

[2015] L14E NW cable has no protection and one strand is severed - noted in 2013 (Photos 45-46).

[2015] L15E all cable guards but the SW on the bottom of the bottom chord are contacting.

[2015] L16E NE and NW cables on the top of the bottom chord are contacting (CS3)

[2015] L17E SW and SE cable guards on the bottom and top of the bottom chord are contacting and rubbing (CS3).

[2015] Cable corrosion starting 6' above the deck - Span 17 L19E typical.

[2015] L18'E all four cable guards on the top of the bottom chord are contacting (CS3); SW and SE cable guards on the bottom of the bottom chord are contacting (CS3).

[2015] L17'E NW and NE cable guards on the bottom of the bottom chord are contacting; NW is rubbing. All four cable guards on the top of the bottom chord are contacting (CS3).

[2015] L15'E all but the NE cable guards on the bottom of the bottom chord are contacting; all four cable guards on the top of the bottom chord are contacting (CS3).

[2015] L14'E SW and SE cable guards on the bottom of the bottom chord are contacting (CS3).

[2015] L13'E NW and NE cable guards on the bottom of the bottom chord are contacting (CS3).

[2015] L13W 3 of 4 cables at the top of the lower chord are contacting (CS3).

[2015] L14W all 4 cables are contacting at bottom of bottom chord; 3 of 4 cables contacting at top of bottom chord (CS3).

[2015] L15W north 2 cables contacting bottom of bottom chord; SE guard missing but no contact at top of bottom chord (CS3).

[2015] L17W two east cables contacting at bottom of chord; top of chord, SW and NE cables are contacting - NW cable has no guard (CS3).

[2015] L18W top of chord NE cable is contacting and NW cable is missing a guard. Bottom of chord the protective cable wrap of the SW cable is contacting and damaged (CS3).

[2015] L19W bottom of chord SW cable contacting (CS3).

[2015] L18"W NW cable wrap wires damaged at bottom of bottom chord (CS3).

[2015] L17"W bottom of bottom chord 2 west cables are contacting; SW wrap wires are damaged. Top of bottom chord north 2 cables are contacting; SW guard missing (CS3).

[2015] L16"W top of bottom chord west two cables missing guards; bottom of bottom chord SW cable contacting with damaged protective wire wraps (CS3).

[2015] L15"W bottom of bottom chord west two cables are contacting (CS3).

[2015] L14"W bottom of bottom chord all four cables contacting. Top of bottom chord SE & NW cables are contacting (CS3).

[2015] L13"W bottom of bottom chord east two cables are contacting; SW cable has no guard. Top of bottom chord 3 of 4 cables contacting; NE cable has no guard (CS3).

2014 - T12 west ne cable appears to have a lesser tension than others in the set. the movement on this particular cable was approx. 1/2" while the others in set were not moving.this movement was notice while scissor lift was parked in same area.

2014 - (Photos 138 at T14, 150 and 158 at T17.)

[2013] Cable guards are missing at the following locations: T13E (1 missing), T14E (all 4 missing; two cables contacting the access plate are worn - CS3), T15W (1 missing), T17W (1 missing), T17E (1 missing). There is cable coating failure and corrosion in the splash zone at the following locations - L16-T16W, L17-T17W, L18-T18W, L19-T19W, L17'-T17'W, L15'-T15'W, L14'-T14'W.-

2012/- Minor loss of section of steel cable at T14W (pics. 4, 7).

2011: Steel cables have minor surface corrosion at lower connection points. Cables have been painted. Pack Rust is forming on the west-most cable at T14W.

(2009, Cables are now painted, element #146 replaced with #147. All cables exhibit minor surface corrosion at lower tie chord.)

515 STEEL PROTECTIVE COATING	07-15-2024	1,215 SF	165	850	120	80
	07-25-2023	1,215 SF	165	850	120	80

Notes: [2024 NSTM] No noted change.

[2023] The coating around the the cables at the cable blocks in the lower panel points is starting to fail exposing strands and allowing them to corrode - additional 20 SF in CS4.

2022-[2021] SNOOPER: See element 148 notes.

2020-Cables in splash zone being to show corrosion. Wedge area has highest percentage of corrosion

[2018-2019] - Cable block wedges and angles have moderate corrosion

[2017] Rate 70% CS-2 for chalking paint. Rate 5% CS-3 for cracking and bubbling paint. Rate 5% CS-4 for coating failure.

855	SECONDARY MEMBERS (SUPER)	07-15-2024	1 EA	0	0	1	0
		07-25-2023	1 EA	0	0	1	0

Notes: 2024- In span 9 the connection plate for wind bracing has miss drilled holes that have been welded up. Rust coming through the goobered up welds  
 Multiple bent connection plates in X-bracing in span 10 in between Girders A and B. Occasional distortion from pack rust at connections and cracked tack welds. Sporadic bent members from install.

[2023] The shelf plate connection from the floor beams to the lower bracing have pack rust up to 1" forming at the connections. See Section IV for details on specific members.

2022- SNOOPER: In span 16 The center vertical connection plate to Floorbeam truss 8 on the Southside has a 1.5" crack in it cause by stress from pack rust.

Span 16 the center vertical connection plate to floorbeam truss 5 on both sides has minor cracking up to .5" caused by stress from pack rust.

Span 18 The West vertical L5 U5 member has a 3/16" deep area of section loss that was caused from excessive pack rust.

Span 18 The West middle to upper west vertical to FB 7 has a 1.5" tear with rust staining as well as noticeable vibration under load.

Span 18 The West side U5-L4 vert has a missing rivet with rust staining on the painted surface.

Span 24 Center plate on cross brace between FB17-18 has one loose bolt

Span 27 Center plate on cross brace between FB6-7 has one loose bolt

[2021] Lateral bracing between Girders A & B in Span 6 is bent between FB 14 and 15. Span 39 FB0 center bay diaphragm has corrosion (Photo 245).

2020-Overall good condition (Span 16-18)

[2019] - In addition to previous notes, Span 14 - Bottom of lower cross frame member bent 1/4".  
 Span 16 - West truss has a cracked weld on the catwalk hanger bracing at FB 6 lower gusset.  
 Span 26 - FB 10, Girder D lateral cross bracing exhibited 3/4" pack rust and 1/8" pitting on bracing.  
 Span 28 - Lower lateral bracing member at connection plate exhibited 1/16" pitting over 2" by 1/2" area.  
 Span 39 - Deflection up to 1/4" on lower lateral bracing plates at FB 21.

[2016-2018] Confirmed prior notes. No new deficiencies

[2015] Span 17 lateral bracing top bracket impact at stringers 19-18'.  
 [2015] Span 17 1/8" pack rust at the horizontal gusset plate connection to the upper diagonal bracing at U19E.  
 [2015] Span 17 FB11'S rod at east end broken off at stiffener.  
 [2015] Span 18 L8'E horizontal plate connection more pack rust >1.5" removed; through corrosion NW corner.  
 [2015] Span 18 L7'E horizontal plate connection pack rust >1/5"; rust leaking through paint.  
 [2015] Span 18 FBTr 4' south side bottom of bottom horizontal middle plate pack rust at ends >1".  
 [2015] Span 18 FBTr 2' horizontal SE top plate hole 1.5" diameter at far free edge.  
 [2015] Span 8 Girder B & C bent bottom angle in diaphragm at FB9.  
 [2015] Span 34 FB14 bracing kink noted in 2009 is now cracked on the west side.  
 [2015] Span 43 FB6 torch cut on lower lateral brace.  
 [2015] Numerous bottom flange splice plates to girders in approach spans exhibit pack rust - see fracture critical inspection notes for locations.  
 At pier 7 the center diaphragm lower left connection plate was installed wrong (no repair required). Some splice or connector plates to lower windbrace have too many holes drilled in them or drilled off center. At pier 27 between stringer 1 & 2 the diaphragm upper right corner has a torch hole approx. 2 in. x 3 in. (2009, This element refers to pier struts and lateral/sway bracing in both the girder and truss spans. The pier struts are all in good condition except at Pier 26 where the mid-height strut has significant cracking and spalling.)

[2013] No change in notes; however, the previous notes indicate a CS3. 2014, span 23 Girder C ,2 loose bolts on wind bracing gusset

.2012/- Contractor was allowed to torch holes through diaphragm flanges near floor beam 6 (pics 31,32). Connection plate for wind bracing at Floorbeam 6, L2N has loss of section. Span 27 Girder C, mid span upper wind bracing bolt is missing. Span 29 Girder C windbracing connection next to hinge joint, the nuts (4 of 4) are almost corroded away and should be replaced.  
 S 32 between Girders C&D Diaphragm 4 there is a 1/16" separation between web and stiffener. there is also a crack 6" long measuring .009 on stiffener.

2011: Approach span center diaphragms (between girders B & C) have bends and dents in the top channels at many locations, probably as a result of deck forming operations in 1993. Concrete struts on piers 24-28 have moderate staining, with spalls and exposed rebar on the pier 26 strut.

880	IMPACT DAMAGE	07-15-2024	1 EA	1	0	0	0
		07-25-2023	1 EA	1	0	0	0

Notes: 2024- No Additional impacts time of inspection

[2022-2023] No change.

[2017] Span 51 beams have been hit by high loads. All 10 beams have paint scraping on the bottom flanges going west bound. the vertical clearance is 17' 10".

2011: Impact damage to horizontal member between L13E and L13W. First noted in 2009, no change noted in 2011.

881	STEEL SECTION LOSS	07-15-2024	1 EA	0	0	0	1
		07-25-2023	1 EA	0	0	0	1

Notes: 2024- Routine: Nothing at abutments (JP)- No significant changes in spans 1-15 and 19-28. (BW) Isolated areas of section loss was measured in spans 29-50 and had not gotten worse from previous notes on the bridge

[2023] UT readings were taken at the following locations where deterioration is continuing again: Span 16 Floorbeam Truss 0 USW, L1W outer plate, L5W outer plate, and Floor Beam Truss 7 USW; Span 17 L9E inner plate and all L10 and L10' locations; Span 18 L7'W outer plate and L2'W inner plate; Span 18 L10'W Connection: North side of the inner plate

along the connection of the vertical member. We observed approximately 25% to 40% loss of thickness for a distance of 2'-8". The length of the plate in this area is 6'-0". This is a total estimated loss of section between 12 and 20%. The area could not be accessed with a D meter so the losses are estimated. These findings do not change the NBI ratings at this time. (Photos 87-89, 94-96, 164-168, 175-177)

2022- SNOOPER: In spans 16-18 and all other spans, all notes concur with prior years notes

[2021] See Superstructure NBI notes.

2020-Connection L10' PR along gusset interior 18' x 3' 50% LOS ; FBT9' USE Gusset has a 6' x 2" concentrated area 100% LOS. Span 18: Stringers 7'-6' ends have heavy pitting. Vert L7'-U7'5/16" PR at jct U7' inter gusset. L7'E 1/8" LOS at jct to top of bottom cord outside plate.

[2019] - Areas with significant section loss have been previously reported during prior inspections. Areas of pack rust throughout bridge and painted over section loss.

2018- Existing section LOS has been painted over . No heavily corrosion in these areas at this time.

[2017] LOE measurements were taken in the shear zone just above the top chord. The interior plate had a loss of 11% and the exterior had a loss of 7.8% for a total loss in the gusset plates in the shear zone of 9.4%. The area of loss has been painted; analysis indicates there is no action needed at this time. U4' floorbeam truss USE plate has section loss of 21% vertically along the connection angle. analysis indicates there is no action needed at this time.

2016- T12' web connection to vertical member .25 LOS for 43". Nom thickness .404.

[2015] See NBI Superstructure notes. Pending repairs in 2016, CS may be upgraded to a 2 or 3.

[2014] See NBI Super. notes (5-27-2014)

[2013] Significant section loss found in Span 16 Floorbeam Truss U9W (see Superstructure NBI notes) - 4 feet in CS5 (Photos 1-6). Thorough UT readings taken on 10-2-2013. Structural analysis will be done at the locations noted by the Bridge Office during the next upcoming months. The current load posting of 40 tons is still in effect until the District is notified otherwise by the Bridge Office. NBI lowered to 4 pending the outcome of the analysis. Span 16 Floorbeam Truss U9E also has similar deterioration, although not as severe (Photos 7-8).

2012/- Cable at 14"W has light l.o.s. (photo 4,7). Connection plate at T16W measures 1/4 in. [nominal 1/2 in.] (photo 8). Typical repair being made at lower chord of floor beam at center connection plate (photo 30). Center line gusset plate north side of L6'E - L6'W for lower diagonal wind bracing, has loss of section.

2012/- Repairs have been made at locations with loss of section that were identified as requiring repair.

Bridge was painted from August 1993 to summer of 1998, refer to 1996 report for location of pre-existing los.

2011: Element has been placed in CS4 due to analysis on floorbeam trusses because of the section loss found on the 2011 inspection. The condition should be upgraded to CS2 once analysis and/or repairs are complete. Arrested localized pitting is present in the bottom flange and lower web of many approach girders, but section loss is minimal. Large areas of arrested pitting in truss members are present, but section loss is minimal. Floorbeam gussets (1-8, 1'-8') in the deck truss (L1) were Ultrasonic Tested in 2011, holes were found in 3 gussets, see element 423 comments for additional details.

882	STEEL CRACKING	07-15-2024	1 EA	0	0	1	0
		07-25-2023	1 EA	0	0	1	0

Notes: 2024- In spans 1-15 and 19-28 there was insignificant cracking on Girder A lower flange to web riveted stiffeners. Ends of all cracks were marked with either a paint pen or sharpie. Span 6 Girder A, Span 9 girder A, Span 24 Girder A all in the hinge area.

In span 24 @ FB 18 Girder A on the west side, the PCTW was marked and photographed to show growth of the crack since last documented. The crack does not terminate before it gets to the web.

In span 11, Girder A, at the splice we found a 1/2" long crack. It was determined the fix was to remove the pack rust from behind the plate. Bridge crew came out and used the heat and beat method. Measurements were taken after every action to ensure there was no growth in the crack itself. many photos were taken during the process.

Span 32 Girder B Brace 4, crack in the bottom of the vertical stiffener had not grown past previous mark

[2023] The crack at Span 16 Stringer 4 and Span 18 Stringer 2 at Floorbeam 7 have not changed. The Span 17 T14'E Shelf Plate has a 1/8" crack on the north side likely caused by an impact during construction. Floorbeam Truss 8' The filler plate at the top of the middle vertical connection has a crack on the south Side of the floorbeam. Floorbeam truss 5' the filler plates at the top of the middle vertical connections have cracks on both Sides of the floorbeam. Span 18 Floorbeam Truss 4' UNW gusset plate has a .75" crack caused by pack rust at the connection to the diagonal. There are numerous cracked tack welds in the approach and truss spans; see Section IV in this report for

details on specific locations.

2022- SNOOPER: Span 18 Floorbeam 7 stringer 2 there was a crack that began at the end of the coping where the baseplate was welded on the end of the stringer. Crack has since been arrested and many photos taken. Span 16 stringer 4 on the South(road direction) side there is a crack in the top of the stiffener. Marked to monitor growth. Looks like it may have been caused when strip seals were replaced. Following up with removal of washer in the near future. No new cracks observed in all remaining span and all noted cracks unchanged from prior inspection

2020- UNE Cracked tack weld due to pack rust. Span 17, Stringers 15-16 Cracked welds in bottom flange stringer for walk support. Span 18, Diagonal U3'- L2' 18" x 21" area on bottom lateral at L2' with 5 holes 50% LOS in this area. Crack in support for catwalk between FBT 3' and 2'

[2019] - Random tack weld and stiffer welds were cracked due to pack rust. Previously reported cracks in primary members have been arrested.

2018-U5' had a second arrest hole drilled. Mag partial was used to check propagation of the crack. No further movement at this time.

[2017] U5' floorbeam truss USE. The plate had a crack that was arrested by drilling it out. The crack has propagated past the arrest hole 3/4". The crack most likely propagated while the pack rust was being removed from behind the hole due to the ~95% localized section loss near the original crack. This crack should be arrested by drilling. [2016] Crack in FB9' NE stiffener to Floor beam ; U8 UNW cracked tack weld in angle to vertical, floor beam truss connection

[2021] No change in condition state. Numerous new cracked tack welds found on approach girders and floorbeams in Span 17. No weld has propagated into the base metal.

[2014] No Change Grider B. Span 32 West Face FB23.

[2011] Crack in top flange of Girder B, Span 32, west face at FB23 was first noted in 2003. Crack was measured in 2009 and 2011, and has not propagated.

[2009] Top flange - 1/2 inch fatigue crack located on 8-27-03 in Span 32 Girder B west face at FB 23 . No further propagation in 2009 (see Photo #1). Continue to monitor during future inspections.)

883	CONCRETE SHEAR CRACKING	07-15-2024	1 EA	1	0	0	0
		07-25-2023	1 EA	1	0	0	0

Notes: 2024- No shear cracking found to be present during inspection of spans 1-15, 19-28, and 29-50

[2023] No shear cracks observed.

2022- ROUTINE: none found; SNOOPER: None observed in Spans 16-18 and all remaining spans

[2016-2017] No shear cracks noted.

885	SCOUR	07-15-2024	1 EA	0	1	0	0
		07-25-2023	1 EA	0	1	0	0

Notes: 2024-Nothing noticed Check underwater inspection

[2021-2023] Underwater Inspection: Footing exposure up to 9 ft vertically at Piers 15, 16, 17 and 18. Footing exposure up to 12 ft vertically at Piers 29, 30, and 31. No undermining was observed. (1 EA CS2)

[2021] Underwater inspection was performed in 2020-2021.

[2019-2020] - Next underwater inspection due in 2020/2021.

[2016 U/W] No significant changes since the previous underwater inspection, footing exposure was present at Piers 15, 17, 18, and 29 through 31, but the channel appears stable with no signs of undermining occurring.

2016- Will check underwater inspection report fall of 2016

[2015] No change. Next underwater inspection is scheduled for 2016.

[2013] Underwater Inspection conducted in 2012 by Ayres Associates; funded by WisDOT. No significant changes since last inspection. Scaling is typically up to 3 inches deep near the waterline around all piers and up to 6 inches penetration with exposed vertical and horizontal reinforcement. Footing is exposed at all piers up to a maximum of 13 feet. Zebra mussels are present on all concrete surfaces below water.

2011: Bridge has a scour code of N. Some scour is present, according to the 2008 underwater report, but is not a concern at this time. A new underwater inspection will be performed in 2012.

(2009, Scour exists but is not a structural concern at this time. There is scaling on pier shafts and footing exposure - Piers 15-18 and 29-31 (see 2008 Underwater Report).

890	LOAD PST OR VERTICAL CLR SIGNING	07-15-2024	1 EA	1	0	0	0
		07-25-2023	1 EA	1	0	0	0
Notes: Feb 2025 - BIMU Note: Agency Notified BIMU that the Posting Sign was in place at Garfield Ave after the shutdown, changed from CS4 to CS1.							
2024- No signs in place on Garfield ave							
[2022-2023] No change.							
2020 - All signs in-place at time of inspection							
[2019] - Load posting signs were put up 6-5-19. Weight limit bridge VEH: 40T Semi: 40T DBL: 40T Vehicle and semi (Type R12-5)							

891	OTHER BRIDGE SIGNING	07-15-2024	1 EA	0	0	1	0
		07-25-2023	1 EA	0	0	1	0
Notes: 2024-North end of bridge under construction							
[2021-2023] Southbound wing down marker missing anchor bolt. Span 22 cantilever sign on west rail has exposed wiring at the base. Span 26 sign attachment to west rail has a missing bolt.							
[2019-2020] - Good condition.							
2018- All mounted signs were inspected							
Signs Required: Traffic Control Horizontal Clearance							
[2017] Span 1 west side has a delineator with a broken anchor hanging on the rail							
.2013-2016] No change							
2011: Object markers are required, but are not present.							

892	SLOPES & SLOPE PROTECTION	07-15-2024	1 EA	0	1	0	0
		07-25-2023	1 EA	0	1	0	0
Notes: 2024- Slopes are good overall condition							
Element refers to South approach NB and SB lanes							
[2023] No change.							
2022 - ROUTINE: no significant change							
[2021] New waterproofing has been installed. Vegetation growing through joints in concrete on south slope (Photo 5).							
[2015] Poly guard at top of North Abutment has failed. South slope protection has been repaired.							
[2013] South slope protection at abutment top east side is slumping with some fractured curb section - Photo 18. North abut. all polyguard has failed							
(2009/2011, Minor to moderate erosion. Footings are slightly exposed per 2008 Underwater Inspection Report.)							
2007 (PB): The approach slopes are in good condition and the concrete slope protection in front of the abutments is in good condition.							

893	GUARDRAIL	07-15-2024	1 EA	0	1	0	0
		07-25-2023	1 EA	0	1	0	0
Notes: 2024/2023 No change.							
2022 - ROUTINE: currently under construction, update next inspection							
[2021] NE guardrail transition has 3 broken posts and 1 bent post. This transition is substandard. Photos 37-40.							

2020- All prior work has been completed. Damage in pictures is due for an upcoming repair.

2016: 80 LF of traffic damaged rail W/ 4 damaged posts at SW corner of bridge <https://mndot-it.bentley.com/#>

[2013] No change. 2014 No Change.

2011: Approach guardrails at the north end are present and in good condition.

894	DECK & APPROACH DRAINAGE	07-15-2024	1 EA	0	0	1	0
		07-25-2023	1 EA	0	0	1	0

Notes: 2024- Drains on flat are plugging up, drain under deck look to be functioning properly, the old drains were left on pier 4  
At pier 5 drain is plugged up at the bell of the connection. Would need to remove caps to clean. Photo for reference.

Center drains on Pier 27 and 28 were plugged, outside drains were clear.

[2023] Grates on top of deck are 50-100% plugged with dirt and debris. Some of the deck grates are installed backwards on the deck. Drain downspouts are disconnected in Span 17 at T12W-T13W and T12E-T13E.

2022 - ROUTINE: under construction and drains being repaired, update with next inspection

[2021] Grates on top of deck are 50-100% plugged with dirt and debris. Disconnected drain in Span 17 at L12-L13E (Photos 31-33).

2020- Pier 21 drains are creating (2) 4' diameter 2' deep holes, need rip rap.

[2019] - Span 49 - Partially clogged deck drain.

2018- Drain at Tie chord T12-T13 isn't connected to tie chord

[2017] The Pier 50 south bound lane drain has eroded a hole in Bituminous pavement. Pier 10 drain at column 1 is causing erosion around concrete splash pad and eroding the bituminous shoulder.

[2015] Drain at Pier 5 south side at west column has not been retrofitted. Span 17 deck drain between L12-L13 not attached at bottom. Span 17 L16'-L15'E top drain bracket not attached - CS 2 due to damaged or deteriorated drain components.

2014- Pier 15 South has been hooked up like existing drains. All Drains cleaned during the Nov Snooper inspection

[2013] PVC drain extension has come loose and dropped down away from connection at Pier 21. Metal deck drain covers on southbound side north of joint at Span 9 are installed backwards. Span 17 T12-T13E deck drain downspout never connected to the tie girder.

2012 - Pier 27, 28, PVC draining extensions are too short. Bracket holding the PVC is not tight. Need to tighten bracket (and could replace with longer pipe).

2011: Deck drains are functioning properly, as observed during heavy rain event on 8/2/11. Downspouts that were plugged have been bypassed by replacing drain piping with a short length of vertical PVC pipe.

899	MISCELLANEOUS ITEMS	07-15-2024	1 EA	0	0	1	0
		07-25-2023	1 EA	0	0	1	0

Notes: 2024/2023-No change.

2022 - ROUTINE: under construction during inspection

[2021] Span 20 Girder F electrical box has broken away from rail and hanging (Photo 102).

2020- Graffiti on the north face of column 1 and wall at pier 32.

[2019] - Bird droppings present throughout bridge especially and pin and hanger connections.

2018- Vert support bracing at FB11S' has 2 cracked welds 1 fully broken and 1 half. Cracked weld in X bracing to gusset between FB truss 4 & 5 on walk. KMR D1 Maintenance scheduled to repair the welds either by re-welding or bolting.

2016- Needs Flushing of chord members 2016-Broken welds in lateral bracing welds between FB 6&7

[2015] Pigeon covers in deck truss spans are in good condition and holding up well, but do not seem to be effective as they are only placed in certain areas. The pigeons are still getting inside the chords. Hole eroded into blacktop at Pier 49 due



to drain off deck; needs concrete pad under drain.

[2015] Span 17 catwalk connection at FB16'N is corroded; leaking rust. Span 18 catwalk at U3' is very noisy due to a loose conduit - NW bracket weld cracked; north bracket under catwalk at FBTr 6' has previous through corrosion; catwalk NW angle brackets cracked at welds near U9'-U8'.

[2013] Loose underdeck conduits in Span 20 between Girders B and C at Pier 19 and Floorbeams 12-13. Big nest (likely falcon) located in Span 26 at Girder A north side of FB 12. Catwalk in Spans 16-18 retrofitted to meet OSHA standards in 2012 contract - 43" high cable rail attached and toe plate to catwalk hangers

2012/- Light lens is broken at pier cap 2. Catwalk rail has cracked weld near T16'W and a broken ladder brace between U2' and U3'. Cat walk: See attached photos 41-44, and 2012 email document.

2011: The flood lighting for the truss is powered by a conduit running up pier 23 and then northward between girders B and C. In Span 20, one of the conduit expansion fittings has pulled apart and jammed. Several other conduit expansion fittings are kinked or slightly pulled apart. In Span 19, the two bolts supporting the floodlight on Girder D are loose (the light sways in the wind). A number of the lights on the lower panel points have broken bulbs and/or filled with water.

(2009, At L11'E, red light navigation pole is loose. Span 16 under FB 4, catwalk east rail is cracked. Span 18 catwalk diaphragm has through corrosion near L6".)

Pier 18 ground wire broken. In span 23 the cable bracket was removed and replaced but the eye bolt was not tightened. Crack weld between vert. railing and channel of catwalk at the farthest point on West end. Sensor in roadway is loose in the E/B/L. 2007 (PB): Pier 4 ground wire broken. 3/28/08 There was a report of a banging at the joint at pier 15. Mike Chell/ Rod Carter inspected the joint from the top of the deck and reported that there was a banging under heavy loads. Later the UB-50 was taken and the underside was inspected by Dow Rychlak/ Gary Wright. Notes are under Element 303 and 161. 2014 Large bird nest on pier 26, None present.

900	PROTECTED SPECIES	07-15-2024	1 EA	0	0	1	0
		07-25-2023	1 EA	0	1	0	0

Notes: 2024- Falcon observed at Howards pocket.  
Nests present in spans 4, 5, 6, and 7  
Nest on Girder A, Span 44 at pin and hanger (see photo)

[2023] No falcons observed.

2022- SNOOPER: Falcons that had been present in years past was not noticed during this inspection.

[2021] Peregrine falcons present under the bridge in Spans 16-18 at the time of this inspection.

2020- Peregrine falcons were under bridge span 16-18

[2018-2019] - Nothing in spans 16-18. (J.P. just multiple areas with nesting pigeons throughout spans 1-15 & 19-50).

[2016-2017] Peregrine falcon nesting in the past. None noticed at time of inspection.

General Notes: The lateral underclearances (FHWA ITEMS # 55B AND #56) were revised on 8/5/2009 to obtain an underclearance appraisal rating of "5" (Based upon measurements taken in July 2009). 2004: Inspected (Mn/Dot) Spans 24-51, NB lane with UB-50 in 2004.  
2005: Wisconsin performed an in-depth insp with the snooper on 08/31/05. See report in file.  
2006: Inspection (Mn/DOT): M Chell/G Wright/ D Rychlak  
2006: Somewhere near span 29 (over water near Superior elevators) loud squeaking noises reported by Chell and Wright. Follow-up with snooper by D Rychlak and B Nelson. It appears a retainer on the bottom flange is rubbing on the adjacent beam web. Also, a vertical tack weld is cracked between stiffener angle and web. This element is riveted. See pictures.  
2006 post insp note: Special insp completed 7-20-06 by Rychlak, K Rand and B Nelson relative to squeeking at span 29. Span 29, B3 found retainer/alignment plate rubbing on web. Thickness of web taken. Monitor during future insp. Crack also found on B3 between filler plate and stiffener angle. Testing concludes no propagation to base metal. Continue to monitor. Full report on file. Discussed with A Bjorklund (WisDot) & also sent a copy of report.  
2007 Inspection (routine and f/c) by PB Americas. Crew: T Moorer (Team Leader); C McDonnell (TL); J Moore (TL); E Skrobacz (TL); P Bliss (TK); D Cassey (Assist. TL); & K Hahn-Keith (ATL).  
2007 (PB): NBI Super changed from 8 to 6 by PB with the following comments: " wire ropes exhibit broken wires and corrosion." See element 146 for additional information and comments. Pontis entered by P Huston.  
2008: Routine insp done by WisDOT - D Harrington et al. Insp was from 8/15/08 - 8/27/08. Wisconsin HSIS and supplemental report in D1 bridge file. Changed NBI deck, super and sub as per WisDOT 2008 HSIS.  
2009: Fracture critical insp was performed by MnDOT from July 13- July 29 (02-03-2010 post insp note by G Elmquist, Underwater insp performed in 2008 by Collins Engineers.)  
08-23-2010 Insp performed by WisDOT. NBI ratings unchanged from MnDOT's '09 insp. Elements, quantities and CS may not reflect the 2010 WisDOT insp - refer to WisDOT documentation

2011: Routine and FC inspection performed (7/25/11-8/5/11) by Bridge Office staff (Jennifer Zink, David Hedeem, Joe Fishbein, Ryan Rohne, Bill Nelson, Ken Rand, Pete Wilson, Scott Theisen, Farrell Potter) along with District inspectors (Gary Wright, Mike Chell, Dow Rychlak). 2011: Percent unsound paint is 5% based on active corrosion at truss connection points, widespread corrosion and flaking rust on bottom flanges of approach span fascia girders (E & F), and isolated active corrosion near deck joints.

2012- Snooper inspection: D Rychlak/C. Smith L'8-L0' South bound.

2012 Inspection: G.Elmquist/W.Ek/J.Benson 2012 Snooper Inspection: Team leaders - G.Elmquist, D.Rychlak, Mike Chell. Completed snooper inspection of south bound lanes. Inspected north bound lanes of the truss from contractor's under bridge scaffolding.

2013 Routine and FC Inspection - Jennifer Zink, Ken Rand, Bill Nelson, Farrell Potter, Pete Wilson, Scott Theisen, Joe Fishbein, Rodney Carter, Eric Evens, and Mike Chell. Load rating checked based on loss in Span 16 Floorbeam Truss U9W. Posting of 40 tons not needed based on vehicular/truck loadings; however, this location is subject to high wind loads. Before posting is taken off, analysis of this location incorporating wind load is necessary.

2014-5-27 Update report K. Rohling - Increased Superstructure NBI rating from 4 to 5 based on results of analysis by Bridge Office.

07/14-07/17/14 sticklift inspection of high steel and snooper inspection of spans 28 thru 32 G. Wright

2014-7-14 D. Rychlak/Noel Bednarek Snooper inspection Spans 1-8 East bound

2014-7-15 D Rychlak Annual inspection Top of deck Span 1- 18 East bound

7/23/2014 Annual inspection: m.Chell/F.Anderson E.B. spans 18-51 all of W.B. lanes

07/15&16/2014 A-62 inspections Spans 9-15&21-26

07/14/2014 - 07/17/2014, 7/21/2014 Snooper Inspection: G. Elmquist/J. Pratt/F. Anderson, South Bound spans 16-18 below deck, 19, 20, 33-52.

2014-11-3 thru 11-5-2014 Finished snooper inspection Dow Rychlak/ Chris Warner inspected spans 18-21 15' of east edge. Couldn't be reached from the west with the snoopers.

11/3/2014- a-62 inspection, SB spans 1 to 15, Mike Chell/Chris Warner

11/03/2014 A-62- Inspection SB 21-50 truss L9-L9 full bottom truss J.Benson/D Briski

2015-7-6 D. Rychlak inspected NB top of deck & 2015-11-3 SB top of deck.

2015 Routine and FC Inspection completed by the Bridge Office FC Unit.

[2/10/2016] Update Report completed by Jennifer Zink (Bridge Office FC Unit) to revise Superstructure NBI and Element 131 notes in regards to Span 16 FBTr 9 gusset plates; also to revise some misspelled words in other elements.

7-14-2016: Stick lift inspection on high steel south bound I.Schatz/C.Werner

2016-7-20: Snooper inspection: D Rychlak / Breanna Gonzales inspected Spans 16-18 SB; 17 NB Couldn't reach east truss.

2016-7-21: Snooper inspection: J. Bensen/ B. Gonzales Spans 16NB, 18NB, 21SB

2016-07-11 Snooper Inspection Span 1-6 SB G.Wright/F.Anderson

2016-07-21 Snooper Inspection Span 3-15 NB F.Anderson/N.Bednarek

2016-07-20 Snooper Inspection Span 34-19 NB F.Anderson /I. Schatz

2016-07-12 Snooper Inspection Span 7-14 SB F.Anderson/ C.Werner

2016-07-21 Snooper Inspection Span 35-52 N.Bednarek/ I.Schatz

2016-07-18 Routine Inspection N. Bednarek

2016-09-14 Underwater Collins Engineers

2017 Routine and FC Inspection completed by the Bridge Office FC Unit.

2018 report added to correct pin and hanger inspection information and update notes.

2018-7-19 Snooper inspection Spans 16-18 & 50 D Rychlak/ D Huston

2018-07-09 annual C. Werner/ S. Akervik

2018-07-09 Stick lift inspection High Steel NB/SB I.Schatz/C.Johnson

2018-07-09 Snooper inspection Spans 1-15 & 19-50 J.Pratt/R.Franckowiak

2019-6-6 Update D Rychlak/ J Obeidzinski Weight restriction 40T-40T-40T added pictures of in place signs

2019-07-09 - Routine, FC, and Pin Inspection performed 7/9/19 - 7/18/19 by Collins Engineers, Inc. who was contracted through WisDOT. 4 snoopers and an 85 ft manlift were utilized.

[2019] 3D Model of Blatnik Bridge created by Collins Engineers

<https://cloud.pix4d.com/pro/project/553746/model?shareToken=b99bc05c-bae8-4ddf-abcc-64843e6165d6>

07-06-2020 Snooper inspection: N. Bednarek/F. Anderson. D Rychlak ( inspected spans 16,17, & 18)

07/06/2020 Routine J.Pratt/H.Campbell

07-06-2020 Stick Lift inspection: I.Schatz/C.Werner

2021 Routine and FC Inspection by MnDOT Bridge Office

[2021] Underwater Inspection: Collins Engineers, Inc

2022-7-1 ROUTINE: B. Weybright / C. Roles / D. Rychlak; SNOOPER: James Pratt/C.Johnson (span 16,17 and 18); STICK

LIFT: high steel NB/SB C.Werner/ R.Franckowiak, Snooper: N. Bednarek/ J. Nuebauer

[2023 NSTM D] Rychlak, B. Weybright, J Pratt, F Anderson, S Theisen, J Wells, Z Jeske, T Stindtman, J Thiemann, N Haltvick, M Fawaz, T Olson R Carter C Werner

2024-7-15 Routine D Rychlak/ J Hoffmann/ Godbless Amoateng. Snooper: J.Pratt/R.Franckowiak, B.Weybright/N.Bednarek

[2024] NSTM inspection Jen Wells, Scott Theisen, Tracy Nohrenberg, Bree Gonzales, Todd Olson, Nick Haltvick.

Deck: [6] Rating lowered from 7 to 6 in 2009 due to moderate transverse cracking (leaching) and isolated spalling. District forces chain-dragged deck in 2011 and found essentially no delamination.

[2013] No change in NBI rating; however, new transverse cracks on top of deck have appeared since the last deck crack sealing in 2011.

[2015-2019] Top of deck has some dirt and debris along the fog lines and shoulder. Top of deck transverse cracking .025-.035 wide at 4'-6' intervals with longitudinal cracking between joints; needs sealing. Deck underside has cracking with efflorescence every 3' - 10' throughout bridge. Some map cracking in sporadic areas. NBI remains at 6 however, since there is no moderate delamination or spalling overall, just moderate cracking.

2022 - Deck has minor deterioration. Wearing surface is currently getting an MMA flood seal

[2023] Deck condition unchanged.

Transitions: [0] [2021] Guardrail transitions are now substandard.

Superstructure: [4] [General] Rust holes were found in gusset plates of the transverse floorbeam trusses in the deck truss. These findings have triggered the MnDOT Bridge Office to perform an in-depth analysis on all floorbeam trusses. Any necessary repairs will be included in the 2012 repair contract. The 2008 restriction for overweight permits will remain appropriate until further notice. 2012 - Required repairs for loss of section have been completed.

[2013] Span 16 Floorbeam Truss U9W North Plate - 49% loss along vertical shear zone at vertical member; 62% loss along horizontal shear zone at top of gusset; no significant loss along top of diagonal (Photos 1-3). Span 16 Floorbeam Truss U9W South Plate - 64% loss along vertical shear zone at vertical member (previously reported as 48% loss); no loss along horizontal shear zone at top of gusset; localized loss at end of gusset along top of incoming diagonal 38% for about 4" (Photos 4-6). Structural analysis will be done at the locations noted by the Bridge Office during the next upcoming months. The current load posting of 40 tons is still in effect until the District is notified otherwise by the Bridge Office. NBI lowered to 4 pending the outcome of the analysis - see General Notes. (5-27-2014) Load rating analysis completed and it was determined the operating rating of the connection is acceptable using the permit live and dead load. Rating changed from 4 to 5. 40T posting removed.

[2015] A number of areas were identified during the 2015 inspection in need of repair and/or analysis. The notable areas found during the inspection are listed below. Other areas of concern due to previous noted losses and an impending repair contract as a result are attached to this report. Analysis already completed during December 2015 and January 2016.

[July/October 2015] Span 16 FBTr 9 UW & E both north and south plate losses (Photos 12-15); Span 17 FBTr 10 and 10' bottom middle plate (repaired by the District in December 2015) (Photo 47); Span 17 L14E NW cable strand severed (Photos 45-46); Span 18 FBTr 5' USE plate crack and pack rust (crack end drilled out with 1/8" hole and pack rust removed by heating method by the District in December 2015) (Photo 19).

[November 2015] Span 16 FBTr 6 West diagonal losses (Photos 37-39); Span 16 FB6W web losses (Photo 40); Span 16 FBTr 7 UNW and USW losses (Photos 10-11).

[2015] Painting recommendations: Approach fascia girder top flanges and entire splice plates on fascias; bottom flanges of all girders, bottoms of diaphragms, and bottom half of girders near piers in the approach girder spans; spot painting in Spans 16 & 18 at chord and gusset seams, Span 17 floorbeam ends, cable ends at tie chord, and tie chord seams.

[2015] Based on these locations, the NBI is set at 4 until repairs are completed in 2016 and will then be adjusted accordingly via an Update Report.

[2016-2017] Superstructure repairs are complete.

[2017] Approach span pins UT'd in 2017. Pigeon debris coating many of the connections. Indications consistent with wear were noted

on all of the truss hanger pins. The indications appeared from approximately 6:00-8:00 on the lower pins and 12:00-2:00 on the upper pins. The

indications were most prevalent on the southeast upper pin, the northeast lower pin, the northwest lower pin, and the southeast lower pin. The

indications were located around 26.75" from both ends of the lower pins and 30" from both ends of the upper pins. The indications were not

visible at the corresponding distance from the inspection end. That and their location at the top of the upper pins and bottom of the lower pins

make them consistent with wear grooves caused by movement of the pin and hanger assembly.

[2019] All pins ultrasonic tested (UT), random indications observed in similar locations on top and bottom pins as previously reported in prior year inspections. Indications observed appear to be consistent with acoustic coupling. See detailed pin inspection report.

[2021] The floorbeam trusses in Spans 16 and 18 continue to deteriorate. Thorough readings were taken in 2020 for load rating analysis by WSP. As a result of this analysis, a 40 ton posting is required as there is still significant section loss in critical stress areas; hence, the NBI rating of 4. See the new 2021 load posting document in Appendix C. The full analysis can be found here: S:\Design\9\9030\2020 Load Rating\WSP\_2021.09.16 FINAL REPORT\Blatnik - Final LRFR Load Rating

Report - 9.13.2021\Combined Appendicies FINAL 245 MB File

Notable areas of deterioration of the FBTr include:

Span 16 FBTr5 middle plates exhibit losses both north and south sides; localized up to 32% loss on north plate and 11% loss on south plate (Photos 319-320).

Span 16 FBTr6 both diagonals have widespread flange loss. Northeast diagonal previous losses – this member vibrates a lot (Photo 324).

Span 16 FBTr7 middle to upper west diagonal vibrates. Bottom middle connection plate; south plate has no losses, but the north plate has localized losses of up to 30%. Upper west gusset plates exhibit leaking rust between the north and south plates (Photos 327-329).

Span 16 FBTr 9 minor losses inside the middle-middle plates; localized loss along diagonal inside both east and west sides 25% (Photos 338-342). Lower west panel point losses 15.8% (Photo 343).

Span 18 FBTr 9' U9'NW through corrosion – 2.5"x1.5" at top corner (CS4). U9'SW previous loss through corrosion. Middle/middle plate has minor loss (3/16") on top inside north along seams. Drilled hole in diagonal going up to U9'W. (Photos 526-530)

Span 18 FBTr 5' upper gussets west exhibit pack rust at edges ¼" and previous losses. South upper plate is plated on west side (Photos 537-538). Bottom chord previous losses painted over have leaking rust now (Photo 539). Top east gusset south face has a previous drilled out cracks and loss (Photo 540).

Span 18 FBTr 1' upper gusset west plates exhibit ½" pack rust along the diagonal edge. SE upper interior partially cracked tack weld (Photo 548). NE upper exterior partially cracked tack weld (Photo 549).

Span 18 FBTr0' east diagonal south face losses – 21% (Photo 551). Bottom chord east north face losses (Photo 552).

[2023-2024] UT readings were taken at the following locations where deterioration is continuing again: Span 16 Floorbeam Truss 0 USW, L1W outer plate, L5W outer plate, and Floorbeam Truss 7 USW; Span 17 L9E inner plate and all L10 and L10' locations; Span 18 L7'W outer plate and L2'W inner plate; Span 17 L10'W Connection: North side of the inner plate along the connection of the vertical member. Section loss measurements were taken and additional section loss at L10'W was reviewed with a finite element model and found to not change the load rating. Other L10 locations are in better condition and additional analysis was not necessary in 2024.

Substructure: [6] Rating lowered from 7 to 6 in 2008 due to cracking in post-tensioned pier caps and spalling on some pier struts. 2012- Heavy spalling at pier caps/bearing caps at Piers 16, 17, 18 - rating lowered from 6 to 5.

[2013] Once shot-crete repairs are completed on the piers, this NBI rating may be upgraded to 6.

[2015-2019] South Abutment backwall has cracking with efflorescence; North Abutment backwall has light vertical cracking. Pier columns, walls, caps and footings have cracking and minor spalls throughout. Top of concrete caps repaired in 2014 (NBI may be upgraded to 6); Pier 50 bottom of cap has traffic hits east and west ends.

[2021] Underwater Inspection: NBI has been reviewed and confirmed with the underwater portion of bridge inspected.

[2022 -2023] Substructure has minor to moderate deterioration.

Channel: [7] Rating lowered from 8 to 7 in 2009 (as recommended by the 2008 Underwater Inspection Report).

[2013] Underwater Inspection conducted in 2012 by Ayres Associates; funded by WisDOT. No significant changes since last inspection. Scaling is typically up to 3 inches deep near the waterline around all piers and up to 6 inches penetration with exposed vertical and horizontal reinforcement. Footing is exposed at all piers up to a maximum of 13 feet. Zebra mussels are present on all concrete surfaces below water. Debris observed at east end of Pier 15, south face of Pier 29, and north face of Pier 30.

[2021] Underwater Inspection: No significant changes have occurred to the channel bottom configuration or condition since the 2016 underwater inspection. Underwater inspection completed by Collins Engineers. No changes in NBI added.

[2023] No change.

Waterway Adeq: [8] Bridge deck well above roadway approaches

Appr Roadway Alignment: [8] No speed reduction required