



**Office of Bridges and Structures
Bridge Maintenance and Inspection Unit**



Bridge Condition Report

Bridge ID:	2ND ST SOUTH-WEST	NBI (FHWA) Number:	006220
District:	0	Inspection Group:	Buchanan County
Inspection Type:	Routine	Inspection Date:	12/29/2023
Location:	T88N-R9W-S04-N90.9-E87.3	Carrying:	2ND ST SW
Approved By:	Davis,Alex		

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IOWA STRUCTURE INVENTORY AND APPRAISAL SHEET

Bridge ID: 2ND ST SOUTH-WEST 8 Structure No. 6220 Condition Rating: Fair

Bridge Name: Bridge Condition Index (BCI): 69.7

IDENTIFICATION

City INDEPENDENCE 3 County Code 010
2 State District No. 0 G 0 7 Facility Carried 2ND ST SW
9 Location T88N-R9W-S04-N90.9-E87.3 6 Features Intersected WAPSIPINICON RIVER
98 Border Bridge Code 99 Border Bridge No.
5 Inventory Route (A,B,C,D,E) 1 5 1 00000 2 % Responsible 0

INSPECTIONS

90 Inspection Date 12/29/2023 Next Routine Inspection Type Routine
91 Insp Frequency 24 months Next Inspection Date Undefined

92 CRITICAL FEATURE INSPECTION

	Y/N	FREQ	93 CFI Date
A Fracture Critical Detail	N	0	Inspection Agency 2
B Underwater Inspection	N	0	Inspection Group/Consultant
C Other Special Inspection	N	0	Buchanan County

AGE AND SERVICE

27 Year Built 1968 106 Year Reconstructed 0 42 Type of Service 5
19 Bypass Detour Length 1 Mi. 29 Est Ave Daily Traffic 2834 Speed Limit 25
100 STRAHNET Highway 0 28 Lanes On 2 Under 0 37 Historical Significance 5
109 Average Daily Truck Traffic 0 42B Type Under Bridge 5
30 Year of Average Daily Traffic 2022 104 Highway System of the Inv. Rte. 0

STRUCTURE TYPE AND MATERIAL

44 Approach Span Type Near 0 Far 0 45 No of Spans Main Unit 3 107 Deck Type 1
43 Main Structure Type A 4 43 Main Structure Type B 02 46 No of Appr Spans
Near 0 Far 0
108 Wearing Surface/ Protective System
A) Type of Wearing Surface 1 B) Type of Membrane 0 C) Deck Protection 0

CONDITION

58 Deck559 Super560 Sub761 Channel762 CulvN

LOAD RATING AND POSTING

31 Design Load464 Operating Rating1.3666 Inventory Rating1.05

70 Bridge Posting563 Method Used Operating Rating8

41 Open, Posted Or ClosedA65 Method Used Inventory Rating8

GEOMETRIC DATA

112 NBIS YDeck Area9057.4 '49 Structure Length253 '48 Longest Span98 '

34 Skew035 Structure Flared033 Bridge Median052 Deck Width O-O35.8 '

10 Inv Rt Min Vert Clear 10ft Lane99 '99 "51 Br Rdwy Width C-C28.2 '

54 Min Vert UnderClearN0 '0 "50 Curb or SidewalkRT0 ' LT6 '

55 Min Lat UnderClear RTN00 '00 "56 Min Lat UnderClear LT00 '00 "

32 Appr Rdwy Width (W/Shoulders)39 '53 Min Vert Clear Over Br Rdwy99 '99 "

47 Inv Rt Total Horiz ClearRT28 '03 " LT' "

APPRAISAL

67 Struc. Eval569 Underclear, Vert and HorizN

68 Deck Geo471 Waterway Adq8

72 App Rdwy Align8113 Scour Crit Bridges8

36 Traffic Safety Features

36A Bridge Railings036B Transitions136C Appr GuardrailN36D Appr Guardrail EndsN

NAVIGATION DATA

38 Navigation Control040 Navigation Horiz Clear000 '00 "Mile Post

16 Latitude42.4676430217 Longitude-91.89440661111 Pier or Abut. Prot.

39 Nav Vert Clearance00 '00 "26 Functional Classification of Inventory Route16

CLASSIFICATION

101 Parallel Str DsgnN103 Temp Str Dsgn20 Toll3

22Owner0421 Maintain Rsp04Original Design No.0

FRA No. (If RR Bridge)102 Direction of Traffic2

Bridge Data Tab New

Bridge Name:

Bridge ID: 2ND ST SOUTH-WEST

8. FHWA No. 6220

90. Inspection Date: 12/29/2023

9. Location: T88N-R9W-S04-N90.9-E87.3

City: INDEPENDENCE

43. Main Structure Type (A): 02 - Stringer/Multi-beam or Girder

3. County: 010 - Buchanan

43. Main Structure Type (B): 4 - Steel Continuous

Report Type Routine

45 No. Spans Main Unit 3

Inspector Name: Alex Davis

Farm to Market:

22. Owner: 04 - City or Municipal Highway Agency

Est. Remaining Life: 15 Yrs. 27. Year Built: 1968

106. Yr. Reconst.: 0

Long.: -91.89440661 29 ADT: 2834

Scour Critical 8 - Stable - Excellent Condition

Lat.: 42.46764302 28. Lanes On: 2

41 Open, Posted Or Closed A

Inspection Agency: Buchanan County

LOAD POSTING TABLE

Type	Recommended Tons	Actual Tons	REMARKS
Straight Truck or Gross Weight Limit			
Truck - Semi-trailer			
Truck - Full- trailer			
Emergency Vehicle			
Implement of Husbandry			

SIGNING

Type	Legibility	Visibility	REMARKS
Advanced Posting			<u>NONE</u>
Posted Loads			<u>NONE</u>
Narrow			<u>NONE</u>
One Lane			<u>NONE</u>
Object Markers	<u>Good</u>	<u>Good</u>	<u>NONE</u>

APPROACH

	CONDITION RATING	REMARKS
1. Approach Slab	<u>5</u>	<u>SPALLING AT DECK ENDS.</u>
2. Relief Joints	<u>5</u>	
3. Approach - Guardrail	<u>N</u>	
Embankment	<u>6</u>	
ITEM 72 APPROACH ROADWAY ALIGNMENT		<u>8</u>

Deck

Bridge ID: 2ND ST SOUTH-WEST

NBI 9. Location: T88N-R9W-S04-N90.9-E87.3

NBI 8. FHWA No. 6220

DECK ITEM	CONDITION RATING	REMARKS
1. Wearing Surface	5	NUMEROUS DECK SPALLS SCATTERED THROUGHOUT. SOME FILLED WITH A.C. DETRIMENTAL TO CONCRETE DECK.
2. Deck - Structural Condition	5	SCATTERED SPALLING CONCRETE WITH EXPOSED REINFORCING ON EDGES OF DECK. CRACK DEVELOPING ON OUTSIDE EDGE OF DECK AT COLD JOINT WHERE CURB MEETS SLAB. SEVERAL AREAS OF TRANSVERSE CRACKING ON SURFACE OF SLAB. ISOLATED TRANSVERSE CRACKING WITH EFFLORESCENCE ON UNDERSIDE OF SLAB.
3. Curbs	5	SPALLING CONCRETE WITH EXPOSED REINFORCING ON CURBS.
4. Median	N	
5. Sidewalks	4	EAST SIDEWALK SETTLED. 6" GAPS BETWEEN SIDEWALK AND BRIDGE FILLED WITH ASPHALT AT BOTH APPROACHES, CAUSING TRIPPING HAZARDS.
6. Railings	5	ANCHOR BOLTS LOOSE/NUTS MISSING AT E POST ON SOUTH FENCE. SCATTERED DINGS AND DENTS TO STEEL RAILINGS. CORRODED RAIL POST BASES, TOTAL SECTION LOSS OF BOTTOM RAIL AT (5) LOCATIONS.
7. Paint	N	
8. Drains	4	NO DRAIN EXTENSIONS. DRAINS CORRODED WITH NUMEROUS PERFORATIONS. RECOMMEND DRAIN EXTENSIONS.
9. Utility Connections	5	CROSSING OVER WEST ABUTMENT.
10. Joint leakage	5	LEAKAGE AT BOTH ABUTMENTS.
11. Expansion Joints and Devices	4	EXPANSION JOINTS DAMAGED ON BOTH APPROACH SLABS, WORST AT WEST APPROACH. VOIDS AT EAST JOINT.
General Comments		

(Remark required for NBI rating of 5 or less)

ITEM 58 DECK CONDITION RATING	5	DECK SPALLS SCATTERED THROUGHOUT. SPALLING CONCRETE WITH EXPOSED REINFORCING ON CURBS AND EDGES OF DECK. CORRODING CHAIN LINK FENCE RAIL. ISOLATED TRANSVERSE CRACKING WITH EFFLORESCENCE ON UNDERSIDE OF SLAB.
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Superstructure Tab

Bridge ID: 2ND ST SOUTH-WEST

NBI 8. FHWA No. 6220

NBI 9. Location: T88N-R9W-S04-N90.9-E87.3

SUPERSTRUCTURE	CONDITION RATING	REMARKS
1. Bearing Devices	5	CORROSION OF BEARING PLATES AT ABUTMENTS. ROAD DEBRIS AROUND ABUTMENT BEARING DEVICES.
2. Stringers	N	
Lateral Support ()	N	
3. Girders/Beams	5	ISOLATED CORROSION WITH INITIAL SIGNS OF SECTION LOSS OF WEBS AND BOTTOM FLANGE AT ABUTMENTS AND DRAIN LOCATIONS.
Lateral Support ()	5	DIAPHRAGMS AT 1/4 POINTS IN EXTERIOR SPANS, 1/5 POINTS IN CENTER SPAN. CORROSION WITH DELAMINATIONS IN WEST ABUTMENT DIAPHRAGMS.
4. Floor Beams	N	
Lateral Support ()	N	
5. Trusses - General	N	
Portals	N	
Bracing	N	
6. Paint	5	PAINT STARTING TO FAIL THROUGHOUT.
7. Rivets or Bolts	6	
8. Welds - Cracks	6	
9. Rust	5	ISOLATED SURFACE CORROSION AND INITIAL SIGNS OF SECTION LOSS IN BEAMS. DELAMINATIONS IN WEST ABUTMENT DIAPHRAGMS.
10. Timber Decay	N	
11. Concrete Cracking	N	
12. Collision Damage	8	
13. Deflection Under Load	7	
14. Alignment of Members	8	
15. Vibration Under Load	7	

General Comments

(Remark required for NBI rating of 5 or less)

ITEM 59 SUPERSTRUCTURE CONDITION RATING	5	PAINT FAILING ON BEAMS AND DIAPHRAGMS. ISOLATED SURFACE CORROSION AND INITIAL SIGNS OF SECTION LOSS AT ABUTMENTS AND DRAIN LOCATIONS ON BEAMS. DELAMINATIONS IN WEST ABUTMENT BEAM DIAPHRAGMS. CORROSION OF ABUTMENT BEAM
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BEARINGS. RECOMMEND REPAINTING SUPERSTRUCTURE AND
CLEANING BEARINGS.

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Substructure Tab

NBI 8. FHWA No. 6220

Bridge ID: 2ND ST SOUTH-WEST

NBI 9. Location: T88N-R9W-S04-N90.9-E87.3

Substructure		Condition Rating	Remarks
1. Abutments -	Caps	6	
	Wings	6	
	Backwall	6	CONCRETE
	Footing	N	
	Piles		NOT EXPOSED.
	Scour/Erosion	6	
	Settlement	7	
2. Piers or Bents -	Caps	7	
	Columns	6	
	Footings	6	TOP OF FOOTINGS VISIBLE.
	Piles		NOT EXPOSED.
	Scour	5	TOP OF STREAMBED <1 FT. BELOW TOP OF FOOTINGS.
	Settlement	8	
3. Concrete Cracking		6	
4. Steel Corrosion		7	
5. Timber Decay		N	
6. Debris on Seats		5	ROAD DEBRIS AROUND ABUTMENT BEARINGS.
7. Paint		N	
8. Collision Damage		8	

General Comments

(Remark required for NBI rating of 5 or less)

Item 60 Substructure Condition Rating 7

MINOR CRACKING THROUGHOUT.

Channel Protection Tab

NBI 8. FHWA No. 6220 Bridge ID: 2ND ST SOUTH-WEST

NBI 9. Location: T88N-R9W-S04-N90.9-E87.3

Channel and Channel Protection	Condition Rating	Remarks
1. Channel Scour	6	STREAMBED <1' BELOW PIER FOOTINGS.
2. Embankment Erosion	6	EROSION AT EAST EMBANKMENT WITH EXPOSED ENGINEERING FABRIC.
3. Drift	7	
4. Vegetation	7	
5. Channel Change	7	WATERWAY FLOWS STRAIGHT THROUGH ALL EAST 1/4 OF WEST SPAN, CENTER SPAN, AND WEST 1/4 OF EAST SPAN.
6. Fender System	N	
7. Spur Dikes and Jetties	N	
8. Riprap	6	EMBANKMENT PROTECTED WITH REVETMENT. POURED CONCRETE SLOPE PROTECTION AT EAST ABUTMENT WITH EXPOSED ENGINEERING FABRIC.
9. Adequacy of Opening	7	
General Comments		

Item 61 Channel / Channel Protection Condition Rating

(Remark required for NBI rating of 5 or less)

7

Drainage Area 1050 square miles

Item 113 Scour Critical Bridges 8

Scour Critical Bridge

Scour Plan of Action (POA) Implemented for Bridges with Item 113 coded 0, 1, 2, or 3 (Upload POA):

Scour Analysis (Upload Analysis PDF): ☒ Level A ☐ Level B ☐ Level C

Bridge with Unknown Foundation

Unknown Foundation Analysis (Upload Analysis PDF): ☐ Level A ☐ Level B

Unknown Foundation Risk Level:

Plan of Action (POA) Implemented for Unknown Foundation determined to be Moderate or High Risk (Upload POA):

Underwater Inspection Type

Underwater Inspection Type Comment

Load Rating Bridge Report Tab

FHWA # (Item 8): 006220

Report By: COURTNEY WAND

Date: 12/01/2020

BRIDGE ID: 2ND ST SOUTH-WEST

Year Built (Item 27): 1968

Year Reconstructed (Item 106): 0

Bridge Str. Type (Item 43): 402

4 - Steel Continuous

02 - Stringer/Multi-beam or Girder

Str Length (Item 49): 253

Width C-C (Item 51): 28.2

No. Spans Main Unit (Item 45): 3

Total Spans:

Structural Inventory and Appraisal:

Design Load (Item 31): 4 - H 20

Lanes: Multi-Lane

Operating Rating (Item 64): 1.36

Rating Method (Item 63): 8

Operating Rating is controlled by: FLEXURE

critical location

INT. BEAM AT PIER

Inventory Rating (Item 66): 1.05

Rating Method (Item 65): 8

Inventory Rating is controlled by: FLEXURE

critical location

INT. BEAM AT PIER

Comment:

1/2" INTEGRAL WEARING SURFACE DEDUCTED FROM COMPOSITE SECTION CAPACITY.
ADDITIONAL THICKENED 5' WALKWAY DEAD LOAD WAS ASSUMED TO BE CARRIED BY THE
WALKWAY BEAM.

☒ Calculations attached

Deck (Item 58): 5

Superstructure (Item 59): 5

Substructure (Item 60): 7

Culvert (Item 62): N




Bridge Posting (Item 70): 5

Posting Status (Item 41): A

[Iowa Load Rating Vehicles](#)

Design Standard
(If applicable):

Restriction Description:
(If applicable)

Load Rating Table								Recommended Posting	<u>No Posting Required</u>
Load Type	One Lane Traffic				Multi Lane Traffic				
	Type	Tons	Type	Tons	Type	Tons	Type	Tons	Posting Sign
Straight Truck	4	<input type="text"/>	3	<input type="text"/>	4	53.2	3	<input type="text"/>	
	SU4	<input type="text"/>	SU5	<input type="text"/>	SU4	52	SU5	54	
	SU6	<input type="text"/>	SU7	<input type="text"/>	SU6	55	SU7	56	
Truck - Semi-Trailer	3S3A	<input type="text"/>	3S2	<input type="text"/>	3S3A	72.5	3S2	<input type="text"/>	
	3S3B	<input type="text"/>	4S3	<input type="text"/>	3S3B	97.7	4S3	92.2	
Truck - Full-Trailer	3-3	<input type="text"/>	5-2	<input type="text"/>	3-3	71.2	5-2	<input type="text"/>	
Emergency Vehicle	EV2	<input type="text"/>	EV3	<input type="text"/>	EV2	<input type="text"/>	EV3	<input type="text"/>	Emergency Vehicle
Implement of Husbandry	IOH	<input type="text"/>			IOH	<input type="text"/>		<input type="text"/>	Implement of Husbandry

Permit Vehicle Adequacy:

90K

NR

100K Crane Axle Group

NR

136K A

NR

136K B

NR

156K

NR

All Systems Permit

FHWA # (Item 8): 006220

Report By: COURTNEY WAND

Date: 12/01/2020

BRIDGE ID: 2ND ST SOUTH-WEST

STRUCTURAL RATING

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and I am duly licensed Professional Engineer under the laws of the State of Iowa.

12/01/2020

Signature

Date

Printed or Typed Name COURTNEY WAND

License No.: 23610 My license renewal date is December 31, 2021

Comments

RATING ASSUMES SUPERSTRUCTURE CONTROLS CAPACITY. RATING MUST BE RE-EVALUATED UPON SIGNS OF DISTRESS OF ANY STRUCTURAL BRIDGE COMPONENT.

LOAD RATING EVALUATION FORM

Name:	Alex Davis	Bridge ID	2ND ST SOUTH-WEST
Main Span Materials & Design (Item 43):	402	FHWA No:	6220
County / City:	Buchanan County / Independence	Date:	12/29/2023
Location:	T88N-R9W-S04-N90.9-E87.3	ADT:	2834

The purpose of this evaluation form is to determine if the condition and configuration of the structure is still consistent with the load rating calculations that were completed during a previous bridge inspection. If the answer to all of these evaluation items is "No" then recalculation is not required. IF the answer to any of these evaluation items is "Yes", a Professional Engineer, licensed in the State of Iowa, must evaluate if re-calculation of the load ratings for this structure is required. Answer "No" or "Yes" to the following.

Was the bridge re-rated as part of this inspection?

If "no", check the following criteria. If "yes", no additional information is needed. No

If any of the following criteria are "Yes", the bridge shall be load rated:

1. The bridge is new. No
2. The bridge has undergone a major rehabilitation that affects the controlling structural element.
This may include the deck, superstructure, or substructure elements. No
3. Item 58, Deck; Item 59, Superstructure; Item 60, Substructure; or
Item 62, Culvert; code decreased to 3 or less. No
4. Moderate to significant changes to the superstructure dead load occurred.
This may include the addition of an overlay or changes of 2 or more inches of overburden
such as earth or rock since the previous rating. No
5. Lateral support of the beams changed. No
6. Five feet or more of scour/erosion occurred at the foundations due to flooding events or
progressive down cutting. No

If "yes", the bridge shall be evaluated for structural capacity of the foundations.

If any of the following criteria are "Yes", the bridge shall be considered for re-load rating:

1. Item 58, Deck; Item 59, Superstructure; Item 60, Substructure; or Item 62, Culvert; coding
decreased to 4. No
2. New information found during the most recent field inspection affects load capacity. No
3. Additional investigation, testing, or analysis was done and found issues that may affect load
capacity. No
4. Item 63 and 65, Rating Method, is coded 5. No

Does the bridge need to be re-rated?

If yes, re-rate the bridge and update the Bridge Load Rating Report No

Load Rating Evaluation Comments:

Pictures

NBI Number: 6220
Facility Carried: 2ND ST SW

Bridge ID: 2ND ST SOUTH-WEST
Feature(s) Intersected: WAPSIPINICON RIVER



Photo Number: 1

Photo Taken: 12/29/2023

Road view looking West

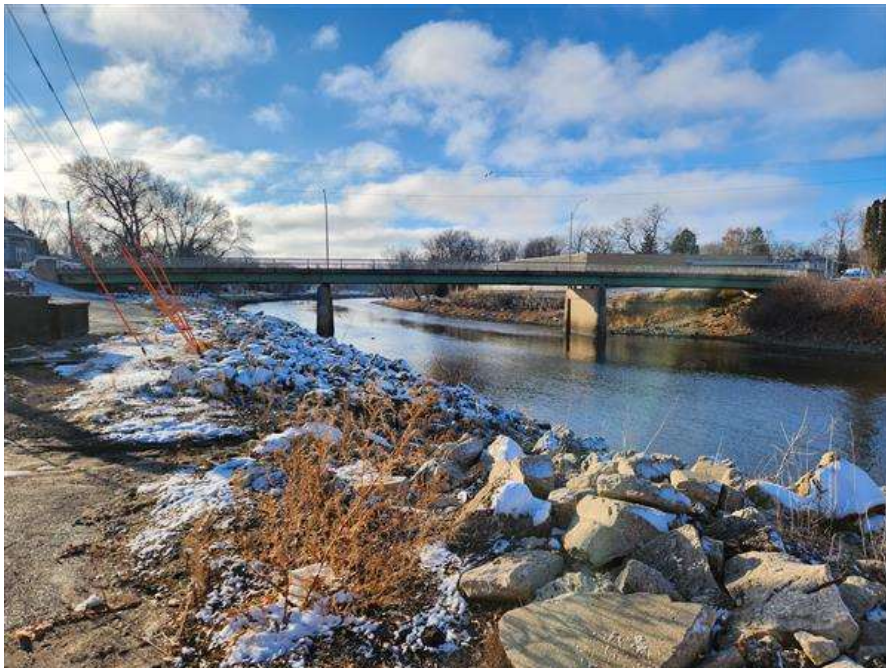


Photo Number: 2

Photo Taken: 12/29/2023

Side view looking South

Pictures

NBI Number: 6220
Facility Carried: 2ND ST SW

Bridge ID: 2ND ST SOUTH-WEST
Feature(s) Intersected: WAPSIPINICON RIVER



Photo Number: 3

Photo Taken: 12/29/2023

Underside of bridge looking East



Photo Number: 4

Photo Taken: 12/29/2023

Spalls in deck surface throughout

Pictures

NBI Number: 6220
Facility Carried: 2ND ST SW

Bridge ID: 2ND ST SOUTH-WEST
Feature(s) Intersected: WAPSIPINICON RIVER



Photo Number: 5

Photo Taken: 12/29/2023

Transverse cracking of deck surface scattered throughout



Photo Number: 6

Photo Taken: 12/29/2023

Scattered concrete spalls with exposed reinforcing on South outside edge of deck

Pictures

NBI Number: 6220
Facility Carried: 2ND ST SW

Bridge ID: 2ND ST SOUTH-WEST
Feature(s) Intersected: WAPSIPINICON RIVER



Photo Number: 7

Photo Taken: 12/29/2023

Crack developing in edge of slab where curb meets deck (typical of both sides)



Photo Number: 8

Photo Taken: 12/29/2023

Scattered traverse cracking with efflorescence on underside of deck

Pictures

NBI Number: 6220
Facility Carried: 2ND ST SW

Bridge ID: 2ND ST SOUTH-WEST
Feature(s) Intersected: WAPSIPINICON RIVER



Photo Number: 9

Photo Taken: 12/29/2023

Cracking and spalling of curbs with exposed reinforcing scattered throughout



Photo Number: 10

Photo Taken: 12/29/2023

Settlement of East sidewalk approach causing tripping hazard

Pictures

NBI Number: 6220
Facility Carried: 2ND ST SW

Bridge ID: 2ND ST SOUTH-WEST
Feature(s) Intersected: WAPSIPINICON RIVER



Photo Number: 11

Photo Taken: 12/29/2023

West expansion joint cover at North curb damaged



Photo Number: 12

Photo Taken: 12/29/2023

Bottom rail completely corroded through in chain link fence rail (typical in several locations)

Pictures

NBI Number: 6220
Facility Carried: 2ND ST SW

Bridge ID: 2ND ST SOUTH-WEST
Feature(s) Intersected: WAPSIPINICON RIVER



Photo Number: 13

Photo Taken: 12/29/2023

Minor damage to steel railing scattered throughout



Photo Number: 14

Photo Taken: 12/29/2023

Heavy corrosion of bearing devices at abutments

Pictures

NBI Number: 6220
Facility Carried: 2ND ST SW

Bridge ID: 2ND ST SOUTH-WEST
Feature(s) Intersected: WAPSIPINICON RIVER



Photo Number: 15
Photo Taken: 12/29/2023
Heavy buildup of road debris around abutment beam bearings (typical of both sides)



Photo Number: 16
Photo Taken: 12/29/2023
Steel corrosion with delaminations on West abutment diaphragms

Pictures

NBI Number: 6220
Facility Carried: 2ND ST SW

Bridge ID: 2ND ST SOUTH-WEST
Feature(s) Intersected: WAPSIPINICON RIVER



Photo Number: 17

Photo Taken: 12/29/2023

Erosion along base of East abutment with exposed engineering fabric